

District I

1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720

District II

811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

Form C-101

August 1, 2011

Permit 294867

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address TAP ROCK OPERATING, LLC 523 Park Point Drive Golden, CO 80401		2. OGRID Number 372043
		3. API Number 30-025-48630
4. Property Code 328891	5. Property Name APOLLO STATE COM	6. Well No. 203H

7. Surface Location

UL - Lot O	Section 21	Township 24S	Range 33E	Lot Idn O	Feet From 849	N/S Line S	Feet From 1860	E/W Line E	County Lea
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8. Proposed Bottom Hole Location

UL - Lot B	Section 16	Township 24S	Range 33E	Lot Idn B	Feet From 30	N/S Line N	Feet From 2309	E/W Line E	County Lea
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9. Pool Information

WC-025 G-09 S243310P;UPPER WOLFCAMP	98135
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Additional Well Information

11. Work Type New Well	12. Well Type OIL	13. Cable/Rotary	14. Lease Type State	15. Ground Level Elevation 3541
16. Multiple N	17. Proposed Depth 22833	18. Formation Wolfcamp	19. Contractor	20. Spud Date 12/31/2021
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

☒ We will be using a closed-loop system in lieu of lined pits

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	13.5	10.75	45.5	1350	650	0
Int2	8.75	7.625	29.7	11900	2400	0
Int1	9.875	7.625	29.7	9500	0	0
Prod	6.75	5.5	20	22833	700	11400

Casing/Cement Program: Additional Comments

If a DV tool is ran, the depth will be adjusted depending on current hole conditions. Cement volumes will be adjusted proportionally. The DV tool will be set a minimum of 50' below the previous casing shoe and a maximum of 200' above the current casing shoe. If cement is not circulated to surface on the 1st cement job, the 2nd stage will be pumped as planned. The DVT set depth will be set between 5,000-6,000'.

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular	5000	3500	
Double Ram	10000	5000	
Pipe	10000	5000	

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief.
I further certify I have complied with 19.15.14.9 (A) NMAC ☐ and/or 19.15.14.9 (B) NMAC ☒ if applicable.

OIL CONSERVATION DIVISION

Signature:

Printed Name: Electronically filed by Christian Combs

Title: Regulatory Manager

Email Address: ccombs@taprk.com

Date: 4/14/2021

Phone: 720-360-4028

Approved By: Paul F Kautz

Title: Geologist

Approved Date: 4/15/2021

Conditions of Approval Attached

Expiration Date: 4/15/2023

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State of New Mexico
Energy, Minerals & Natural Resources
Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

FORM C-102

Revised August 1, 2011

Submit one copy to appropriate

District Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-48630	² Pool Code 98135	³ Pool Name WC-025 G-09 S243310P; UPPER WOLFCAMP
⁴ Property Code 328891	⁵ Property Name APOLLO STATE COM	
⁶ Well Number 203H		
⁷ OGRID No. #372043	⁸ Operator Name TAP ROCK OPERATING, LLC.	
	⁹ Elevation 3541'	

¹⁰Surface Location

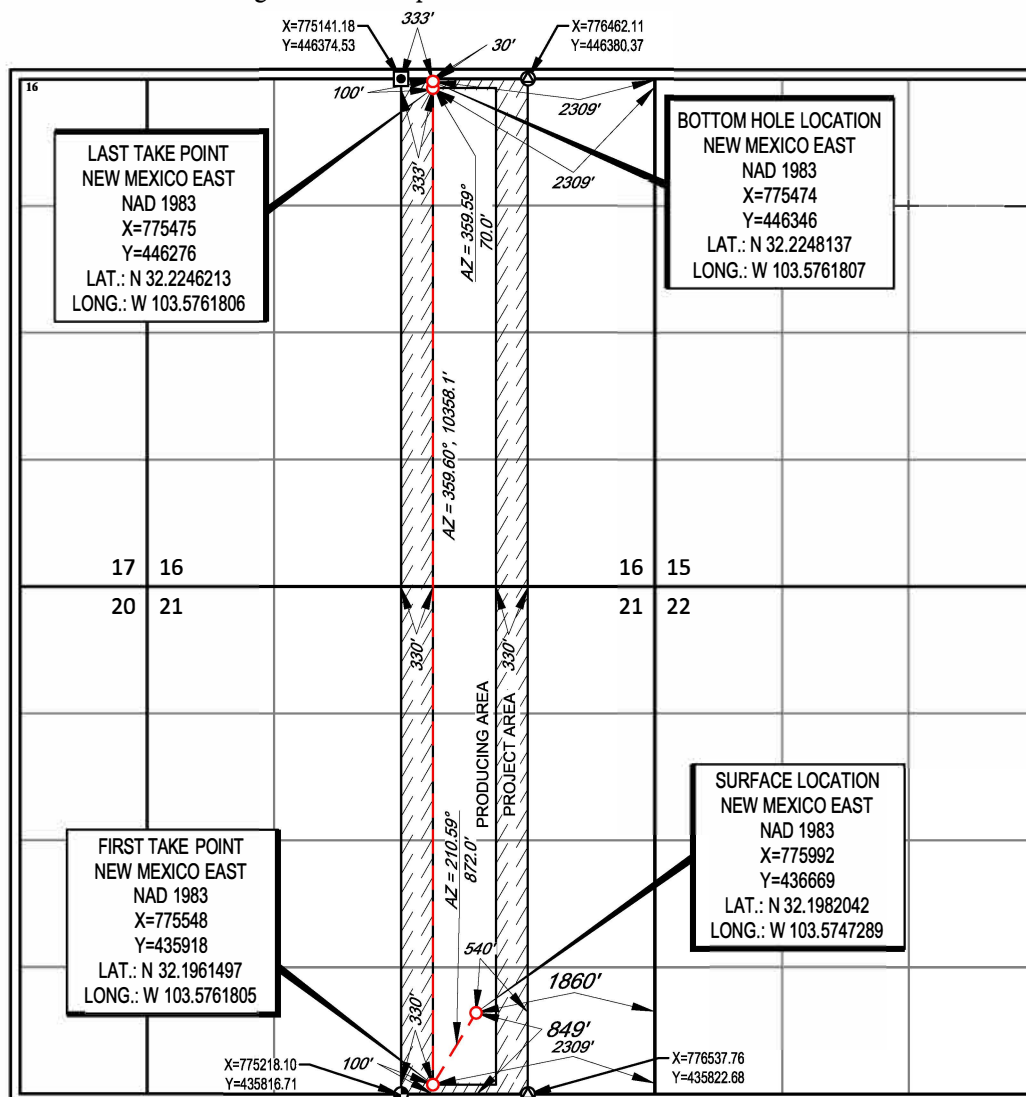
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	21	24-S	33-E	—	849'	SOUTH	1860'	EAST	LEA

¹¹Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	16	24-S	33-E	-	30'	NORTH	2309'	EAST	LEA

¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
320			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



¹⁷OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Kenny

4/13/2021

Signature _____

Date _____

Bill Ramsey

Printed Name _____

bramsey@taprk.com

E-mail Address

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true to the best of my belief.

