

RECEIVED

AUG 13 2019

Form 3160-3
(June 2015)FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES **DISTRICT OF ARIZONA**
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM138607
1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: ☐ Hydraulic Fracturing ☒ Single Zone ☐ Multiple Zone		7. If Unit or CA Agreement, Name and No.
2. Name of Operator TAP ROCK OPERATING LLC		8. Lease Name and Well No. MONEY GRAHAM FED COM 204H 326031
3a. Address 602 Park Point Drive Suite 200 Golden CO 80401		9. API Well No. 372043 30-015-46218
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 / 904 FEL / LAT 32.0007995 / LONG -104.0011137 At proposed prod. zone NENE / 200 FNL / 946 FEL / LAT 32.0205034 / LONG -104.0009661		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
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 250 feet		13. State NM
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		20. BLM/BIA Bond No. in file FED: NMB001443
19. Proposed Depth 9700 feet / 16787 feet		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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification. |
| 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). | 6. Such other site specific information and/or plans as may be requested by the BLM. |

25. Signature (Electronic Submission)	Name (Printed/Typed) Brian Wood / Ph: (505)466-8120	Date 01/24/2019
Title President		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-5959	Date 08/09/2019
Title Assistant Field Manager Lands & Minerals		
Office CARLSBAD		

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

Conditions of approval, if any, are attached.

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

APPROVED WITH CONDITIONS
Approval Date: 08/09/2019

(Continued on page 2)

*(Instructions on page 2)

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

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

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

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

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

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 well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM connects this information to an 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 Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

Additional Operator Remarks

Location of Well

1. SHL: LOT 4 / 250 FSL / 904 FEL / TWSP: 26S / RANGE: 29E / SECTION: 32 / LAT: 32.0007995 / LONG: -104.0011137 (TVD: 0 feet, MD: 0 feet)
PPP: LOT 4 / 449 FSL / 946 FEL / TWSP: 26S / RANGE: 29E / SECTION: 32 / LAT: 32.0013444 / LONG: -104.0012395 (TVD: 9633 feet, MD: 9816 feet)
BHL: NENE / 200 FNL / 946 FEL / TWSP: 26S / RANGE: 29E / SECTION: 29 / LAT: 32.0205034 / LONG: -104.0009661 (TVD: 9700 feet, MD: 16787 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.:	2014H – MONEY GRAHAM FED COM
SURFACE HOLE FOOTAGE:	250'/S & 946'/E
BOTTOM HOLE FOOTAGE:	200'/N & 904'/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".

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



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:



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

Application Data Report

08/12/2019

APD ID: 10400037877

Submission Date: 01/24/2019

Highlighted data
reflects the most
recent changes

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM

Well Number: 204H

[Show Final Text](#)

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill

Section 1 - General

APD ID: 10400037877

Tie to previous NOS?

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: 204H

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: 204H

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:

Number: 1

MONEY GRAHAM EAST PAD

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_204H_C102_etal_010919_20190111090246.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	904	FEL	26S	29E	32	Lot 4	32.00079 95	- 104.0011 137	EDD Y	NEW MEXI CO	NEW MEXI CO	F	FEE	286 6	0	0
KOP Leg #1	50	FSL	946	FEL	26S	29E	32	Lot 4	32.00025 19	- 104.0012 492	EDD Y	NEW MEXI CO	NEW MEXI CO	F	FEE	- 622 1	909 2	908 7
PPP Leg #1	449	FSL	946	FEL	26S	29E	32	Lot 4	32.00134 44	- 104.0012 395	EDD Y	NEW MEXI CO	NEW MEXI CO	F	FEE	- 676 7	981 6	963 3



SECTION 32 TWP 26-S RGE 29-E SURVEY N.M.P.M.
COUNTY EDDY STATE NM ELEVATION 2866'
DESCRIPTION 250' FSL & 904' FEL

LATITUDE N 32.0007995 LONGITUDE W 104.0011137



SCALE: 1" = 2000'



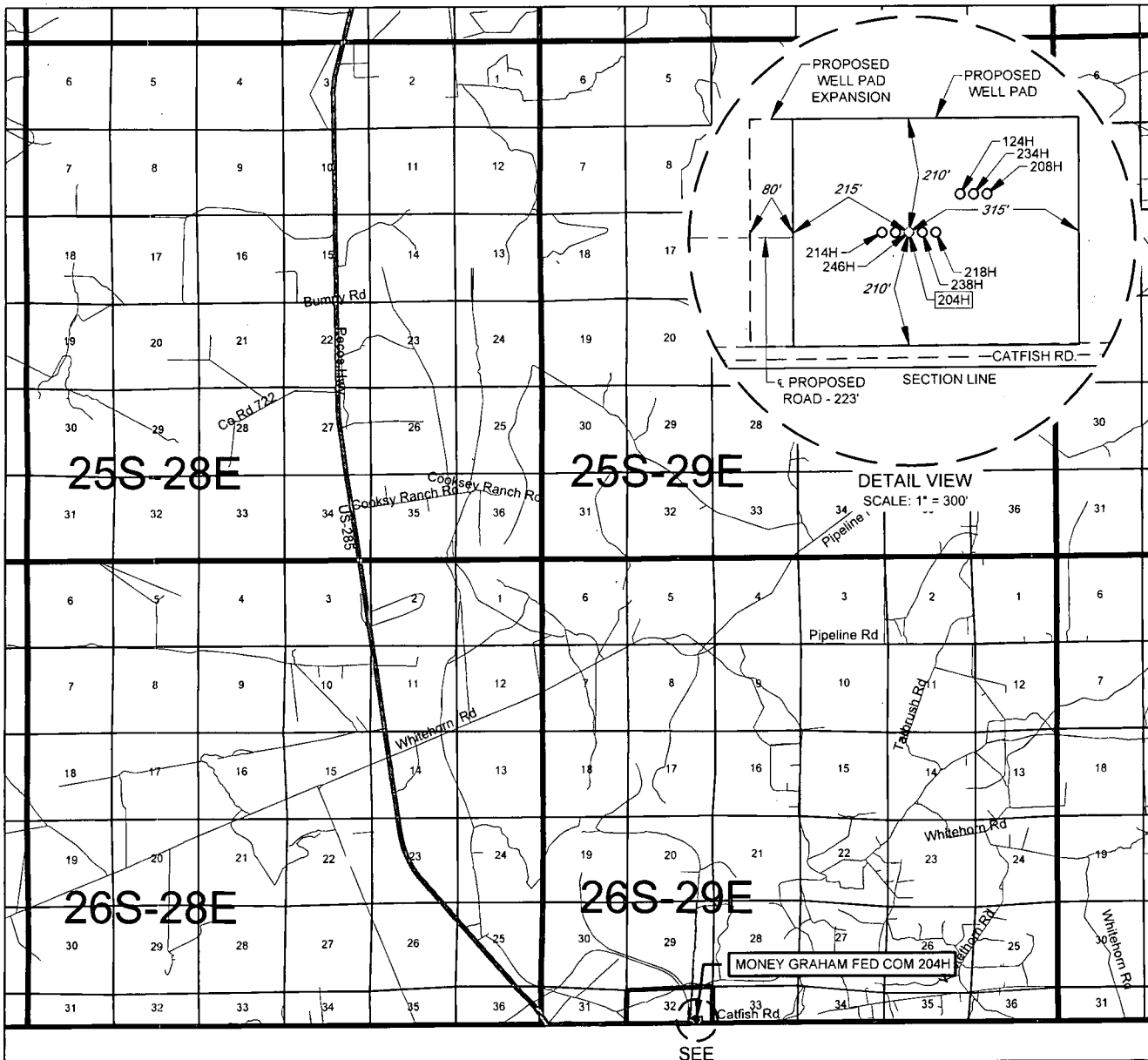
0' 1000' 2000'

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.



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

EXHIBIT 2 VICINITY MAP



SEE
DETAIL



LEASE NAME & WELL NO.: MONEY GRAHAM FED COM 204H

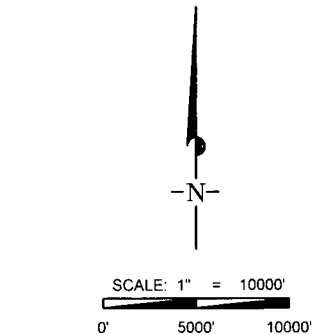
SECTION 32 TWP 26-S RGE 29-E SURVEY N.M.P.M.
COUNTY EDDY STATE NM
DESCRIPTION 250' FSL & 904' FEL

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 ±215 FEET WEST OF THE LOCATION.

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.

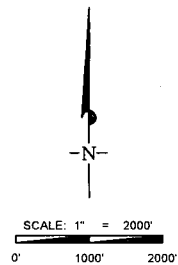
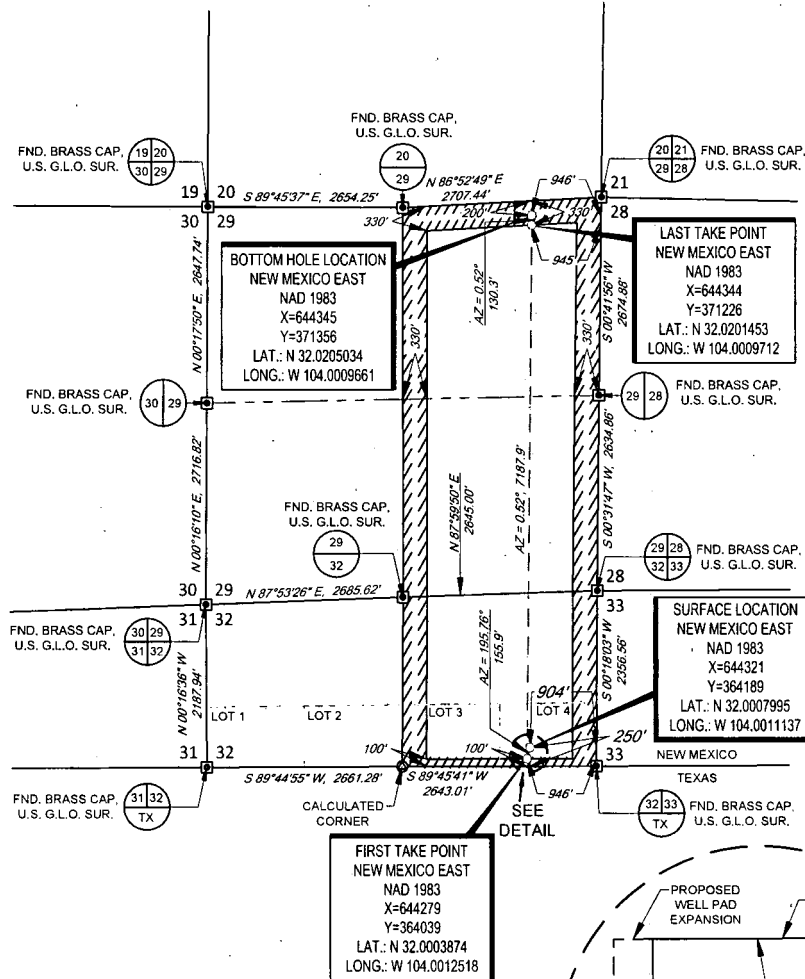


1400 EVERMAN PARKWAY, Ste. 146 • FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 • FAX (817) 744-7554
2903 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
WWW.TOPOGRAPHIC.COM

TAP ROCK

EXHIBIT 2A

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



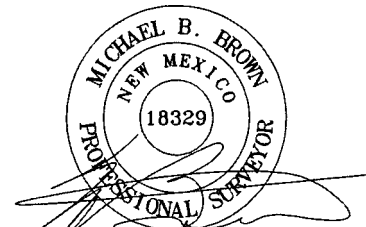
LEASE NAME & WELL NO.: MONEY GRAHAM FED COM 204H

SECTION 32 TWP. 26-S RGE 29-E SURVEY N.M.P.M.
COUNTY EDDY STATE NM
DESCRIPTION 250' FSL & 904' 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 ±215 FEET WEST 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

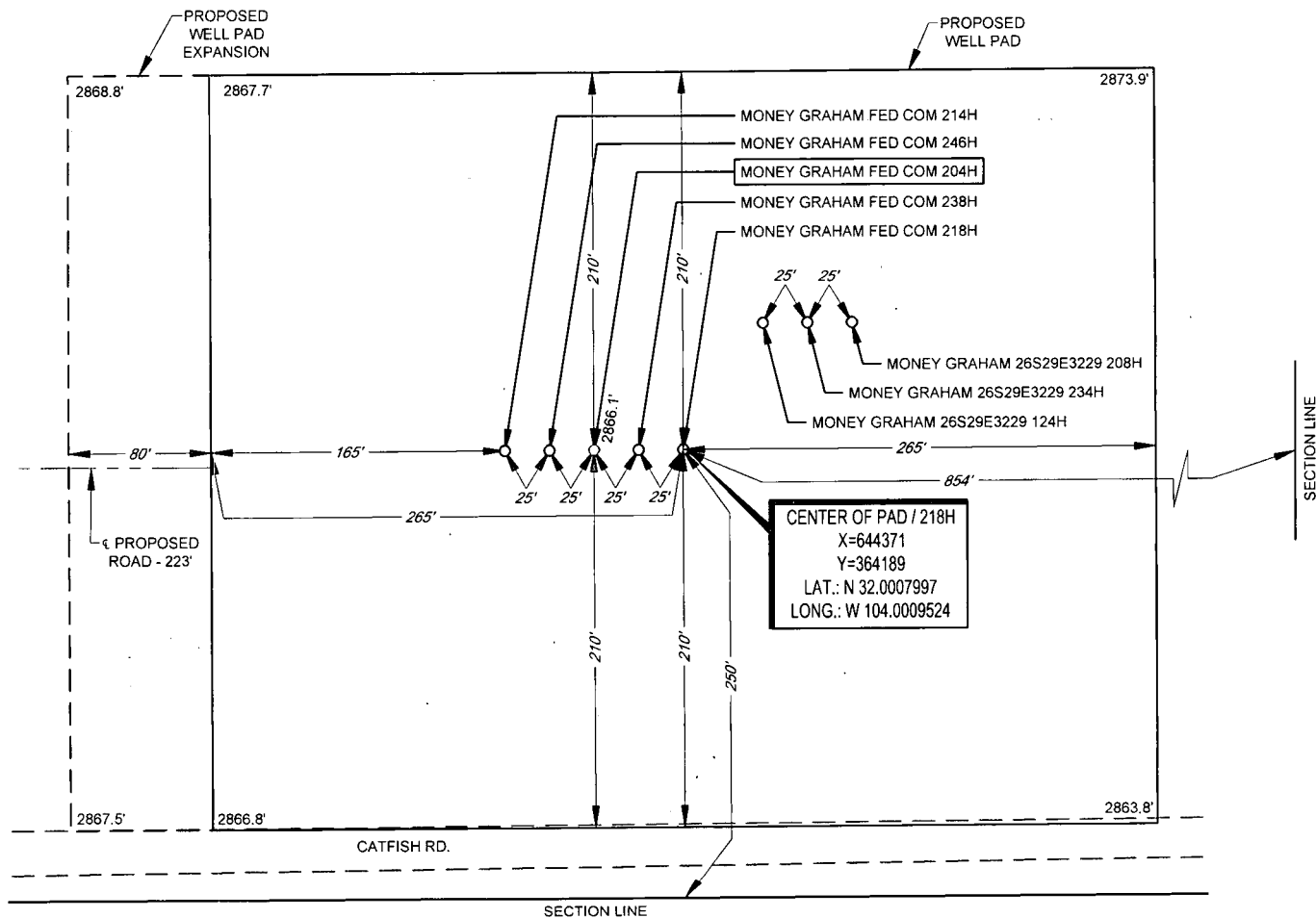
TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
1400 EVERMAN PARKWAY, Ste. 146 • FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 • FAX: (817) 744-7554
2903 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX: (432) 682-1743
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EXHIBIT 2B



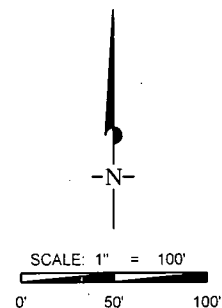
SECTION 32, TOWNSHIP 26-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

DETAIL VIEW
SCALE: 1" = 100'



LEASE NAME & WELL NO.: MONEY GRAHAM FED COM 204H
204H LATITUDE N 32.0007995 204H LONGITUDE W 104.0011137

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.

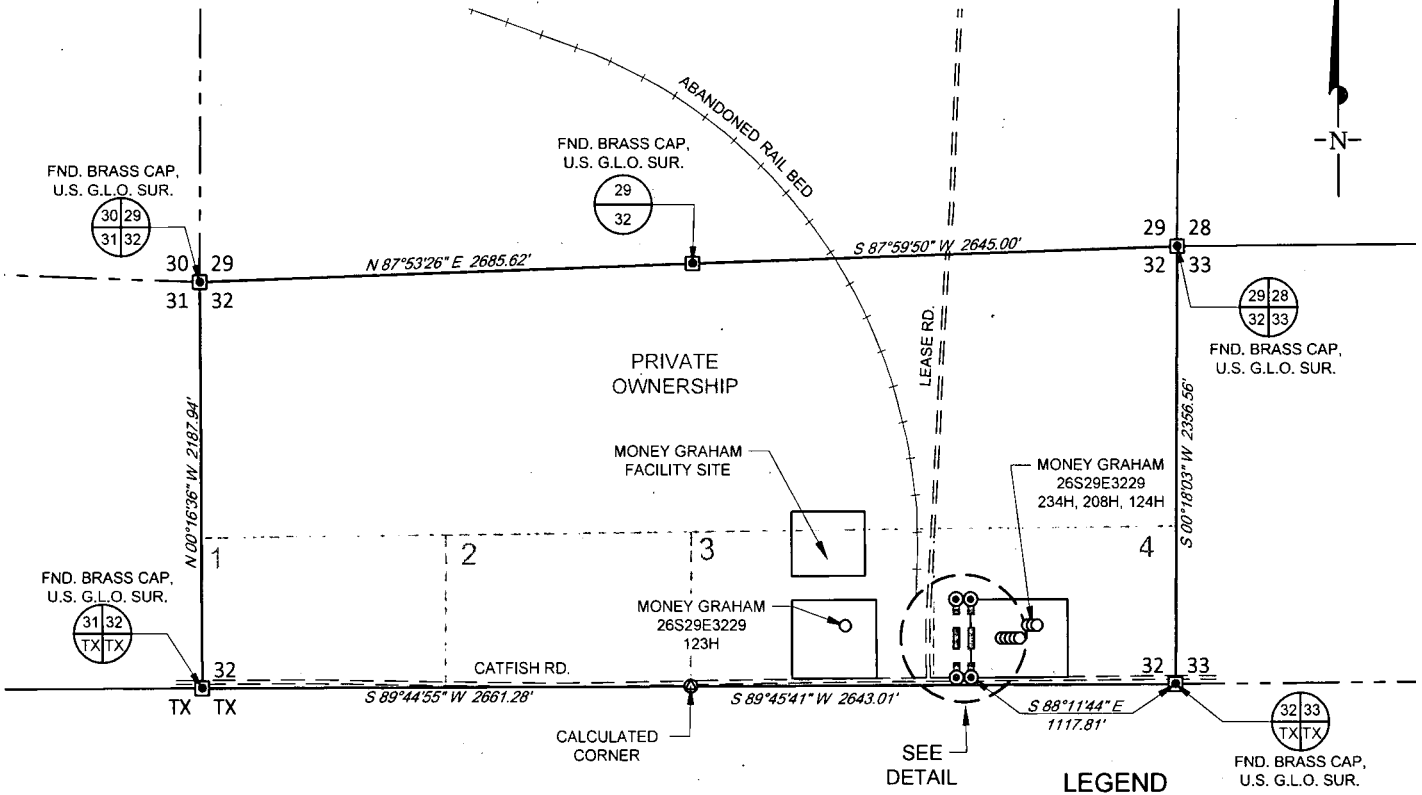
TOPOGRAPHIC
LOYALTY INNOVATION LEGACY

1400 EVERMAN PARKWAY, Ste. 146 • FT. WORTH, TEXAS 76140
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TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
WWW.TOPOGRAPHIC.COM

SCALE: 1" = 1000'

0' 500' 1000'

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



**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.

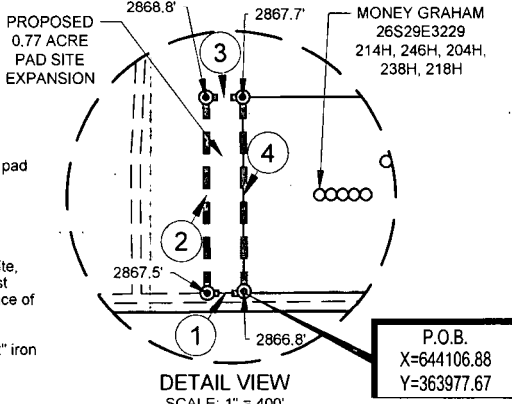
BEGINNING at a 1/2" iron rod with cap marked "TOPOGRAPHIC" set for the Southeast corner of this site, whence a U.S. G.L.O. brass cap found for the Southeast corner of said Section 32, bears S 88°11'44" E, a distance of 1,117.81 feet;

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.



LEGEND

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

LINE TABLE

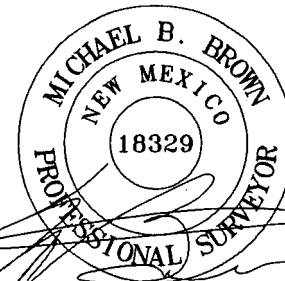
LINE	BEARING	DISTANCE
1	S 89°45'18" W	80.00'
2	N 00°14'42" W	420.00'
3	N 89°45'18" E	80.00'
4	S 00°14'42" E	420.00'

**TAP
ROCK**



TOPOGRAPHIC
LOYALTY INNOVATION LEGACY

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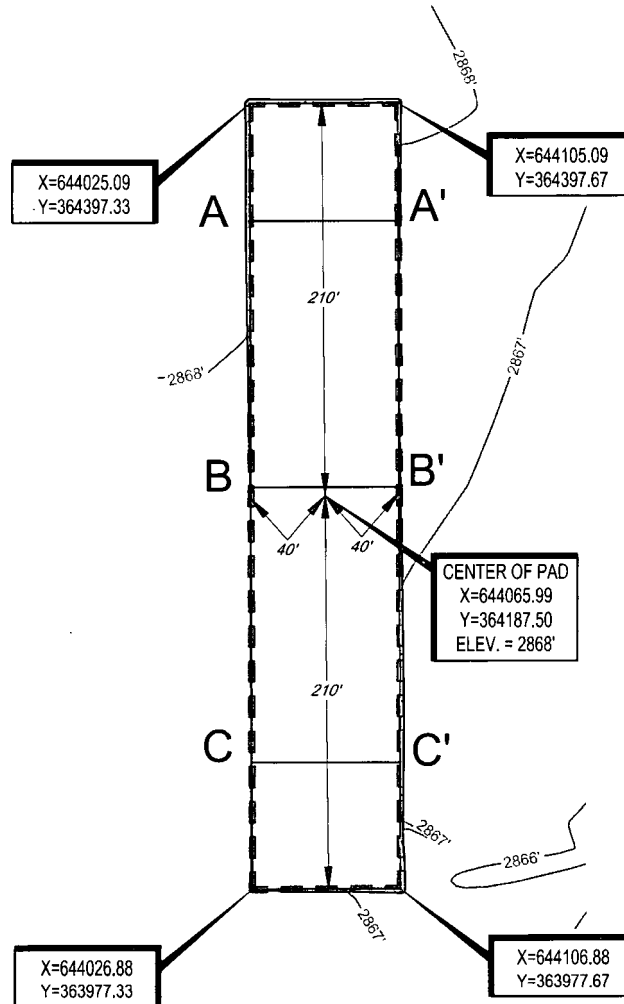
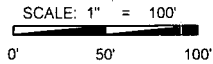
Michael Blake Brown, P.S. No. 18329
DECEMBER 12, 2018

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

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



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

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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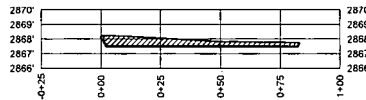
MONEY GRAHAM 26S29E3229 EXPANSION PAD SITE	REVISION:		NOTES: 1. ORIGINAL DOCUMENT SIZE: 8.5" X 11" 2. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM OF 1983, EAST ZONE, U.S. SURVEY FEET.
	INT	DATE	
DATE: 12/10/18			
FILE: CD\MONEY GRAHAM_26S29E3229_PAD_SITE_EXPANSION			
DRAWN BY: EAH			
SHEET: 1 OF 3			

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

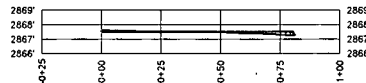
PRELIMINARY
SECTION 32, TOWNSHIP 26-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

TAP

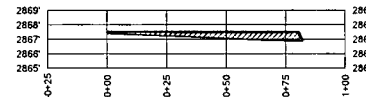
A-A'



B-B'



C-C'



1400 EVERMAN PARKWAY, Ste. 146 • FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 • FAX (817) 744-7554
2803 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
WWW.TOPOGRAPHIC.COM

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

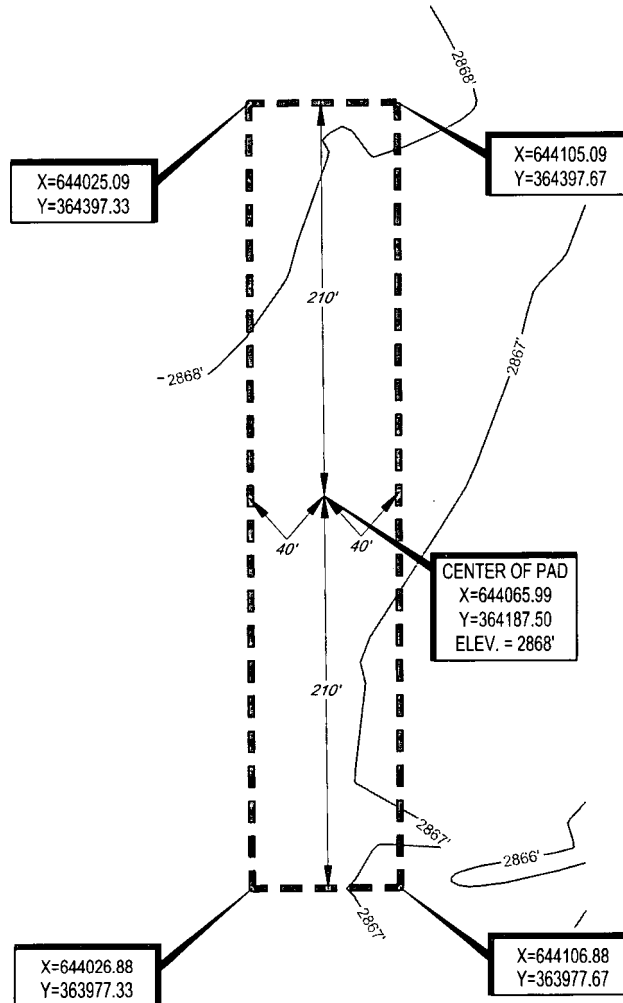
S:\SURVEY\TAPROCK\MONEY_GRAHAM_UNIT\FINAL_PRODUCT\SCD\MONEY_GRAHAM_26S29E3229_PAD_SITE_EXPANSION.DWG 12/11/2018 1:42:21 PM kmahery

SCALE: 1" = 100'

0' 50' 100'

PRELIMINARY

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



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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2903 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
WWW.TOPOGRAPHIC.COM

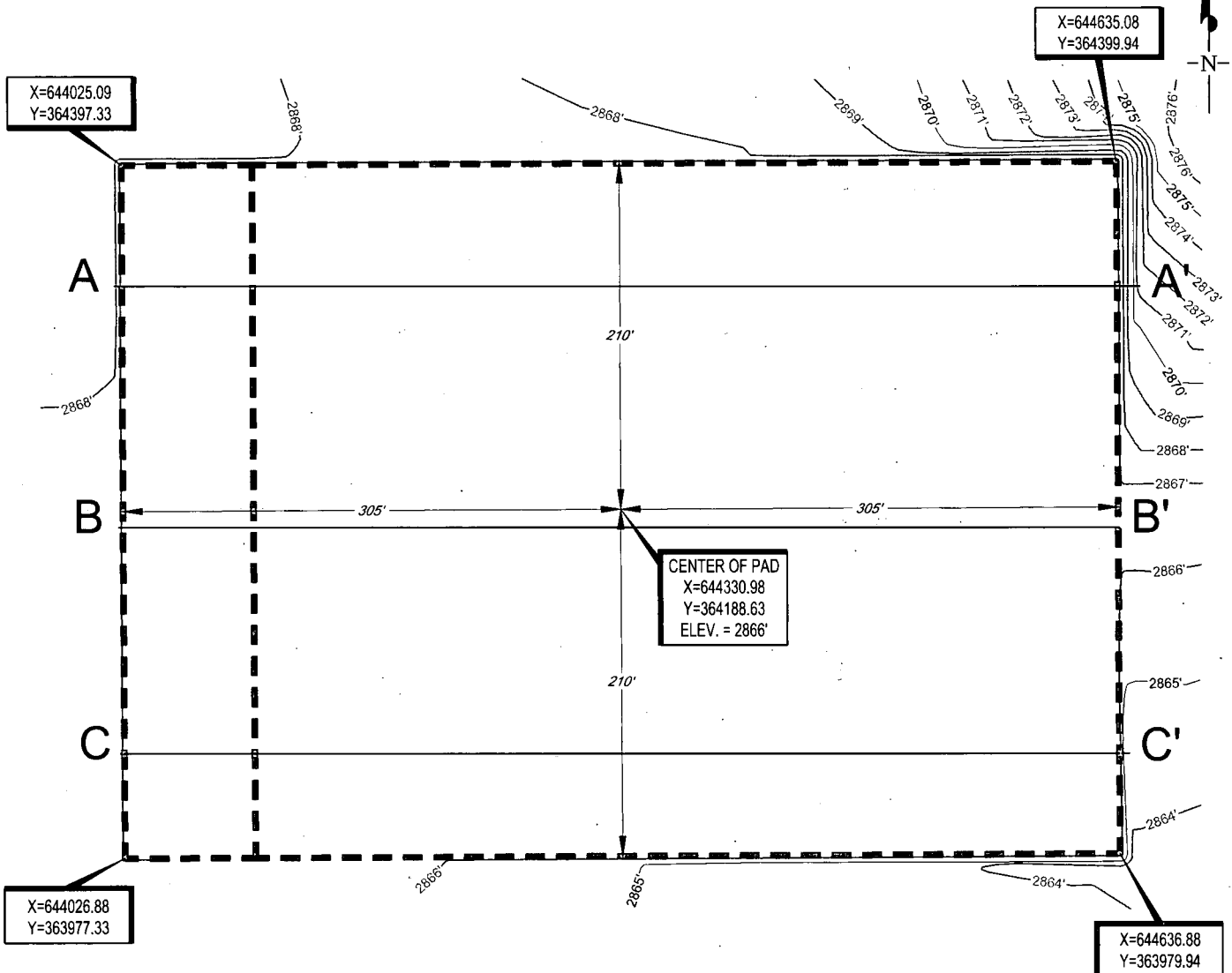
TAP
ROCK

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

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

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

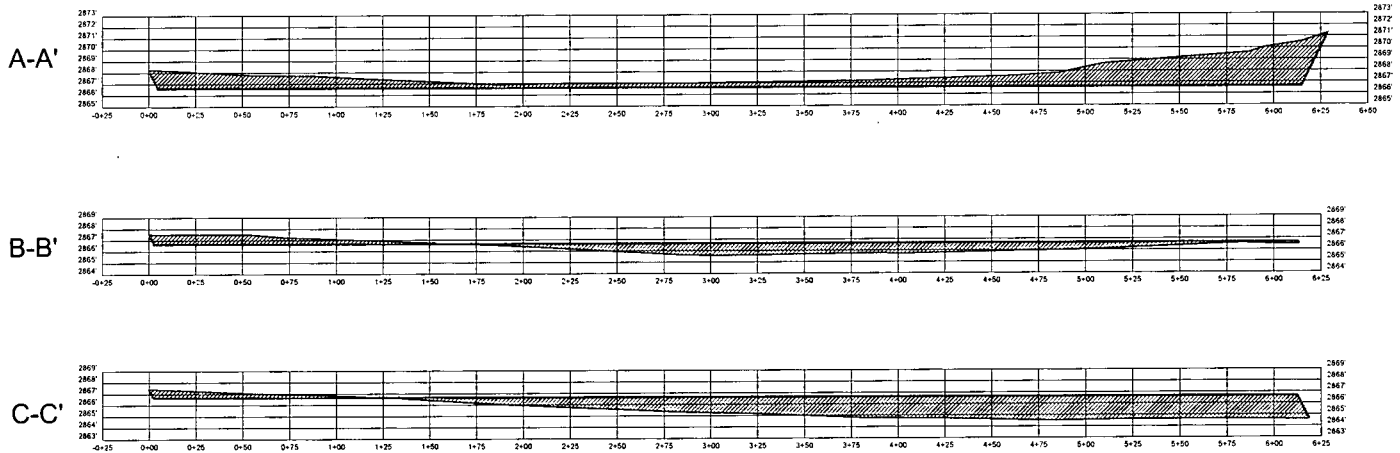
TAP
ROCK

MONEY GRAHAM FED COM EXPANSION PAD SITE	REVISION:		NOTES:
	MML	12/12/18	
DATE: 12/10/18			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.
FILE: CD_MONEY_GRAHAM_FED_COM_SITE_EXPANSION_REV1			
DRAWN BY: EAH			
SHEET: 1 OF 3			

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

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

TAP
ROCK



1400 EVERMAN PARKWAY, Ste. 140 • FT. WORTH, TEXAS 76140
TELEPHONE (817) 746-7032 • FAX (817) 746-7034
5003 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE (432) 682-1653 OR (800) 767-1053 • FAX (432) 682-1743
WWW.TOPOGRAPHIC.COM

MONEY GRAHAM FED COM EXPANSION PAD SITE	REVISION:		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.
	MML	12/12/18	
DATE: 12/10/18			
FILE: 00 MONEY GRAHAM FED COM SITE DESIGN.DWG			
DRAWN BY: EAH			
SHEET: 2 OF 3			

C:\SURVEY\TAPROCK\MONEY_GRAHAM_FED_COM\PRODUCT\0200_MONEY_GRAHAM_FED_COM_SITE_EXPANSION_REV1.DWG 12/12/2018 11:17 AM tmmhwy

PRELIMINARY

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

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

X=644635.08
Y=364399.94

X=644025.09
Y=364397.33

CENTER OF PAD
X=644330.98
Y=364188.63
ELEV. = 2866'

X=644026.88
Y=363977.33

X=644636.88
Y=363979.94

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

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.