03/10/2021

Date of Survey _____
Signature and Seal of Professional Surveyor _____

Date of Survey
Signature and Seal of Professional Surveyor

ANGEL M. BAEZA
NEW MEXICO
25118
PROFESSIONAL SURVEYOR

Certificate Number

Certificate Number

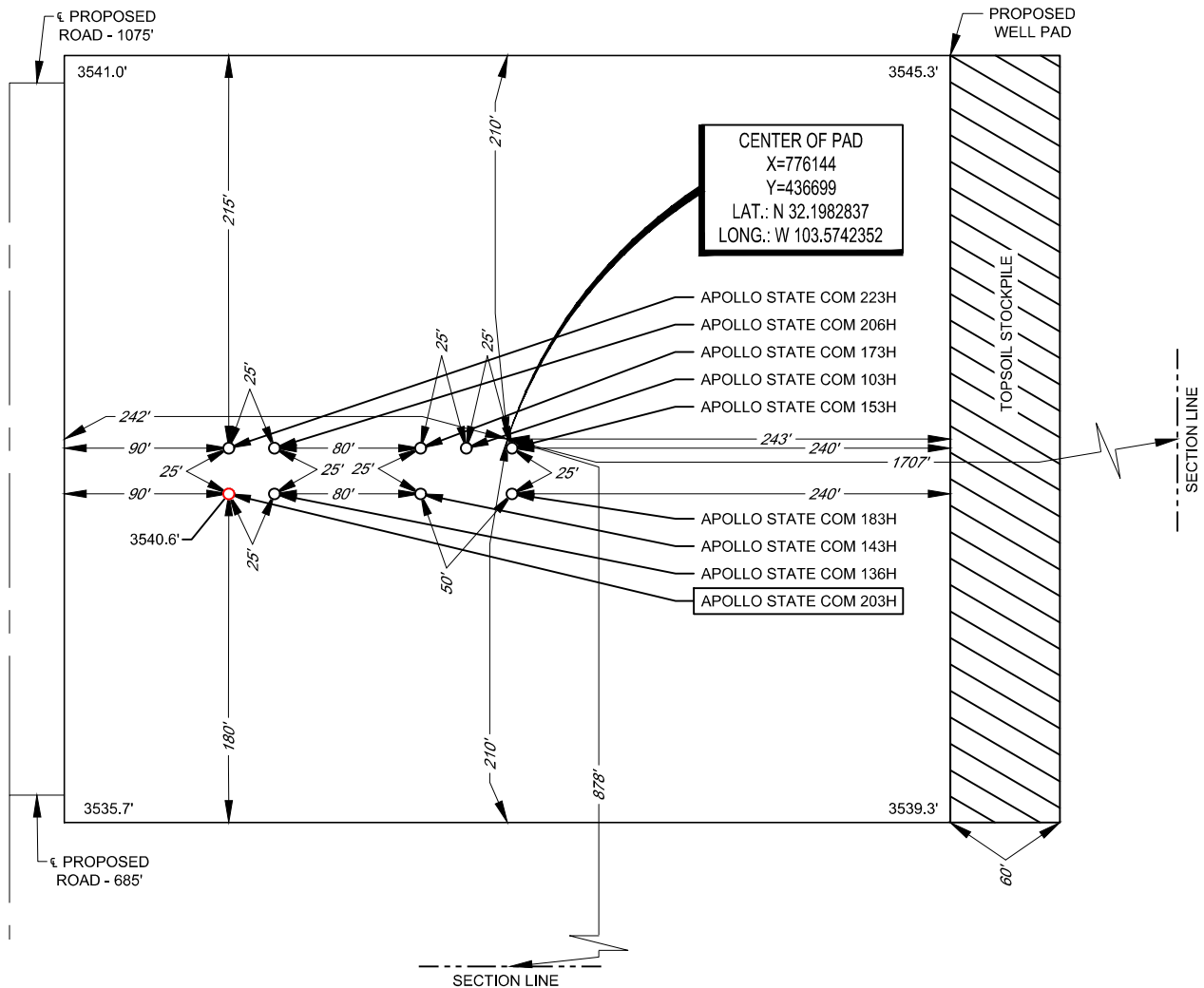


SECTION 21, TOWNSHIP 24-S, RANGE 33-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

DETAIL VIEW
SCALE: 1" = 100'

LEGEND

 SECTION LINE
 PROPOSED ROAD

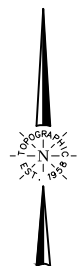


LEASE NAME & WELL NO.:	APOLLO STATE COM 203H
203H LATITUDE	N 32.1982042
203H LONGITUDE	W 103.5747289

CENTER OF PAD IS 878' FSL & 1707' FEL



Angel M. Baeza, P.S. No. 25116



SCALE: 1" = 100'



0' 50' 100'

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

THIS PROPOSED PAD SITE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY TAP ROCK OPERATING, LLC. ONLY THE DATA SHOWN ABOVE IS BEING CERTIFIED TO. ALL OTHER INFORMATION WAS INTENTIONALLY OMITTED. THIS PLAT IS ONLY INTENDED TO BE USED FOR A PERMIT AND IS NOT A BOUNDARY SURVEY. 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.

ORIGINAL DOCUMENT SIZE: 8.5" X 11"



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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

GAS CAPTURE PLAN

Date: 4/15/2021

☒ Original

Operator & OGRID No.: [372043] TAP ROCK OPERATING, LLC

☐ Amended - Reason for
Amendment: _____

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

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

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

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
APOLLO STATE COM #203H	30-025-48630	O-21-24S-33E	0849S 1860E	3000	Flared	Gas will be flared for ~21 days during flowback before being turned to the TB. Time est. depends on sales connect and well cleanup.