DATE: 12/10/18

FILE: CD\MONEY_GRAHAM_FED_COM_SITE_EXPANSION_REV1

DRAWN BY: EAH

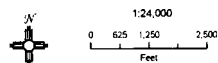
SHEET: 3 OF 3

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

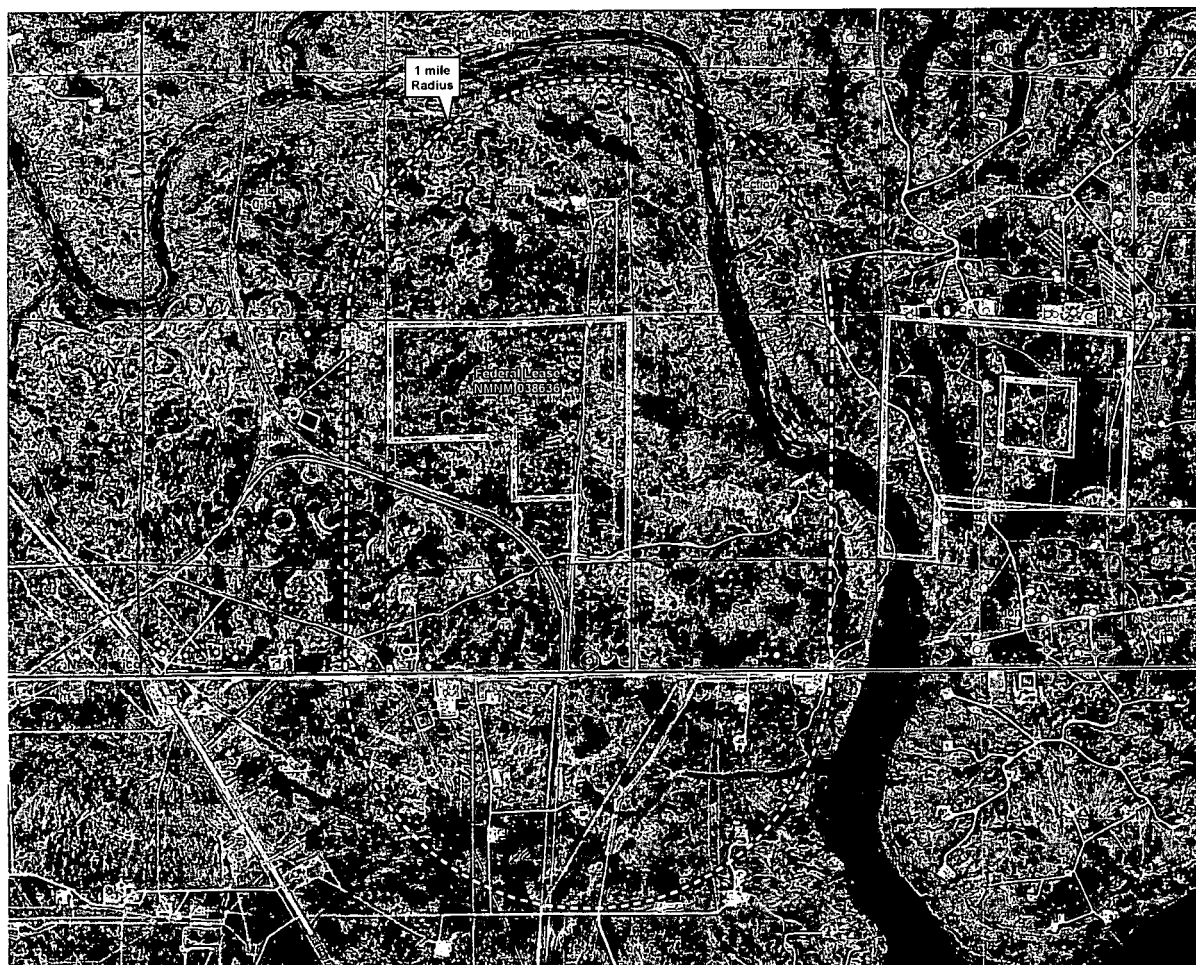
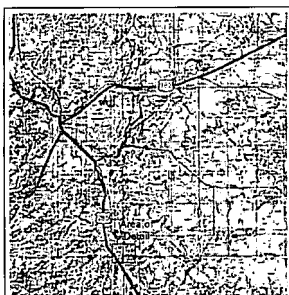
- Oil - Active
- Oil - New
- Oil - TA
- Oil - P&A
- ✕ Gas - Active
- ✕ Gas - New
- ✱ Gas - P&A
- ✦ SWD - Active
- ⊙ Proposed SHL
- ▽ Proposed BHL
- - - Proposed Wellbore
- ▭ BLM
- ▭ STATE
- ▭ PRIVATE



NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST

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





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

Drilling Plan Data Report

08/12/2019

APD ID: 10400037877

Submission Date: 01/24/2019

Highlighted data
reflects the most
recent changes

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM

Well Number: 204H

[Show Final Text](#)

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	QUATERNARY	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	2392		NATURAL GAS,OIL	N
5	BELL CANYON	19	2847	2848		NATURAL GAS,OIL	N
6	BRUSHY CANYON	-1970	4836	4839		NATURAL GAS,OIL	N
7	BRUSHY CANYON	-1970	4836	4839		NATURAL GAS,OIL	N
8	BONE SPRING	-3560	6426	6431	LIMESTONE	NATURAL GAS,OIL	N
9	BONE SPRING 1ST	-4485	7351	7356	SANDSTONE	NATURAL GAS,OIL	N
10	BONE SPRING 2ND	-5065	7931	7936	SANDSTONE	NATURAL GAS,OIL	N
11	BONE SPRING 3RD	-6307	9173	9178	SANDSTONE	NATURAL GAS,OIL	N
12	BONE SPRING 3RD	-6565	9431	9461	OTHER,SANDSTONE : W	NATURAL GAS,OIL	N
13	WOLFCAMP	-6630	9496	9575	OTHER : A	NATURAL GAS,OIL	N
14	WOLFCAMP	-6656	9522	9586	OTHER,SANDSTONE : A Y	NATURAL GAS,OIL	Y

Section 2 - Blowout Prevention

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM

Well Number: 204H

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 nipped 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_204H_10M_Choke_032918_20190111092811.pdf

BOP Diagram Attachment:

Money_204H_BOP_5M_Annular_REVISED_20190430131841.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	2700	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	2900	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	8755	0	8745	2866		8755	P-110	20	BUTT	1.13	1.15	DRY	1.51	DRY	1.51
5	INTERMEDIATE	8.75	7.625	NEW	API	N	2700	8955	2700	8945			6255	P-110	29.7	OTHER - Wedge 513	1.13	1.15	DRY	1.51	DRY	1.51
6	PRODUCTION	6.75	5.0	NEW	API	Y	8755	16787	8745	9700			8032	P-110	18	OTHER - Wedge 521	1.13	1.15	DRY	1.51	DRY	1.51

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM

Well Number: 204H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Money_204H_Casing_Design_Assumptions_20190111093558.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Money_204H_7.625_P110_Casing_Spec_20190111093754.pdf

Casing Design Assumptions and Worksheet(s):

Money_204H_Casing_Design_Assumptions_20190111094013.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Money_204H_Casing_Design_Assumptions_20190111093657.pdf

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM

Well Number: 204H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Money_204H_5.5in_Casing_Spec_20190111094619.PDF

Casing Design Assumptions and Worksheet(s):

Money_204H_Casing_Design_Assumptions_20190111094647.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Money_204H_7.625_P110_Casing_Spec_20190111094200.pdf

Casing Design Assumptions and Worksheet(s):

Money_204H_Casing_Design_Assumptions_20190111094429.pdf

Money_204H_7.625_Casing_Spec_20190508132003.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Money_204H_5in_Casing_Spec_20190111094800.pdf

Casing Design Assumptions and Worksheet(s):

Money_204H_Casing_Design_Assumptions_20190111094934.pdf

Section 4 - Cement

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM

Well Number: 204H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Lead		0	0	0	0	0	0	0	None	None
PRODUCTION	Tail		0	0	0	0	0	0	0	None	None
INTERMEDIATE	Lead		0	0	0	0	0	0	0	None	None
INTERMEDIATE	Tail		0	0	0	0	0	0	0	None	None
SURFACE	Lead		0	580	554	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
INTERMEDIATE	Lead		1900	8955	304	2.35	11.5	714	35	TXI	Fluid loss + dispersant + retarder + LCM
INTERMEDIATE	Tail		1900	8955	175	1.39	13.2	243	35	TXI	Fluid Loss + Dispersant + Retarder + LCM
PRODUCTION	Lead		7960	16787	0	0	0	0	0	None	None
PRODUCTION	Tail		7960	16787	950	1.17	15.8	1112	10	Class H	Fluid Loss + Dispersant + Retarder + LCM

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

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

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

Describe what will be on location to control well or mitigate other conditions: 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: 204H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	580	OTHER : Fresh water spud mud	8.3	8.3							
580	2900	OTHER : Brine water	10	10							
2900	8960	OTHER : Fresh water/cut brine	9	9							
8960	16787	OIL-BASED MUD	12.5	12.5							

Section 6 - Test, Logging, Coring

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

Electric Logging Program: No open-hole logs are planned at this time for the pilot hole. GR will be collected while drilling through the MWD tools from 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: 5800

Anticipated Surface Pressure: 3666

Anticipated Bottom Hole Temperature(F): 140

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

Describe:

Contingency Plans geohazards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

Money_East_Pad_H2S_Plan_20190111140323.pdf

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM

Well Number: 204H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Money_204H_Horiztonal_Plan_010919_20190111100819.pdf

Other proposed operations facets description:

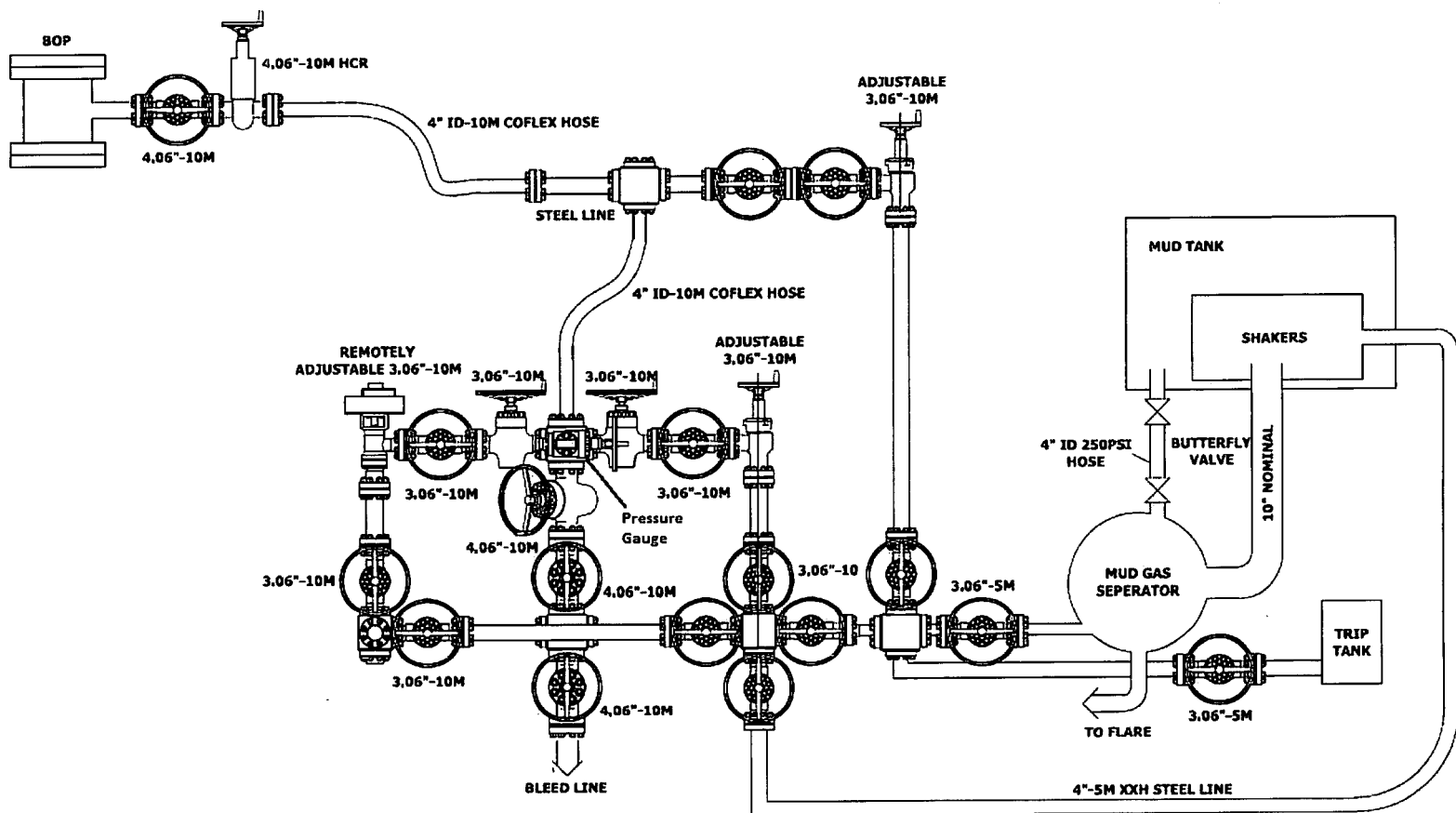
Other proposed operations facets attachment:

Money_204H_Speedhead_Specs_033018_20190111100842.pdf

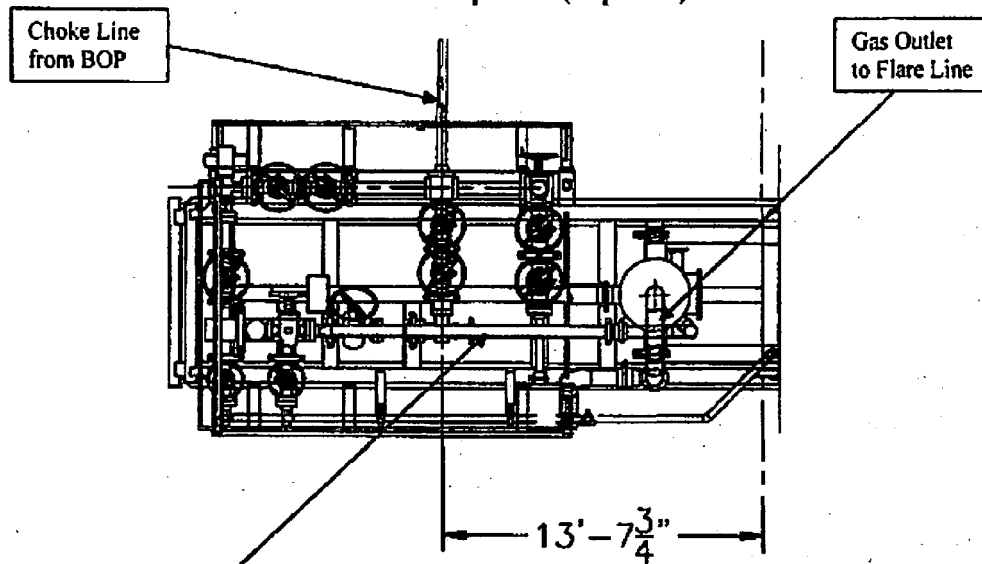
Money_204H_Drill_Plan_v3_050819_REVISED_20190508132024.pdf

Other Variance attachment:

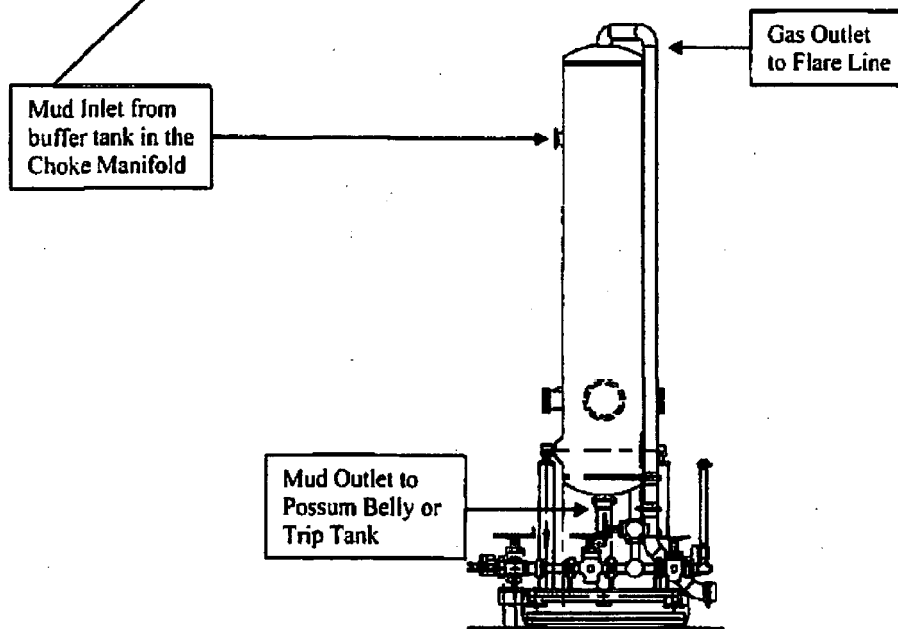
Money_204H_Casing_Variance_Request_20190111100830.pdf



Choke Manifold – Gas Separator (Top View)



Choke Manifold – Gas Separator (Side View)

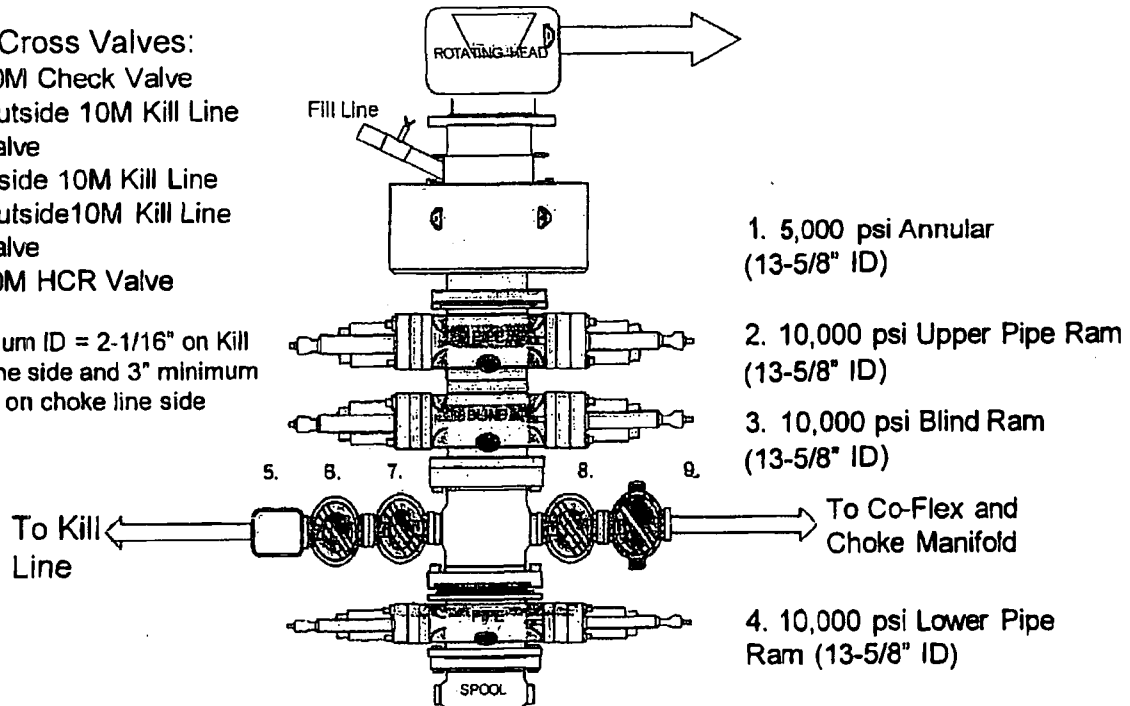


10,000 psi BOP Stack

Mud Cross Valves:

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

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



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: White
		Type	Casing	1st Band: -	2nd Band: -
				2nd Band: -	3rd Band: -
				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

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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: White
		Type	Casing	1st Band: -	2nd Band: -
				2nd Band: -	3rd Band: -
				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
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OPERATION LIMIT TORQUES

Operating Torque	47000 ft-lbs	Yield Torque	70000 ft-lbs
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Notes

This connection is fully interchangeable with:

Wedge 523® - 7.625 in. - 29.7 lbs/ft

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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
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OPERATION LIMIT TORQUES

Operating Torque	21500 ft-lbs	Yield Torque	23900 ft-lbs		
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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: White
		Type	Casing	1st Band: -	2nd Band: Pale Green
				2nd Band: -	3rd Band: -
				3rd Band: -	4th Band: -

GEOMETRY					
Nominal OD	5.000 in.	Nominal Weight	18.00 lbs/ft	Drift	4.151 in.
Nominal ID	4.276 in.	Wall Thickness	0.362 in.	Plain End Weight	17.95 lbs/ft
OD Tolerance	API				
PERFORMANCE					
Body Yield Strength	580 x1000 lbs	Internal Yield	13940 psi	SMYS	110000 psi
Collapse	14840 psi				
GEOMETRY					
Connection OD	5.359 in.	Connection ID	4.226 in.	Make-up Loss	3.620 in.
Threads per in	3.36	Connection OD Option	REGULAR		
PERFORMANCE					
Tension Efficiency	73.8 %	Joint Yield Strength	428.040 x1000 lbs	Internal Pressure Capacity	13940.000 psi
Compression Efficiency	88.7 %	Compression Strength	514.460 x1000 lbs	Max. Allowable Bending	74.5 °/100 ft
External Pressure Capacity	14840.000 psi				
MAKE-UP TORQUES					
Minimum	6100 ft-lbs	Optimum	7300 ft-lbs	Maximum	10700 ft-lbs
OPERATION LIMIT TORQUES					
Operating Torque	17300 ft-lbs	Yield Torque	26000 ft-lbs		

Notes

This connection is fully interchangeable with:

Wedge 521® - 5 in. - 13 / 15 lbs/ft

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

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Casing Design Assumptions

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

Casing Design Assumptions

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

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: White
		Type	Casing	1st Band: -	2nd Band: -
				2nd Band: -	3rd Band: -
				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
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OPERATION LIMIT TORQUES

Operating Torque	47000 ft-lbs	Yield Torque	70000 ft-lbs
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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

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Casing Design Assumptions

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

Casing Design Assumptions

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



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:

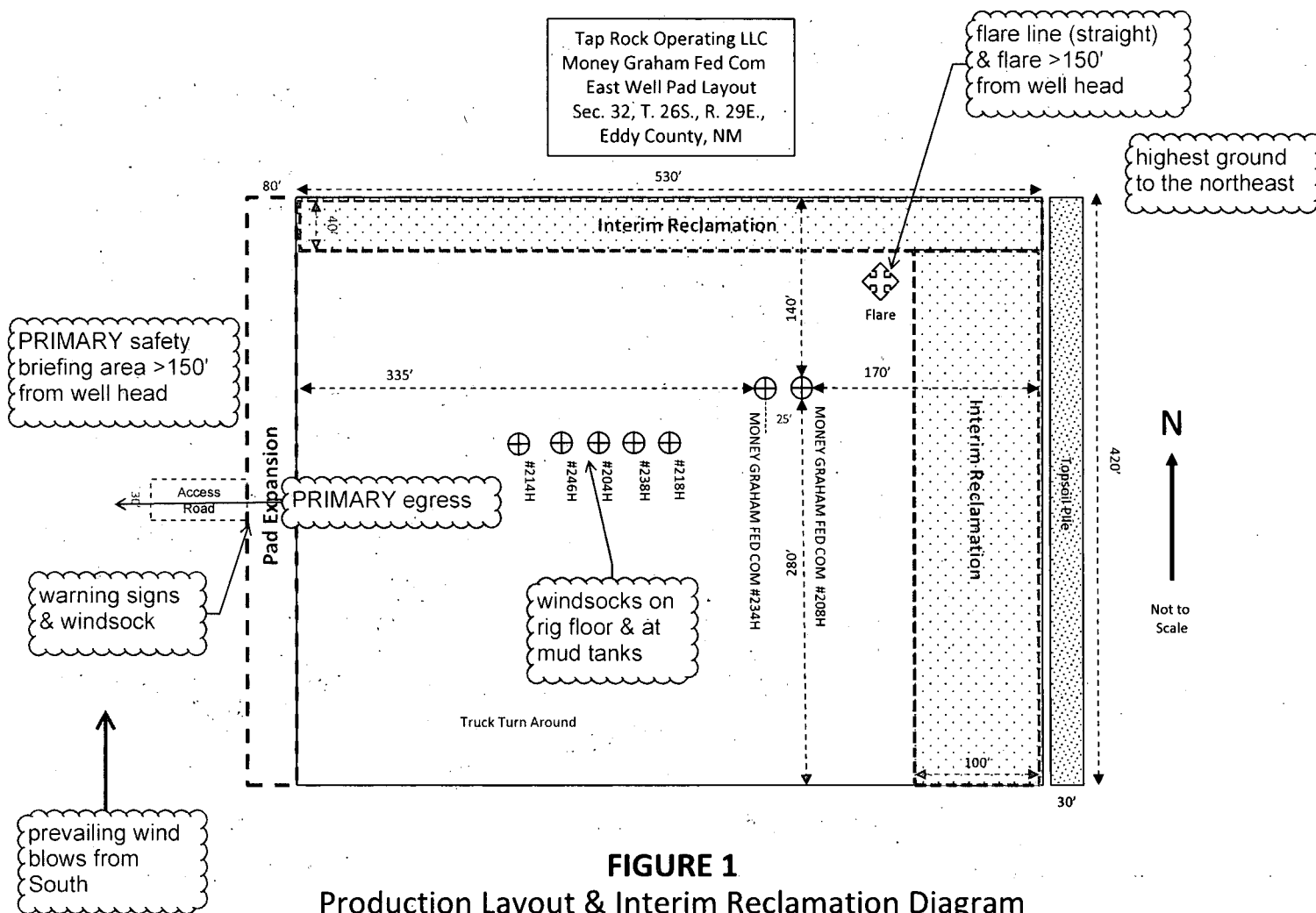
- No DST cores are planned at this time

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	

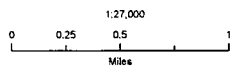


Tap Rock Operating, LLC

Money Graham East Pad
H2S Contingency Plan:
Radius Map

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

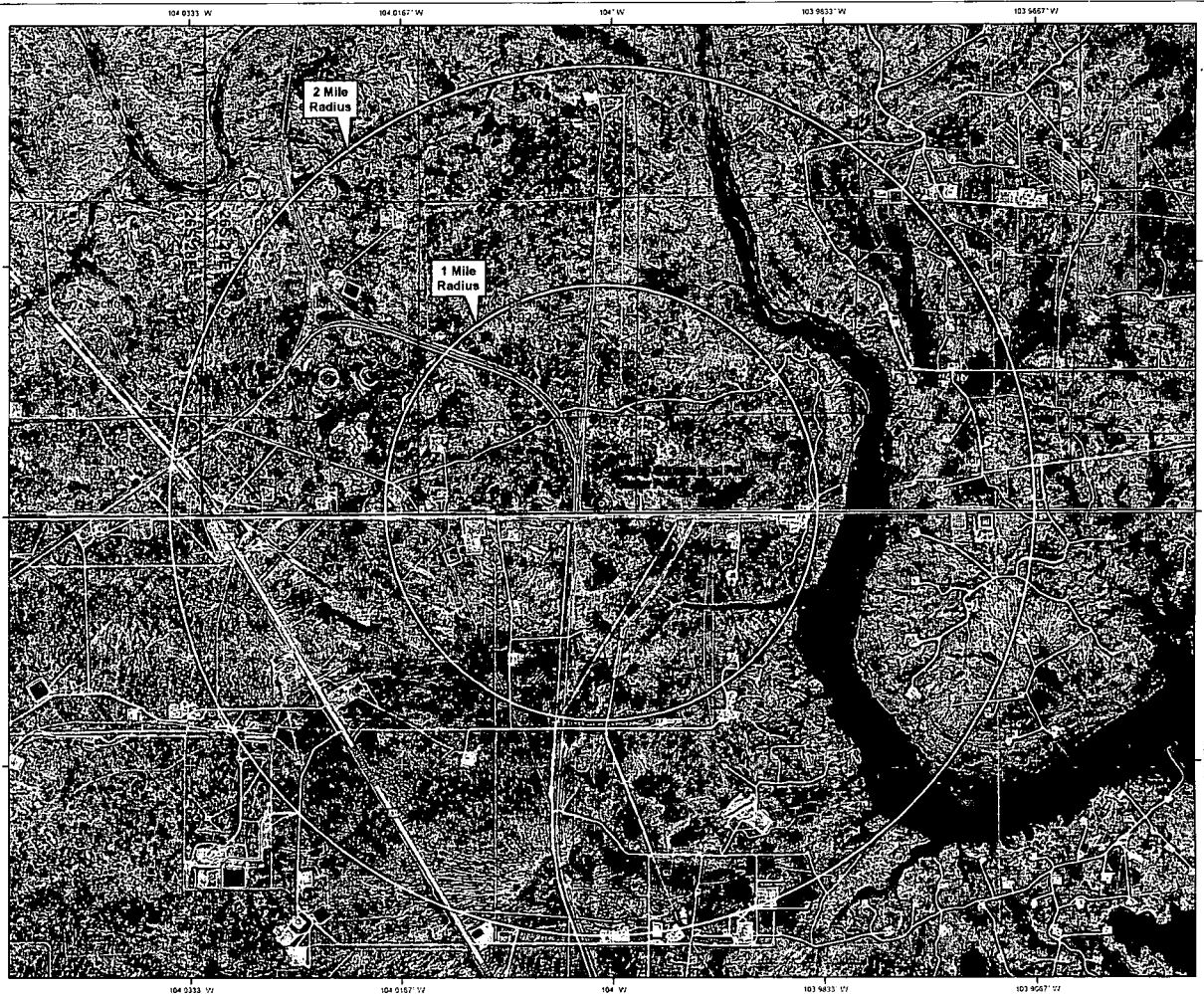
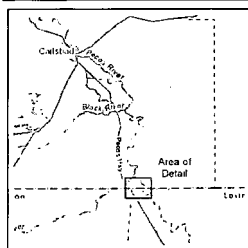
⊙ Surface Hole Location



NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST

Prepared by Permits West, Inc., July 28, 2018
for Tap Rock Operating, LLC





Well: Money Graham Fed Com Well No. 204 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	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	KOP Begin 1.5°/100' build
3	2185.55	2.78	191.96	2185.48	-4.41	-0.93	1.50	-4.42	Begin 2.78° tangent
4	6219.35	2.78	191.96	6214.52	-196.03	-41.52	0.00	-196.40	Begin 1.5°/100' drop
5	6404.90	0.00	0.00	6400.00	-200.44	-42.45	1.50	-200.82	Begin vertical hold
6	9091.95	0.00	0.00	9087.05	-200.44	-42.45	0.00	368.77	Begin 10°/100' build
7	9988.58	89.66	0.52	9660.00	369.12	-37.31	10.00	368.77	Begin 89.66° lateral
8	16786.87	89.66	0.52	9700.00	7167.01	24.00	0.00	7166.94	PBHL/TD 16786.87 MD/9700.00 TVD

DESIGN TARGET DETAILS

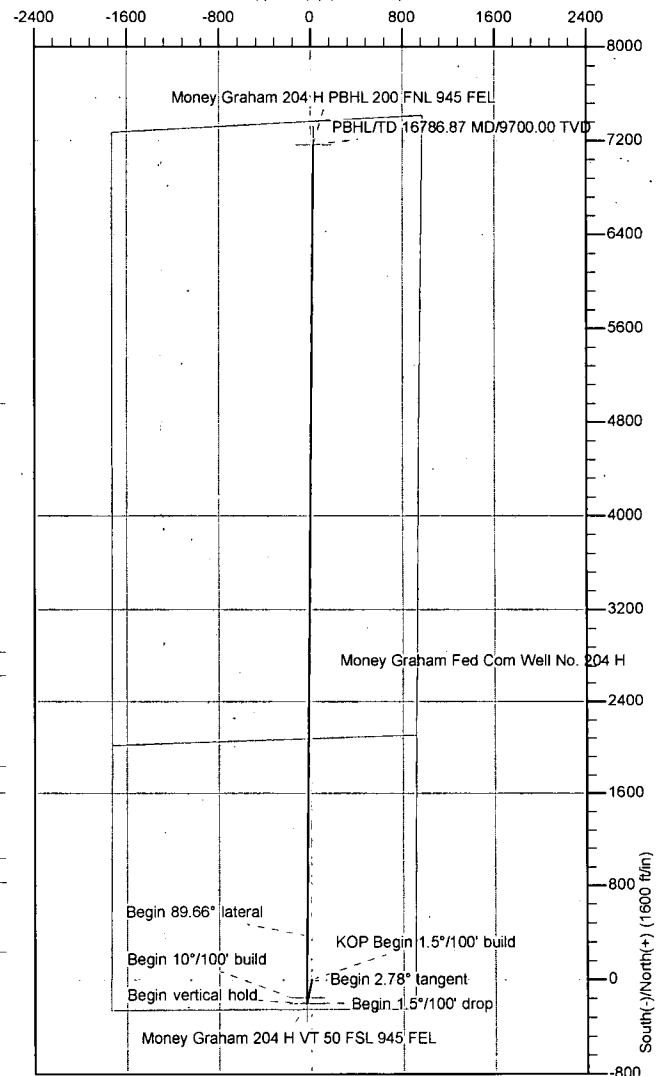
Name	TVD	+N/-S	+E/-W	Northing	Easting
Money Graham 204 H VT 100 FSL 945 FEL	6400.00	-150.00	-42.00	364039.00	644279.00
Money Graham 204 H VT 50 FSL 945 FEL	6400.00	-200.44	-42.45	363988.56	644278.55
Money Graham 204 H PBHL 200 FNL 945 FEL	9700.00	7167.01	24.00	371356.00	644345.00

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	Latitude	Longitude
364189.00	644321.00	32.00080064	-104.00111364

West(-)/East(+) (1600 ft/in)

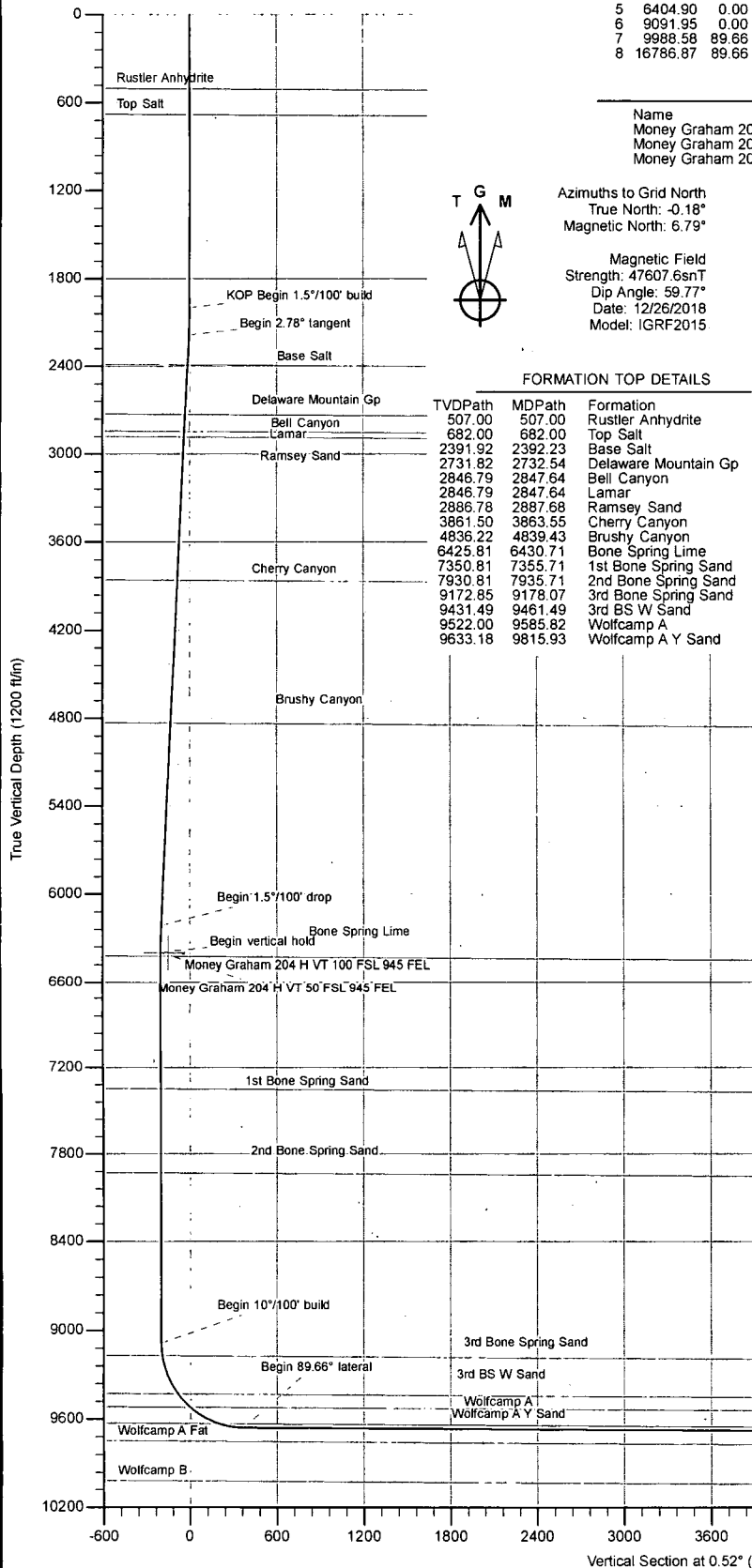


Azimuths to Grid North
True North: -0.18°
Magnetic North: 6.79°

Magnetic Field
Strength: 47607.6snT
Dip Angle: 59.77°
Date: 12/26/2015
Model: IGRF2015

FORMATION TOP DETAILS

TVDPPath	MDPath	Formation
507.00	507.00	Rustler Anhydrite
682.00	682.00	Top Salt
2391.92	2392.23	Base Salt
2731.82	2732.54	Delaware Mountain Gp
2846.79	2847.64	Bell Canyon
2846.79	2847.64	Lamar
2886.78	2887.68	Ramsey Sand
3861.50	3863.55	Cherry Canyon
4836.22	4839.43	Brushy Canyon
6425.81	6430.71	Bone Spring Lime
7350.81	7355.71	1st Bone Spring Sand
7930.81	7935.71	2nd Bone Spring Sand
9172.85	9178.07	3rd Bone Spring Sand
9431.49	9461.49	3rd BS W Sand
9522.00	9585.82	Wolfcamp A
9633.18	9815.93	Wolfcamp A Y Sand





Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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
From:	Map	Easting:	644,371.00 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "
		Latitude:	32.00080022
		Longitude:	-104.00095235
		Grid Convergence:	0.18 °

Well	Money Graham Fed Com Well No. 204 H, Surf loc: 250 FSL 904 FEL Section 32-T26S-R29E		
Well Position	+N/-S	0.00 ft	Northing: 364,189.00 usft
	+E/-W	0.00 ft	Easting: 644,321.00 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	Latitude: 32.00080065
			Longitude: -104.00111364
			Ground Level: 2,866.00 ft

Wellbore	Original Hole		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2015	12/26/2018	6.97
			Dip Angle
			(°)
			59.77
			Field Strength
			(nT)
			47,607.58745136

Design	rev0		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.00	0.00	0.00
			Direction
			(°)
			0.52

Plan Survey Tool Program	Date	12/28/2018		
Depth From	Depth To	Survey (Wellbore)	Tool Name	Remarks
(ft)	(ft)			
1	0.00	16,786.87 rev0 (Original Hole)	MWD	
			OWSG MWD - Standard	

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(ft)	(ft)	Rate	Rate	Rate	(°)	
(ft)			(ft)			(°/100ft)	(°/100ft)	(°/100ft)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,185.55	2.78	191.96	2,185.48	-4.41	-0.93	1.50	1.50	0.00	191.96	
6,219.35	2.78	191.96	6,214.52	-196.03	-41.52	0.00	0.00	0.00	0.00	
6,404.90	0.00	0.01	6,400.00	-200.44	-42.45	1.50	-1.50	0.00	180.00	Money Graham 204 H
9,091.95	0.00	0.01	9,087.05	-200.44	-42.45	0.00	0.00	0.00	0.01	
9,988.58	89.66	0.52	9,960.00	369.12	-37.31	10.00	10.00	0.06	0.52	
16,786.87	89.66	0.52	9,700.00	7,167.01	24.00	0.00	0.00	0.00	0.00	Money Graham 204 H



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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	364,189.00	644,321.00	32.00080065	-104.00111364
100.00	0.00	0.00	100.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
200.00	0.00	0.00	200.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
300.00	0.00	0.00	300.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
400.00	0.00	0.00	400.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
500.00	0.00	0.00	500.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
507.00	0.00	0.00	507.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
Rustler Anhydrite									
600.00	0.00	0.00	600.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
682.00	0.00	0.00	682.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
Top Salt									
700.00	0.00	0.00	700.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
800.00	0.00	0.00	800.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
900.00	0.00	0.00	900.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,000.00	0.00	0.00	1,000.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,100.00	0.00	0.00	1,100.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,200.00	0.00	0.00	1,200.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,300.00	0.00	0.00	1,300.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,400.00	0.00	0.00	1,400.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,500.00	0.00	0.00	1,500.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,600.00	0.00	0.00	1,600.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,700.00	0.00	0.00	1,700.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,800.00	0.00	0.00	1,800.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,900.00	0.00	0.00	1,900.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
2,000.00	0.00	0.00	2,000.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
KOP Begin 1.5°/100' build									
2,100.00	1.50	191.96	2,099.99	-1.28	-0.27	364,187.72	644,320.73	32.00079713	-104.00111453
2,185.55	2.78	191.96	2,185.48	-4.41	-0.93	364,184.59	644,320.07	32.00078854	-104.00111670
Begin 2.78° tangent									
2,200.00	2.78	191.96	2,199.91	-5.09	-1.08	364,183.90	644,319.93	32.00078665	-104.00111717
2,300.00	2.78	191.96	2,299.79	-9.84	-2.09	364,179.15	644,318.92	32.00077360	-104.00112047
2,392.23	2.78	191.96	2,391.92	-14.23	-3.01	364,174.77	644,317.99	32.00076156	-104.00112350
Base Salt									
2,400.00	2.78	191.96	2,399.67	-14.60	-3.09	364,174.40	644,317.91	32.00076055	-104.00112376
2,500.00	2.78	191.96	2,499.56	-19.35	-4.10	364,169.65	644,316.91	32.00074750	-104.00112705
2,600.00	2.78	191.96	2,599.44	-24.10	-5.10	364,164.90	644,315.90	32.00073445	-104.00113034
2,700.00	2.78	191.96	2,699.32	-28.85	-6.11	364,160.15	644,314.90	32.00072140	-104.00113364
2,732.54	2.78	191.96	2,731.82	-30.39	-6.44	364,158.61	644,314.57	32.00071715	-104.00113471
Delaware Mountain Gp									
2,800.00	2.78	191.96	2,799.20	-33.60	-7.12	364,155.40	644,313.89	32.00070835	-104.00113693
2,847.64	2.78	191.96	2,846.79	-35.86	-7.59	364,153.14	644,313.41	32.00070213	-104.00113850
Bell Canyon - Lamar									
2,887.68	2.78	191.96	2,886.78	-37.76	-8.00	364,151.24	644,313.01	32.00069691	-104.00113982
Ramsey Sand									
2,900.00	2.78	191.96	2,899.08	-38.35	-8.12	364,150.65	644,312.88	32.00069530	-104.00114022
3,000.00	2.78	191.96	2,998.97	-43.10	-9.13	364,145.90	644,311.88	32.00068225	-104.00114351
3,100.00	2.78	191.96	3,098.85	-47.85	-10.13	364,141.15	644,310.87	32.00066920	-104.00114681
3,200.00	2.78	191.96	3,198.73	-52.60	-11.14	364,136.40	644,309.86	32.00065615	-104.00115010
3,300.00	2.78	191.96	3,298.61	-57.35	-12.15	364,131.65	644,308.86	32.00064310	-104.00115339
3,400.00	2.78	191.96	3,398.49	-62.10	-13.15	364,126.90	644,307.85	32.00063005	-104.00115668
3,500.00	2.78	191.96	3,498.38	-66.85	-14.16	364,122.15	644,306.85	32.00061700	-104.00115998
3,600.00	2.78	191.96	3,598.26	-71.60	-15.16	364,117.40	644,305.84	32.00060395	-104.00116327
3,700.00	2.78	191.96	3,698.14	-76.35	-16.17	364,112.65	644,304.83	32.00059090	-104.00116656



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204
Company:	Tap Rock Operating LLC	TVD Reference:	H
Project:	Eddy County, New Mexico NAD83 NM east	MD Reference:	RKB=2866+26 @ 2892.00ft
Site:	Section 32-T26S-R29E	North Reference:	RKB=2866+26 @ 2892.00ft
Well:	Money Graham Fed Com Well No. 204 H	Survey Calculation Method:	Grid
Wellbore:	Original Hole		Minimum Curvature
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	2.78	191.96	3,798.02	-81.10	-17.18	364,107.90	644,303.83	32.00057785	-104.00116986
3,863.55	2.78	191.96	3,861.50	-84.12	-17.82	364,104.88	644,303.19	32.00056955	-104.00117195
Cherry Canyon									
3,900.00	2.78	191.96	3,897.90	-85.85	-18.18	364,103.15	644,302.82	32.00056480	-104.00117315
4,000.00	2.78	191.96	3,997.79	-90.60	-19.19	364,098.40	644,301.82	32.00055175	-104.00117644
4,100.00	2.78	191.96	4,097.67	-95.35	-20.19	364,093.65	644,300.81	32.00053870	-104.00117973
4,200.00	2.78	191.96	4,197.55	-100.10	-21.20	364,088.89	644,299.80	32.00052565	-104.00118303
4,300.00	2.78	191.96	4,297.43	-104.85	-22.21	364,084.14	644,298.80	32.00051260	-104.00118632
4,400.00	2.78	191.96	4,397.31	-109.60	-23.21	364,079.39	644,297.79	32.00049954	-104.00118961
4,500.00	2.78	191.96	4,497.20	-114.36	-24.22	364,074.64	644,296.79	32.00048649	-104.00119290
4,600.00	2.78	191.96	4,597.08	-119.11	-25.22	364,069.89	644,295.78	32.00047344	-104.00119620
4,700.00	2.78	191.96	4,696.96	-123.86	-26.23	364,065.14	644,294.77	32.00046039	-104.00119949
4,800.00	2.78	191.96	4,796.84	-128.61	-27.24	364,060.39	644,293.77	32.00044734	-104.00120278
4,839.43	2.78	191.96	4,836.22	-130.48	-27.63	364,058.52	644,293.37	32.00044220	-104.00120408
Brushy Canyon									
4,900.00	2.78	191.96	4,896.73	-133.36	-28.24	364,055.64	644,292.76	32.00043429	-104.00120607
5,000.00	2.78	191.96	4,996.61	-138.11	-29.25	364,050.89	644,291.76	32.00042124	-104.00120937
5,100.00	2.78	191.96	5,096.49	-142.86	-30.26	364,046.14	644,290.75	32.00040819	-104.00121266
5,200.00	2.78	191.96	5,196.37	-147.61	-31.26	364,041.39	644,289.74	32.00039514	-104.00121595
5,300.00	2.78	191.96	5,296.25	-152.36	-32.27	364,036.64	644,288.74	32.00038209	-104.00121924
5,400.00	2.78	191.96	5,396.14	-157.11	-33.27	364,031.89	644,287.73	32.00036904	-104.00122254
5,500.00	2.78	191.96	5,496.02	-161.86	-34.28	364,027.14	644,286.73	32.00035599	-104.00122583
5,600.00	2.78	191.96	5,595.90	-166.61	-35.29	364,022.39	644,285.72	32.00034294	-104.00122912
5,700.00	2.78	191.96	5,695.78	-171.36	-36.29	364,017.64	644,284.71	32.00032989	-104.00123241
5,800.00	2.78	191.96	5,795.66	-176.11	-37.30	364,012.89	644,283.71	32.00031684	-104.00123571
5,900.00	2.78	191.96	5,895.55	-180.86	-38.30	364,008.14	644,282.70	32.00030379	-104.00123900
6,000.00	2.78	191.96	5,995.43	-185.61	-39.31	364,003.39	644,281.69	32.00029074	-104.00124229
6,100.00	2.78	191.96	6,095.31	-190.36	-40.32	363,998.64	644,280.69	32.00027769	-104.00124558
6,200.00	2.78	191.96	6,195.19	-195.11	-41.32	363,993.89	644,279.68	32.00026464	-104.00124888
6,219.35	2.78	191.96	6,214.52	-196.03	-41.52	363,992.97	644,279.49	32.00026211	-104.00124951
Begin 1.5°/100' drop									
6,300.00	1.57	191.96	6,295.11	-199.03	-42.15	363,989.97	644,278.85	32.00025388	-104.00125159
6,400.00	0.07	191.96	6,395.10	-200.44	-42.45	363,988.56	644,278.56	32.00025001	-104.00125257
6,404.90	0.00	0.01	6,400.00	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
Begin vertical hold									
6,430.71	0.00	0.00	6,425.81	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
Bone Spring Lime									
6,500.00	0.00	0.00	6,495.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
6,600.00	0.00	0.00	6,595.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
6,700.00	0.00	0.00	6,695.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
6,800.00	0.00	0.00	6,795.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
6,900.00	0.00	0.00	6,895.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
7,000.00	0.00	0.00	6,995.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
7,100.00	0.00	0.00	7,095.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
7,200.00	0.00	0.00	7,195.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
7,300.00	0.00	0.00	7,295.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
7,355.71	0.00	0.00	7,350.81	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
1st Bone Spring Sand									
7,400.00	0.00	0.00	7,395.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
7,500.00	0.00	0.00	7,495.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
7,600.00	0.00	0.00	7,595.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
7,700.00	0.00	0.00	7,695.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
7,800.00	0.00	0.00	7,795.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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	7,895.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
7,935.71	0.00	0.00	7,930.81	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
2nd Bone Spring Sand									
8,000.00	0.00	0.00	7,995.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
8,100.00	0.00	0.00	8,095.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
8,200.00	0.00	0.00	8,195.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
8,300.00	0.00	0.00	8,295.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
8,400.00	0.00	0.00	8,395.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
8,500.00	0.00	0.00	8,495.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
8,600.00	0.00	0.00	8,595.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
8,700.00	0.00	0.00	8,695.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
8,800.00	0.00	0.00	8,795.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
8,900.00	0.00	0.00	8,895.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
9,000.00	0.00	0.00	8,995.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
9,091.95	0.00	0.00	9,087.05	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
Begin 10°/100' build									
9,100.00	0.80	0.52	9,095.10	-200.38	-42.45	363,988.61	644,278.55	32.00025016	-104.00125257
9,178.08	8.61	0.52	9,172.85	-193.98	-42.39	363,995.02	644,278.61	32.00026776	-104.00125232
3rd Bone Spring Sand									
9,200.00	10.80	0.52	9,194.46	-190.28	-42.36	363,998.71	644,278.65	32.00027792	-104.00125217
9,300.00	20.80	0.52	9,290.55	-163.08	-42.11	364,025.91	644,278.89	32.00035269	-104.00125111
9,400.00	30.80	0.52	9,380.47	-119.61	-41.72	364,069.39	644,279.28	32.00047220	-104.00124942
9,461.49	36.95	0.52	9,431.49	-85.35	-41.41	364,103.65	644,279.59	32.00056637	-104.00124808
3rd BS W Sand									
9,500.00	40.80	0.52	9,461.47	-61.18	-41.19	364,127.81	644,279.81	32.00063280	-104.00124714
9,585.82	49.39	0.52	9,522.00	-0.46	-40.65	364,188.54	644,280.36	32.00079974	-104.00124477
Wolfcamp A									
9,600.00	50.80	0.52	9,531.09	10.42	-40.55	364,199.42	644,280.46	32.00082963	-104.00124434
9,700.00	60.80	0.52	9,587.22	93.02	-39.80	364,282.02	644,281.20	32.00105670	-104.00124112
9,800.00	70.80	0.52	9,628.15	184.12	-38.98	364,373.12	644,282.02	32.00130711	-104.00123757
9,815.93	72.40	0.52	9,633.18	199.23	-38.85	364,388.23	644,282.16	32.00134865	-104.00123698
Wolfcamp A Y Sand									
9,900.00	80.80	0.52	9,652.64	280.94	-38.11	364,469.94	644,282.90	32.00157325	-104.00123379
9,988.58	89.66	0.52	9,660.00	369.12	-37.31	364,558.12	644,283.69	32.00181566	-104.00123035
Begin 89.66° lateral									
10,000.00	89.66	0.52	9,660.07	380.54	-37.21	364,569.54	644,283.79	32.00184704	-104.00122991
10,100.00	89.66	0.52	9,660.65	480.53	-36.31	364,669.53	644,284.70	32.00212192	-104.00122601
10,200.00	89.66	0.52	9,661.24	580.53	-35.41	364,769.52	644,285.60	32.00239679	-104.00122211
10,300.00	89.66	0.52	9,661.83	680.52	-34.50	364,869.52	644,286.50	32.00267166	-104.00121821
10,400.00	89.66	0.52	9,662.42	780.52	-33.60	364,969.51	644,287.40	32.00294653	-104.00121431
10,500.00	89.66	0.52	9,663.01	880.51	-32.70	365,069.51	644,288.30	32.00322140	-104.00121041
10,600.00	89.66	0.52	9,663.60	980.50	-31.80	365,169.50	644,289.21	32.00349627	-104.00120651
10,700.00	89.66	0.52	9,664.18	1,080.50	-30.90	365,269.49	644,290.11	32.00377115	-104.00120261
10,800.00	89.66	0.52	9,664.77	1,180.49	-29.99	365,369.49	644,291.01	32.00404602	-104.00119870
10,900.00	89.66	0.52	9,665.36	1,280.49	-29.09	365,469.48	644,291.91	32.00432089	-104.00119480
11,000.00	89.66	0.52	9,665.95	1,380.48	-28.19	365,569.48	644,292.81	32.00459576	-104.00119090
11,100.00	89.66	0.52	9,666.54	1,480.48	-27.29	365,669.47	644,293.72	32.00487063	-104.00118700
11,200.00	89.66	0.52	9,667.13	1,580.47	-26.39	365,769.46	644,294.62	32.00514550	-104.00118310
11,300.00	89.66	0.52	9,667.71	1,680.46	-25.49	365,869.46	644,295.52	32.00542037	-104.00117920
11,400.00	89.66	0.52	9,668.30	1,780.46	-24.58	365,969.45	644,296.42	32.00569525	-104.00117530
11,500.00	89.66	0.52	9,668.89	1,880.45	-23.68	366,069.45	644,297.32	32.00597012	-104.00117140
11,600.00	89.66	0.52	9,669.48	1,980.45	-22.78	366,169.44	644,298.22	32.00624499	-104.00116750
11,700.00	89.66	0.52	9,670.07	2,080.44	-21.88	366,269.43	644,299.13	32.00651986	-104.00116360



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204
Company:	Tap Rock Operating LLC	TVD Reference:	H
Project:	Eddy County, New Mexico NAD83 NM east	MD Reference:	RKB=2866+26 @ 2892.00ft
Site:	Section 32-T26S-R29E	North Reference:	RKB=2866+26 @ 2892.00ft
Well:	Money Graham Fed Com Well No. 204 H	Survey Calculation Method:	Grid
Wellbore:	Original Hole		Minimum Curvature
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
11,800.00	89.66	0.52	9,670.66	2,180.43	-20.98	366,369.43	644,300.03	32.00679473	-104.00115970
11,900.00	89.66	0.52	9,671.25	2,280.43	-20.07	366,469.42	644,300.93	32.00706960	-104.00115580
12,000.00	89.66	0.52	9,671.83	2,380.42	-19.17	366,569.42	644,301.83	32.00734447	-104.00115190
12,100.00	89.66	0.52	9,672.42	2,480.42	-18.27	366,669.41	644,302.73	32.00761935	-104.00114799
12,200.00	89.66	0.52	9,673.01	2,580.41	-17.37	366,769.40	644,303.64	32.00789422	-104.00114409
12,300.00	89.66	0.52	9,673.60	2,680.41	-16.47	366,869.40	644,304.54	32.00816909	-104.00114019
12,400.00	89.66	0.52	9,674.19	2,780.40	-15.56	366,969.39	644,305.44	32.00844396	-104.00113629
12,500.00	89.66	0.52	9,674.78	2,880.39	-14.66	367,069.39	644,306.34	32.00871883	-104.00113239
12,600.00	89.66	0.52	9,675.36	2,980.39	-13.76	367,169.38	644,307.24	32.00899370	-104.00112849
12,700.00	89.66	0.52	9,675.95	3,080.38	-12.86	367,269.37	644,308.15	32.00926857	-104.00112459
12,800.00	89.66	0.52	9,676.54	3,180.38	-11.96	367,369.37	644,309.05	32.00954345	-104.00112069
12,900.00	89.66	0.52	9,677.13	3,280.37	-11.06	367,469.36	644,309.95	32.00981832	-104.00111679
13,000.00	89.66	0.52	9,677.72	3,380.37	-10.15	367,569.36	644,310.85	32.01009319	-104.00111288
13,100.00	89.66	0.52	9,678.31	3,480.36	-9.25	367,669.35	644,311.75	32.01036806	-104.00110898
13,200.00	89.66	0.52	9,678.89	3,580.35	-8.35	367,769.34	644,312.65	32.01064293	-104.00110508
13,300.00	89.66	0.52	9,679.48	3,680.35	-7.45	367,869.34	644,313.56	32.01091780	-104.00110118
13,400.00	89.66	0.52	9,680.07	3,780.34	-6.55	367,969.33	644,314.46	32.01119267	-104.00109728
13,500.00	89.66	0.52	9,680.66	3,880.34	-5.64	368,069.33	644,315.36	32.01146754	-104.00109338
13,600.00	89.66	0.52	9,681.25	3,980.33	-4.74	368,169.32	644,316.26	32.01174242	-104.00108948
13,700.00	89.66	0.52	9,681.84	4,080.32	-3.84	368,269.31	644,317.16	32.01201729	-104.00108558
13,800.00	89.66	0.52	9,682.43	4,180.32	-2.94	368,369.31	644,318.07	32.01229216	-104.00108167
13,900.00	89.66	0.52	9,683.01	4,280.31	-2.04	368,469.30	644,318.97	32.01256703	-104.00107777
14,000.00	89.66	0.52	9,683.60	4,380.31	-1.13	368,569.30	644,319.87	32.01284190	-104.00107387
14,100.00	89.66	0.52	9,684.19	4,480.30	-0.23	368,669.29	644,320.77	32.01311677	-104.00106997
14,200.00	89.66	0.52	9,684.78	4,580.30	0.67	368,769.28	644,321.67	32.01339164	-104.00106607
14,300.00	89.66	0.52	9,685.37	4,680.29	1.57	368,869.28	644,322.58	32.01366651	-104.00106217
14,400.00	89.66	0.52	9,685.96	4,780.28	2.47	368,969.27	644,323.48	32.01394138	-104.00105826
14,500.00	89.66	0.52	9,686.54	4,880.28	3.38	369,069.27	644,324.38	32.01421626	-104.00105436
14,600.00	89.66	0.52	9,687.13	4,980.27	4.28	369,169.26	644,325.28	32.01449113	-104.00105046
14,700.00	89.66	0.52	9,687.72	5,080.27	5.18	369,269.25	644,326.18	32.01476600	-104.00104656
14,800.00	89.66	0.52	9,688.31	5,180.26	6.08	369,369.25	644,327.09	32.01504087	-104.00104266
14,900.00	89.66	0.52	9,688.90	5,280.26	6.98	369,469.24	644,327.99	32.01531574	-104.00103876
15,000.00	89.66	0.52	9,689.49	5,380.25	7.88	369,569.24	644,328.89	32.01559061	-104.00103485
15,100.00	89.66	0.52	9,690.07	5,480.24	8.79	369,669.23	644,329.79	32.01586548	-104.00103095
15,200.00	89.66	0.52	9,690.66	5,580.24	9.69	369,769.22	644,330.69	32.01614035	-104.00102705
15,300.00	89.66	0.52	9,691.25	5,680.23	10.59	369,869.22	644,331.59	32.01641522	-104.00102315
15,400.00	89.66	0.52	9,691.84	5,780.23	11.49	369,969.21	644,332.50	32.01669009	-104.00101925
15,500.00	89.66	0.52	9,692.43	5,880.22	12.39	370,069.21	644,333.40	32.01696497	-104.00101534
15,600.00	89.66	0.52	9,693.02	5,980.21	13.30	370,169.20	644,334.30	32.01723984	-104.00101144
15,700.00	89.66	0.52	9,693.60	6,080.21	14.20	370,269.19	644,335.20	32.01751471	-104.00100754
15,800.00	89.66	0.52	9,694.19	6,180.20	15.10	370,369.19	644,336.10	32.01778958	-104.00100364
15,900.00	89.66	0.52	9,694.78	6,280.20	16.00	370,469.18	644,337.01	32.01806445	-104.00099974
16,000.00	89.66	0.52	9,695.37	6,380.19	16.90	370,569.18	644,337.91	32.01833932	-104.00099583
16,100.00	89.66	0.52	9,695.96	6,480.19	17.81	370,669.17	644,338.81	32.01861419	-104.00099193
16,200.00	89.66	0.52	9,696.55	6,580.18	18.71	370,769.16	644,339.71	32.01888906	-104.00098803
16,300.00	89.66	0.52	9,697.14	6,680.17	19.61	370,869.16	644,340.61	32.01916393	-104.00098413
16,400.00	89.66	0.52	9,697.72	6,780.17	20.51	370,969.15	644,341.52	32.01943880	-104.00098022
16,500.00	89.66	0.52	9,698.31	6,880.16	21.41	371,069.15	644,342.42	32.01971367	-104.00097632
16,600.00	89.66	0.52	9,698.90	6,980.16	22.31	371,169.14	644,343.32	32.01998854	-104.00097242
16,700.00	89.66	0.52	9,699.49	7,080.15	23.22	371,269.13	644,344.22	32.02026342	-104.00096852
16,786.87	89.66	0.52	9,700.00	7,167.01	24.00	371,356.00	644,345.00	32.02050219	-104.00096513