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to LUCID ENERGY DELAWARE, LLC and will be connected to LUCID ENERGY DELAWARE, LLC High/Low Pressure gathering system located in Lea County, New Mexico. It will require 2500' of pipeline to connect the facility to High/Low Pressure gathering system. TAP ROCK OPERATING, LLC provides (periodically) to LUCID ENERGY DELAWARE, LLC a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, TAP ROCK OPERATING, LLC and LUCID ENERGY DELAWARE, LLC have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at LUCID ENERGY DELAWARE, LLC Processing Plant located in Sec. 15, Twn. 24S, Rng. 33E, Lea County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

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

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

Alternatives to Reduce Flaring

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

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

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Form APD Conditions

Permit 294867

PERMIT CONDITIONS OF APPROVAL

Operator Name and Address: TAP ROCK OPERATING, LLC [372043] 523 Park Point Drive Golden, CO 80401	API Number: 30-025-48630
	Well: APOLLO STATE COM #203H

OCD Reviewer	Condition
pkautz	Notify OCD 24 hours prior to casing & cement
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104
pkautz	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
pkautz	1) SURFACE & INTERMEDIATE1 CASING - Cement must circulate to surface -- 2) INTERMEDIATE2 CASING - Cement must tie back into intermediate1 casing -- 3) PRODUCTION CASING - Cement must tie back into intermediate2 casing --
pkautz	If cement does not circulate to surface, must run temperature survey or other log to determine top of cement
pkautz	Surface casing must be set 25' below top of Rustler Anhydrite in order to seal off protectable water
pkautz	1)- The Operator is to notify NMOCD by sundry (Form C-103) within ten (10) days of the well being spud 2)- Drilling Sundries Form C-103 (Casing and Cement test are to be submitted within 10 days 3)- Completion Reports & Logs are to be submitted within 45 days 4)- Deviation / Directional Drill Survey are to be filed with or prior to C-104
pkautz	It is the operator's responsibility to monitor cancellation dates of approved APDs. APD's are good for 2 years and may be extended for one year. Only one 1 year extension will be granted if submitted by C-103 before expiration date. After expiration date or after a 1 year extension must submit new APD. If an APD expires and if site construction has occurred, site remediation is required.
pkautz	Stage Tool 1) Must notify OCD Hobbs Office prior to running Stage Tool at 5753703186 2) If using Stage Tool on Surface casing, Stage Tool must be set greater than 350' from surface and a minimum of 200 feet above surface shoe. 3) When using a Stage Tool on Intermediate or Production Casing Stage must be a minimum of 50 feet below previous casing shoe.



Tap Rock Resources, LLC

**Lea County, NM (NAD 83 NME)
(Apollo State Com) Sec-21_T-24-S_R-33-E
Apollo State Com #203H**

OWB

Plan: Plan #1

Standard Planning Report

04 April, 2021





Intrepid Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Apollo State Com #203H
Company:	Tap Rock Resources, LLC	TVD Reference:	KB @ 3567.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB @ 3567.0usft
Site:	(Apollo State Com) Sec-21_T-24-S_R-33-E	North Reference:	Grid
Well:	Apollo State Com #203H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #1		

Project	Lea County, NM (NAD 83 NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	(Apollo State Com) Sec-21_T-24-S_R-33-E		
Site Position:		Northing:	436,694.00 usft
From:	Map	Easting:	776,122.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 11' 53.775 N
		Longitude:	103° 34' 27.504 W
		Grid Convergence:	0.40 °

Well	Apollo State Com #203H		
Well Position	+N/-S	-25.0 usft	Northing:
	+E/-W	-130.0 usft	Easting:
Position Uncertainty	0.0 usft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	04/02/21	6.54	59.99	47,531.97486525

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	359.59

Plan Survey Tool Program	Date	04/04/21		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	22,832.7	Plan #1 (OWB)	MWD
			OWSG MWD - Standard	



Intrepid Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Apollo State Com #203H
Company:	Tap Rock Resources, LLC	TVD Reference:	KB @ 3567.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB @ 3567.0usft
Site:	(Apollo State Com) Sec-21_T-24-S_R-33-E	North Reference:	Grid
Well:	Apollo State Com #203H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #1		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,300.0	11.00	216.84	2,293.3	-84.3	-63.1	1.00	1.00	0.00	216.84	
6,441.6	11.00	216.84	6,358.7	-716.7	-536.9	0.00	0.00	0.00	0.00	
7,541.6	0.00	0.00	7,452.0	-801.0	-600.0	1.00	-1.00	0.00	180.00	
12,016.6	0.00	0.00	11,927.0	-801.0	-600.0	0.00	0.00	0.00	0.00	
12,916.6	90.00	10.00	12,500.0	-236.7	-500.5	10.00	10.00	0.00	10.00	
12,951.6	90.00	10.00	12,500.0	-202.3	-494.4	0.00	0.00	0.00	0.00	
13,472.1	90.00	359.59	12,500.0	315.7	-451.0	2.00	0.00	-2.00	-90.00	
22,833.6	90.00	359.59	12,500.0	9,677.0	-518.0	0.00	0.00	0.00	0.00	PBHL (Apollo State)