PBHL/TD 16786.87 MD/9700.00 TVD



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
Money Graham 204 H V	0.00	0.01	6,400.00	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
- plan hits target center									
- Point									
Money Graham 204 H V	0.00	0.01	6,400.00	-150.00	-42.00	364,039.00	644,279.00	32.00038866	-104.00125062
- plan misses target center by 50.44ft at 6404.87ft MD (6399.97 TVD, -200.44 N, -42.45 E)									
- Point									
Money Graham 204 H P	0.00	0.01	9,700.00	7,167.01	24.00	371,356.00	644,345.00	32.02050219	-104.00096513
- plan hits target center									
- Point									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
507.00	507.00	Rustler Anhydrite		0.34	0.52	
682.00	682.00	Top Salt		0.34	0.52	
2,392.23	2,391.92	Base Salt		0.34	0.52	
2,732.54	2,731.82	Delaware Mountain Gp		0.34	0.52	
2,847.64	2,846.79	Bell Canyon		0.34	0.52	
2,847.64	2,846.79	Lamar		0.34	0.52	
2,887.68	2,886.78	Ramsey Sand		0.34	0.52	
3,863.55	3,861.50	Cherry Canyon		0.34	0.52	
4,839.43	4,836.22	Brushy Canyon		0.34	0.52	
6,430.71	6,425.81	Bone Spring Lime		0.34	0.52	
7,355.71	7,350.81	1st Bone Spring Sand		0.34	0.52	
7,935.71	7,930.81	2nd Bone Spring Sand		0.34	0.52	
9,178.08	9,172.85	3rd Bone Spring Sand		0.34	0.52	
9,461.49	9,431.49	3rd BS W Sand		0.34	0.52	
9,585.82	9,522.00	Wolfcamp A		0.34	0.52	
9,815.93	9,633.18	Wolfcamp A Y Sand		0.34	0.52	

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W	Comment	
(ft)	(ft)	(ft)	(ft)		
2,000.00	2,000.00	0.00	0.00	KOP Begin 1.5°/100' build	
2,185.55	2,185.48	-4.41	-0.93	Begin 2.78° tangent	
6,219.35	6,214.52	-196.03	-41.52	Begin 1.5°/100' drop	
6,404.90	6,400.00	-200.44	-42.45	Begin vertical hold	
9,091.95	9,087.05	-200.44	-42.45	Begin 10°/100' build	
9,988.58	9,660.00	369.12	-37.31	Begin 89.66° lateral	
16,786.87	9,700.00	7,167.01	24.00	PBHL/TD 16786.87 MD/9700.00 TVD	



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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
From:	Map	Easting:	644,371.00 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "
		Latitude:	32.00080022
		Longitude:	-104.00095235
		Grid Convergence:	0.18 °

Well	Money Graham Fed Com Well No. 204 H, Surf loc: 250 FSL 904 FEL Section 32-T26S-R29E		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	Ground Level:

Wellbore	Original Hole		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2015	12/26/2018	6.97
			Dip Angle
			(°)
			59.77
			Field Strength
			(nT)
			47,607.58745136

Design	rev0		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.00	0.00	0.00
			Direction
			(°)
			0.52

Plan Survey Tool Program	Date 12/28/2018		
Depth From	Depth To	Survey (Wellbore)	Tool Name
(ft)	(ft)		
1	0.00	16,786.87 rev0 (Original Hole)	MWD
			OWSG MWD - Standard

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(ft)	(ft)	Rate	Rate	Rate	(°)	
(ft)			(ft)			(°/100ft)	(°/100ft)	(°/100ft)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,185.55	2.78	191.96	2,185.48	-4.41	-0.93	1.50	1.50	0.00	191.96	
6,219.35	2.78	191.96	6,214.52	-196.03	-41.52	0.00	0.00	0.00	0.00	
6,404.90	0.00	0.01	6,400.00	-200.44	-42.45	1.50	-1.50	0.00	180.00	Money Graham 204 H
9,091.95	0.00	0.01	9,087.05	-200.44	-42.45	0.00	0.00	0.00	0.01	
9,988.58	89.66	0.52	9,660.00	369.12	-37.31	10.00	10.00	0.06	0.52	
16,786.87	89.66	0.52	9,700.00	7,167.01	24.00	0.00	0.00	0.00	0.00	Money Graham 204 H



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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	364,189.00	644,321.00	32.00080065	-104.00111364
100.00	0.00	0.00	100.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
200.00	0.00	0.00	200.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
300.00	0.00	0.00	300.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
400.00	0.00	0.00	400.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
500.00	0.00	0.00	500.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
507.00	0.00	0.00	507.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
Rustler Anhydrite									
600.00	0.00	0.00	600.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
682.00	0.00	0.00	682.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
Top Salt									
700.00	0.00	0.00	700.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
800.00	0.00	0.00	800.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
900.00	0.00	0.00	900.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,000.00	0.00	0.00	1,000.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,100.00	0.00	0.00	1,100.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,200.00	0.00	0.00	1,200.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,300.00	0.00	0.00	1,300.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,400.00	0.00	0.00	1,400.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,500.00	0.00	0.00	1,500.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,600.00	0.00	0.00	1,600.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,700.00	0.00	0.00	1,700.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,800.00	0.00	0.00	1,800.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
1,900.00	0.00	0.00	1,900.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
2,000.00	0.00	0.00	2,000.00	0.00	0.00	364,189.00	644,321.00	32.00080065	-104.00111364
KOP Begin 1.5°/100' build									
2,100.00	1.50	191.96	2,099.99	-1.28	-0.27	364,187.72	644,320.73	32.00079713	-104.00111453
2,185.55	2.78	191.96	2,185.48	-4.41	-0.93	364,184.59	644,320.07	32.00078854	-104.00111670
Begin 2.78° tangent									
2,200.00	2.78	191.96	2,199.91	-5.09	-1.08	364,183.90	644,319.93	32.00078665	-104.00111717
2,300.00	2.78	191.96	2,299.79	-9.84	-2.09	364,179.15	644,318.92	32.00077360	-104.00112047
2,392.23	2.78	191.96	2,391.92	-14.23	-3.01	364,174.77	644,317.99	32.00076156	-104.00112350
Base Salt									
2,400.00	2.78	191.96	2,399.67	-14.60	-3.09	364,174.40	644,317.91	32.00076055	-104.00112376
2,500.00	2.78	191.96	2,499.56	-19.35	-4.10	364,169.65	644,316.91	32.00074750	-104.00112705
2,600.00	2.78	191.96	2,599.44	-24.10	-5.10	364,164.90	644,315.90	32.00073445	-104.00113034
2,700.00	2.78	191.96	2,699.32	-28.85	-6.11	364,160.15	644,314.90	32.00072140	-104.00113364
2,732.54	2.78	191.96	2,731.82	-30.39	-6.44	364,158.61	644,314.57	32.00071715	-104.00113471
Delaware Mountain Gp									
2,800.00	2.78	191.96	2,799.20	-33.60	-7.12	364,155.40	644,313.89	32.00070835	-104.00113693
2,847.64	2.78	191.96	2,846.79	-35.86	-7.59	364,153.14	644,313.41	32.00070213	-104.00113850
Bell Canyon - Lamar									
2,887.68	2.78	191.96	2,886.78	-37.76	-8.00	364,151.24	644,313.01	32.00069691	-104.00113982
Ramsey Sand									
2,900.00	2.78	191.96	2,899.08	-38.35	-8.12	364,150.65	644,312.88	32.00069530	-104.00114022
3,000.00	2.78	191.96	2,998.97	-43.10	-9.13	364,145.90	644,311.88	32.00068225	-104.00114351
3,100.00	2.78	191.96	3,098.85	-47.85	-10.13	364,141.15	644,310.87	32.00066920	-104.00114681
3,200.00	2.78	191.96	3,198.73	-52.60	-11.14	364,136.40	644,309.86	32.00065615	-104.00115010
3,300.00	2.78	191.96	3,298.61	-57.35	-12.15	364,131.65	644,308.86	32.00064310	-104.00115339
3,400.00	2.78	191.96	3,398.49	-62.10	-13.15	364,126.90	644,307.85	32.00063005	-104.00115668
3,500.00	2.78	191.96	3,498.38	-66.85	-14.16	364,122.15	644,306.85	32.00061700	-104.00115998
3,600.00	2.78	191.96	3,598.26	-71.60	-15.16	364,117.40	644,305.84	32.00060395	-104.00116327
3,700.00	2.78	191.96	3,698.14	-76.35	-16.17	364,112.65	644,304.83	32.00059090	-104.00116656



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204
Company:	Tap Rock Operating LLC	TVD Reference:	H
Project:	Eddy County, New Mexico NAD83 NM east	MD Reference:	RKB=2866+26 @ 2892.00ft
Site:	Section 32-T26S-R29E	North Reference:	RKB=2866+26 @ 2892.00ft
Well:	Money Graham Fed Com Well No. 204 H	Survey Calculation Method:	Grid
Wellbore:	Original Hole		Minimum Curvature
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	2.78	191.96	3,798.02	-81.10	-17.18	364,107.90	644,303.83	32.00057785	-104.00116986	
3,863.55	2.78	191.96	3,861.50	-84.12	-17.82	364,104.88	644,303.19	32.00056955	-104.00117195	
Cherry Canyon										
3,900.00	2.78	191.96	3,897.90	-85.85	-18.18	364,103.15	644,302.82	32.00056480	-104.00117315	
4,000.00	2.78	191.96	3,997.79	-90.60	-19.19	364,098.40	644,301.82	32.00055175	-104.00117644	
4,100.00	2.78	191.96	4,097.67	-95.35	-20.19	364,093.65	644,300.81	32.00053870	-104.00117973	
4,200.00	2.78	191.96	4,197.55	-100.10	-21.20	364,088.89	644,299.80	32.00052565	-104.00118303	
4,300.00	2.78	191.96	4,297.43	-104.85	-22.21	364,084.14	644,298.80	32.00051260	-104.00118632	
4,400.00	2.78	191.96	4,397.31	-109.60	-23.21	364,079.39	644,297.79	32.00049954	-104.00118961	
4,500.00	2.78	191.96	4,497.20	-114.36	-24.22	364,074.64	644,296.79	32.00048649	-104.00119290	
4,600.00	2.78	191.96	4,597.08	-119.11	-25.22	364,069.89	644,295.78	32.00047344	-104.00119620	
4,700.00	2.78	191.96	4,696.96	-123.86	-26.23	364,065.14	644,294.77	32.00046039	-104.00119949	
4,800.00	2.78	191.96	4,796.84	-128.61	-27.24	364,060.39	644,293.77	32.00044734	-104.00120278	
4,839.43	2.78	191.96	4,836.22	-130.48	-27.63	364,058.52	644,293.37	32.00044220	-104.00120408	
Brushy Canyon										
4,900.00	2.78	191.96	4,896.73	-133.36	-28.24	364,055.64	644,292.76	32.00043429	-104.00120607	
5,000.00	2.78	191.96	4,996.61	-138.11	-29.25	364,050.89	644,291.76	32.00042124	-104.00120937	
5,100.00	2.78	191.96	5,096.49	-142.86	-30.26	364,046.14	644,290.75	32.00040819	-104.00121266	
5,200.00	2.78	191.96	5,196.37	-147.61	-31.26	364,041.39	644,289.74	32.00039514	-104.00121595	
5,300.00	2.78	191.96	5,296.25	-152.36	-32.27	364,036.64	644,288.74	32.00038209	-104.00121924	
5,400.00	2.78	191.96	5,396.14	-157.11	-33.27	364,031.89	644,287.73	32.00036904	-104.00122254	
5,500.00	2.78	191.96	5,496.02	-161.86	-34.28	364,027.14	644,286.73	32.00035599	-104.00122583	
5,600.00	2.78	191.96	5,595.90	-166.61	-35.29	364,022.39	644,285.72	32.00034294	-104.00122912	
5,700.00	2.78	191.96	5,695.78	-171.36	-36.29	364,017.64	644,284.71	32.00032989	-104.00123241	
5,800.00	2.78	191.96	5,795.66	-176.11	-37.30	364,012.89	644,283.71	32.00031684	-104.00123571	
5,900.00	2.78	191.96	5,895.55	-180.86	-38.30	364,008.14	644,282.70	32.00030379	-104.00123900	
6,000.00	2.78	191.96	5,995.43	-185.61	-39.31	364,003.39	644,281.69	32.00029074	-104.00124229	
6,100.00	2.78	191.96	6,095.31	-190.36	-40.32	363,998.64	644,280.69	32.00027769	-104.00124558	
6,200.00	2.78	191.96	6,195.19	-195.11	-41.32	363,993.89	644,279.68	32.00026464	-104.00124888	
6,219.35	2.78	191.96	6,214.52	-196.03	-41.52	363,992.97	644,279.49	32.00026211	-104.00124951	
Begin 1.5"/100' drop										
6,300.00	1.57	191.96	6,295.11	-199.03	-42.15	363,989.97	644,278.85	32.00025388	-104.00125159	
6,400.00	0.07	191.96	6,395.10	-200.44	-42.45	363,988.56	644,278.56	32.00025001	-104.00125257	
6,404.90	0.00	0.01	6,400.00	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257	
Begin vertical hold										
6,430.71	0.00	0.00	6,425.81	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257	
Bone Spring Lime										
6,500.00	0.00	0.00	6,495.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257	
6,600.00	0.00	0.00	6,595.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257	
6,700.00	0.00	0.00	6,695.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257	
6,800.00	0.00	0.00	6,795.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257	
6,900.00	0.00	0.00	6,895.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257	
7,000.00	0.00	0.00	6,995.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257	
7,100.00	0.00	0.00	7,095.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257	
7,200.00	0.00	0.00	7,195.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257	
7,300.00	0.00	0.00	7,295.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257	
7,355.71	0.00	0.00	7,350.81	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257	
1st Bone Spring Sand										
7,400.00	0.00	0.00	7,395.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257	
7,500.00	0.00	0.00	7,495.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257	
7,600.00	0.00	0.00	7,595.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257	
7,700.00	0.00	0.00	7,695.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257	
7,800.00	0.00	0.00	7,795.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257	



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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	7,895.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
7,935.71	0.00	0.00	7,930.81	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
2nd Bone Spring Sand									
8,000.00	0.00	0.00	7,995.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
8,100.00	0.00	0.00	8,095.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
8,200.00	0.00	0.00	8,195.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
8,300.00	0.00	0.00	8,295.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
8,400.00	0.00	0.00	8,395.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
8,500.00	0.00	0.00	8,495.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
8,600.00	0.00	0.00	8,595.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
8,700.00	0.00	0.00	8,695.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
8,800.00	0.00	0.00	8,795.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
8,900.00	0.00	0.00	8,895.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
9,000.00	0.00	0.00	8,995.10	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
9,091.95	0.00	0.00	9,087.05	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
Begin 10°/100' build									
9,100.00	0.80	0.52	9,095.10	-200.38	-42.45	363,988.61	644,278.55	32.00025016	-104.00125257
9,178.08	8.61	0.52	9,172.85	-193.98	-42.39	363,995.02	644,278.61	32.00026776	-104.00125232
3rd Bone Spring Sand									
9,200.00	10.80	0.52	9,194.46	-190.28	-42.36	363,998.71	644,278.65	32.00027792	-104.00125217
9,300.00	20.80	0.52	9,290.55	-163.08	-42.11	364,025.91	644,278.89	32.00035269	-104.00125111
9,400.00	30.80	0.52	9,380.47	-119.61	-41.72	364,069.39	644,279.28	32.00047220	-104.00124942
9,461.49	36.95	0.52	9,431.49	-85.35	-41.41	364,103.65	644,279.59	32.00056637	-104.00124808
3rd BS W Sand									
9,500.00	40.80	0.52	9,461.47	-61.18	-41.19	364,127.81	644,279.81	32.00063280	-104.00124714
9,585.82	49.39	0.52	9,522.00	-0.46	-40.65	364,188.54	644,280.36	32.00079974	-104.00124477
Wolfcamp A									
9,600.00	50.80	0.52	9,531.09	10.42	-40.55	364,199.42	644,280.46	32.00082963	-104.00124434
9,700.00	60.80	0.52	9,587.22	93.02	-39.80	364,282.02	644,281.20	32.00105670	-104.00124112
9,800.00	70.80	0.52	9,628.15	184.12	-38.98	364,373.12	644,282.02	32.00130711	-104.00123757
9,815.93	72.40	0.52	9,633.18	199.23	-38.85	364,388.23	644,282.16	32.00134865	-104.00123698
Wolfcamp A Y Sand									
9,900.00	80.80	0.52	9,652.64	280.94	-38.11	364,469.94	644,282.90	32.00157325	-104.00123379
9,988.58	89.66	0.52	9,660.00	369.12	-37.31	364,558.12	644,283.69	32.00181566	-104.00123035
Begin 89.66° lateral									
10,000.00	89.66	0.52	9,660.07	380.54	-37.21	364,569.54	644,283.79	32.00184704	-104.00122991
10,100.00	89.66	0.52	9,660.65	480.53	-36.31	364,669.53	644,284.70	32.00212192	-104.00122601
10,200.00	89.66	0.52	9,661.24	580.53	-35.41	364,769.52	644,285.60	32.00239679	-104.00122211
10,300.00	89.66	0.52	9,661.83	680.52	-34.50	364,869.52	644,286.50	32.00267166	-104.00121821
10,400.00	89.66	0.52	9,662.42	780.52	-33.60	364,969.51	644,287.40	32.00294653	-104.00121431
10,500.00	89.66	0.52	9,663.01	880.51	-32.70	365,069.51	644,288.30	32.00322140	-104.00121041
10,600.00	89.66	0.52	9,663.60	980.50	-31.80	365,169.50	644,289.21	32.00349627	-104.00120651
10,700.00	89.66	0.52	9,664.18	1,080.50	-30.90	365,269.49	644,290.11	32.00377115	-104.00120261
10,800.00	89.66	0.52	9,664.77	1,180.49	-29.99	365,369.49	644,291.01	32.00404602	-104.00119870
10,900.00	89.66	0.52	9,665.36	1,280.49	-29.09	365,469.48	644,291.91	32.00432089	-104.00119480
11,000.00	89.66	0.52	9,665.95	1,380.48	-28.19	365,569.48	644,292.81	32.00459576	-104.00119090
11,100.00	89.66	0.52	9,666.54	1,480.48	-27.29	365,669.47	644,293.72	32.00487063	-104.00118700
11,200.00	89.66	0.52	9,667.13	1,580.47	-26.39	365,769.46	644,294.62	32.00514550	-104.00118310
11,300.00	89.66	0.52	9,667.71	1,680.46	-25.49	365,869.46	644,295.52	32.00542037	-104.00117920
11,400.00	89.66	0.52	9,668.30	1,780.46	-24.58	365,969.45	644,296.42	32.00569525	-104.00117530
11,500.00	89.66	0.52	9,668.89	1,880.45	-23.68	366,069.45	644,297.32	32.00597012	-104.00117140
11,600.00	89.66	0.52	9,669.48	1,980.45	-22.78	366,169.44	644,298.22	32.00624499	-104.00116750
11,700.00	89.66	0.52	9,670.07	2,080.44	-21.88	366,269.43	644,299.13	32.00651986	-104.00116360



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204
Company:	Tap Rock Operating LLC	TVD Reference:	H
Project:	Eddy County, New Mexico NAD83 NM east	MD Reference:	RKB=2866+26 @ 2892.00ft
Site:	Section 32-T26S-R29E	North Reference:	RKB=2866+26 @ 2892.00ft
Well:	Money Graham Fed Com Well No. 204 H	Survey Calculation Method:	Grid
Wellbore:	Original Hole		Minimum Curvature
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
11,800.00	89.66	0.52	9,670.66	2,180.43	-20.98	366,369.43	644,300.03	32.00679473	-104.00115970
11,900.00	89.66	0.52	9,671.25	2,280.43	-20.07	366,469.42	644,300.93	32.00706960	-104.00115580
12,000.00	89.66	0.52	9,671.83	2,380.42	-19.17	366,569.42	644,301.83	32.00734447	-104.00115190
12,100.00	89.66	0.52	9,672.42	2,480.42	-18.27	366,669.41	644,302.73	32.00761935	-104.00114799
12,200.00	89.66	0.52	9,673.01	2,580.41	-17.37	366,769.40	644,303.64	32.00789422	-104.00114409
12,300.00	89.66	0.52	9,673.60	2,680.41	-16.47	366,869.40	644,304.54	32.00816909	-104.00114019
12,400.00	89.66	0.52	9,674.19	2,780.40	-15.56	366,969.39	644,305.44	32.00844396	-104.00113629
12,500.00	89.66	0.52	9,674.78	2,880.39	-14.66	367,069.39	644,306.34	32.00871883	-104.00113239
12,600.00	89.66	0.52	9,675.36	2,980.39	-13.76	367,169.38	644,307.24	32.00899370	-104.00112849
12,700.00	89.66	0.52	9,675.95	3,080.38	-12.86	367,269.37	644,308.15	32.00926857	-104.00112459
12,800.00	89.66	0.52	9,676.54	3,180.38	-11.96	367,369.37	644,309.05	32.00954345	-104.00112069
12,900.00	89.66	0.52	9,677.13	3,280.37	-11.06	367,469.36	644,309.95	32.00981832	-104.00111679
13,000.00	89.66	0.52	9,677.72	3,380.37	-10.15	367,569.36	644,310.85	32.01009319	-104.00111288
13,100.00	89.66	0.52	9,678.31	3,480.36	-9.25	367,669.35	644,311.75	32.01036806	-104.00110898
13,200.00	89.66	0.52	9,678.89	3,580.35	-8.35	367,769.34	644,312.65	32.01064293	-104.00110508
13,300.00	89.66	0.52	9,679.48	3,680.35	-7.45	367,869.34	644,313.56	32.01091780	-104.00110118
13,400.00	89.66	0.52	9,680.07	3,780.34	-6.55	367,969.33	644,314.46	32.01119267	-104.00109728
13,500.00	89.66	0.52	9,680.66	3,880.34	-5.64	368,069.33	644,315.36	32.01146754	-104.00109338
13,600.00	89.66	0.52	9,681.25	3,980.33	-4.74	368,169.32	644,316.26	32.01174242	-104.00108948
13,700.00	89.66	0.52	9,681.84	4,080.32	-3.84	368,269.31	644,317.16	32.01201729	-104.00108558
13,800.00	89.66	0.52	9,682.43	4,180.32	-2.94	368,369.31	644,318.07	32.01229216	-104.00108167
13,900.00	89.66	0.52	9,683.01	4,280.31	-2.04	368,469.30	644,318.97	32.01256703	-104.00107777
14,000.00	89.66	0.52	9,683.60	4,380.31	-1.13	368,569.30	644,319.87	32.01284190	-104.00107387
14,100.00	89.66	0.52	9,684.19	4,480.30	-0.23	368,669.29	644,320.77	32.01311677	-104.00106997
14,200.00	89.66	0.52	9,684.78	4,580.30	0.67	368,769.28	644,321.67	32.01339164	-104.00106607
14,300.00	89.66	0.52	9,685.37	4,680.29	1.57	368,869.28	644,322.58	32.01366651	-104.00106217
14,400.00	89.66	0.52	9,685.96	4,780.28	2.47	368,969.27	644,323.48	32.01394138	-104.00105826
14,500.00	89.66	0.52	9,686.54	4,880.28	3.38	369,069.27	644,324.38	32.01421626	-104.00105436
14,600.00	89.66	0.52	9,687.13	4,980.27	4.28	369,169.26	644,325.28	32.01449113	-104.00105046
14,700.00	89.66	0.52	9,687.72	5,080.27	5.18	369,269.25	644,326.18	32.01476600	-104.00104656
14,800.00	89.66	0.52	9,688.31	5,180.26	6.08	369,369.25	644,327.09	32.01504087	-104.00104266
14,900.00	89.66	0.52	9,688.90	5,280.26	6.98	369,469.24	644,327.99	32.01531574	-104.00103876
15,000.00	89.66	0.52	9,689.49	5,380.25	7.88	369,569.24	644,328.89	32.01559061	-104.00103485
15,100.00	89.66	0.52	9,690.07	5,480.24	8.79	369,669.23	644,329.79	32.01586548	-104.00103095
15,200.00	89.66	0.52	9,690.66	5,580.24	9.69	369,769.22	644,330.69	32.01614035	-104.00102705
15,300.00	89.66	0.52	9,691.25	5,680.23	10.59	369,869.22	644,331.59	32.01641522	-104.00102315
15,400.00	89.66	0.52	9,691.84	5,780.23	11.49	369,969.21	644,332.50	32.01669009	-104.00101925
15,500.00	89.66	0.52	9,692.43	5,880.22	12.39	370,069.21	644,333.40	32.01696497	-104.00101534
15,600.00	89.66	0.52	9,693.02	5,980.21	13.30	370,169.20	644,334.30	32.01723984	-104.00101144
15,700.00	89.66	0.52	9,693.60	6,080.21	14.20	370,269.19	644,335.20	32.01751471	-104.00100754
15,800.00	89.66	0.52	9,694.19	6,180.20	15.10	370,369.19	644,336.10	32.01778958	-104.00100364
15,900.00	89.66	0.52	9,694.78	6,280.20	16.00	370,469.18	644,337.01	32.01806445	-104.00099974
16,000.00	89.66	0.52	9,695.37	6,380.19	16.90	370,569.18	644,337.91	32.01833932	-104.00099583
16,100.00	89.66	0.52	9,695.96	6,480.19	17.81	370,669.17	644,338.81	32.01861419	-104.00099193
16,200.00	89.66	0.52	9,696.55	6,580.18	18.71	370,769.16	644,339.71	32.01888906	-104.00098803
16,300.00	89.66	0.52	9,697.14	6,680.17	19.61	370,869.16	644,340.61	32.01916393	-104.00098413
16,400.00	89.66	0.52	9,697.72	6,780.17	20.51	370,969.15	644,341.52	32.01943880	-104.00098022
16,500.00	89.66	0.52	9,698.31	6,880.16	21.41	371,069.15	644,342.42	32.01971367	-104.00097632
16,600.00	89.66	0.52	9,698.90	6,980.16	22.31	371,169.14	644,343.32	32.01998854	-104.00097242
16,700.00	89.66	0.52	9,699.49	7,080.15	23.22	371,269.13	644,344.22	32.02026342	-104.00096852
16,786.87	89.66	0.52	9,700.00	7,167.01	24.00	371,356.00	644,345.00	32.02050219	-104.00096513

PBHL/TD 16786.87 MD/9700.00 TVD



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

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 204 H V - plan hits target center - Point	0.00	0.01	6,400.00	-200.44	-42.45	363,988.56	644,278.55	32.00025000	-104.00125257
Money Graham 204 H V - plan misses target center by 50.44ft at 6404.87ft MD (6399.97 TVD, -200.44 N, -42.45 E) - Point	0.00	0.01	6,400.00	-150.00	-42.00	364,039.00	644,279.00	32.00038866	-104.00125062
Money Graham 204 H P - plan hits target center - Point	0.00	0.01	9,700.00	7,167.01	24.00	371,356.00	644,345.00	32.02050219	-104.00096513

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
507.00	507.00	Rustler Anhydrite		0.34	0.52
682.00	682.00	Top Salt		0.34	0.52
2,392.23	2,391.92	Base Salt		0.34	0.52
2,732.54	2,731.82	Delaware Mountain Gp		0.34	0.52
2,847.64	2,846.79	Bell Canyon		0.34	0.52
2,847.64	2,846.79	Lamar		0.34	0.52
2,887.68	2,886.78	Ramsey Sand		0.34	0.52
3,863.55	3,861.50	Cherry Canyon		0.34	0.52
4,839.43	4,836.22	Brushy Canyon		0.34	0.52
6,430.71	6,425.81	Bone Spring Lime		0.34	0.52
7,355.71	7,350.81	1st Bone Spring Sand		0.34	0.52
7,935.71	7,930.81	2nd Bone Spring Sand		0.34	0.52
9,178.08	9,172.85	3rd Bone Spring Sand		0.34	0.52
9,461.49	9,431.49	3rd BS W Sand		0.34	0.52
9,585.82	9,522.00	Wolfcamp A		0.34	0.52
9,815.93	9,633.18	Wolfcamp A Y Sand		0.34	0.52

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,000.00	2,000.00	0.00	0.00	KOP Begin 1.5°/100' build
2,185.55	2,185.48	-4.41	-0.93	Begin 2.78° tangent
6,219.35	6,214.52	-196.03	-41.52	Begin 1.5°/100' drop
6,404.90	6,400.00	-200.44	-42.45	Begin vertical hold
9,091.95	9,087.05	-200.44	-42.45	Begin 10°/100' build
9,988.58	9,660.00	369.12	-37.31	Begin 89.66° lateral
16,786.87	9,700.00	7,167.01	24.00	PBHL/TD 16786.87 MD/9700.00 TVD



Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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 1,878.69 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	16,786.87	rev0 (Original Hole)	MWD	OWSG MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Section 32-T26S-R29E						
Money Graham Fed Com Well No. 214 H - Original Hole	1,200.00	1,200.00	50.01	37.78	4.090	CC, ES
Money Graham Fed Com Well No. 214 H - Original Hole	16,786.87	17,040.11	391.58	125.25	1.470	Level 2<1.50, SF
Money Graham Fed Com Well No. 218 H - Original Hole	1,200.00	1,200.00	50.00	37.77	4.089	CC, ES
Money Graham Fed Com Well No. 218 H - Original Hole	16,786.87	17,045.10	396.49	131.78	1.498	Level 2<1.50, SF
Money Graham Fed Com Well No. 238 H - Original Hole	1,400.00	1,400.00	25.00	10.62	1.739	Level 3<2.00, CC
Money Graham Fed Com Well No. 238 H - Original Hole	1,500.00	1,499.62	25.73	10.31	1.668	Level 3<2.00, ES, SF
Money Graham Fed Com Well No. 246 H - Original Hole	1,400.00	1,400.00	25.02	10.64	1.740	Level 3<2.00, CC, ES
Money Graham Fed Com Well No. 246 H - Original Hole	1,500.00	1,499.46	26.07	10.64	1.690	Level 3<2.00, SF
Sidewinder #1H - Original Hole - Surveys Original Hole	6,887.12	10,464.89	295.23	117.02	1.657	Level 3<2.00, CC, ES, SF

Offset Design		Section 32-T26S-R29E - Money Graham Fed Com Well No. 214 H - Original Hole - rev0										Offset Site Error:		0.00 ft
Survey Program:		0-MWD										Offset Well Error:		0.00 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.00	0.00	0.00	0.00	0.00	0.00	-91.15	-1.00	-50.00	50.01					
100.00	100.00	100.00	100.00	0.20	0.20	-91.15	-1.00	-50.00	50.01	49.61	0.40	125.684		
200.00	200.00	200.00	200.00	0.74	0.74	-91.15	-1.00	-50.00	50.01	48.54	1.47	33.944		
300.00	300.00	300.00	300.00	1.27	1.27	-91.15	-1.00	-50.00	50.01	47.46	2.55	19.622		
400.00	400.00	400.00	400.00	1.81	1.81	-91.15	-1.00	-50.00	50.01	46.39	3.62	13.799		
500.00	500.00	500.00	500.00	2.35	2.35	-91.15	-1.00	-50.00	50.01	45.31	4.70	10.641		
600.00	600.00	600.00	600.00	2.89	2.89	-91.15	-1.00	-50.00	50.01	44.24	5.77	8.660		
700.00	700.00	700.00	700.00	3.43	3.43	-91.15	-1.00	-50.00	50.01	43.16	6.85	7.300		
800.00	800.00	800.00	800.00	3.96	3.96	-91.15	-1.00	-50.00	50.01	42.08	7.93	6.310		
900.00	900.00	900.00	900.00	4.50	4.50	-91.15	-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	-91.15	-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	-91.15	-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	-91.15	-1.00	-50.00	50.01	37.78	12.23	4.090	CC, ES	
1,300.00	1,300.00	1,298.80	1,298.79	6.65	6.63	-91.73	-1.55	-51.16	51.19	37.92	13.27	3.857		
1,400.00	1,400.00	1,397.46	1,397.38	7.19	7.13	-93.33	-3.18	-54.61	54.77	40.47	14.30	3.830		
1,500.00	1,500.00	1,495.87	1,495.57	7.73	7.63	-95.58	-5.90	-60.35	60.80	45.49	15.31	3.970		
1,600.00	1,600.00	1,594.27	1,593.58	8.26	8.14	-98.05	-9.66	-68.32	69.29	52.96	16.33	4.243		