Intrepid Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Apollo State Com #203H
Company:	Tap Rock Resources, LLC	TVD Reference:	KB @ 3567.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB @ 3567.0usft
Site:	(Apollo State Com) Sec-21_T-24-S_R-33-E	North Reference:	Grid
Well:	Apollo State Com #203H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,171.0	0.00	0.00	1,171.0	0.0	0.0	0.0	0.00	0.00	0.00
Rustler Anhydrite									
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	1.00	216.84	1,300.0	-0.7	-0.5	-0.7	1.00	1.00	0.00
1,400.0	2.00	216.84	1,400.0	-2.8	-2.1	-2.8	1.00	1.00	0.00
1,500.0	3.00	216.84	1,499.9	-6.3	-4.7	-6.3	1.00	1.00	0.00
1,600.0	4.00	216.84	1,599.7	-11.2	-8.4	-11.1	1.00	1.00	0.00
1,662.5	4.63	216.84	1,662.0	-14.9	-11.2	-14.9	1.00	1.00	0.00
Top Salt									
1,700.0	5.00	216.84	1,699.4	-17.5	-13.1	-17.4	1.00	1.00	0.00
1,800.0	6.00	216.84	1,798.9	-25.1	-18.8	-25.0	1.00	1.00	0.00
1,900.0	7.00	216.84	1,898.3	-34.2	-25.6	-34.0	1.00	1.00	0.00
2,000.0	8.00	216.84	1,997.4	-44.6	-33.4	-44.4	1.00	1.00	0.00
2,100.0	9.00	216.84	2,096.3	-56.5	-42.3	-56.2	1.00	1.00	0.00
2,200.0	10.00	216.84	2,194.9	-69.7	-52.2	-69.3	1.00	1.00	0.00
2,300.0	11.00	216.84	2,293.3	-84.3	-63.1	-83.8	1.00	1.00	0.00
2,400.0	11.00	216.84	2,391.4	-99.5	-74.6	-99.0	0.00	0.00	0.00
2,500.0	11.00	216.84	2,489.6	-114.8	-86.0	-114.2	0.00	0.00	0.00
2,600.0	11.00	216.84	2,587.7	-130.1	-97.4	-129.4	0.00	0.00	0.00
2,700.0	11.00	216.84	2,685.9	-145.3	-108.9	-144.6	0.00	0.00	0.00
2,800.0	11.00	216.84	2,784.1	-160.6	-120.3	-159.7	0.00	0.00	0.00
2,900.0	11.00	216.84	2,882.2	-175.9	-131.7	-174.9	0.00	0.00	0.00
3,000.0	11.00	216.84	2,980.4	-191.2	-143.2	-190.1	0.00	0.00	0.00
3,100.0	11.00	216.84	3,078.6	-206.4	-154.6	-205.3	0.00	0.00	0.00
3,200.0	11.00	216.84	3,176.7	-221.7	-166.1	-220.5	0.00	0.00	0.00
3,300.0	11.00	216.84	3,274.9	-237.0	-177.5	-235.7	0.00	0.00	0.00
3,400.0	11.00	216.84	3,373.0	-252.2	-188.9	-250.9	0.00	0.00	0.00
3,500.0	11.00	216.84	3,471.2	-267.5	-200.4	-266.1	0.00	0.00	0.00
3,600.0	11.00	216.84	3,569.4	-282.8	-211.8	-281.3	0.00	0.00	0.00
3,700.0	11.00	216.84	3,667.5	-298.1	-223.3	-296.5	0.00	0.00	0.00
3,800.0	11.00	216.84	3,765.7	-313.3	-234.7	-311.6	0.00	0.00	0.00
3,900.0	11.00	216.84	3,863.9	-328.6	-246.1	-326.8	0.00	0.00	0.00
4,000.0	11.00	216.84	3,962.0	-343.9	-257.6	-342.0	0.00	0.00	0.00
4,100.0	11.00	216.84	4,060.2	-359.1	-269.0	-357.2	0.00	0.00	0.00
4,200.0	11.00	216.84	4,158.3	-374.4	-280.5	-372.4	0.00	0.00	0.00
4,300.0	11.00	216.84	4,256.5	-389.7	-291.9	-387.6	0.00	0.00	0.00
4,400.0	11.00	216.84	4,354.7	-405.0	-303.3	-402.8	0.00	0.00	0.00
4,500.0	11.00	216.84	4,452.8	-420.2	-314.8	-418.0	0.00	0.00	0.00
4,600.0	11.00	216.84	4,551.0	-435.5	-326.2	-433.2	0.00	0.00	0.00
4,700.0	11.00	216.84	4,649.2	-450.8	-337.7	-448.3	0.00	0.00	0.00
4,800.0	11.00	216.84	4,747.3	-466.0	-349.1	-463.5	0.00	0.00	0.00
4,900.0	11.00	216.84	4,845.5	-481.3	-360.5	-478.7	0.00	0.00	0.00



Intrepid Planning Report



Database: EDM 5000.15 Single User Db
Company: Tap Rock Resources, LLC
Project: Lea County, NM (NAD 83 NME)
Site: (Apollo State Com) Sec-21_T-24-S_R-33-E
Well: Apollo State Com #203H
Wellbore: OWB
Design: Plan #1

Local Co-ordinate Reference: Well Apollo State Com #203H
TVD Reference: KB @ 3567.0usft
MD Reference: KB @ 3567.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,972.9	11.00	216.84	4,917.0	-492.4	-368.9	-489.8	0.00	0.00	0.00
Base Salt									
5,000.0	11.00	216.84	4,943.6	-496.6	-372.0	-493.9	0.00	0.00	0.00
5,100.0	11.00	216.84	5,041.8	-511.9	-383.4	-509.1	0.00	0.00	0.00
5,196.0	11.00	216.84	5,136.0	-526.5	-394.4	-523.7	0.00	0.00	0.00
Delaware Mountain Gp									
5,200.0	11.00	216.84	5,140.0	-527.1	-394.9	-524.3	0.00	0.00	0.00
5,217.3	11.00	216.84	5,157.0	-529.8	-396.8	-526.9	0.00	0.00	0.00
Lamar									
5,259.1	11.00	216.84	5,198.0	-536.2	-401.6	-533.3	0.00	0.00	0.00
Bell Canyon									
5,291.7	11.00	216.84	5,230.0	-541.1	-405.3	-538.2	0.00	0.00	0.00
Ramsey Sand									
5,300.0	11.00	216.84	5,238.1	-542.4	-406.3	-539.5	0.00	0.00	0.00
5,400.0	11.00	216.84	5,336.3	-557.7	-417.7	-554.7	0.00	0.00	0.00
5,500.0	11.00	216.84	5,434.5	-573.0	-429.2	-569.9	0.00	0.00	0.00
5,600.0	11.00	216.84	5,532.6	-588.2	-440.6	-585.1	0.00	0.00	0.00
5,700.0	11.00	216.84	5,630.8	-603.5	-452.1	-600.2	0.00	0.00	0.00
5,800.0	11.00	216.84	5,728.9	-618.8	-463.5	-615.4	0.00	0.00	0.00
5,900.0	11.00	216.84	5,827.1	-634.0	-474.9	-630.6	0.00	0.00	0.00
6,000.0	11.00	216.84	5,925.3	-649.3	-486.4	-645.8	0.00	0.00	0.00
6,100.0	11.00	216.84	6,023.4	-664.6	-497.8	-661.0	0.00	0.00	0.00
6,200.0	11.00	216.84	6,121.6	-679.9	-509.3	-676.2	0.00	0.00	0.00
6,260.5	11.00	216.84	6,181.0	-689.1	-516.2	-685.4	0.00	0.00	0.00
Cherry Canyon									
6,300.0	11.00	216.84	6,219.8	-695.1	-520.7	-691.4	0.00	0.00	0.00
6,400.0	11.00	216.84	6,317.9	-710.4	-532.1	-706.6	0.00	0.00	0.00
6,441.6	11.00	216.84	6,358.7	-716.7	-536.9	-712.9	0.00	0.00	0.00
6,500.0	10.42	216.84	6,416.1	-725.4	-543.4	-721.5	1.00	-1.00	0.00
6,600.0	9.42	216.84	6,514.6	-739.2	-553.7	-735.2	1.00	-1.00	0.00
6,700.0	8.42	216.84	6,613.4	-751.6	-563.0	-747.6	1.00	-1.00	0.00
6,800.0	7.42	216.84	6,712.5	-762.6	-571.3	-758.5	1.00	-1.00	0.00
6,900.0	6.42	216.84	6,811.8	-772.3	-578.5	-768.1	1.00	-1.00	0.00
7,000.0	5.42	216.84	6,911.2	-780.5	-584.7	-776.3	1.00	-1.00	0.00
7,100.0	4.42	216.84	7,010.9	-787.4	-589.8	-783.1	1.00	-1.00	0.00
7,200.0	3.42	216.84	7,110.6	-792.9	-593.9	-788.6	1.00	-1.00	0.00
7,300.0	2.42	216.84	7,210.5	-796.9	-596.9	-792.6	1.00	-1.00	0.00
7,400.0	1.42	216.84	7,310.4	-799.6	-599.0	-795.3	1.00	-1.00	0.00
7,500.0	0.42	216.84	7,410.4	-800.9	-599.9	-796.6	1.00	-1.00	0.00
7,541.6	0.00	0.00	7,452.0	-801.0	-600.0	-796.7	1.00	-1.00	0.00
7,600.0	0.00	0.00	7,510.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
7,700.0	0.00	0.00	7,610.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
7,748.6	0.00	0.00	7,659.0	-801.0	-600.0	-796.7	0.00	0.00	0.00
Brushy Canyon									
7,800.0	0.00	0.00	7,710.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
7,900.0	0.00	0.00	7,810.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
8,000.0	0.00	0.00	7,910.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
8,100.0	0.00	0.00	8,010.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
8,200.0	0.00	0.00	8,110.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
8,300.0	0.00	0.00	8,210.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
8,400.0	0.00	0.00	8,310.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
8,500.0	0.00	0.00	8,410.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
8,600.0	0.00	0.00	8,510.4	-801.0	-600.0	-796.7	0.00	0.00	0.00



Intrepid Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Apollo State Com #203H
Company:	Tap Rock Resources, LLC	TVD Reference:	KB @ 3567.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB @ 3567.0usft
Site:	(Apollo State Com) Sec-21_T-24-S_R-33-E	North Reference:	Grid
Well:	Apollo State Com #203H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,700.0	0.00	0.00	8,610.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
8,800.0	0.00	0.00	8,710.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
8,900.0	0.00	0.00	8,810.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
9,000.0	0.00	0.00	8,910.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
9,100.0	0.00	0.00	9,010.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
9,200.0	0.00	0.00	9,110.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
9,215.6	0.00	0.00	9,126.0	-801.0	-600.0	-796.7	0.00	0.00	0.00
Bone Spring Lime									
9,300.0	0.00	0.00	9,210.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
9,319.6	0.00	0.00	9,230.0	-801.0	-600.0	-796.7	0.00	0.00	0.00
Upper Avalon									
9,400.0	0.00	0.00	9,310.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
9,500.0	0.00	0.00	9,410.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
9,544.6	0.00	0.00	9,455.0	-801.0	-600.0	-796.7	0.00	0.00	0.00
Middle Avalon									
9,600.0	0.00	0.00	9,510.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
9,700.0	0.00	0.00	9,610.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
9,800.0	0.00	0.00	9,710.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
9,900.0	0.00	0.00	9,810.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
9,913.6	0.00	0.00	9,824.0	-801.0	-600.0	-796.7	0.00	0.00	0.00
Lower Avalon									
10,000.0	0.00	0.00	9,910.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
10,100.0	0.00	0.00	10,010.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
10,200.0	0.00	0.00	10,110.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
10,210.6	0.00	0.00	10,121.0	-801.0	-600.0	-796.7	0.00	0.00	0.00
1st Bone Spring Sand									
10,300.0	0.00	0.00	10,210.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
10,400.0	0.00	0.00	10,310.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
10,476.6	0.00	0.00	10,387.0	-801.0	-600.0	-796.7	0.00	0.00	0.00
2nd Bone Spring Carb									
10,500.0	0.00	0.00	10,410.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
10,600.0	0.00	0.00	10,510.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
10,700.0	0.00	0.00	10,610.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
10,800.0	0.00	0.00	10,710.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
10,884.6	0.00	0.00	10,795.0	-801.0	-600.0	-796.7	0.00	0.00	0.00
2nd Bone Spring Sand									
10,900.0	0.00	0.00	10,810.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
11,000.0	0.00	0.00	10,910.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
11,100.0	0.00	0.00	11,010.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
11,200.0	0.00	0.00	11,110.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
11,300.0	0.00	0.00	11,210.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
11,400.0	0.00	0.00	11,310.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
11,420.6	0.00	0.00	11,331.0	-801.0	-600.0	-796.7	0.00	0.00	0.00
3rd Bone Spring Carb									
11,500.0	0.00	0.00	11,410.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
11,600.0	0.00	0.00	11,510.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
11,700.0	0.00	0.00	11,610.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
11,800.0	0.00	0.00	11,710.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
11,900.0	0.00	0.00	11,810.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
12,000.0	0.00	0.00	11,910.4	-801.0	-600.0	-796.7	0.00	0.00	0.00
12,016.6	0.00	0.00	11,927.0	-801.0	-600.0	-796.7	0.00	0.00	0.00
3rd Bone Spring Sand									
12,050.0	3.34	10.00	11,960.4	-800.0	-599.8	-795.7	10.00	10.00	0.00