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



Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204_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. 214 H - Original Hole - rev0		Offset Site Error: 0.00 ft	
Survey Program: 0-MWD													Offset Well Error: 0.00 ft			
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)						
1,700.00	1,700.00	1,706.20	1,692.64	8.80	8.74	-100.15	-13.79	-77.04	78.61	61.17	17.44	4.507				
1,800.00	1,800.00	1,806.67	1,791.70	9.34	9.28	-101.80	-17.92	-85.77	88.02	69.51	18.50	4.757				
1,900.00	1,900.00	1,907.14	1,890.75	9.88	9.83	-103.13	-22.05	-94.50	97.48	77.91	19.56	4.983				
2,000.00	2,000.00	2,007.62	1,989.81	10.42	10.38	-104.23	-26.18	-103.23	106.98	86.35	20.63	5.187				
2,100.00	2,099.99	2,091.98	2,088.94	10.93	10.85	63.35	-30.31	-111.96	115.93	94.35	21.58	5.372				
2,200.00	2,199.91	2,208.34	2,188.15	11.41	11.49	64.05	-34.44	-120.70	123.73	101.05	22.68	5.455				
2,300.00	2,299.79	2,308.65	2,287.37	11.91	12.05	65.11	-38.58	-129.45	131.15	107.44	23.71	5.532				
2,400.00	2,399.67	2,408.95	2,386.60	12.40	12.62	66.07	-42.71	-138.19	138.61	113.87	24.74	5.602				
2,500.00	2,499.56	2,509.25	2,485.82	12.90	13.18	66.93	-46.85	-146.93	146.11	120.32	25.78	5.667				
2,600.00	2,599.44	2,609.56	2,585.05	13.41	13.75	67.70	-50.98	-155.67	153.63	126.80	26.83	5.726				
2,700.00	2,699.32	2,709.86	2,684.28	13.92	14.32	68.40	-55.12	-164.42	161.18	133.30	27.88	5.782				
2,800.00	2,799.20	2,789.83	2,783.50	14.43	14.78	69.04	-59.26	-173.16	168.75	139.93	28.82	5.855				
2,900.00	2,899.08	2,889.53	2,882.73	14.94	15.35	69.62	-63.39	-181.90	176.34	146.46	29.88	5.902				
3,000.00	2,998.97	2,989.23	2,981.95	15.46	15.92	70.16	-67.53	-190.65	183.94	153.01	30.94	5.946				
3,100.00	3,098.85	3,088.92	3,081.18	15.98	16.49	70.65	-71.66	-199.39	191.56	159.57	32.00	5.987				
3,200.00	3,198.73	3,188.62	3,180.41	16.50	17.06	71.10	-75.80	-208.13	199.20	166.14	33.06	6.025				
3,300.00	3,298.61	3,288.32	3,279.63	17.02	17.63	71.52	-79.93	-216.88	206.84	172.71	34.13	6.061				
3,400.00	3,398.49	3,388.01	3,378.86	17.55	18.21	71.92	-84.07	-225.62	214.50	179.30	35.20	6.094				
3,500.00	3,498.38	3,487.71	3,478.08	18.08	18.78	72.28	-88.20	-234.36	222.16	185.89	36.27	6.125				
3,600.00	3,598.26	3,587.40	3,577.31	18.61	19.36	72.62	-92.34	-243.10	229.84	192.49	37.35	6.154				
3,700.00	3,698.14	3,687.10	3,676.54	19.14	19.93	72.94	-96.47	-251.85	237.52	199.10	38.42	6.182				
3,800.00	3,798.02	3,786.80	3,775.76	19.67	20.51	73.24	-100.61	-260.59	245.21	205.71	39.50	6.208				
3,900.00	3,897.90	3,886.49	3,874.99	20.20	21.09	73.52	-104.75	-269.33	252.90	212.32	40.58	6.232				
4,000.00	3,997.79	3,986.19	3,974.21	20.73	21.66	73.78	-108.88	-278.08	260.60	218.94	41.66	6.256				
4,100.00	4,097.67	4,085.89	4,073.44	21.27	22.24	74.03	-113.02	-286.82	268.30	225.56	42.74	6.277				
4,200.00	4,197.55	4,185.58	4,172.67	21.80	22.82	74.26	-117.15	-295.56	276.01	232.19	43.82	6.298				
4,300.00	4,297.43	4,285.28	4,271.89	22.34	23.40	74.48	-121.29	-304.30	283.73	238.82	44.91	6.318				
4,400.00	4,397.31	4,384.97	4,371.12	22.87	23.98	74.69	-125.42	-313.05	291.45	245.45	45.99	6.336				
4,500.00	4,497.20	4,484.67	4,470.34	23.41	24.56	74.89	-129.56	-321.79	299.17	252.09	47.08	6.354				
4,600.00	4,597.08	4,584.37	4,569.57	23.95	25.14	75.08	-133.69	-330.53	306.89	258.72	48.17	6.371				
4,700.00	4,696.96	4,684.06	4,668.80	24.49	25.72	75.26	-137.83	-339.28	314.62	265.36	49.26	6.387				
4,800.00	4,796.84	4,783.76	4,768.02	25.03	26.30	75.43	-141.96	-348.02	322.35	272.00	50.35	6.402				
4,900.00	4,896.73	4,883.45	4,867.25	25.57	26.88	75.60	-146.10	-356.76	330.08	278.65	51.44	6.417				
5,000.00	4,996.61	4,983.15	4,966.47	26.11	27.46	75.75	-150.24	-365.50	337.82	285.29	52.53	6.431				
5,100.00	5,096.49	5,082.85	5,065.70	26.65	28.04	75.90	-154.37	-374.25	345.56	291.94	53.62	6.444				
5,200.00	5,196.37	5,182.54	5,164.93	27.19	28.62	76.04	-158.51	-382.99	353.30	298.59	54.71	6.457				
5,300.00	5,296.25	5,282.24	5,264.15	27.73	29.20	76.18	-162.64	-391.73	361.04	305.24	55.81	6.470				
5,400.00	5,396.14	5,381.94	5,363.38	28.27	29.78	76.31	-166.78	-400.48	368.79	311.89	56.90	6.481				
5,500.00	5,496.02	5,481.63	5,462.60	28.82	30.36	76.43	-170.91	-409.22	376.53	318.54	57.99	6.493				
5,600.00	5,595.90	5,581.33	5,561.83	29.36	30.95	76.55	-175.05	-417.96	384.28	325.19	59.09	6.503				
5,700.00	5,695.78	5,681.02	5,661.06	29.90	31.53	76.67	-179.18	-426.71	392.03	331.85	60.18	6.514				
5,800.00	5,795.66	5,780.72	5,760.28	30.45	32.11	76.78	-183.32	-435.45	399.78	338.50	61.28	6.524				
5,900.00	5,895.55	5,880.42	5,859.51	30.99	32.69	76.89	-187.45	-444.19	407.54	345.16	62.38	6.534				
6,000.00	5,995.43	5,980.11	5,958.73	31.53	33.27	76.99	-191.59	-452.93	415.29	351.82	63.47	6.543				
6,100.00	6,095.31	6,083.02	6,061.17	32.08	33.87	77.10	-195.80	-461.84	422.94	358.33	64.61	6.546				
6,200.00	6,195.19	6,194.11	6,171.94	32.62	34.50	77.35	-199.33	-469.29	428.62	362.81	65.81	6.513				
6,300.00	6,295.11	6,305.41	6,283.13	33.17	35.11	77.68	-201.48	-473.83	431.86	364.89	66.96	6.449				
6,400.00	6,395.10	6,416.83	6,394.53	33.69	35.69	77.80	-202.24	-475.45	433.00	364.97	68.04	6.364				
6,500.00	6,495.10	6,517.39	6,495.10	34.19	36.17	-90.24	-202.24	-475.45	433.00	363.96	69.04	6.272				
6,600.00	6,595.10	6,617.39	6,595.10	34.70	36.66	-90.24	-202.24	-475.45	433.00	362.96	70.05	6.182				
6,700.00	6,695.10	6,717.39	6,695.10	35.20	37.15	-90.24	-202.24	-475.45	433.00	361.95	71.06	6.094				

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



Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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. 214 H - Original Hole - rev0													Offset Site Error:	0.00 ft
Survey Program: Q-MWD													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance			Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
6,800.00	6,795.10	6,817.39	6,795.10	35.71	37.64	-90.24	-202.24	-475.45	433.00	360.94	72.07	6.008		
6,900.00	6,895.10	6,917.39	6,895.10	36.22	38.13	-90.24	-202.24	-475.45	433.00	359.93	73.08	5.925		
7,000.00	6,995.10	7,017.39	6,995.10	36.73	38.62	-90.24	-202.24	-475.45	433.00	358.91	74.09	5.844		
7,100.00	7,095.10	7,117.39	7,095.10	37.24	39.11	-90.24	-202.24	-475.45	433.00	357.90	75.11	5.765		
7,200.00	7,195.10	7,217.39	7,195.10	37.75	39.61	-90.24	-202.24	-475.45	433.00	356.88	76.12	5.688		
7,300.00	7,295.10	7,317.39	7,295.10	38.26	40.10	-90.24	-202.24	-475.45	433.00	355.86	77.14	5.613		
7,400.00	7,395.10	7,417.39	7,395.10	38.77	40.60	-90.24	-202.24	-475.45	433.00	354.84	78.16	5.540		
7,500.00	7,495.10	7,517.39	7,495.10	39.29	41.09	-90.24	-202.24	-475.45	433.00	353.82	79.18	5.468		
7,600.00	7,595.10	7,617.39	7,595.10	39.80	41.59	-90.24	-202.24	-475.45	433.00	352.80	80.21	5.399		
7,700.00	7,695.10	7,717.39	7,695.10	40.31	42.09	-90.24	-202.24	-475.45	433.00	351.77	81.23	5.330		
7,800.00	7,795.10	7,817.39	7,795.10	40.83	42.59	-90.24	-202.24	-475.45	433.00	350.75	82.26	5.264		
7,900.00	7,895.10	7,917.39	7,895.10	41.34	43.09	-90.24	-202.24	-475.45	433.00	349.72	83.28	5.199		
8,000.00	7,995.10	8,017.39	7,995.10	41.86	43.59	-90.24	-202.24	-475.45	433.00	348.69	84.31	5.136		
8,100.00	8,095.10	8,117.39	8,095.10	42.38	44.10	-90.24	-202.24	-475.45	433.00	347.66	85.34	5.074		
8,200.00	8,195.10	8,217.39	8,195.10	42.89	44.60	-90.24	-202.24	-475.45	433.00	346.63	86.37	5.013		
8,300.00	8,295.10	8,317.39	8,295.10	43.41	45.10	-90.24	-202.24	-475.45	433.00	345.60	87.40	4.954		
8,400.00	8,395.10	8,417.39	8,395.10	43.93	45.61	-90.24	-202.24	-475.45	433.00	344.57	88.44	4.896		
8,500.00	8,495.10	8,517.39	8,495.10	44.45	46.12	-90.24	-202.24	-475.45	433.00	343.53	89.47	4.840		
8,600.00	8,595.10	8,617.39	8,595.10	44.97	46.62	-90.24	-202.24	-475.45	433.00	342.50	90.50	4.784		
8,700.00	8,695.10	8,717.39	8,695.10	45.49	47.13	-90.24	-202.24	-475.45	433.00	341.46	91.54	4.730		
8,800.00	8,795.10	8,817.39	8,795.10	46.01	47.64	-90.24	-202.24	-475.45	433.00	340.43	92.58	4.677		
8,900.00	8,895.10	8,917.39	8,895.10	46.53	48.15	-90.24	-202.24	-475.45	433.00	339.39	93.61	4.625		
9,000.00	8,995.10	9,017.39	8,995.10	47.05	48.65	-90.24	-202.24	-475.45	433.00	338.35	94.65	4.575		
9,008.21	9,003.31	9,025.60	9,003.31	47.09	48.70	-90.76	-202.24	-475.45	433.01	338.27	94.74	4.571		
9,100.00	9,095.10	9,117.39	9,095.10	47.57	49.16	-90.76	-202.24	-475.45	433.01	337.31	95.69	4.525		
9,200.00	9,194.46	9,216.75	9,194.46	48.07	49.67	-92.06	-202.24	-475.45	433.26	336.58	96.68	4.481		
9,300.00	9,290.55	9,312.35	9,290.55	48.53	50.16	-95.31	-202.24	-475.45	435.10	337.53	97.58	4.459		
9,400.00	9,380.47	9,421.31	9,389.42	48.95	50.71	-100.50	-197.71	-474.69	440.36	342.07	98.29	4.480		
9,500.00	9,461.47	9,553.16	9,526.59	49.34	51.28	-106.36	-166.87	-469.50	445.93	347.77	98.16	4.543		
9,600.00	9,531.09	9,699.63	9,655.92	49.73	51.78	-112.06	-99.90	-458.23	449.68	353.27	96.41	4.664		
9,700.00	9,587.22	9,860.91	9,773.30	50.13	52.14	-117.22	8.40	-440.01	449.40	356.45	92.94	4.835		
9,800.00	9,628.15	10,032.81	9,859.58	50.55	52.31	-121.38	154.29	-415.47	442.93	353.82	89.11	4.971		
9,900.00	9,652.64	10,207.34	9,898.47	51.01	52.81	-124.10	321.38	-387.36	429.00	341.67	87.33	4.913		
10,000.00	9,660.07	10,314.35	9,900.40	51.50	53.32	-125.74	427.01	-370.41	413.46	325.95	87.50	4.725		
10,100.00	9,660.65	10,403.38	9,900.93	52.08	53.83	-126.61	515.31	-359.12	403.92	316.46	87.46	4.618		
10,200.00	9,661.24	10,492.99	9,901.46	52.76	54.43	-127.29	604.50	-350.52	396.96	309.21	87.75	4.524		
10,300.00	9,661.83	10,583.00	9,902.00	53.56	55.11	-127.73	694.32	-344.70	392.54	304.13	88.41	4.440		
10,400.00	9,662.42	10,673.24	9,902.53	54.45	55.87	-127.93	784.50	-341.70	390.63	301.17	89.45	4.367		
10,426.98	9,662.58	10,697.60	9,902.67	54.72	56.08	-127.94	808.86	-341.37	390.54	300.74	89.80	4.349		
10,500.00	9,663.01	10,770.58	9,903.10	55.44	56.78	-127.94	881.83	-340.72	390.54	299.67	90.87	4.298		
10,600.00	9,663.60	10,870.58	9,903.69	56.52	57.80	-127.93	981.83	-339.83	390.56	298.10	92.46	4.224		
10,700.00	9,664.18	10,970.58	9,904.28	57.68	58.91	-127.93	1,081.82	-338.95	390.57	296.39	94.17	4.147		
10,800.00	9,664.77	11,070.58	9,904.87	58.93	60.09	-127.93	1,181.82	-338.06	390.58	294.56	96.01	4.068		
10,900.00	9,665.36	11,170.58	9,905.46	60.25	61.36	-127.93	1,281.81	-337.17	390.59	292.62	97.97	3.987		
11,000.00	9,665.95	11,270.58	9,906.04	61.64	62.69	-127.93	1,381.81	-336.28	390.60	290.56	100.03	3.905		
11,100.00	9,666.54	11,370.58	9,906.63	63.10	64.09	-127.93	1,481.80	-335.39	390.61	288.41	102.20	3.822		
11,200.00	9,667.13	11,470.58	9,907.22	64.62	65.55	-127.93	1,581.80	-334.50	390.62	286.17	104.45	3.740		
11,300.00	9,667.71	11,570.58	9,907.81	66.20	67.08	-127.93	1,681.79	-333.61	390.63	283.84	106.79	3.658		
11,400.00	9,668.30	11,670.58	9,908.40	67.83	68.65	-127.93	1,781.78	-332.72	390.64	281.44	109.20	3.577		
11,500.00	9,668.89	11,770.58	9,908.99	69.51	70.28	-127.92	1,881.78	-331.84	390.65	278.96	111.69	3.498		
11,600.00	9,669.48	11,870.58	9,909.58	71.24	71.96	-127.92	1,981.77	-330.95	390.66	276.42	114.24	3.420		

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



Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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. 214 H - Original Hole - rev0												Offset Site Error: 0.00 ft		
Survey Program: 0-MWD												Offset Well Error: 0.00 ft		
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
11,700.00	9,670.07	11,970.58	9,910.16	73.01	73.68	-127.92	2,081.77	-330.06	390.67	273.82	116.85	3.343		
11,800.00	9,670.66	12,070.58	9,910.75	74.82	75.44	-127.92	2,181.76	-329.17	390.68	271.17	119.51	3.269		
11,900.00	9,671.25	12,170.58	9,911.34	76.66	77.25	-127.92	2,281.76	-328.28	390.69	268.47	122.22	3.197		
12,000.00	9,671.83	12,270.58	9,911.93	78.54	79.08	-127.92	2,381.75	-327.39	390.70	265.72	124.98	3.126		
12,100.00	9,672.42	12,370.58	9,912.52	80.46	80.95	-127.92	2,481.74	-326.50	390.71	262.94	127.77	3.058		
12,200.00	9,673.01	12,470.58	9,913.11	82.40	82.86	-127.92	2,581.74	-325.61	390.72	260.12	130.61	2.992		
12,300.00	9,673.60	12,570.58	9,913.70	84.37	84.79	-127.91	2,681.73	-324.73	390.73	257.26	133.47	2.928		
12,400.00	9,674.19	12,670.58	9,914.28	86.37	86.75	-127.91	2,781.73	-323.84	390.74	254.38	136.36	2.866		
12,500.00	9,674.78	12,770.58	9,914.87	88.39	88.73	-127.91	2,881.72	-322.95	390.75	251.48	139.28	2.806		
12,600.00	9,675.36	12,870.58	9,915.46	90.43	90.74	-127.91	2,981.72	-322.06	390.76	248.55	142.21	2.748		
12,700.00	9,675.95	12,970.58	9,916.05	92.49	92.77	-127.91	3,081.71	-321.17	390.77	245.60	145.17	2.692		
12,800.00	9,676.54	13,070.58	9,916.64	94.57	94.82	-127.91	3,181.70	-320.28	390.78	242.63	148.15	2.638		
12,900.00	9,677.13	13,170.58	9,917.23	96.68	96.90	-127.91	3,281.70	-319.39	390.79	239.65	151.14	2.586		
13,000.00	9,677.72	13,270.58	9,917.82	98.79	98.99	-127.91	3,381.69	-318.50	390.81	236.66	154.15	2.535		
13,100.00	9,678.31	13,370.58	9,918.40	100.93	101.09	-127.91	3,481.69	-317.61	390.82	233.65	157.16	2.487		
13,200.00	9,678.89	13,470.58	9,918.99	103.08	103.22	-127.90	3,581.68	-316.73	390.83	230.64	160.18	2.440		
13,300.00	9,679.48	13,570.58	9,919.58	105.24	105.35	-127.90	3,681.68	-315.84	390.84	227.62	163.22	2.395		
13,400.00	9,680.07	13,670.58	9,920.17	107.42	107.51	-127.90	3,781.67	-314.95	390.85	224.59	166.26	2.351		
13,500.00	9,680.66	13,770.58	9,920.76	109.61	109.67	-127.90	3,881.66	-314.06	390.86	221.56	169.30	2.309		
13,600.00	9,681.25	13,870.58	9,921.35	111.81	111.85	-127.90	3,981.66	-313.17	390.87	218.52	172.35	2.268		
13,700.00	9,681.84	13,970.58	9,921.94	114.02	114.04	-127.90	4,081.65	-312.28	390.88	215.48	175.39	2.229		
13,800.00	9,682.43	14,070.58	9,922.52	116.25	116.24	-127.90	4,181.65	-311.39	390.89	212.44	178.44	2.191		
13,900.00	9,683.01	14,170.58	9,923.11	118.48	118.46	-127.90	4,281.64	-310.50	390.90	209.40	181.49	2.154		
14,000.00	9,683.60	14,270.58	9,923.70	120.72	120.68	-127.90	4,381.64	-309.62	390.91	206.36	184.54	2.118		
14,100.00	9,684.19	14,370.58	9,924.29	122.97	122.91	-127.89	4,481.63	-308.73	390.92	203.33	187.59	2.084		
14,200.00	9,684.78	14,470.58	9,924.88	125.23	125.15	-127.89	4,581.62	-307.84	390.93	200.29	190.64	2.051		
14,300.00	9,685.37	14,570.58	9,925.47	127.50	127.40	-127.89	4,681.62	-306.95	390.94	197.26	193.68	2.018		
14,400.00	9,685.96	14,670.58	9,926.05	129.77	129.66	-127.89	4,781.61	-306.06	390.95	194.23	196.72	1.987 Level 3<2.00		
14,500.00	9,686.54	14,770.58	9,926.64	132.05	131.93	-127.89	4,881.61	-305.17	390.96	191.20	199.76	1.957 Level 3<2.00		
14,600.00	9,687.13	14,870.58	9,927.23	134.34	134.20	-127.89	4,981.60	-304.28	390.97	188.18	202.79	1.928 Level 3<2.00		
14,700.00	9,687.72	14,970.58	9,927.82	136.64	136.48	-127.89	5,081.60	-303.39	390.98	185.17	205.81	1.900 Level 3<2.00		
14,800.00	9,688.31	15,070.58	9,928.41	138.94	138.76	-127.89	5,181.59	-302.51	390.99	182.16	208.84	1.872 Level 3<2.00		
14,900.00	9,688.90	15,170.58	9,929.00	141.24	141.06	-127.88	5,281.58	-301.62	391.00	179.15	211.85	1.846 Level 3<2.00		
15,000.00	9,689.49	15,270.58	9,929.59	143.56	143.35	-127.88	5,381.58	-300.73	391.01	176.15	214.86	1.820 Level 3<2.00		
15,100.00	9,690.07	15,370.58	9,930.17	145.87	145.66	-127.88	5,481.57	-299.84	391.02	173.16	217.86	1.795 Level 3<2.00		
15,200.00	9,690.66	15,470.58	9,930.76	148.20	147.97	-127.88	5,581.57	-298.95	391.03	170.18	220.86	1.771 Level 3<2.00		
15,300.00	9,691.25	15,570.58	9,931.35	150.52	150.28	-127.88	5,681.56	-298.06	391.04	167.20	223.85	1.747 Level 3<2.00		
15,400.00	9,691.84	15,670.58	9,931.94	152.85	152.60	-127.88	5,781.56	-297.17	391.05	164.23	226.83	1.724 Level 3<2.00		
15,500.00	9,692.43	15,770.58	9,932.53	155.19	154.93	-127.88	5,881.55	-296.28	391.07	161.26	229.80	1.702 Level 3<2.00		
15,600.00	9,693.02	15,870.58	9,933.12	157.53	157.25	-127.88	5,981.55	-295.40	391.08	158.30	232.77	1.680 Level 3<2.00		
15,700.00	9,693.60	15,970.58	9,933.71	159.87	159.59	-127.88	6,081.54	-294.51	391.09	155.36	235.73	1.659 Level 3<2.00		
15,800.00	9,694.19	16,070.58	9,934.29	162.22	161.93	-127.87	6,181.53	-293.62	391.10	152.41	238.68	1.639 Level 3<2.00		
15,900.00	9,694.78	16,170.58	9,934.88	164.57	164.27	-127.87	6,281.53	-292.73	391.11	149.48	241.63	1.619 Level 3<2.00		
16,000.00	9,695.37	16,270.58	9,935.47	166.93	166.61	-127.87	6,381.52	-291.84	391.12	146.55	244.57	1.599 Level 3<2.00		
16,100.00	9,695.96	16,370.58	9,936.06	169.29	168.96	-127.87	6,481.52	-290.95	391.13	143.63	247.50	1.580 Level 3<2.00		
16,200.00	9,696.55	16,470.58	9,936.65	171.65	171.31	-127.87	6,581.51	-290.06	391.14	140.72	250.42	1.562 Level 3<2.00		
16,300.00	9,697.14	16,570.58	9,937.24	174.01	173.67	-127.87	6,681.51	-289.17	391.15	137.82	253.33	1.544 Level 3<2.00		
16,400.00	9,697.72	16,670.58	9,937.83	176.38	176.03	-127.87	6,781.50	-288.28	391.16	134.92	256.24	1.527 Level 3<2.00		
16,500.00	9,698.31	16,770.58	9,938.41	178.75	178.39	-127.87	6,881.49	-287.40	391.17	132.03	259.14	1.510 Level 3<2.00		
16,600.00	9,698.90	16,870.58	9,939.00	181.12	180.75	-127.86	6,981.49	-286.51	391.18	129.15	262.03	1.493 Level 2<1.50		
16,700.00	9,699.49	16,970.58	9,939.59	183.50	183.12	-127.86	7,081.48	-285.62	391.19	126.28	264.91	1.477 Level 2<1.50		

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



Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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. 214 H - Original Hole - rev0													Offset Site Error:	0.00 ft
Survey Program: 0-MWD													Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance										
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
16,702.29	9,699.50	16,972.87	9,939.60	183.55	183.17	-127.86	7,083.77	-285.60	391.19	126.21	264.98	1.476	Level 2<1.50	
16,786.87	9,700.00	17,040.11	9,940.00	185.57	184.77	-127.86	7,151.01	-285.00	391.58	125.25	266.33	1.470	Level 2<1.50, SF	



Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	90.00	0.00	50.00	50.00				
100.00	100.00	100.00	100.00	0.20	0.20	90.00	0.00	50.00	50.00	49.60	0.40	125.659	
200.00	200.00	200.00	200.00	0.74	0.74	90.00	0.00	50.00	50.00	48.53	1.47	33.937	
300.00	300.00	300.00	300.00	1.27	1.27	90.00	0.00	50.00	50.00	47.45	2.55	19.618	
400.00	400.00	400.00	400.00	1.81	1.81	90.00	0.00	50.00	50.00	46.38	3.62	13.796	
500.00	500.00	500.00	500.00	2.35	2.35	90.00	0.00	50.00	50.00	45.30	4.70	10.639	
600.00	600.00	600.00	600.00	2.89	2.89	90.00	0.00	50.00	50.00	44.23	5.77	8.658	
700.00	700.00	700.00	700.00	3.43	3.43	90.00	0.00	50.00	50.00	43.15	6.85	7.299	
800.00	800.00	800.00	800.00	3.96	3.96	90.00	0.00	50.00	50.00	42.07	7.93	6.309	
900.00	900.00	900.00	900.00	4.50	4.50	90.00	0.00	50.00	50.00	41.00	9.00	5.555	
1,000.00	1,000.00	1,000.00	1,000.00	5.04	5.04	90.00	0.00	50.00	50.00	39.92	10.08	4.962	
1,100.00	1,100.00	1,100.00	1,100.00	5.58	5.58	90.00	0.00	50.00	50.00	38.85	11.15	4.483	
1,200.00	1,200.00	1,200.00	1,200.00	6.11	6.11	90.00	0.00	50.00	50.00	37.77	12.23	4.089 CC, ES	
1,300.00	1,300.00	1,298.88	1,298.87	6.65	6.63	90.76	-0.68	51.08	51.10	37.83	13.27	3.850	
1,400.00	1,400.00	1,397.63	1,397.54	7.19	7.12	92.87	-2.72	54.33	54.45	40.15	14.30	3.809	
1,500.00	1,500.00	1,503.79	1,495.92	7.73	7.67	95.85	-6.11	59.71	60.16	44.81	15.35	3.918	
1,600.00	1,600.00	1,604.08	1,595.34	8.26	8.19	98.72	-10.14	66.10	67.03	50.63	16.40	4.087	
1,700.00	1,700.00	1,704.36	1,694.77	8.80	8.71	101.06	-14.16	72.49	74.04	56.59	17.45	4.242	
1,800.00	1,800.00	1,804.65	1,794.19	9.34	9.24	102.98	-18.19	78.88	81.16	62.65	18.51	4.385	
1,900.00	1,900.00	1,904.94	1,893.62	9.88	9.78	104.60	-22.21	85.27	88.34	68.78	19.57	4.515	
2,000.00	2,000.00	2,005.22	1,993.05	10.42	10.32	105.97	-26.24	91.66	95.59	74.96	20.63	4.634	
2,100.00	2,099.99	2,105.49	2,092.50	10.93	10.86	-85.43	-30.26	98.05	102.77	81.11	21.67	4.744	
2,200.00	2,199.91	2,205.75	2,191.95	11.41	11.41	-86.30	-34.29	104.44	109.77	87.09	22.68	4.839	
2,300.00	2,299.79	2,306.03	2,291.38	11.91	11.96	-87.61	-38.31	110.83	116.75	93.04	23.71	4.925	
2,400.00	2,399.67	2,406.31	2,390.82	12.40	12.51	-88.78	-42.33	117.22	123.78	99.05	24.74	5.004	
2,500.00	2,499.56	2,506.58	2,490.26	12.90	13.06	-89.82	-46.36	123.61	130.86	105.09	25.78	5.077	
2,600.00	2,599.44	2,593.14	2,589.69	13.41	13.54	-90.75	-50.38	130.00	137.98	111.24	26.75	5.159	
2,700.00	2,699.32	2,692.86	2,689.13	13.92	14.09	-91.59	-54.41	136.39	145.13	117.34	27.79	5.222	
2,800.00	2,799.20	2,807.42	2,788.56	14.43	14.72	-92.35	-58.43	142.78	152.31	123.39	28.92	5.267	
2,900.00	2,899.08	2,907.69	2,888.00	14.94	15.28	-93.05	-62.46	149.17	159.52	129.54	29.97	5.322	
3,000.00	2,998.97	3,007.97	2,987.44	15.46	15.84	-93.68	-66.48	155.56	166.74	135.71	31.03	5.373	
3,100.00	3,098.85	3,091.75	3,086.87	15.98	16.30	-94.26	-70.51	161.95	173.98	141.98	32.01	5.436	
3,200.00	3,198.73	3,191.47	3,186.31	16.50	16.86	-94.79	-74.53	168.34	181.24	148.17	33.07	5.481	
3,300.00	3,298.61	3,308.80	3,285.74	17.02	17.51	-95.29	-78.56	174.73	188.52	154.29	34.23	5.507	
3,400.00	3,398.49	3,409.08	3,385.18	17.55	18.08	-95.74	-82.58	181.12	195.80	160.50	35.30	5.547	
3,500.00	3,498.38	3,509.36	3,484.62	18.08	18.64	-96.17	-86.61	187.51	203.10	166.73	36.37	5.584	
3,600.00	3,598.26	3,609.64	3,584.05	18.61	19.20	-96.56	-90.63	193.90	210.41	172.96	37.45	5.619	
3,700.00	3,698.14	3,709.91	3,683.49	19.14	19.76	-96.93	-94.65	200.29	217.73	179.21	38.52	5.652	
3,800.00	3,798.02	3,789.81	3,782.92	19.67	20.21	-97.27	-98.68	206.68	225.06	185.57	39.49	5.699	
3,900.00	3,897.90	3,889.53	3,882.36	20.20	20.77	-97.60	-102.70	213.07	232.39	191.82	40.57	5.729	
4,000.00	3,997.79	3,989.25	3,981.80	20.73	21.33	-97.90	-106.73	219.46	239.73	198.09	41.64	5.757	
4,100.00	4,097.67	4,088.98	4,081.23	21.27	21.89	-98.18	-110.75	225.85	247.08	204.35	42.72	5.783	
4,200.00	4,197.55	4,188.70	4,180.67	21.80	22.45	-98.45	-114.78	232.24	254.43	210.63	43.80	5.808	
4,300.00	4,297.43	4,288.42	4,280.11	22.34	23.01	-98.70	-118.80	238.63	261.79	216.90	44.88	5.832	
4,400.00	4,397.31	4,388.14	4,379.54	22.87	23.57	-98.94	-122.83	245.02	269.15	223.18	45.97	5.855	
4,500.00	4,497.20	4,487.86	4,478.98	23.41	24.14	-99.17	-126.85	251.41	276.52	229.47	47.05	5.877	
4,600.00	4,597.08	4,587.59	4,578.41	23.95	24.70	-99.38	-130.88	257.81	283.89	235.75	48.13	5.898	
4,700.00	4,696.96	4,687.31	4,677.85	24.49	25.26	-99.59	-134.90	264.20	291.26	242.04	49.22	5.918	
4,800.00	4,796.84	4,787.03	4,777.29	25.03	25.82	-99.78	-138.92	270.59	298.64	248.34	50.31	5.937	
4,900.00	4,896.73	4,886.75	4,876.72	25.57	26.39	-99.97	-142.95	276.98	306.02	254.63	51.39	5.955	
5,000.00	4,996.61	4,986.48	4,976.16	26.11	26.95	-100.14	-146.97	283.37	313.41	260.93	52.48	5.972	