Intrepid Planning Report



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Company:	Tap Rock Resources, LLC	TVD Reference:	KB @ 3567.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB @ 3567.0usft
Site:	(Apollo State Com) Sec-21_T-24-S_R-33-E	North Reference:	Grid
Well:	Apollo State Com #203H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,100.0	8.34	10.00	12,010.1	-795.0	-598.9	-790.7	10.00	10.00	0.00
12,150.0	13.34	10.00	12,059.2	-785.8	-597.3	-781.5	10.00	10.00	0.00
12,200.0	18.34	10.00	12,107.3	-772.3	-594.9	-768.1	10.00	10.00	0.00
12,250.0	23.34	10.00	12,154.0	-754.8	-591.9	-750.6	10.00	10.00	0.00
12,300.0	28.34	10.00	12,199.0	-733.4	-588.1	-729.1	10.00	10.00	0.00
12,328.8	31.22	10.00	12,224.0	-719.3	-585.6	-715.1	10.00	10.00	0.00
3rd BS W Sand									
12,350.0	33.34	10.00	12,241.9	-708.1	-583.6	-703.9	10.00	10.00	0.00
12,374.4	35.78	10.00	12,262.0	-694.5	-581.2	-690.3	10.00	10.00	0.00
Wolfcamp A X Sand									
12,400.0	38.34	10.00	12,282.4	-679.3	-578.5	-675.1	10.00	10.00	0.00
12,450.0	43.34	10.00	12,320.2	-647.1	-572.9	-643.0	10.00	10.00	0.00
12,500.0	48.34	10.00	12,355.1	-611.8	-566.6	-607.7	10.00	10.00	0.00
12,550.0	53.34	10.00	12,386.6	-573.6	-559.9	-569.6	10.00	10.00	0.00
12,600.0	58.34	10.00	12,414.7	-532.9	-552.7	-528.9	10.00	10.00	0.00
12,620.2	60.36	10.00	12,425.0	-515.8	-549.7	-511.8	10.00	10.00	0.00
Wolfcamp A Y Sand									
12,650.0	63.34	10.00	12,439.1	-489.9	-545.1	-486.0	10.00	10.00	0.00
12,700.0	68.34	10.00	12,459.5	-445.0	-537.2	-441.1	10.00	10.00	0.00
12,750.0	73.34	10.00	12,475.9	-398.5	-529.0	-394.7	10.00	10.00	0.00
12,800.0	78.34	10.00	12,488.1	-350.8	-520.6	-347.0	10.00	10.00	0.00
12,850.0	83.34	10.00	12,496.1	-302.2	-512.0	-298.5	10.00	10.00	0.00
12,900.0	88.34	10.00	12,499.7	-253.1	-503.4	-249.5	10.00	10.00	0.00
12,916.6	90.00	10.00	12,500.0	-236.7	-500.5	-233.2	10.00	10.00	0.00
12,951.6	90.00	10.00	12,500.0	-202.3	-494.4	-198.7	0.00	0.00	0.00
13,000.0	90.00	9.03	12,500.0	-154.5	-486.4	-151.0	2.00	0.00	-2.00
13,100.0	90.00	7.03	12,500.0	-55.5	-472.5	-52.1	2.00	0.00	-2.00
13,200.0	90.00	5.03	12,500.0	43.9	-461.9	47.2	2.00	0.00	-2.00
13,300.0	90.00	3.03	12,500.0	143.7	-454.9	146.9	2.00	0.00	-2.00
13,400.0	90.00	1.03	12,500.0	243.6	-451.4	246.8	2.00	0.00	-2.00
13,472.1	90.00	359.59	12,500.0	315.7	-451.0	318.9	2.00	0.00	-2.00
13,500.0	90.00	359.59	12,500.0	343.6	-451.2	346.8	0.00	0.00	0.00
13,600.0	90.00	359.59	12,500.0	443.6	-451.9	446.8	0.00	0.00	0.00
13,700.0	90.00	359.59	12,500.0	543.6	-452.6	546.8	0.00	0.00	0.00
13,800.0	90.00	359.59	12,500.0	643.6	-453.3	646.8	0.00	0.00	0.00
13,900.0	90.00	359.59	12,500.0	743.6	-454.0	746.8	0.00	0.00	0.00
14,000.0	90.00	359.59	12,500.0	843.6	-454.8	846.8	0.00	0.00	0.00
14,100.0	90.00	359.59	12,500.0	943.6	-455.5	946.8	0.00	0.00	0.00
14,200.0	90.00	359.59	12,500.0	1,043.6	-456.2	1,046.8	0.00	0.00	0.00
14,300.0	90.00	359.59	12,500.0	1,143.6	-456.9	1,146.8	0.00	0.00	0.00
14,400.0	90.00	359.59	12,500.0	1,243.6	-457.6	1,246.8	0.00	0.00	0.00
14,500.0	90.00	359.59	12,500.0	1,343.6	-458.3	1,346.8	0.00	0.00	0.00
14,600.0	90.00	359.59	12,500.0	1,443.6	-459.1	1,446.8	0.00	0.00	0.00
14,700.0	90.00	359.59	12,500.0	1,543.6	-459.8	1,546.8	0.00	0.00	0.00
14,800.0	90.00	359.59	12,500.0	1,643.6	-460.5	1,646.8	0.00	0.00	0.00
14,900.0	90.00	359.59	12,500.0	1,743.6	-461.2	1,746.8	0.00	0.00	0.00
15,000.0	90.00	359.59	12,500.0	1,843.6	-461.9	1,846.8	0.00	0.00	0.00
15,100.0	90.00	359.59	12,500.0	1,943.6	-462.6	1,946.8	0.00	0.00	0.00
15,200.0	90.00	359.59	12,500.0	2,043.6	-463.4	2,046.8	0.00	0.00	0.00
15,300.0	90.00	359.59	12,500.0	2,143.6	-464.1	2,146.8	0.00	0.00	0.00
15,400.0	90.00	359.59	12,500.0	2,243.6	-464.8	2,246.8	0.00	0.00	0.00
15,500.0	90.00	359.59	12,500.0	2,343.5	-465.5	2,346.8	0.00	0.00	0.00
15,600.0	90.00	359.59	12,500.0	2,443.5	-466.2	2,446.8	0.00	0.00	0.00



Intrepid Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Apollo State Com #203H
Company:	Tap Rock Resources, LLC	TVD Reference:	KB @ 3567.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB @ 3567.0usft
Site:	(Apollo State Com) Sec-21_T-24-S_R-33-E	North Reference:	Grid
Well:	Apollo State Com #203H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
15,700.0	90.00	359.59	12,500.0	2,543.5	-466.9	2,546.8	0.00	0.00	0.00
15,800.0	90.00	359.59	12,500.0	2,643.5	-467.6	2,646.8	0.00	0.00	0.00
15,900.0	90.00	359.59	12,500.0	2,743.5	-468.4	2,746.8	0.00	0.00	0.00
16,000.0	90.00	359.59	12,500.0	2,843.5	-469.1	2,846.8	0.00	0.00	0.00
16,100.0	90.00	359.59	12,500.0	2,943.5	-469.8	2,946.8	0.00	0.00	0.00
16,200.0	90.00	359.59	12,500.0	3,043.5	-470.5	3,046.8	0.00	0.00	0.00
16,300.0	90.00	359.59	12,500.0	3,143.5	-471.2	3,146.8	0.00	0.00	0.00
16,400.0	90.00	359.59	12,500.0	3,243.5	-471.9	3,246.8	0.00	0.00	0.00
16,500.0	90.00	359.59	12,500.0	3,343.5	-472.7	3,346.8	0.00	0.00	0.00
16,600.0	90.00	359.59	12,500.0	3,443.5	-473.4	3,446.8	0.00	0.00	0.00
16,700.0	90.00	359.59	12,500.0	3,543.5	-474.1	3,546.8	0.00	0.00	0.00
16,800.0	90.00	359.59	12,500.0	3,643.5	-474.8	3,646.8	0.00	0.00	0.00
16,900.0	90.00	359.59	12,500.0	3,743.5	-475.5	3,746.8	0.00	0.00	0.00
17,000.0	90.00	359.59	12,500.0	3,843.5	-476.2	3,846.8	0.00	0.00	0.00
17,100.0	90.00	359.59	12,500.0	3,943.5	-477.0	3,946.8	0.00	0.00	0.00
17,200.0	90.00	359.59	12,500.0	4,043.5	-477.7	4,046.8	0.00	0.00	0.00
17,300.0	90.00	359.59	12,500.0	4,143.5	-478.4	4,146.8	0.00	0.00	0.00
17,400.0	90.00	359.59	12,500.0	4,243.5	-479.1	4,246.8	0.00	0.00	0.00
17,500.0	90.00	359.59	12,500.0	4,343.5	-479.8	4,346.8	0.00	0.00	0.00
17,600.0	90.00	359.59	12,500.0	4,443.5	-480.5	4,446.8	0.00	0.00	0.00
17,700.0	90.00	359.59	12,500.0	4,543.5	-481.2	4,546.8	0.00	0.00	0.00
17,800.0	90.00	359.59	12,500.0	4,643.5	-482.0	4,646.8	0.00	0.00	0.00
17,900.0	90.00	359.59	12,500.0	4,743.5	-482.7	4,746.8	0.00	0.00	0.00
18,000.0	90.00	359.59	12,500.0	4,843.5	-483.4	4,846.8	0.00	0.00	0.00
18,100.0	90.00	359.59	12,500.0	4,943.5	-484.1	4,946.8	0.00	0.00	0.00
18,200.0	90.00	359.59	12,500.0	5,043.5	-484.8	5,046.8	0.00	0.00	0.00
18,300.0	90.00	359.59	12,500.0	5,143.5	-485.5	5,146.8	0.00	0.00	0.00
18,400.0	90.00	359.59	12,500.0	5,243.5	-486.3	5,246.8	0.00	0.00	0.00
18,500.0	90.00	359.59	12,500.0	5,343.5	-487.0	5,346.8	0.00	0.00	0.00
18,600.0	90.00	359.59	12,500.0	5,443.5	-487.7	5,446.8	0.00	0.00	0.00
18,700.0	90.00	359.59	12,500.0	5,543.5	-488.4	5,546.8	0.00	0.00	0.00
18,800.0	90.00	359.59	12,500.0	5,643.5	-489.1	5,646.8	0.00	0.00	0.00
18,900.0	90.00	359.59	12,500.0	5,743.5	-489.8	5,746.8	0.00	0.00	0.00
19,000.0	90.00	359.59	12,500.0	5,843.5	-490.6	5,846.8	0.00	0.00	0.00
19,100.0	90.00	359.59	12,500.0	5,943.5	-491.3	5,946.8	0.00	0.00	0.00
19,200.0	90.00	359.59	12,500.0	6,043.5	-492.0	6,046.8	0.00	0.00	0.00
19,300.0	90.00	359.59	12,500.0	6,143.5	-492.7	6,146.8	0.00	0.00	0.00
19,400.0	90.00	359.59	12,500.0	6,243.4	-493.4	6,246.8	0.00	0.00	0.00
19,500.0	90.00	359.59	12,500.0	6,343.4	-494.1	6,346.8	0.00	0.00	0.00
19,600.0	90.00	359.59	12,500.0	6,443.4	-494.9	6,446.8	0.00	0.00	0.00
19,700.0	90.00	359.59	12,500.0	6,543.4	-495.6	6,546.8	0.00	0.00	0.00
19,800.0	90.00	359.59	12,500.0	6,643.4	-496.3	6,646.8	0.00	0.00	0.00
19,900.0	90.00	359.59	12,500.0	6,743.4	-497.0	6,746.8	0.00	0.00	0.00
20,000.0	90.00	359.59	12,500.0	6,843.4	-497.7	6,846.8	0.00	0.00	0.00
20,100.0	90.00	359.59	12,500.0	6,943.4	-498.4	6,946.8	0.00	0.00	0.00
20,200.0	90.00	359.59	12,500.0	7,043.4	-499.1	7,046.8	0.00	0.00	0.00
20,300.0	90.00	359.59	12,500.0	7,143.4	-499.9	7,146.8	0.00	0.00	0.00
20,400.0	90.00	359.59	12,500.0	7,243.4	-500.6	7,246.8	0.00	0.00	0.00
20,500.0	90.00	359.59	12,500.0	7,343.4	-501.3	7,346.8	0.00	0.00	0.00
20,600.0	90.00	359.59	12,500.0	7,443.4	-502.0	7,446.8	0.00	0.00	0.00
20,700.0	90.00	359.59	12,500.0	7,543.4	-502.7	7,546.8	0.00	0.00	0.00
20,800.0	90.00	359.59	12,500.0	7,643.4	-503.4	7,646.8	0.00	0.00	0.00
20,900.0	90.00	359.59	12,500.0	7,743.4	-504.2	7,746.8	0.00	0.00	0.00
21,000.0	90.00	359.59	12,500.0	7,843.4	-504.9	7,846.8	0.00	0.00	0.00



Intrepid Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Apollo State Com #203H
Company:	Tap Rock Resources, LLC	TVD Reference:	KB @ 3567.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB @ 3567.0usft
Site:	(Apollo State Com) Sec-21_T-24-S_R-33-E	North Reference:	Grid
Well:	Apollo State Com #203H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
21,100.0	90.00	359.59	12,500.0	7,943.4	-505.6	7,946.8	0.00	0.00	0.00	
21,200.0	90.00	359.59	12,500.0	8,043.4	-506.3	8,046.8	0.00	0.00	0.00	
21,300.0	90.00	359.59	12,500.0	8,143.4	-507.0	8,146.8	0.00	0.00	0.00	
21,400.0	90.00	359.59	12,500.0	8,243.4	-507.7	8,246.8	0.00	0.00	0.00	
21,500.0	90.00	359.59	12,500.0	8,343.4	-508.5	8,346.8	0.00	0.00	0.00	
21,600.0	90.00	359.59	12,500.0	8,443.4	-509.2	8,446.8	0.00	0.00	0.00	
21,700.0	90.00	359.59	12,500.0	8,543.4	-509.9	8,546.8	0.00	0.00	0.00	
21,800.0	90.00	359.59	12,500.0	8,643.4	-510.6	8,646.8	0.00	0.00	0.00	
21,900.0	90.00	359.59	12,500.0	8,743.4	-511.3	8,746.8	0.00	0.00	0.00	
22,000.0	90.00	359.59	12,500.0	8,843.4	-512.0	8,846.8	0.00	0.00	0.00	
22,100.0	90.00	359.59	12,500.0	8,943.4	-512.7	8,946.8	0.00	0.00	0.00	
22,200.0	90.00	359.59	12,500.0	9,043.4	-513.5	9,046.8	0.00	0.00	0.00	
22,300.0	90.00	359.59	12,500.0	9,143.4	-514.2	9,146.8	0.00	0.00	0.00	
22,400.0	90.00	359.59	12,500.0	9,243.4	-514.9	9,246.8	0.00	0.00	0.00	
22,500.0	90.00	359.59	12,500.0	9,343.4	-515.6	9,346.8	0.00	0.00	0.00	
22,600.0	90.00	359.59	12,500.0	9,443.4	-516.3	9,446.8	0.00	0.00	0.00	
22,700.0	90.00	359.59	12,500.0	9,543.4	-517.0	9,546.8	0.00	0.00	0.00	
22,800.0	90.00	359.59	12,500.0	9,643.4	-517.8	9,646.8	0.00	0.00	0.00	
22,833.6	90.00	359.59	12,500.0	9,677.0	-518.0	9,680.5	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
PBHL (Apollo State C - hit/miss target - Shape - Rectangle (sides W100.0 H10,428.0 D30.0))	0.00	359.59	12,500.0	9,677.0	-518.0	446,346.00	775,474.00	32° 13' 29.329 N	103° 34' 34.253 W	
LTP (Apollo State Cor - plan misses target center by 0.5usft at 22763.6usft MD (12500.0 TVD, 9607.0 N, -517.5 E) - Point)	0.00	0.00	12,500.0	9,607.0	-517.0	446,276.00	775,475.00	32° 13' 28.637 N	103° 34' 34.248 W	
FTP (Apollo State Cor - plan misses target center by 235.4usft at 12501.7usft MD (12356.2 TVD, -610.5 N, -566.4 E) - Point)	0.00	0.00	12,500.0	-751.0	-444.0	435,918.00	775,548.00	32° 11' 46.137 N	103° 34' 34.247 W	



Intrepid Planning Report



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Company:	Tap Rock Resources, LLC	TVD Reference:	KB @ 3567.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB @ 3567.0usft
Site:	(Apollo State Com) Sec-21_T-24-S_R-33-E	North Reference:	Grid
Well:	Apollo State Com #203H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #1		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,171.0	1,171.0	Rustler Anhydrite			
1,662.5	1,662.0	Top Salt			
4,972.9	4,917.0	Base Salt			
5,196.0	5,136.0	Delaware Mountain Gp			
5,217.3	5,157.0	Lamar			
5,259.1	5,198.0	Bell Canyon			
5,291.7	5,230.0	Ramsey Sand			
6,260.5	6,181.0	Cherry Canyon			
7,748.6	7,659.0	Brushy Canyon			
9,215.6	9,126.0	Bone Spring Lime			
9,319.6	9,230.0	Upper Avalon			
9,544.6	9,455.0	Middle Avalon			
9,913.6	9,824.0	Lower Avalon			
10,210.6	10,121.0	1st Bone Spring Sand			
10,476.6	10,387.0	2nd Bone Spring Carb			
10,884.6	10,795.0	2nd Bone Spring Sand			
11,420.6	11,331.0	3rd Bone Spring Carb			
12,016.6	11,927.0	3rd Bone Spring Sand			
12,328.8	12,224.0	3rd BS W Sand			
12,374.4	12,262.0	Wolfcamp A X Sand			
12,620.2	12,425.0	Wolfcamp A Y Sand			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,200.0	1,200.0	0.0	0.0	NUDGE - Build 1.00
2,300.0	2,293.3	-84.3	-63.1	HOLD - 4141.6 at 2300.0 MD
6,441.6	6,358.7	-716.7	-536.9	DROP - -1.00
7,541.6	7,452.0	-801.0	-600.0	HOLD - 4475.0 hold at 7541.6 MD
12,016.6	11,927.0	-801.0	-600.0	KOP - Build 10.00
12,916.6	12,500.0	-236.7	-500.5	EOC - 35.0 hold at 12916.6 MD
12,951.6	12,500.0	-202.3	-494.4	Start DLS 2.00 TFO -90.00
13,472.1	12,500.0	315.7	-451.0	Start 9361.5 hold at 13472.1 MD
22,833.6	12,500.0	9,677.0	-518.0	TD at 22833.6