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



Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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													Offset Site Error:	0.00 ft
Section 32-T26S-R29E - Money Graham Fed Com Well No. 218 H - Original Hole - rev0													Offset Well Error:	0.00 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,100.00	5,096.49	5,086.20	5,075.59	26.65	27.51	-100.31	-151.00	289.76	320.80	267.23	53.57	5.989		
5,200.00	5,196.37	5,185.92	5,175.03	27.19	28.07	-100.47	-155.02	296.15	328.19	273.53	54.66	6.005		
5,300.00	5,296.25	5,285.64	5,274.47	27.73	28.64	-100.62	-159.05	302.54	335.58	279.83	55.75	6.020		
5,400.00	5,396.14	5,385.37	5,373.90	28.27	29.20	-100.77	-163.07	308.93	342.97	286.14	56.84	6.035		
5,500.00	5,496.02	5,485.09	5,473.34	28.82	29.76	-100.91	-167.10	315.32	350.37	292.45	57.93	6.049		
5,600.00	5,595.90	5,584.81	5,572.77	29.36	30.33	-101.04	-171.12	321.71	357.77	298.75	59.02	6.062		
5,700.00	5,695.78	5,684.53	5,672.21	29.90	30.89	-101.17	-175.15	328.10	365.17	305.06	60.11	6.075		
5,800.00	5,795.66	5,784.26	5,771.65	30.45	31.46	-101.30	-179.17	334.49	372.57	311.37	61.20	6.088		
5,900.00	5,895.55	5,883.98	5,871.08	30.99	32.02	-101.42	-183.20	340.88	379.98	317.69	62.29	6.100		
6,000.00	5,995.43	5,983.70	5,970.52	31.53	32.58	-101.53	-187.22	347.27	387.38	324.00	63.38	6.112		
6,100.00	6,095.31	6,083.42	6,069.96	32.08	33.15	-101.64	-191.24	353.66	394.79	330.31	64.48	6.123		
6,200.00	6,195.19	6,183.00	6,175.17	32.62	33.74	-101.79	-195.21	359.96	401.78	336.15	65.63	6.122		
6,300.00	6,295.11	6,282.60	6,284.75	33.17	34.34	-102.09	-197.81	364.09	406.37	339.58	66.79	6.084		
6,400.00	6,395.10	6,408.47	6,394.61	33.69	34.92	-102.20	-198.74	365.56	408.01	340.13	67.88	6.010		
6,500.00	6,495.10	6,508.96	6,495.10	34.19	35.42	89.76	-198.74	365.56	408.01	339.12	68.89	5.923		
6,600.00	6,595.10	6,608.96	6,595.10	34.70	35.91	89.76	-198.74	365.56	408.01	338.12	69.90	5.837		
6,700.00	6,695.10	6,708.96	6,695.10	35.20	36.40	89.76	-198.74	365.56	408.01	337.11	70.91	5.754		
6,800.00	6,795.10	6,808.96	6,795.10	35.71	36.90	89.76	-198.74	365.56	408.01	336.10	71.92	5.673		
6,900.00	6,895.10	6,908.96	6,895.10	36.22	37.40	89.76	-198.74	365.56	408.01	335.08	72.93	5.595		
7,000.00	6,995.10	7,008.96	6,995.10	36.73	37.90	89.76	-198.74	365.56	408.01	334.07	73.94	5.518		
7,100.00	7,095.10	7,108.96	7,095.10	37.24	38.40	89.76	-198.74	365.56	408.01	333.05	74.96	5.443		
7,200.00	7,195.10	7,208.96	7,195.10	37.75	38.90	89.76	-198.74	365.56	408.01	332.04	75.98	5.370		
7,300.00	7,295.10	7,308.96	7,295.10	38.26	39.40	89.76	-198.74	365.56	408.01	331.02	77.00	5.299		
7,400.00	7,395.10	7,408.96	7,395.10	38.77	39.90	89.76	-198.74	365.56	408.01	330.00	78.02	5.230		
7,500.00	7,495.10	7,508.96	7,495.10	39.29	40.40	89.76	-198.74	365.56	408.01	328.97	79.04	5.162		
7,600.00	7,595.10	7,608.96	7,595.10	39.80	40.91	89.76	-198.74	365.56	408.01	327.95	80.06	5.096		
7,700.00	7,695.10	7,708.96	7,695.10	40.31	41.41	89.76	-198.74	365.56	408.01	326.93	81.09	5.032		
7,800.00	7,795.10	7,808.96	7,795.10	40.83	41.92	89.76	-198.74	365.56	408.01	325.90	82.11	4.969		
7,900.00	7,895.10	7,908.96	7,895.10	41.34	42.43	89.76	-198.74	365.56	408.01	324.87	83.14	4.907		
8,000.00	7,995.10	8,008.96	7,995.10	41.86	42.93	89.76	-198.74	365.56	408.01	323.84	84.17	4.847		
8,100.00	8,095.10	8,108.96	8,095.10	42.38	43.44	89.76	-198.74	365.56	408.01	322.81	85.20	4.789		
8,200.00	8,195.10	8,208.96	8,195.10	42.89	43.95	89.76	-198.74	365.56	408.01	321.78	86.23	4.732		
8,300.00	8,295.10	8,308.96	8,295.10	43.41	44.46	89.76	-198.74	365.56	408.01	320.75	87.26	4.676		
8,400.00	8,395.10	8,408.96	8,395.10	43.93	44.97	89.76	-198.74	365.56	408.01	319.72	88.30	4.621		
8,500.00	8,495.10	8,508.96	8,495.10	44.45	45.48	89.76	-198.74	365.56	408.01	318.68	89.33	4.567		
8,600.00	8,595.10	8,608.96	8,595.10	44.97	45.99	89.76	-198.74	365.56	408.01	317.65	90.37	4.515		
8,700.00	8,695.10	8,708.96	8,695.10	45.49	46.50	89.76	-198.74	365.56	408.01	316.61	91.40	4.464		
8,800.00	8,795.10	8,808.96	8,795.10	46.01	47.02	89.76	-198.74	365.56	408.01	315.58	92.44	4.414		
8,900.00	8,895.10	8,908.96	8,895.10	46.53	47.53	89.76	-198.74	365.56	408.01	314.54	93.48	4.365		
9,000.00	8,995.10	9,008.96	8,995.10	47.05	48.04	89.76	-198.74	365.56	408.01	313.50	94.51	4.317		
9,100.00	9,095.10	9,108.96	9,095.10	47.57	48.56	89.25	-198.74	365.56	408.01	312.46	95.55	4.270		
9,170.53	9,165.38	9,179.25	9,165.38	47.92	48.92	90.00	-198.74	365.56	407.98	311.72	96.26	4.238		
9,200.00	9,194.46	9,208.32	9,194.46	48.07	49.07	90.66	-198.74	365.56	408.01	311.45	96.55	4.226		
9,300.00	9,290.55	9,304.42	9,290.55	48.53	49.56	94.19	-198.74	365.56	409.23	311.76	97.47	4.199		
9,400.00	9,380.47	9,406.75	9,392.80	48.95	50.09	99.58	-196.04	365.22	414.24	315.97	98.27	4.215		
9,500.00	9,461.47	9,529.49	9,512.75	49.34	50.65	105.76	-171.35	362.15	421.25	322.80	98.45	4.279		
9,600.00	9,531.09	9,667.08	9,637.41	49.73	51.18	111.84	-114.35	355.05	428.22	331.05	97.17	4.407		
9,700.00	9,587.22	9,820.86	9,756.05	50.13	51.61	117.50	-17.97	343.04	432.89	338.93	93.97	4.607		
9,800.00	9,628.15	9,989.24	9,851.29	50.55	51.99	122.29	119.09	325.97	432.68	342.98	89.70	4.824		
9,900.00	9,652.64	10,166.10	9,903.74	51.01	52.69	125.69	285.96	305.19	425.36	338.55	86.81	4.900		
10,000.00	9,660.07	10,295.58	9,910.28	51.50	53.32	127.44	414.20	289.62	412.99	326.30	86.70	4.764		

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



Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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

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		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,100.00	9,660.65	10,384.99	9,910.81	52.08	53.86	128.21	503.22	281.45	405.05	318.27	86.78	4.668		
10,200.00	9,661.24	10,474.87	9,911.34	52.76	54.48	128.77	592.93	276.04	399.63	312.43	87.20	4.583		
10,300.00	9,661.83	10,565.05	9,911.88	53.56	55.19	129.08	683.08	273.44	396.69	308.69	88.00	4.508		
10,363.26	9,662.20	10,635.76	9,912.21	54.12	55.78	129.14	739.51	273.25	396.08	307.30	88.78	4.461		
10,400.00	9,662.42	10,658.23	9,912.42	54.45	55.98	129.14	776.25	273.58	396.09	306.90	89.18	4.441		
10,500.00	9,663.01	10,758.23	9,913.01	55.44	56.94	129.14	876.24	274.50	396.09	305.45	90.64	4.370		
10,600.00	9,663.60	10,858.23	9,913.60	56.52	57.98	129.14	976.24	275.41	396.10	303.87	92.22	4.295		
10,700.00	9,664.18	10,958.23	9,914.18	57.68	59.10	129.14	1,076.23	276.32	396.10	302.17	93.94	4.217		
10,800.00	9,664.77	11,058.23	9,914.77	58.93	60.31	129.13	1,176.23	277.23	396.11	300.34	95.77	4.136		
10,900.00	9,665.36	11,158.23	9,915.36	60.25	61.59	129.13	1,276.22	278.14	396.12	298.40	97.71	4.054		
11,000.00	9,665.95	11,258.23	9,915.94	61.64	62.94	129.13	1,376.21	279.05	396.12	296.36	99.76	3.971		
11,100.00	9,666.54	11,358.23	9,916.53	63.10	64.36	129.13	1,476.21	279.97	396.13	294.22	101.91	3.887		
11,200.00	9,667.13	11,458.23	9,917.11	64.62	65.84	129.13	1,576.20	280.88	396.14	292.00	104.14	3.804		
11,300.00	9,667.71	11,558.23	9,917.70	66.20	67.38	129.13	1,676.20	281.79	396.14	289.69	106.45	3.721		
11,400.00	9,668.30	11,658.23	9,918.29	67.83	68.97	129.13	1,776.19	282.70	396.15	287.31	108.84	3.640		
11,500.00	9,668.89	11,758.23	9,918.87	69.51	70.61	129.13	1,876.18	283.61	396.15	284.86	111.29	3.560		
11,600.00	9,669.48	11,858.23	9,919.46	71.24	72.30	129.13	1,976.18	284.52	396.16	282.35	113.81	3.481		
11,700.00	9,670.07	11,958.23	9,920.05	73.01	74.03	129.12	2,076.17	285.44	396.17	279.78	116.39	3.404		
11,800.00	9,670.66	12,058.23	9,920.63	74.82	75.81	129.12	2,176.17	286.35	396.17	277.16	119.01	3.329		
11,900.00	9,671.25	12,158.23	9,921.22	76.66	77.62	129.12	2,276.16	287.26	396.18	274.49	121.69	3.256		
12,000.00	9,671.83	12,258.23	9,921.81	78.54	79.47	129.12	2,376.16	288.17	396.19	271.78	124.40	3.185		
12,100.00	9,672.42	12,358.23	9,922.39	80.46	81.35	129.12	2,476.15	289.08	396.19	269.03	127.16	3.116		
12,200.00	9,673.01	12,458.23	9,922.98	82.40	83.26	129.12	2,576.14	289.99	396.20	266.25	129.95	3.049		
12,300.00	9,673.60	12,558.23	9,923.56	84.37	85.20	129.12	2,676.14	290.91	396.20	263.44	132.77	2.984		
12,400.00	9,674.19	12,658.23	9,924.15	86.37	87.17	129.12	2,776.13	291.82	396.21	260.60	135.61	2.922		
12,500.00	9,674.78	12,758.23	9,924.74	88.39	89.16	129.12	2,876.13	292.73	396.22	257.73	138.49	2.861		
12,600.00	9,675.36	12,858.23	9,925.32	90.43	91.18	129.11	2,976.12	293.64	396.22	254.85	141.38	2.803		
12,700.00	9,675.95	12,958.23	9,925.91	92.49	93.22	129.11	3,076.11	294.55	396.23	251.94	144.29	2.746		
12,800.00	9,676.54	13,058.23	9,926.50	94.57	95.28	129.11	3,176.11	295.46	396.24	249.02	147.22	2.691		
12,900.00	9,677.13	13,158.23	9,927.08	96.68	97.35	129.11	3,276.10	296.37	396.24	246.08	150.16	2.639		
13,000.00	9,677.72	13,258.23	9,927.67	98.79	99.45	129.11	3,376.10	297.29	396.25	243.13	153.12	2.588		
13,100.00	9,678.31	13,358.23	9,928.26	100.93	101.56	129.11	3,476.09	298.20	396.25	240.17	156.09	2.539		
13,200.00	9,678.89	13,458.23	9,928.84	103.08	103.69	129.11	3,576.08	299.11	396.26	237.20	159.06	2.491		
13,300.00	9,679.48	13,558.23	9,929.43	105.24	105.83	129.11	3,676.08	300.02	396.27	234.22	162.05	2.445		
13,400.00	9,680.07	13,658.23	9,930.01	107.42	107.99	129.11	3,776.07	300.93	396.27	231.24	165.03	2.401		
13,500.00	9,680.66	13,758.23	9,930.60	109.61	110.16	129.10	3,876.07	301.84	396.28	228.25	168.03	2.358		
13,600.00	9,681.25	13,858.23	9,931.19	111.81	112.35	129.10	3,976.06	302.76	396.29	225.26	171.03	2.317		
13,700.00	9,681.84	13,958.23	9,931.77	114.02	114.54	129.10	4,076.06	303.67	396.29	222.27	174.03	2.277		
13,800.00	9,682.43	14,058.23	9,932.36	116.25	116.75	129.10	4,176.05	304.58	396.30	219.27	177.03	2.239		
13,900.00	9,683.01	14,158.23	9,932.95	118.48	118.86	129.10	4,276.04	305.49	396.31	216.28	180.03	2.201		
14,000.00	9,683.60	14,258.23	9,933.53	120.72	121.19	129.10	4,376.04	306.40	396.31	213.28	183.03	2.165		
14,100.00	9,684.19	14,358.23	9,934.12	122.97	123.42	129.10	4,476.03	307.31	396.32	210.29	186.03	2.130		
14,200.00	9,684.78	14,458.23	9,934.71	125.23	125.67	129.10	4,576.03	308.23	396.32	207.30	189.03	2.097		
14,300.00	9,685.37	14,558.23	9,935.29	127.50	127.92	129.10	4,676.02	309.14	396.33	204.31	192.02	2.064		
14,400.00	9,685.96	14,658.23	9,935.88	129.77	130.18	129.09	4,776.01	310.05	396.34	201.32	195.01	2.032		
14,500.00	9,686.54	14,758.23	9,936.47	132.05	132.45	129.09	4,876.01	310.96	396.34	198.34	198.00	2.002		
14,600.00	9,687.13	14,858.23	9,937.05	134.34	134.73	129.09	4,976.00	311.87	396.35	195.36	200.99	1.972 Level 3<2.00		
14,700.00	9,687.72	14,958.23	9,937.64	136.64	137.01	129.09	5,076.00	312.78	396.36	192.39	203.96	1.943 Level 3<2.00		
14,800.00	9,688.31	15,058.23	9,938.22	138.94	139.30	129.09	5,175.99	313.69	396.36	189.42	206.94	1.915 Level 3<2.00		
14,900.00	9,688.90	15,158.23	9,938.81	141.24	141.59	129.09	5,275.99	314.61	396.37	186.46	209.91	1.888 Level 3<2.00		
15,000.00	9,689.49	15,258.23	9,939.40	143.56	143.89	129.09	5,375.98	315.52	396.37	183.50	212.87	1.862 Level 3<2.00		

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



Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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

Section 32-T26S-R29E - Money Graham Fed Com Well No. 218 H - Original Hole - rev0													Offset Site Error:	0.00 ft
Survey Program: O-MWD													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
15,100.00	9,690.07	15,358.23	9,939.98	145.87	146.20	129.09	5,475.97	316.43	396.38	180.55	215.83	1.837	Level 3<2.00	
15,200.00	9,690.66	15,458.23	9,940.57	148.20	148.51	129.09	5,575.97	317.34	396.39	177.61	218.78	1.812	Level 3<2.00	
15,300.00	9,691.25	15,558.23	9,941.16	150.52	150.83	129.08	5,675.96	318.25	396.39	174.67	221.73	1.788	Level 3<2.00	
15,400.00	9,691.84	15,658.23	9,941.74	152.85	153.15	129.08	5,775.96	319.16	396.40	171.73	224.67	1.764	Level 3<2.00	
15,500.00	9,692.43	15,753.23	9,942.33	155.19	155.47	129.08	5,875.95	320.08	396.41	168.81	227.60	1.742	Level 3<2.00	
15,600.00	9,693.02	15,853.23	9,942.92	157.53	157.80	129.08	5,975.94	320.99	396.41	165.89	230.52	1.720	Level 3<2.00	
15,700.00	9,693.60	15,958.23	9,943.50	159.87	160.14	129.08	6,075.94	321.90	396.42	162.98	233.44	1.698	Level 3<2.00	
15,800.00	9,694.19	16,058.23	9,944.09	162.22	162.48	129.08	6,175.93	322.81	396.42	160.07	236.35	1.677	Level 3<2.00	
15,900.00	9,694.78	16,158.23	9,944.67	164.57	164.82	129.08	6,275.93	323.72	396.43	157.17	239.26	1.657	Level 3<2.00	
16,000.00	9,695.37	16,258.23	9,945.26	166.93	167.17	129.08	6,375.92	324.63	396.44	154.28	242.15	1.637	Level 3<2.00	
16,100.00	9,695.96	16,358.23	9,945.85	169.29	169.52	129.08	6,475.91	325.55	396.44	151.40	245.05	1.618	Level 3<2.00	
16,200.00	9,696.55	16,458.23	9,946.43	171.65	171.87	129.07	6,575.91	326.46	396.45	148.52	247.93	1.599	Level 3<2.00	
16,300.00	9,697.14	16,558.23	9,947.02	174.01	174.23	129.07	6,675.90	327.37	396.46	145.65	250.80	1.581	Level 3<2.00	
16,400.00	9,697.72	16,658.23	9,947.61	176.38	176.59	129.07	6,775.90	328.28	396.46	142.79	253.67	1.563	Level 3<2.00	
16,500.00	9,698.31	16,758.23	9,948.19	178.75	178.95	129.07	6,875.89	329.19	396.47	139.93	256.54	1.545	Level 3<2.00	
16,600.00	9,698.90	16,858.23	9,948.78	181.12	181.32	129.07	6,975.89	330.10	396.47	137.08	259.39	1.528	Level 3<2.00	
16,700.00	9,699.49	16,958.23	9,949.37	183.50	183.68	129.07	7,075.88	331.01	396.48	134.24	262.24	1.512	Level 3<2.00	
16,786.87	9,700.00	17,045.10	9,949.88	185.57	185.74	129.07	7,162.74	331.81	396.49	131.78	264.70	1.498	Level 2<1.50, SF	



Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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	Offset	Semi Major Axis		Distance		Minimum		Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor
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
1,300.00	1,300.00	1,300.00	1,300.00	6.65	6.65	90.00	0.00	25.00	25.00	11.70	13.30	1.879 Level 3<2.00
1,400.00	1,400.00	1,400.00	1,400.00	7.19	7.19	90.00	0.00	25.00	25.00	10.62	14.38	1.739 Level 3<2.00, CC
1,500.00	1,500.00	1,499.62	1,499.61	7.73	7.70	92.43	-1.09	25.70	25.73	10.31	15.42	1.668 Level 3<2.00, ES, SF
1,600.00	1,600.00	1,600.83	1,599.08	8.26	8.20	98.90	-4.35	27.80	28.16	11.71	16.45	1.712 Level 3<2.00
1,700.00	1,700.00	1,700.96	1,698.83	8.80	8.70	105.57	-8.49	30.47	31.65	14.17	17.48	1.810 Level 3<2.00
1,800.00	1,800.00	1,801.08	1,798.59	9.34	9.21	110.86	-12.63	33.13	35.49	16.96	18.52	1.916 Level 3<2.00
1,900.00	1,900.00	1,901.20	1,898.35	9.88	9.72	115.10	-16.77	35.80	39.56	20.00	19.57	2.022
2,000.00	2,000.00	2,001.32	1,998.11	10.42	10.23	118.53	-20.91	38.46	43.82	23.20	20.61	2.126
2,100.00	2,099.99	2,101.41	2,097.90	10.93	10.75	-72.04	-25.05	41.13	47.78	26.14	21.64	2.208
2,200.00	2,199.91	2,201.47	2,197.71	11.41	11.28	-73.63	-29.19	43.80	50.98	28.34	22.64	2.251
2,300.00	2,299.79	2,301.54	2,297.52	11.91	11.80	-76.05	-33.33	46.46	53.98	30.32	23.66	2.282
2,400.00	2,399.67	2,401.61	2,397.33	12.40	12.33	-78.20	-37.47	49.13	57.06	32.38	24.68	2.312
2,500.00	2,499.56	2,501.68	2,497.14	12.90	12.86	-80.14	-41.61	51.80	60.21	34.51	25.71	2.342
2,600.00	2,599.44	2,598.25	2,596.95	13.41	13.37	-81.88	-45.75	54.46	63.43	36.71	26.72	2.374
2,700.00	2,699.32	2,701.82	2,696.76	13.92	13.92	-83.45	-49.89	57.13	66.70	38.92	27.78	2.401
2,800.00	2,799.20	2,801.89	2,796.57	14.43	14.46	-84.88	-54.03	59.80	70.01	41.19	28.82	2.429
2,900.00	2,899.08	2,901.96	2,896.38	14.94	14.96	-86.17	-58.17	62.46	73.36	43.49	29.87	2.456
3,000.00	2,998.97	3,002.03	2,996.19	15.46	15.53	-87.35	-62.31	65.13	76.75	45.83	30.92	2.482
3,100.00	3,098.85	3,102.09	3,095.99	15.98	16.07	-88.43	-66.45	67.79	80.17	48.19	31.98	2.507
3,200.00	3,198.73	3,202.16	3,195.80	16.50	16.61	-89.42	-70.60	70.46	83.61	50.58	33.03	2.531
3,300.00	3,298.61	3,302.23	3,295.61	17.02	17.15	-90.34	-74.74	73.13	87.08	52.98	34.10	2.554
3,400.00	3,398.49	3,402.30	3,395.42	17.55	17.69	-91.18	-78.88	75.79	90.57	55.41	35.16	2.576
3,500.00	3,498.38	3,502.37	3,495.23	18.08	18.23	-91.96	-83.02	78.46	94.07	57.85	36.23	2.597
3,600.00	3,598.26	3,602.44	3,595.04	18.61	18.77	-92.68	-87.16	81.13	97.59	60.30	37.29	2.617
3,700.00	3,698.14	3,702.51	3,694.85	19.14	19.31	-93.36	-91.30	83.79	101.13	62.77	38.36	2.636
3,800.00	3,798.02	3,802.58	3,794.66	19.67	19.86	-93.99	-95.44	86.46	104.68	65.24	39.44	2.654
3,900.00	3,897.90	3,902.65	3,894.47	20.20	20.40	-94.57	-99.58	89.13	108.24	67.73	40.51	2.672
4,000.00	3,997.79	4,002.72	3,994.28	20.73	20.94	-95.12	-103.72	91.79	111.81	70.23	41.58	2.689
4,100.00	4,097.67	4,102.79	4,094.09	21.27	21.49	-95.64	-107.86	94.46	115.39	72.73	42.66	2.705
4,200.00	4,197.55	4,202.86	4,193.90	21.80	22.03	-96.12	-112.00	97.13	118.98	75.24	43.74	2.720
4,300.00	4,297.43	4,302.93	4,293.71	22.34	22.58	-96.58	-116.14	99.79	122.58	77.76	44.82	2.735
4,400.00	4,397.31	4,403.00	4,393.51	22.87	23.12	-97.01	-120.28	102.46	126.18	80.29	45.90	2.749
4,500.00	4,497.20	4,503.07	4,493.32	23.41	23.67	-97.41	-124.43	105.13	129.79	82.82	46.98	2.763
4,600.00	4,597.08	4,603.14	4,593.13	23.95	24.22	-97.80	-128.57	107.79	133.41	85.35	48.06	2.776
4,700.00	4,696.96	4,703.20	4,692.94	24.49	24.76	-98.16	-132.71	110.46	137.04	87.89	49.14	2.789
4,800.00	4,796.84	4,803.27	4,792.75	25.03	25.31	-98.51	-136.85	113.13	140.66	90.44	50.23	2.801
4,900.00	4,896.73	4,903.34	4,892.56	25.57	25.86	-98.83	-140.99	115.79	144.30	92.99	51.31	2.812
5,000.00	4,996.61	5,003.41	4,992.37	26.11	26.40	-99.15	-145.13	118.46	147.94	95.54	52.40	2.823

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



Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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													Offset Site Error:	0.00 ft
Section 32-T26S-R29E - Money Graham Fed Com Well No. 238 H - Original Hole - rev0													Offset Well Error:	0.00 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis			Distance		Minimum		Separation		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Separation (ft)	Factor		
5,100.00	5,096.49	5,103.48	5,092.18	26.65	26.95	-99.44	-149.27	121.13	151.58	98.10	53.48	2.834		
5,200.00	5,196.37	5,203.55	5,191.99	27.19	27.50	-99.73	-153.41	123.79	155.22	100.66	54.57	2.845		
5,300.00	5,296.25	5,303.62	5,291.80	27.73	28.05	-100.00	-157.55	126.46	158.87	103.22	55.66	2.855		
5,400.00	5,396.14	5,403.69	5,391.61	28.27	28.59	-100.25	-161.69	129.13	162.53	105.78	56.74	2.864		
5,500.00	5,496.02	5,503.76	5,491.42	28.82	29.14	-100.50	-165.83	131.79	166.18	108.35	57.83	2.874		
5,600.00	5,595.90	5,603.83	5,591.22	29.36	29.69	-100.73	-169.97	134.46	169.84	110.92	58.92	2.883		
5,700.00	5,695.78	5,703.90	5,691.03	29.90	30.24	-100.96	-174.11	137.13	173.50	113.49	60.01	2.891		
5,800.00	5,795.66	5,803.97	5,790.84	30.45	30.79	-101.18	-178.26	139.79	177.17	116.07	61.10	2.900		
5,900.00	5,895.55	5,904.04	5,890.65	30.99	31.34	-101.38	-182.40	142.46	180.83	118.65	62.19	2.908		
6,000.00	5,995.43	6,004.11	5,990.46	31.53	31.89	-101.58	-186.54	145.13	184.50	121.23	63.28	2.916		
6,100.00	6,095.31	6,104.18	6,090.27	32.08	32.44	-101.77	-190.68	147.79	188.18	123.81	64.37	2.923		
6,200.00	6,195.19	6,195.76	6,190.08	32.62	32.94	-101.96	-194.82	150.46	191.85	126.43	65.41	2.933		
6,300.00	6,295.11	6,297.91	6,292.14	33.17	33.49	-102.13	-198.94	152.73	194.90	128.38	66.52	2.930		
6,400.00	6,395.10	6,400.73	6,394.96	33.69	34.03	-102.20	-199.62	153.55	196.00	128.42	67.58	2.900		
6,500.00	6,495.10	6,500.87	6,495.10	34.19	34.53	89.76	-199.62	153.55	196.00	127.42	68.59	2.858		
6,600.00	6,595.10	6,600.87	6,595.10	34.70	35.03	89.76	-199.62	153.55	196.00	126.41	69.59	2.816		
6,700.00	6,695.10	6,700.87	6,695.10	35.20	35.53	89.76	-199.62	153.55	196.00	125.40	70.60	2.776		
6,800.00	6,795.10	6,800.87	6,795.10	35.71	36.03	89.76	-199.62	153.55	196.00	124.39	71.61	2.737		
6,900.00	6,895.10	6,900.87	6,895.10	36.22	36.53	89.76	-199.62	153.55	196.00	123.38	72.62	2.699		
7,000.00	6,995.10	7,000.87	6,995.10	36.73	37.04	89.76	-199.62	153.55	196.00	122.36	73.64	2.662		
7,100.00	7,095.10	7,100.87	7,095.10	37.24	37.54	89.76	-199.62	153.55	196.00	121.35	74.65	2.626		
7,200.00	7,195.10	7,200.87	7,195.10	37.75	38.05	89.76	-199.62	153.55	196.00	120.33	75.67	2.590		
7,300.00	7,295.10	7,300.87	7,295.10	38.26	38.55	89.76	-199.62	153.55	196.00	119.31	76.69	2.556		
7,400.00	7,395.10	7,400.87	7,395.10	38.77	39.06	89.76	-199.62	153.55	196.00	118.29	77.71	2.522		
7,500.00	7,495.10	7,500.87	7,495.10	39.29	39.57	89.76	-199.62	153.55	196.00	117.27	78.73	2.489		
7,600.00	7,595.10	7,600.87	7,595.10	39.80	40.08	89.76	-199.62	153.55	196.00	116.25	79.76	2.458		
7,700.00	7,695.10	7,700.87	7,695.10	40.31	40.59	89.76	-199.62	153.55	196.00	115.22	80.78	2.426		
7,800.00	7,795.10	7,800.87	7,795.10	40.83	41.10	89.76	-199.62	153.55	196.00	114.20	81.81	2.396		
7,900.00	7,895.10	7,900.87	7,895.10	41.34	41.61	89.76	-199.62	153.55	196.00	113.17	82.83	2.366		
8,000.00	7,995.10	8,000.87	7,995.10	41.86	42.12	89.76	-199.62	153.55	196.00	112.14	83.86	2.337		
8,100.00	8,095.10	8,100.87	8,095.10	42.38	42.63	89.76	-199.62	153.55	196.00	111.11	84.89	2.309		
8,200.00	8,195.10	8,200.87	8,195.10	42.89	43.15	89.76	-199.62	153.55	196.00	110.08	85.92	2.281		
8,300.00	8,295.10	8,300.87	8,295.10	43.41	43.66	89.76	-199.62	153.55	196.00	109.05	86.95	2.254		
8,400.00	8,395.10	8,400.87	8,395.10	43.93	44.17	89.76	-199.62	153.55	196.00	108.02	87.99	2.228		
8,500.00	8,495.10	8,500.87	8,495.10	44.45	44.69	89.76	-199.62	153.55	196.00	106.98	89.02	2.202		
8,600.00	8,595.10	8,600.87	8,595.10	44.97	45.20	89.76	-199.62	153.55	196.00	105.95	90.06	2.176		
8,700.00	8,695.10	8,700.87	8,695.10	45.49	45.72	89.76	-199.62	153.55	196.00	104.91	91.09	2.152		
8,800.00	8,795.10	8,800.87	8,795.10	46.01	46.23	89.76	-199.62	153.55	196.00	103.87	92.13	2.127		
8,900.00	8,895.10	8,900.87	8,895.10	46.53	46.75	89.76	-199.62	153.55	196.00	102.84	93.17	2.104		
9,000.00	8,995.10	9,000.87	8,995.10	47.05	47.27	89.76	-199.62	153.55	196.00	101.80	94.20	2.081		
9,100.00	9,095.10	9,100.87	9,095.10	47.57	47.79	89.26	-199.62	153.55	196.00	100.76	95.24	2.058		
9,146.43	9,141.44	9,147.22	9,141.44	47.80	48.03	90.00	-199.62	153.55	195.99	100.27	95.71	2.048		
9,200.00	9,194.46	9,200.23	9,194.46	48.07	48.30	92.17	-199.62	153.55	196.13	99.88	96.25	2.038		
9,300.00	9,290.55	9,303.67	9,290.55	48.53	48.84	99.42	-199.62	153.55	199.05	101.84	97.21	2.048		
9,400.00	9,380.47	9,386.25	9,380.47	48.95	49.27	108.93	-199.62	153.55	211.03	113.04	97.99	2.154		
9,500.00	9,461.47	9,467.25	9,461.47	49.34	49.69	117.83	-199.62	153.55	238.93	140.23	98.71	2.421		
9,600.00	9,531.09	9,536.87	9,531.09	49.73	50.05	123.89	-199.62	153.55	285.99	186.67	99.32	2.879		
9,700.00	9,587.22	9,607.00	9,587.22	50.13	50.41	125.90	-199.62	153.55	350.75	250.88	99.87	3.512		
9,800.00	9,628.15	9,633.93	9,628.15	50.55	50.55	122.65	-199.62	153.55	429.33	329.19	100.14	4.287		
9,900.00	9,652.64	9,658.42	9,652.64	51.01	50.68	111.33	-199.62	153.55	517.37	417.04	100.32	5.157		
10,000.00	9,660.07	9,665.34	9,660.07	51.50	50.72	90.99	-199.62	153.55	610.72	510.33	100.38	6.084		

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



Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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		Offset		Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning		
10,100.00	9,660.65	9,666.43	9,660.65	52.08	50.72	91.17	-199.62	153.55	706.16	605.76	100.40	7.034			
10,200.00	9,661.24	9,667.02	9,661.24	52.76	50.73	91.34	-199.62	153.55	802.71	702.29	100.42	7.994			
10,300.00	9,661.83	9,667.61	9,661.83	53.56	50.73	91.51	-199.62	153.55	900.01	799.57	100.44	8.961			
10,400.00	9,662.42	11,304.93	10,574.37	54.45	58.89	167.87	773.39	162.31	932.78	869.09	63.69	14.646			
10,500.00	9,663.01	11,404.93	10,574.96	55.44	59.79	167.87	873.39	163.21	932.78	868.21	64.57	14.446			
10,600.00	9,663.60	11,504.93	10,575.54	56.52	60.77	167.87	973.38	164.12	932.78	867.25	65.53	14.235			
10,700.00	9,664.18	11,604.93	10,576.13	57.68	61.84	167.87	1,073.38	165.02	932.78	866.22	66.56	14.013			
10,800.00	9,664.77	11,704.93	10,576.72	58.93	63.00	167.87	1,173.37	165.92	932.78	865.10	67.68	13.782			
10,900.00	9,665.36	11,804.93	10,577.31	60.25	64.22	167.87	1,273.36	166.82	932.78	863.91	68.86	13.545			
11,000.00	9,665.95	11,904.93	10,577.89	61.64	65.51	167.87	1,373.36	167.72	932.78	862.66	70.12	13.302			
11,100.00	9,666.54	12,004.93	10,578.48	63.10	66.87	167.87	1,473.35	168.62	932.78	861.34	71.44	13.057			
11,200.00	9,667.13	12,104.93	10,579.07	64.62	68.29	167.87	1,573.35	169.52	932.78	859.96	72.81	12.810			
11,300.00	9,667.71	12,204.93	10,579.66	66.20	69.78	167.87	1,673.34	170.42	932.77	858.53	74.25	12.563			
11,400.00	9,668.30	12,304.93	10,580.24	67.83	71.31	167.87	1,773.34	171.32	932.77	857.04	75.73	12.317			
11,500.00	9,668.89	12,404.93	10,580.83	69.51	72.90	167.87	1,873.33	172.22	932.77	855.50	77.27	12.071			
11,600.00	9,669.48	12,504.93	10,581.42	71.24	74.54	167.87	1,973.32	173.12	932.77	853.91	78.86	11.829			
11,700.00	9,670.07	12,604.93	10,582.01	73.01	76.22	167.87	2,073.32	174.02	932.77	852.28	80.48	11.589			
11,800.00	9,670.66	12,704.93	10,582.59	74.82	77.94	167.87	2,173.31	174.92	932.77	850.61	82.16	11.354			
11,900.00	9,671.25	12,804.93	10,583.18	76.66	79.70	167.87	2,273.31	175.82	932.77	848.90	83.86	11.122			
12,000.00	9,671.83	12,904.93	10,583.77	78.54	81.50	167.87	2,373.30	176.72	932.77	847.16	85.61	10.896			
12,100.00	9,672.42	13,004.93	10,584.36	80.46	83.34	167.87	2,473.29	177.63	932.77	845.37	87.39	10.674			
12,200.00	9,673.01	13,104.93	10,584.94	82.40	85.20	167.87	2,573.29	178.53	932.76	843.56	89.20	10.457			
12,300.00	9,673.60	13,204.93	10,585.53	84.37	87.10	167.87	2,673.28	179.43	932.76	841.72	91.04	10.245			
12,400.00	9,674.19	13,304.93	10,586.12	86.37	89.02	167.87	2,773.28	180.33	932.76	839.85	92.91	10.039			
12,500.00	9,674.78	13,404.93	10,586.71	88.39	90.98	167.87	2,873.27	181.23	932.76	837.95	94.81	9.838			
12,600.00	9,675.36	13,504.93	10,587.29	90.43	92.95	167.87	2,973.27	182.13	932.76	836.03	96.73	9.643			
12,700.00	9,675.95	13,604.93	10,587.88	92.49	94.95	167.87	3,073.26	183.03	932.76	834.09	98.67	9.453			
12,800.00	9,676.54	13,704.93	10,588.47	94.57	96.97	167.87	3,173.25	183.93	932.76	832.12	100.64	9.268			
12,900.00	9,677.13	13,804.93	10,589.06	96.68	99.01	167.87	3,273.25	184.83	932.76	830.13	102.62	9.089			
13,000.00	9,677.72	13,904.93	10,589.64	98.79	101.07	167.87	3,373.24	185.73	932.76	828.13	104.63	8.915			
13,100.00	9,678.31	14,004.93	10,590.23	100.93	103.15	167.87	3,473.24	186.63	932.75	826.10	106.65	8.746			
13,200.00	9,678.89	14,104.93	10,590.82	103.08	105.24	167.87	3,573.23	187.53	932.75	824.06	108.69	8.582			
13,300.00	9,679.48	14,204.93	10,591.41	105.24	107.36	167.87	3,673.23	188.43	932.75	822.00	110.75	8.422			
13,400.00	9,680.07	14,304.93	10,591.99	107.42	109.48	167.87	3,773.22	189.33	932.75	819.93	112.82	8.268			
13,500.00	9,680.66	14,404.93	10,592.58	109.61	111.62	167.87	3,873.21	190.23	932.75	817.84	114.90	8.118			
13,600.00	9,681.25	14,504.93	10,593.17	111.81	113.78	167.87	3,973.21	191.13	932.75	815.74	117.00	7.972			
13,700.00	9,681.84	14,604.93	10,593.76	114.02	115.94	167.87	4,073.20	192.04	932.75	813.63	119.11	7.831			
13,800.00	9,682.43	14,704.93	10,594.34	116.25	118.12	167.87	4,173.20	192.94	932.75	811.51	121.24	7.694			
13,900.00	9,683.01	14,804.93	10,594.93	118.48	120.31	167.87	4,273.19	193.84	932.74	809.37	123.37	7.560			
14,000.00	9,683.60	14,904.93	10,595.52	120.72	122.51	167.87	4,373.18	194.74	932.74	807.23	125.52	7.431			
14,100.00	9,684.19	15,004.93	10,596.11	122.97	124.73	167.87	4,473.18	195.64	932.74	805.07	127.67	7.306			
14,200.00	9,684.78	15,104.93	10,596.69	125.23	126.95	167.87	4,573.17	196.54	932.74	802.90	129.84	7.184			
14,300.00	9,685.37	15,204.93	10,597.28	127.50	129.18	167.87	4,673.17	197.44	932.74	800.73	132.01	7.066			
14,400.00	9,685.96	15,304.93	10,597.87	129.77	131.41	167.87	4,773.16	198.34	932.74	798.55	134.19	6.951			
14,500.00	9,686.54	15,404.93	10,598.46	132.05	133.66	167.87	4,873.16	199.24	932.74	796.36	136.38	6.839			
14,600.00	9,687.13	15,504.93	10,599.05	134.34	135.92	167.87	4,973.15	200.14	932.74	794.16	138.58	6.731			
14,700.00	9,687.72	15,604.93	10,599.63	136.64	138.18	167.87	5,073.14	201.04	932.74	791.95	140.78	6.625			
14,800.00	9,688.31	15,704.93	10,600.22	138.94	140.45	167.87	5,173.14	201.94	932.73	789.74	143.00	6.523			
14,900.00	9,688.90	15,804.93	10,600.81	141.24	142.72	167.87	5,273.13	202.84	932.73	787.52	145.21	6.423			
15,000.00	9,689.49	15,904.93	10,601.40	143.56	145.00	167.88	5,373.13	203.74	932.73	785.29	147.44	6.326			
15,100.00	9,690.07	16,004.93	10,601.98	145.87	147.29	167.88	5,473.12	204.64	932.73	783.06	149.67	6.232			

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



Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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

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		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
15,200.00	9,690.66	16,104.93	10,602.57	148.20	149.59	167.88	5,573.12	205.55	932.73	780.83	151.90	6.140		
15,300.00	9,691.25	16,204.93	10,603.16	150.52	151.89	167.88	5,673.11	206.45	932.73	778.58	154.15	6.051		
15,400.00	9,691.84	16,304.93	10,603.75	152.85	154.19	167.88	5,773.10	207.35	932.73	776.34	156.39	5.964		
15,500.00	9,692.43	16,404.93	10,604.33	155.19	156.50	167.88	5,873.10	208.25	932.73	774.09	158.64	5.879		
15,600.00	9,693.02	16,504.93	10,604.92	157.53	158.82	167.88	5,973.09	209.15	932.73	771.83	160.90	5.797		
15,700.00	9,693.60	16,604.93	10,605.51	159.87	161.13	167.88	6,073.09	210.05	932.72	769.57	163.16	5.717		
15,800.00	9,694.19	16,704.93	10,606.10	162.22	163.46	167.88	6,173.08	210.95	932.72	767.30	165.42	5.639		
15,900.00	9,694.78	16,804.93	10,606.68	164.57	165.79	167.88	6,273.08	211.85	932.72	765.03	167.69	5.562		
16,000.00	9,695.37	16,904.93	10,607.27	166.93	168.12	167.88	6,373.07	212.75	932.72	762.76	169.96	5.488		
16,100.00	9,695.96	17,004.93	10,607.86	169.29	170.46	167.88	6,473.06	213.65	932.72	760.49	172.23	5.415		
16,200.00	9,696.55	17,104.93	10,608.45	171.65	172.80	167.88	6,573.06	214.55	932.72	758.21	174.51	5.345		
16,300.00	9,697.14	17,204.93	10,609.03	174.01	175.14	167.88	6,673.05	215.45	932.72	755.93	176.79	5.276		
16,400.00	9,697.72	17,304.93	10,609.62	176.38	177.49	167.88	6,773.05	216.35	932.72	753.64	179.08	5.208		
16,500.00	9,698.31	17,404.93	10,610.21	178.75	179.84	167.88	6,873.04	217.25	932.72	751.35	181.37	5.143		
16,600.00	9,698.90	17,504.93	10,610.80	181.12	182.19	167.88	6,973.03	218.15	932.71	749.06	183.66	5.079		
16,700.00	9,699.49	17,604.93	10,611.38	183.50	184.55	167.88	7,073.03	219.05	932.71	746.76	185.95	5.016		
16,786.87	9,700.00	17,691.80	10,611.89	185.57	186.60	167.88	7,159.89	219.84	932.71	744.77	187.95	4.963		



Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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		Offset		Semi Major Axis			Distance				Minimum Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Separation (ft)	Factor			
0.00	0.00	0.00	0.00	0.00	0.00	-92.29	-1.00	-25.00	25.02						
100.00	100.00	100.00	100.00	0.20	0.20	-92.29	-1.00	-25.00	25.02	24.62	0.40	62.880			
200.00	200.00	200.00	200.00	0.74	0.74	-92.29	-1.00	-25.00	25.02	23.55	1.47	16.982			
300.00	300.00	300.00	300.00	1.27	1.27	-92.29	-1.00	-25.00	25.02	22.47	2.55	9.817			
400.00	400.00	400.00	400.00	1.81	1.81	-92.29	-1.00	-25.00	25.02	21.40	3.62	6.904			
500.00	500.00	500.00	500.00	2.35	2.35	-92.29	-1.00	-25.00	25.02	20.32	4.70	5.324			
600.00	600.00	600.00	600.00	2.89	2.89	-92.29	-1.00	-25.00	25.02	19.25	5.77	4.332			
700.00	700.00	700.00	700.00	3.43	3.43	-92.29	-1.00	-25.00	25.02	18.17	6.85	3.652			
800.00	800.00	800.00	800.00	3.96	3.96	-92.29	-1.00	-25.00	25.02	17.09	7.93	3.157			
900.00	900.00	900.00	900.00	4.50	4.50	-92.29	-1.00	-25.00	25.02	16.02	9.00	2.780			
1,000.00	1,000.00	1,000.00	1,000.00	5.04	5.04	-92.29	-1.00	-25.00	25.02	14.94	10.08	2.483			
1,100.00	1,100.00	1,100.00	1,100.00	5.58	5.58	-92.29	-1.00	-25.00	25.02	13.87	11.15	2.244			
1,200.00	1,200.00	1,200.00	1,200.00	6.11	6.11	-92.29	-1.00	-25.00	25.02	12.79	12.23	2.046			
1,300.00	1,300.00	1,300.00	1,300.00	6.65	6.65	-92.29	-1.00	-25.00	25.02	11.72	13.30	1.881 Level 3<2.00			
1,400.00	1,400.00	1,400.00	1,400.00	7.19	7.19	-92.29	-1.00	-25.00	25.02	10.64	14.38	1.740 Level 3<2.00, CC, ES			
1,500.00	1,500.00	1,499.46	1,499.45	7.73	7.70	-94.02	-1.83	-26.00	26.07	10.64	15.42	1.690 Level 3<2.00, SF			
1,600.00	1,600.00	1,598.79	1,598.70	8.26	8.20	-98.44	-4.30	-28.98	29.33	12.89	16.44	1.784 Level 3<2.00			
1,700.00	1,700.00	1,701.78	1,697.94	8.80	8.72	-103.74	-8.25	-33.74	34.80	17.32	17.48	1.991 Level 3<2.00			
1,800.00	1,800.00	1,802.00	1,797.50	9.34	9.23	-107.80	-12.45	-38.80	40.83	22.31	18.52	2.204			
1,900.00	1,900.00	1,902.22	1,897.07	9.88	9.75	-110.79	-16.66	-43.87	47.01	27.44	19.57	2.402			
2,000.00	2,000.00	2,002.43	1,996.63	10.42	10.28	-113.09	-20.86	-48.93	53.30	32.67	20.62	2.584			
2,100.00	2,099.99	2,102.60	2,096.25	10.93	10.80	54.10	-25.06	-54.00	58.87	37.22	21.65	2.719			
2,200.00	2,199.91	2,202.69	2,195.94	11.41	11.33	55.30	-29.27	-59.07	62.95	40.29	22.66	2.778			
2,300.00	2,299.79	2,302.77	2,295.64	11.91	11.87	57.08	-33.48	-64.14	66.53	42.86	23.67	2.810			
2,400.00	2,399.67	2,402.86	2,395.34	12.40	12.40	58.67	-37.68	-69.21	70.16	45.47	24.69	2.841			
2,500.00	2,499.56	2,502.94	2,495.04	12.90	12.94	60.11	-41.89	-74.28	73.85	48.13	25.72	2.871			
2,600.00	2,599.44	2,603.03	2,594.73	13.41	13.48	61.41	-46.10	-79.35	77.58	50.82	26.76	2.899			
2,700.00	2,699.32	2,703.11	2,694.43	13.92	14.02	62.60	-50.31	-84.42	81.34	53.54	27.80	2.926			
2,800.00	2,799.20	2,803.20	2,794.13	14.43	14.57	63.67	-54.51	-89.49	85.14	56.29	28.84	2.952			
2,900.00	2,899.08	2,903.28	2,893.83	14.94	15.11	64.66	-58.72	-94.56	88.96	59.07	29.89	2.976			
3,000.00	2,998.97	3,003.36	2,993.53	15.46	15.66	65.56	-62.93	-99.63	92.81	61.86	30.95	2.999			
3,100.00	3,098.85	3,103.45	3,093.23	15.98	16.21	66.39	-67.14	-104.70	96.67	64.67	32.00	3.021			
3,200.00	3,198.73	3,203.53	3,192.92	16.50	16.75	67.16	-71.34	-109.77	100.56	67.50	33.06	3.041			
3,300.00	3,298.61	3,303.62	3,292.62	17.02	17.30	67.87	-75.55	-114.84	104.46	70.34	34.13	3.061			
3,400.00	3,398.49	3,403.70	3,392.32	17.55	17.85	68.52	-79.76	-119.91	108.38	73.19	35.19	3.080			
3,500.00	3,498.38	3,503.79	3,492.02	18.08	18.40	69.14	-83.97	-124.98	112.31	76.05	36.26	3.098			
3,600.00	3,598.26	3,603.87	3,591.72	18.61	18.96	69.71	-88.17	-130.05	116.26	78.93	37.33	3.114			
3,700.00	3,698.14	3,703.95	3,691.41	19.14	19.51	70.24	-92.38	-135.12	120.21	81.81	38.40	3.130			
3,800.00	3,798.02	3,804.04	3,791.11	19.67	20.06	70.74	-96.59	-140.19	124.18	84.70	39.47	3.146			
3,900.00	3,897.90	3,904.12	3,890.81	20.20	20.61	71.21	-100.80	-145.26	128.15	87.60	40.55	3.160			
4,000.00	3,997.79	4,004.21	3,990.51	20.73	21.17	71.65	-105.00	-150.33	132.13	90.50	41.63	3.174			
4,100.00	4,097.67	4,104.29	4,090.21	21.27	21.72	72.06	-109.21	-155.40	136.12	93.41	42.71	3.187			
4,200.00	4,197.55	4,204.37	4,189.91	21.80	22.28	72.45	-113.42	-160.47	140.11	96.33	43.79	3.200			
4,300.00	4,297.43	4,304.46	4,289.60	22.34	22.83	72.82	-117.63	-165.54	144.11	99.25	44.87	3.212			
4,400.00	4,397.31	4,404.54	4,389.30	22.87	23.39	73.17	-121.83	-170.61	148.12	102.17	45.95	3.223			
4,500.00	4,497.20	4,504.63	4,489.00	23.41	23.94	73.50	-126.04	-175.68	152.13	105.10	47.03	3.235			
4,600.00	4,597.08	4,604.71	4,588.70	23.95	24.50	73.82	-130.25	-180.75	156.15	108.03	48.12	3.245			
4,700.00	4,696.96	4,695.20	4,688.40	24.49	25.00	74.12	-134.46	-185.82	160.17	111.02	49.15	3.259			
4,800.00	4,796.84	4,804.88	4,788.10	25.03	25.61	74.40	-138.66	-190.89	164.19	113.90	50.29	3.265			
4,900.00	4,896.73	4,904.96	4,887.79	25.57	26.17	74.67	-142.87	-195.96	168.22	116.85	51.38	3.274			
5,000.00	4,996.61	5,005.05	4,987.49	26.11	26.73	74.93	-147.08	-201.03	172.26	119.79	52.47	3.283			

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



Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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

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		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,100.00	5,096.49	5,094.87	5,087.19	26.65	27.23	75.17	-151.29	-206.10	176.29	122.79	53.50	3.295		
5,200.00	5,196.37	5,205.22	5,188.89	27.19	27.84	75.41	-155.49	-211.17	180.33	125.69	54.64	3.300		
5,300.00	5,296.25	5,305.30	5,286.59	27.73	28.40	75.63	-159.70	-216.24	184.37	128.64	55.73	3.308		
5,400.00	5,396.14	5,394.61	5,386.29	28.27	28.90	75.85	-163.91	-221.31	188.42	131.65	56.77	3.319		
5,500.00	5,496.02	5,505.47	5,485.98	28.82	29.52	76.05	-168.12	-226.38	192.46	134.55	57.92	3.323		
5,600.00	5,595.90	5,605.55	5,585.68	29.36	30.07	76.25	-172.32	-231.45	196.51	137.50	59.01	3.330		
5,700.00	5,695.78	5,705.64	5,685.38	29.90	30.63	76.44	-176.53	-236.52	200.57	140.46	60.10	3.337		
5,800.00	5,795.66	5,805.72	5,785.08	30.45	31.19	76.62	-180.74	-241.59	204.62	143.42	61.20	3.344		
5,900.00	5,895.55	5,905.81	5,884.78	30.99	31.75	76.79	-184.95	-246.66	208.68	146.39	62.29	3.350		
6,000.00	5,995.43	6,005.89	5,984.48	31.53	32.31	76.96	-189.15	-251.73	212.73	149.35	63.38	3.356		
6,100.00	6,095.31	6,094.02	6,084.17	32.08	32.80	77.12	-193.36	-256.80	216.79	152.38	64.41	3.366		
6,200.00	6,195.19	6,195.62	6,185.56	32.62	33.37	77.31	-197.52	-261.81	220.72	155.19	65.53	3.368		
6,300.00	6,295.11	6,300.30	6,290.15	33.17	33.94	77.67	-200.36	-265.23	223.14	156.49	66.66	3.348		
6,400.00	6,395.10	6,405.04	6,394.86	33.69	34.50	77.80	-201.37	-266.45	224.00	156.28	67.72	3.308		
6,500.00	6,495.10	6,505.27	6,495.10	34.19	34.99	-90.24	-201.37	-266.45	224.00	155.28	68.73	3.259		
6,600.00	6,595.10	6,605.27	6,595.10	34.70	35.49	-90.24	-201.37	-266.45	224.00	154.27	69.73	3.212		
6,700.00	6,695.10	6,705.27	6,695.10	35.20	35.99	-90.24	-201.37	-266.45	224.00	153.26	70.74	3.166		
6,800.00	6,795.10	6,805.27	6,795.10	35.71	36.49	-90.24	-201.37	-266.45	224.00	152.25	71.75	3.122		
6,900.00	6,895.10	6,905.27	6,895.10	36.22	36.99	-90.24	-201.37	-266.45	224.00	151.23	72.77	3.078		
7,000.00	6,995.10	7,005.27	6,995.10	36.73	37.49	-90.24	-201.37	-266.45	224.00	150.22	73.78	3.036		
7,100.00	7,095.10	7,105.27	7,095.10	37.24	37.99	-90.24	-201.37	-266.45	224.00	149.20	74.80	2.995		
7,200.00	7,195.10	7,205.27	7,195.10	37.75	38.50	-90.24	-201.37	-266.45	224.00	148.18	75.82	2.954		
7,300.00	7,295.10	7,305.27	7,295.10	38.26	39.00	-90.24	-201.37	-266.45	224.00	147.16	76.84	2.915		
7,400.00	7,395.10	7,405.27	7,395.10	38.77	39.51	-90.24	-201.37	-266.45	224.00	146.14	77.86	2.877		
7,500.00	7,495.10	7,505.27	7,495.10	39.29	40.01	-90.24	-201.37	-266.45	224.00	145.12	78.88	2.840		
7,600.00	7,595.10	7,605.27	7,595.10	39.80	40.52	-90.24	-201.37	-266.45	224.00	144.09	79.91	2.803		
7,700.00	7,695.10	7,705.27	7,695.10	40.31	41.03	-90.24	-201.37	-266.45	224.00	143.07	80.94	2.768		
7,800.00	7,795.10	7,805.27	7,795.10	40.83	41.54	-90.24	-201.37	-266.45	224.00	142.04	81.96	2.733		
7,900.00	7,895.10	7,905.27	7,895.10	41.34	42.05	-90.24	-201.37	-266.45	224.00	141.01	82.99	2.699		
8,000.00	7,995.10	8,005.27	7,995.10	41.86	42.56	-90.24	-201.37	-266.45	224.00	139.98	84.02	2.666		
8,100.00	8,095.10	8,105.27	8,095.10	42.38	43.07	-90.24	-201.37	-266.45	224.00	138.95	85.05	2.634		
8,200.00	8,195.10	8,205.27	8,195.10	42.89	43.58	-90.24	-201.37	-266.45	224.00	137.92	86.08	2.602		
8,300.00	8,295.10	8,305.27	8,295.10	43.41	44.09	-90.24	-201.37	-266.45	224.00	136.89	87.12	2.571		
8,400.00	8,395.10	8,405.27	8,395.10	43.93	44.61	-90.24	-201.37	-266.45	224.00	135.85	88.15	2.541		
8,500.00	8,495.10	8,505.27	8,495.10	44.45	45.12	-90.24	-201.37	-266.45	224.00	134.82	89.18	2.512		
8,600.00	8,595.10	8,605.27	8,595.10	44.97	45.63	-90.24	-201.37	-266.45	224.00	133.78	90.22	2.483		
8,700.00	8,695.10	8,705.27	8,695.10	45.49	46.15	-90.24	-201.37	-266.45	224.00	132.75	91.26	2.455		
8,800.00	8,795.10	8,805.27	8,795.10	46.01	46.66	-90.24	-201.37	-266.45	224.00	131.71	92.29	2.427		
8,900.00	8,895.10	8,905.27	8,895.10	46.53	47.18	-90.24	-201.37	-266.45	224.00	130.67	93.33	2.400		
9,000.00	8,995.10	9,005.27	8,995.10	47.05	47.69	-90.24	-201.37	-266.45	224.00	129.63	94.37	2.374		
9,008.22	9,003.32	9,013.49	9,003.32	47.09	47.74	-90.76	-201.37	-266.45	224.00	129.54	94.46	2.371		
9,100.00	9,095.10	9,105.27	9,095.10	47.57	48.21	-90.77	-201.37	-266.45	224.00	128.59	95.41	2.348		
9,200.00	9,194.46	9,204.63	9,194.46	48.07	48.72	-93.29	-201.37	-266.45	224.37	127.97	96.40	2.328		
9,300.00	9,290.55	9,300.73	9,290.55	48.53	49.22	-99.55	-201.37	-266.45	227.58	130.30	97.28	2.339		
9,400.00	9,380.47	9,409.36	9,380.47	48.95	49.78	-107.81	-201.37	-266.45	239.14	140.97	98.17	2.436		
9,500.00	9,461.47	9,471.64	9,461.47	49.34	50.11	-115.67	-201.37	-266.45	265.32	166.52	98.80	2.685		
9,600.00	9,531.09	9,541.26	9,531.09	49.73	50.47	-121.10	-201.37	-266.45	309.65	210.20	99.46	3.113		
9,700.00	9,587.22	9,602.61	9,587.22	50.13	50.78	-122.84	-201.37	-266.45	371.53	271.50	100.03	3.714		
9,800.00	9,628.15	9,638.33	9,628.15	50.55	50.97	-119.63	-201.37	-266.45	447.60	347.19	100.41	4.458		
9,900.00	9,652.64	9,662.82	9,652.64	51.01	51.10	-109.06	-201.37	-266.45	533.63	432.98	100.65	5.302		
10,000.00	9,660.07	9,670.24	9,660.07	51.50	51.14	-90.88	-201.37	-266.45	625.44	524.69	100.75	6.208		

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



Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)		Separation Factor
10,100.00	9,660.65	9,670.83	9,660.65	52.08	51.14	-91.03	-201.37	-266.45	719.69	618.90	100.79	7.140	
10,200.00	9,661.24	9,671.42	9,661.24	52.76	51.14	-91.18	-201.37	-266.45	815.32	714.49	100.83	8.086	
10,300.00	9,661.83	9,672.00	9,661.83	53.56	51.14	-91.33	-201.37	-266.45	911.88	811.01	100.87	9.040	
10,400.00	9,662.42	9,672.59	9,662.42	54.45	51.15	-91.48	-201.37	-266.45	1,009.12	908.21	100.91	10.000	
10,500.00	9,663.01	9,673.18	9,663.01	55.44	51.15	-91.63	-201.37	-266.45	1,106.84	1,005.90	100.95	10.964	
10,600.00	9,663.60	11,711.65	10,773.58	56.52	61.85	-168.58	975.96	-255.98	1,132.41	1,066.51	65.89	17.186	
10,700.00	9,664.18	11,811.65	10,774.17	57.68	62.90	-168.58	1,075.95	-255.09	1,132.41	1,065.49	66.91	16.923	
10,800.00	9,664.77	11,911.65	10,774.76	58.93	64.03	-168.58	1,175.95	-254.20	1,132.41	1,064.40	68.01	16.651	
10,900.00	9,665.36	12,011.65	10,775.35	60.25	65.23	-168.58	1,275.94	-253.31	1,132.42	1,063.24	69.18	16.369	
11,000.00	9,665.95	12,111.65	10,775.94	61.64	66.50	-168.58	1,375.93	-252.42	1,132.42	1,062.00	70.41	16.082	
11,100.00	9,666.54	12,211.65	10,776.53	63.10	67.84	-168.58	1,475.93	-251.53	1,132.42	1,060.71	71.71	15.791	
11,200.00	9,667.13	12,311.65	10,777.12	64.62	69.23	-168.58	1,575.92	-250.64	1,132.43	1,059.35	73.07	15.498	
11,300.00	9,667.71	12,411.65	10,777.71	66.20	70.69	-168.58	1,675.92	-249.75	1,132.43	1,057.94	74.49	15.203	
11,400.00	9,668.30	12,511.65	10,778.30	67.83	72.20	-168.58	1,775.91	-248.86	1,132.43	1,056.48	75.96	14.909	
11,500.00	9,668.89	12,611.65	10,778.88	69.51	73.77	-168.58	1,875.91	-247.97	1,132.44	1,054.96	77.48	14.616	
11,600.00	9,669.48	12,711.65	10,779.47	71.24	75.38	-168.58	1,975.90	-247.08	1,132.44	1,053.39	79.05	14.326	
11,700.00	9,670.07	12,811.65	10,780.06	73.01	77.04	-168.58	2,075.89	-246.19	1,132.44	1,051.78	80.66	14.040	
11,800.00	9,670.66	12,911.65	10,780.65	74.82	78.74	-168.58	2,175.89	-245.30	1,132.45	1,050.13	82.31	13.758	
11,900.00	9,671.25	13,011.65	10,781.24	76.66	80.48	-168.58	2,275.88	-244.41	1,132.45	1,048.44	84.01	13.480	
12,000.00	9,671.83	13,111.65	10,781.83	78.54	82.26	-168.58	2,375.88	-243.52	1,132.45	1,046.72	85.74	13.208	
12,100.00	9,672.42	13,211.65	10,782.42	80.46	84.07	-168.58	2,475.87	-242.63	1,132.46	1,044.95	87.50	12.942	
12,200.00	9,673.01	13,311.65	10,783.01	82.40	85.91	-168.58	2,575.87	-241.74	1,132.46	1,043.16	89.30	12.681	
12,300.00	9,673.60	13,411.65	10,783.60	84.37	87.79	-168.57	2,675.86	-240.85	1,132.46	1,041.33	91.13	12.427	
12,400.00	9,674.19	13,511.65	10,784.19	86.37	89.70	-168.57	2,775.85	-239.96	1,132.47	1,039.48	92.99	12.179	
12,500.00	9,674.78	13,611.65	10,784.78	88.39	91.63	-168.57	2,875.85	-239.07	1,132.47	1,037.60	94.87	11.937	
12,600.00	9,675.36	13,711.65	10,785.37	90.43	93.59	-168.57	2,975.84	-238.18	1,132.47	1,035.69	96.78	11.702	
12,700.00	9,675.95	13,811.65	10,785.96	92.49	95.57	-168.57	3,075.84	-237.29	1,132.48	1,033.77	98.71	11.473	
12,800.00	9,676.54	13,911.65	10,786.55	94.57	97.57	-168.57	3,175.83	-236.40	1,132.48	1,031.81	100.66	11.250	
12,900.00	9,677.13	14,011.65	10,787.14	96.68	99.60	-168.57	3,275.83	-235.51	1,132.48	1,029.84	102.64	11.033	
13,000.00	9,677.72	14,111.65	10,787.73	98.79	101.64	-168.57	3,375.82	-234.62	1,132.49	1,027.85	104.64	10.823	
13,100.00	9,678.31	14,211.65	10,788.31	100.93	103.70	-168.57	3,475.81	-233.73	1,132.49	1,025.84	106.65	10.619	
13,200.00	9,678.89	14,311.65	10,788.90	103.08	105.79	-168.57	3,575.81	-232.84	1,132.49	1,023.81	108.68	10.420	
13,300.00	9,679.48	14,411.65	10,789.49	105.24	107.88	-168.57	3,675.80	-231.96	1,132.50	1,021.76	110.73	10.227	
13,400.00	9,680.07	14,511.65	10,790.08	107.42	110.00	-168.57	3,775.80	-231.07	1,132.50	1,019.70	112.80	10.040	
13,500.00	9,680.66	14,611.65	10,790.67	109.61	112.12	-168.57	3,875.79	-230.18	1,132.50	1,017.63	114.87	9.859	
13,600.00	9,681.25	14,711.65	10,791.26	111.81	114.26	-168.57	3,975.79	-229.29	1,132.51	1,015.54	116.96	9.682	
13,700.00	9,681.84	14,811.65	10,791.85	114.02	116.42	-168.57	4,075.78	-228.40	1,132.51	1,013.44	119.07	9.511	
13,800.00	9,682.43	14,911.65	10,792.44	116.25	118.59	-168.57	4,175.77	-227.51	1,132.51	1,011.33	121.19	9.345	
13,900.00	9,683.01	15,011.65	10,793.03	118.48	120.76	-168.56	4,275.77	-226.62	1,132.52	1,009.20	123.32	9.184	
14,000.00	9,683.60	15,111.65	10,793.62	120.72	122.95	-168.56	4,375.76	-225.73	1,132.52	1,007.06	125.45	9.027	
14,100.00	9,684.19	15,211.65	10,794.21	122.97	125.15	-168.56	4,475.76	-224.84	1,132.52	1,004.92	127.61	8.875	
14,200.00	9,684.78	15,311.65	10,794.80	125.23	127.36	-168.56	4,575.75	-223.95	1,132.53	1,002.76	129.76	8.728	
14,300.00	9,685.37	15,411.65	10,795.39	127.50	129.58	-168.56	4,675.75	-223.06	1,132.53	1,000.60	131.93	8.584	
14,400.00	9,685.96	15,511.65	10,795.98	129.77	131.81	-168.56	4,775.74	-222.17	1,132.53	998.42	134.11	8.445	
14,500.00	9,686.54	15,611.65	10,796.57	132.05	134.05	-168.56	4,875.73	-221.28	1,132.54	996.24	136.30	8.309	
14,600.00	9,687.13	15,711.65	10,797.16	134.34	136.29	-168.56	4,975.73	-220.39	1,132.54	994.05	138.49	8.178	
14,700.00	9,687.72	15,811.65	10,797.74	136.64	138.55	-168.56	5,075.72	-219.50	1,132.54	991.85	140.69	8.050	
14,800.00	9,688.31	15,911.65	10,798.33	138.94	140.81	-168.56	5,175.72	-218.61	1,132.55	989.65	142.90	7.925	
14,900.00	9,688.90	16,011.65	10,798.92	141.24	143.07	-168.56	5,275.71	-217.72	1,132.55	987.43	145.12	7.804	
15,000.00	9,689.49	16,111.65	10,799.51	143.56	145.35	-168.56	5,375.71	-216.83	1,132.55	985.21	147.34	7.687	
15,100.00	9,690.07	16,211.65	10,800.10	145.87	147.63	-168.56	5,475.70	-215.94	1,132.56	982.99	149.57	7.572	

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



Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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

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		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
15,200.00	9,690.66	16,311.65	10,800.69	148.20	149.91	-168.56	5,575.69	-215.05	1,132.56	980.76	151.80	7.461		
15,300.00	9,691.25	16,411.65	10,801.28	150.52	152.21	-168.56	5,675.69	-214.16	1,132.56	978.52	154.04	7.352		
15,400.00	9,691.84	16,511.65	10,801.87	152.85	154.50	-168.56	5,775.68	-213.27	1,132.57	976.28	156.28	7.247		
15,500.00	9,692.43	16,611.65	10,802.46	155.19	156.81	-168.56	5,875.68	-212.38	1,132.57	974.04	158.53	7.144		
15,600.00	9,693.02	16,711.65	10,803.05	157.53	159.11	-168.55	5,975.67	-211.49	1,132.57	971.79	160.79	7.044		
15,700.00	9,693.60	16,811.65	10,803.64	159.87	161.43	-168.55	6,075.67	-210.60	1,132.58	969.53	163.05	6.946		
15,800.00	9,694.19	16,911.65	10,804.23	162.22	163.74	-168.55	6,175.66	-209.71	1,132.58	967.27	165.31	6.851		
15,900.00	9,694.78	17,011.65	10,804.82	164.57	166.07	-168.55	6,275.65	-208.82	1,132.58	965.00	167.58	6.758		
16,000.00	9,695.37	17,111.65	10,805.41	166.93	168.39	-168.55	6,375.65	-207.93	1,132.59	962.74	169.85	6.668		
16,100.00	9,695.96	17,211.65	10,806.00	169.29	170.72	-168.55	6,475.64	-207.04	1,132.59	960.47	172.12	6.580		
16,200.00	9,696.55	17,311.65	10,806.59	171.65	173.06	-168.55	6,575.64	-206.16	1,132.59	958.19	174.40	6.494		
16,300.00	9,697.14	17,411.65	10,807.17	174.01	175.39	-168.55	6,675.63	-205.27	1,132.60	955.91	176.69	6.410		
16,400.00	9,697.72	17,511.65	10,807.76	176.38	177.74	-168.55	6,775.63	-204.38	1,132.60	953.63	178.97	6.328		
16,500.00	9,698.31	17,611.65	10,808.35	178.75	180.08	-168.55	6,875.62	-203.49	1,132.60	951.34	181.26	6.248		
16,600.00	9,698.90	17,711.65	10,808.94	181.12	182.43	-168.55	6,975.61	-202.60	1,132.61	949.05	183.55	6.170		
16,700.00	9,699.49	17,811.65	10,809.53	183.50	184.78	-168.55	7,075.61	-201.71	1,132.61	946.76	185.85	6.094		
16,786.87	9,700.00	17,898.52	10,810.04	185.57	186.83	-168.55	7,162.47	-200.93	1,132.61	944.77	187.84	6.030		



Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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

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		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,100.00	5,096.49	10,358.17	6,890.06	26.65	138.58	150.61	93.52	-148.77	1,798.12	1,738.17	59.95	29.995		
5,200.00	5,196.37	10,363.06	6,890.37	27.19	138.76	151.41	93.59	-143.90	1,699.98	1,639.26	60.72	27.998		
5,300.00	5,296.25	10,367.99	6,890.70	27.73	138.93	152.23	93.67	-138.98	1,602.05	1,540.46	61.58	26.015		
5,400.00	5,396.14	10,372.98	6,891.02	28.27	139.11	153.06	93.74	-134.00	1,504.37	1,441.81	62.56	24.047		
5,500.00	5,496.02	10,378.02	6,891.35	28.82	139.29	153.90	93.82	-129.97	1,407.00	1,343.33	63.67	22.097		
5,600.00	5,595.90	10,383.11	6,891.69	29.36	139.47	154.76	93.89	-123.90	1,310.01	1,245.05	64.96	20.166		
5,700.00	5,695.78	10,388.25	6,892.03	29.90	139.65	155.64	93.97	-118.77	1,213.48	1,147.01	66.48	18.254		
5,800.00	5,795.66	10,393.44	6,892.37	30.45	139.83	156.52	94.05	-113.58	1,117.54	1,049.26	68.28	16.367		
5,900.00	5,895.55	10,398.70	6,892.72	30.99	140.02	157.43	94.13	-108.34	1,022.35	951.87	70.47	14.507		
6,000.00	5,995.43	10,404.00	6,893.08	31.53	140.21	158.35	94.21	-103.05	928.13	854.94	73.19	12.681		
6,100.00	6,095.31	10,409.37	6,893.44	32.08	140.40	159.28	94.29	-97.70	835.23	758.61	76.62	10.900		
6,200.00	6,195.19	10,414.79	6,893.80	32.62	140.59	160.23	94.38	-92.29	744.13	663.06	81.07	9.179		
6,300.00	6,295.11	10,420.68	6,894.20	33.17	140.80	160.49	94.47	-86.41	655.19	568.31	86.87	7.542		
6,400.00	6,395.10	10,427.91	6,894.70	33.69	141.06	160.98	94.57	-79.20	568.52	474.14	94.39	6.023		
6,500.00	6,495.10	10,435.50	6,895.21	34.19	141.33	-5.65	94.65	-71.63	486.05	381.41	104.64	4.645		
6,600.00	6,595.10	10,443.09	6,895.73	34.70	141.60	-4.19	94.72	-64.05	411.30	291.93	119.37	3.445		
6,700.00	6,695.10	10,450.68	6,896.25	35.20	141.87	-2.72	94.76	-56.48	349.27	208.92	140.35	2.489		
6,800.00	6,795.10	10,458.27	6,896.76	35.71	142.14	-1.25	94.79	-48.91	307.75	141.88	165.87	1.855 Level 3<2.00		
6,887.12	6,882.21	10,464.89	6,897.21	36.15	142.37	0.03	94.79	-42.31	295.23	117.02	178.21	1.657 Level 3<2.00, CC, ES, SF		
6,900.00	6,895.10	10,465.87	6,897.28	36.22	142.40	0.22	94.79	-41.33	295.51	117.56	177.95	1.661 Level 3<2.00		
7,000.00	6,995.10	10,473.46	6,897.79	36.73	142.67	1.69	94.77	-33.76	315.97	155.69	160.28	1.971 Level 3<2.00		
7,100.00	7,095.10	10,481.05	6,898.31	37.24	142.94	3.15	94.74	-26.19	363.66	227.68	135.98	2.674		
7,200.00	7,195.10	10,488.64	6,898.83	37.75	143.21	4.62	94.68	-18.61	429.60	312.02	117.58	3.654		
7,300.00	7,295.10	10,496.23	6,899.34	38.26	143.48	6.08	94.60	-11.04	506.71	401.68	105.03	4.824		
7,400.00	7,395.10	10,503.82	6,899.86	38.77	143.75	7.53	94.51	-3.47	590.64	494.11	96.52	6.119		
7,500.00	7,495.10	10,511.41	6,900.38	39.29	144.02	8.97	94.39	4.10	678.86	588.22	90.64	7.490		
7,600.00	7,595.10	10,519.00	6,900.89	39.80	144.29	10.41	94.25	11.67	769.90	683.41	86.49	8.902		
7,700.00	7,695.10	10,526.59	6,901.41	40.31	144.56	11.83	94.09	19.24	862.86	779.36	83.50	10.334		
7,800.00	7,795.10	10,525.03	6,901.25	40.83	144.51	11.54	94.13	17.70	957.28	876.11	81.17	11.793		
7,900.00	7,895.10	10,528.61	6,901.46	41.34	144.64	12.21	94.05	21.27	1,052.68	973.16	79.52	13.238		
8,000.00	7,995.10	10,531.88	6,901.64	41.86	144.75	12.82	93.97	24.54	1,148.85	1,070.56	78.29	14.675		
8,100.00	8,095.10	10,534.89	6,901.80	42.38	144.86	13.37	93.90	27.53	1,245.60	1,168.23	77.37	16.100		
8,200.00	8,195.10	10,537.65	6,901.94	42.89	144.96	13.88	93.83	30.29	1,342.82	1,266.13	76.69	17.509		
8,300.00	8,295.10	10,540.20	6,902.06	43.41	145.05	14.35	93.76	32.84	1,440.41	1,364.21	76.21	18.902		
8,400.00	8,395.10	10,542.57	6,902.17	43.93	145.13	14.79	93.70	35.20	1,538.30	1,462.44	75.86	20.277		
8,500.00	8,495.10	10,544.77	6,902.27	44.45	145.21	15.19	93.64	37.40	1,636.45	1,560.80	75.64	21.634		
8,600.00	8,595.10	10,546.82	6,902.36	44.97	145.28	15.56	93.58	39.45	1,734.79	1,659.28	75.52	22.972		
8,700.00	8,695.10	10,548.73	6,902.44	45.49	145.35	15.91	93.52	41.36	1,833.32	1,757.84	75.47	24.291		

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



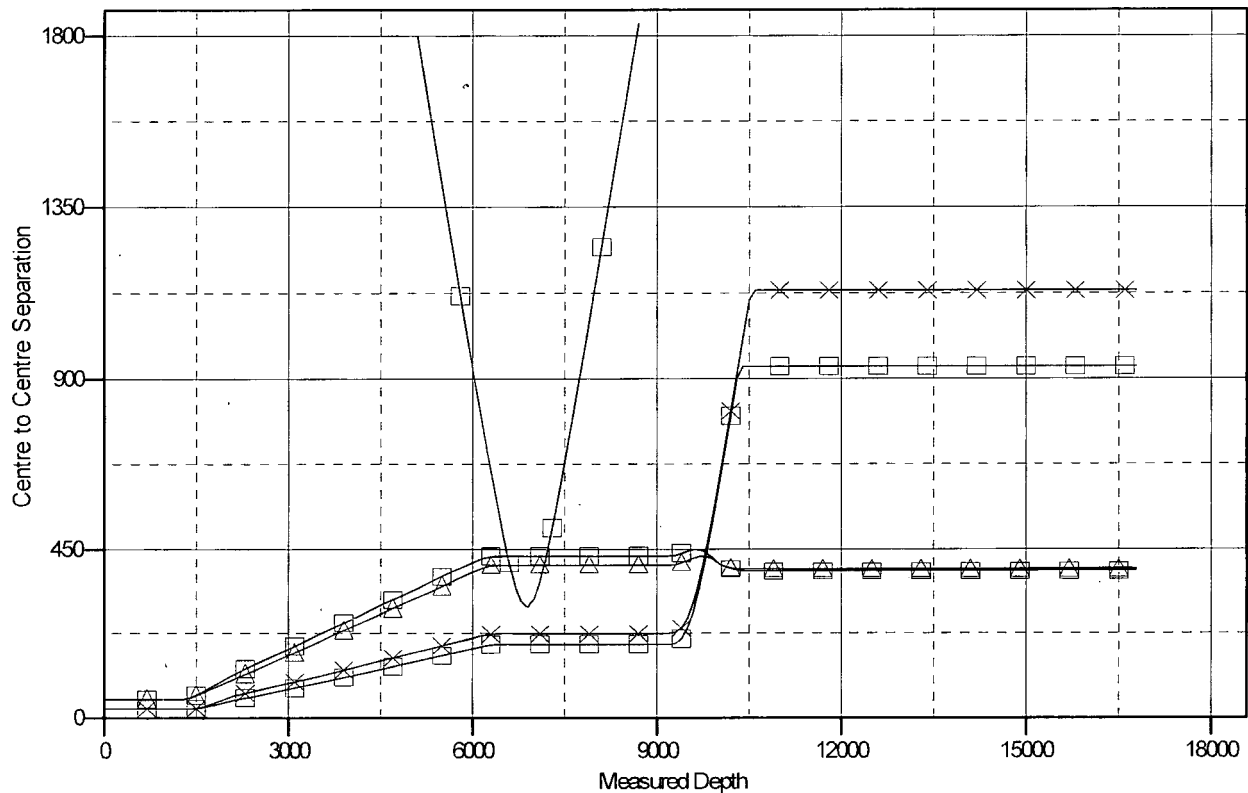
Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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. 204 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. 218 H, Original Hole, rev0 V0
- Slidewinder #1H, Original Hole, Survey vs Original Hole V0
- Money Graham Fed Com Well No. 238 H, Original Hole, rev0 V0
- Money Graham Fed Com Well No. 214 H, Original Hole, rev0 V0



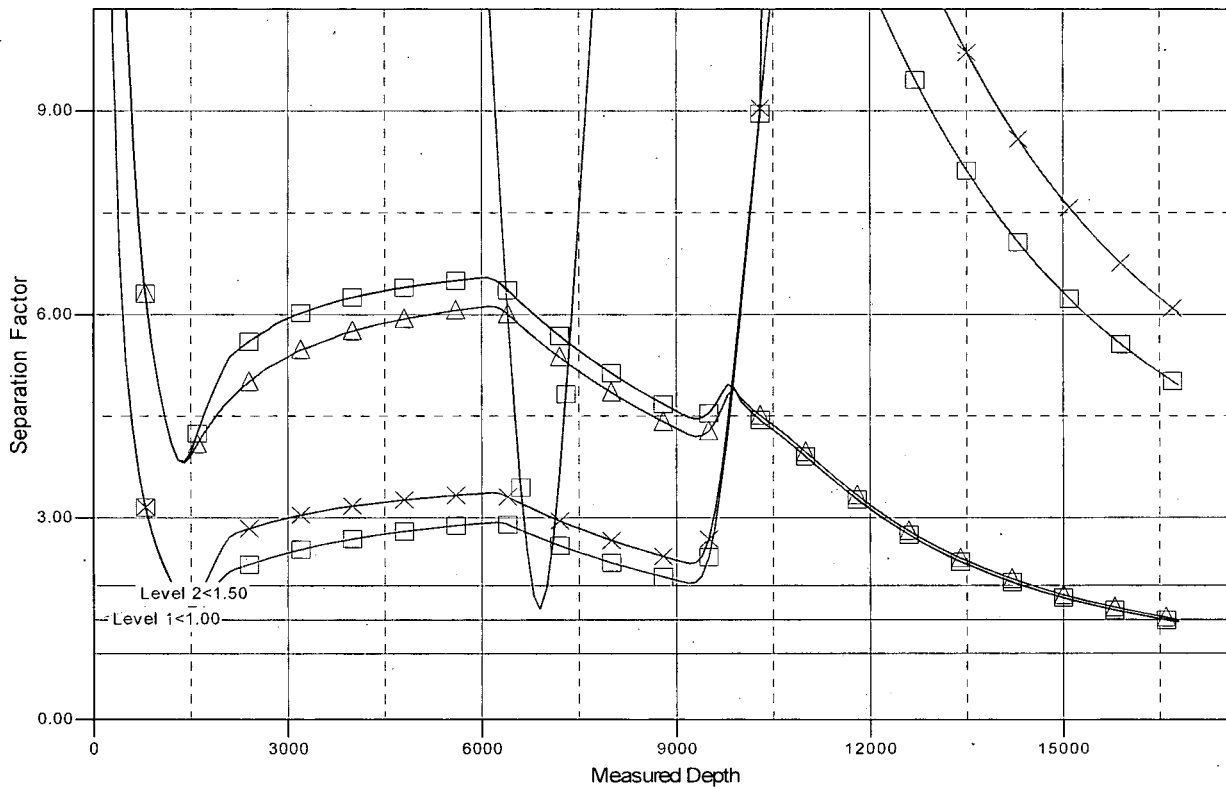
Anticollision Report

Company:	Tap Rock Operating LLC	Local Co-ordinate Reference:	Well Money Graham Fed Com Well No. 204 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. 204 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 -104.3333334

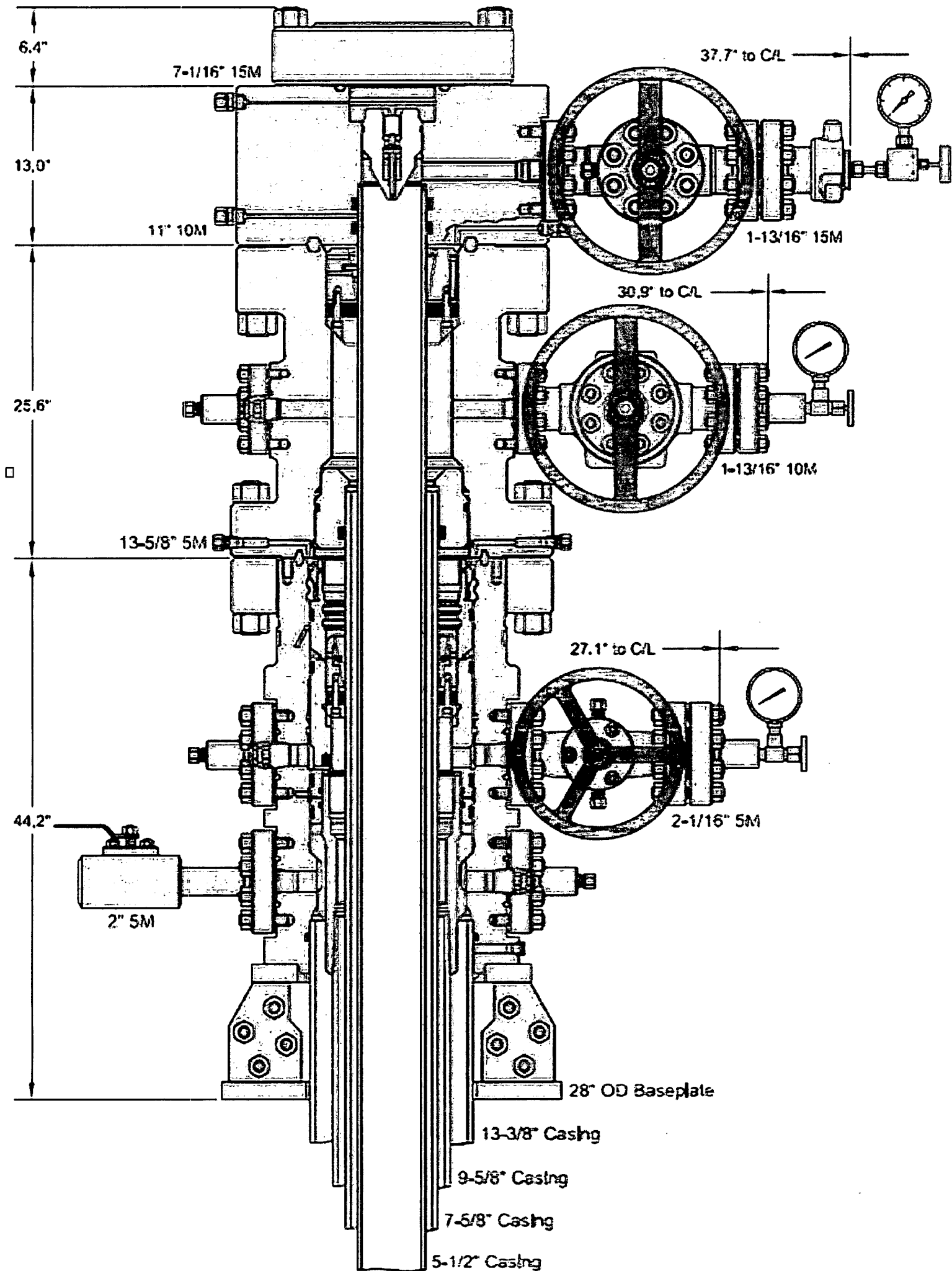
Coordinates are relative to: Money Graham Fed Com Well No. 204 H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.18°

Separation Factor Plot



LEGEND

- Money Graham Fed Com Well No. 246 H, Original Hole, rev0 V0
- Money Graham Fed Com Well No. 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
- Money Graham Fed Com Well No. 214 H, Original Hole, rev0 V0





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
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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		

Tenaris Hydril 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
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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		

Tenaris Hydril Premium Connections

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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

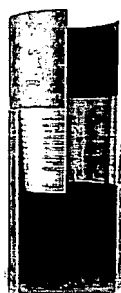
Coupling Reg OD	8.500 in	Threads per in	5	Thread turns make up	1
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PERFORMANCE

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: White
		Type	Casing	1st Band: -	2nd Band: -
				2nd Band: -	3rd Band: -
				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

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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	37.5%	▼	Clear Filters
		Drift	API Standard	▼	Compare
Wall Thickness	0.361 in	Type	Casing	▼	Request Info
Grade	P110	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 x 1000 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 x 1000 lbs	Internal Pressure Capacity (1)	12640.000 psi
Compression Efficiency	100 %	Compression Strength	641.000 x 1000 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
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OPERATION LIMIT TORQUES

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

Tap Rock Operating, LLC
MONEY GRAHAM FED COM #204H
SHL 250' FSL & 904' FEL, Sec. 32
BHL 200' FNL & 946' FEL, Sec. 29
T. 26S., R. 29E., Eddy County, NM

DRILL PLAN PAGE 1

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	2,392	2,392	salt
Bell Canyon	2,848	2,847	hydrocarbons
Brushy Canyon	4,839	4,836	hydrocarbons
Bone Spring Lime	6,431	6,426	hydrocarbons
1 st Bone Spring Sand	7,356	7,351	hydrocarbons
2 nd Bone Spring Sand	7,936	7,931	hydrocarbons
(KOP	9092	9087	hydrocarbons)
3 rd Bone Spring Sand	9,178	9,173	hydrocarbons
3 rd Bone Spring W Sand	9,461	9,431	hydrocarbons
Wolfcamp A	9575	9496	hydrocarbons
Wolfcamp A Y Sand (Goal)	9586	9522	hydrocarbons
TD	16787	9700	--

2. NOTABLE ZONES

Wolfcamp A Y Sand 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.

Tap Rock Operating, LLC
MONEY GRAHAM FED COM #204H
SHL 250' FSL & 904' FEL, Sec. 32
BHL 200' FNL & 946' FEL, Sec. 29
T. 26S., R. 29E., Eddy County, NM

DRILL PLAN PAGE 2

BOP Test procedure will be as follows:

After surface casing is set and the BOP is nipped 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 - 2900	9.625" inter. 1	40.0	J-55	BTC	1.13	1.15	1.51
8.75"	0 - 2700	0 - 2700	7.625" inter. 2 top	29.7	P-110	BTC	1.13	1.15	1.51
8.75"	2700 - 8955	2700 - 8945	7.625" inter. 2 bottom	29.7	P-110	Wedge 513	1.13	1.15	1.51
6.75"	0 - 8755	0 - 8745	5.5" product. top	20.0	P-110	BTC	1.13	1.15	1.51
6.75"	8755 - 16787	8745 - 9700	5" product. bottom	18.0	P-110	Wedge 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.

Tap Rock Operating, LLC
MONEY GRAHAM FED COM #204H
SHL 250' FSL & 904' FEL, Sec. 32
BHL 200' FNL & 946' FEL, Sec. 29
T. 26S., R. 29E., Eddy County, NM

DRILL PLAN PAGE 3

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	304	2.35	714	11.5	TXI + fluid loss + dispersant + retarder + LCM
	Tail	175	1.39	243	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 - 8960	9.0	30-32	NC
Production	6.75"	OBM	8960 - 16787	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.

**Tap Rock Operating, LLC
MONEY GRAHAM FED COM #204H
SHL 250' FSL & 904' FEL, Sec. 32
BHL 200' FNL & 946' FEL, Sec. 29
T. 26S., R. 29E., Eddy County, NM**

DRILL PLAN PAGE 4

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 H₂S from the surface to the Wolfcamp formations to meet the BLM's minimum requirements for the submission of an "H₂S Drilling Operation Plan" or "Public Protection Plan" for the drilling and completion of this well. Since we have an H₂S safety package on all wells, attached is an "H₂S 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: 5,800 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.



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

SUPO Data Report

08/12/2019

APD ID: 10400037877

Submission Date: 01/24/2019

Highlighted data
reflects the most
recent changes

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM

Well Number: 204H

[Show Final Text](#)

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Money_204H_Fee_Fee_Fed_20190111140701.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:

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM

Well Number: 204H

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, OTHER, STIMULATION,
SURFACE CASING

Describe type:

Source latitude:

Source datum:

Water source permit type: OTHER

Source land ownership: OTHER

Water source transport method: TRUCKING

Source transportation land ownership: OTHER

Water source volume (barrels): 0

Source volume (gal): 0

Water source type: OTHER

Source longitude:

Describe land ownership: Fee Fee Fed - SUPO not required

Describe transportation land ownership: Fee Fee Fed - SUPO not required

Source volume (acre-feet): 0

Water source and transportation map:

Money_204H_Fee_Fee_Fed_20190111140735.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: 204H

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: 204H

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? NO

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_204H_Well_Site_Layout_20190430131232.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance

Multiple Well Pad Name: MONEY GRAHAM 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: 204H

Wellpad long term disturbance (acres): 0

Access road long term disturbance (acres): 0

Pipeline long term disturbance (acres): 0

Other long term disturbance (acres): 0

Total long term disturbance: 0

Wellpad short term disturbance (acres): 0

Access road short term disturbance (acres): 0

Pipeline short term disturbance (acres): 0

Other short term disturbance (acres): 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: 204H

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: 204H

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 204H

Fee Fee Fed – SUPO not required

Tap Rock Operating Money Graham Fed Com 204H

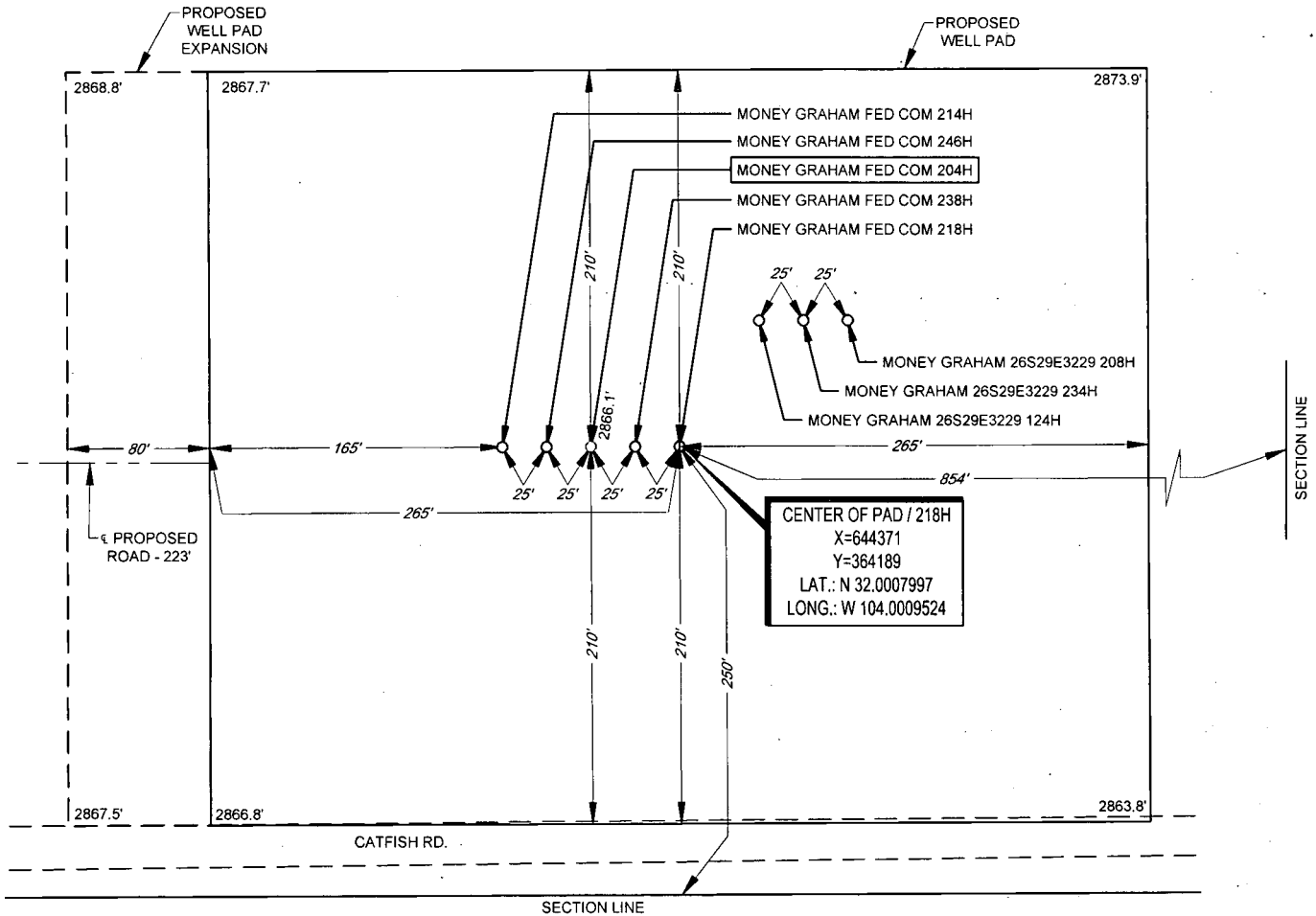
Fee Fee Fed – SUPO not required

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 204H
204H LATITUDE N 32.0007995 204H LONGITUDE W 104.0011137

CENTER OF PAD IS 250' FSL & 854' FEL



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

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

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



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

PWD Data Report

08/12/2019

APD ID: 10400037877

Submission Date: 01/24/2019

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM

Well Number: 204H

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:

Describe 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: 204H

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:

Describe 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: 204H

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: 204H

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:



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

Bond Info Data Report

08/12/2019

APD ID: 10400037877

Submission Date: 01/24/2019

Highlighted data
reflects the most
recent changes

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM

Well Number: 204H

[Show Final Text](#)

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill

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: