

UNITED STATES
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.
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 372043		8. Lease Name and Well No. 328107
3a. Address	3b. Phone No. (include area code)	9. API Well No. 30-025-47073
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		10. Field and Pool, or Exploratory XXXXXXXXXXXXXXXXX 98294 SPRING
14. Distance in miles and direction from nearest town or post office*		11. Sec., T. R. M. or Blk. and Survey or Area
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)		12. County or Parish
16. No of acres in lease		13. State
17. Spacing Unit dedicated to this well		
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.		
19. Proposed Depth		
20. BLM/BIA Bond No. in file		
21. Elevations (Show whether DF, KDB, RT, GL, etc.)		
22. Approximate date work will start*		
23. Estimated duration		
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	Name (Printed/Typed)	Date
Title		
Approved by (Signature)	Name (Printed/Typed)	Date
Title		
Office		

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

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

GCP REC 04/08/2020

SL
(Continued on page 2)

APPROVED WITH CONDITIONS
Approval Date: 03/30/2020

Kz
04/13/2020

*(Instructions on page 2)



APD ID: 10400049940

Submission Date: 10/23/2019

Highlighted data
reflects the most
recent changes

Operator Name: TAP ROCK OPERATING LLC

Well Name: MAN HANDS FED COM

Well Number: 111H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
569347	QUATERNARY	3278	0	0	OTHER : None	NONE	N
569348	RUSTLER	2814	464	469	ANHYDRITE	OTHER : Salt	N
569349	SALADO	2394	884	884	SALT	OTHER : Salt	N
569350	BASE OF SALT	-1526	4804	4805	SALT	OTHER : Salt	N
569351	LAMAR	-1966	5244	5245	LIMESTONE	NONE	N
569352	BELL CANYON	-1996	5274	5275	SANDSTONE	NATURAL GAS, OIL	N
569353	CHERRY CANYON	-2926	6204	6205	SANDSTONE	NATURAL GAS, OIL	N
569354	BRUSHY CANYON	-4416	7694	7695	SANDSTONE	NATURAL GAS, OIL	N
569355	BONE SPRING	-5696	8974	8975	LIMESTONE	NATURAL GAS, OIL	N
569356	BONE SPRING 1ST	-6846	10124	10167	SANDSTONE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 15000

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

Requesting Variance? YES

Variance request: Tap Rock requests a variance to run a multi-bowl speed head for setting the Intermediate 1, and Production Strings. Tap Rock requests a variance to drill this well using a co-flex line between the BOP and choke manifold. Certification for proposed co-flex hose is attached. The hose is not required by the manufacturer to be anchored. In the event the specific hose is not available, one of equal or higher rating will be used. Tap Rock requests approval to possibly utilize a spudder rig to drill and set casing for the surface interval on this well. The spudder rig will be possibly utilized in order to

Operator Name: TAP ROCK OPERATING LLC

Well Name: MAN HANDS FED COM

Well Number: 111H

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

Testing Procedure: After surface casing is set and the BOP is 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 2,500 psi. The BOP will be tested in this manner after nipple-up if any break of the stack occurs.

Choke Diagram Attachment:

Choke_Diagram_032918_20191022150229.pdf

BOP Diagram Attachment:

BOP_Diagram_101619_20191022150234.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	550	0	550	3278	2728	550	J-55	54.5	BUTT	1.13	1.15	DRY	1.6	DRY	1.6
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	5300	0	5300	3281	-2022	5300	J-55	40	BUTT	1.13	1.15	DRY	1.6	DRY	1.6
3	PRODUCTION	8.75	5.5	NEW	API	N	0	20620	0	10104	3281	-6826	20620	P-110	20	OTHER - TXP	1.13	1.15	DRY	1.6	DRY	1.6

Casing Attachments

Operator Name: TAP ROCK OPERATING LLC

Well Name: MAN HANDS FED COM

Well Number: 111H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Casing_Design_Assumptions_20191022150310.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Casing_Design_Assumptions_20191022150326.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Casing_Design_Assumptions_20191022150347.pdf

MH_5.5in_TXP_Casing_Spec_20191022150354.PDF

Section 4 - Cement

Operator Name: TAP ROCK OPERATING LLC

Well Name: MAN HANDS FED COM

Well Number: 111H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	0	0	0	0	0	0	None	None
SURFACE	Tail		0	566	566	1.35	14.8	764	100	Class C	5% NCI + LCM
PRODUCTION	Lead		0	0	0	0	0	0	0	None	None
PRODUCTION	Tail		4800	2062 0	2924	1.71	14.2	5000	25	Class H	Fluid Loss + Dispersant + Retarder + LCM
INTERMEDIATE	Lead		0	4300	1005	2.18	12.7	2191	65	Class C	Bentonite + 1% CaCL2 + 8% NaCl + LCM
INTERMEDIATE	Tail		4300	5300	412	1.33	14.8	548	65	Class C	5% NaCl + 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. A closed loop system will be used.

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

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	550	OTHER : Fresh Water Spud Mud	8.3	8.3							
550	5300	OTHER : Brine Water	10	10							
5300	2062 0	OTHER : Fresh water/Cut brine	9	9							

Operator Name: TAP ROCK OPERATING LLC

Well Name: MAN HANDS FED COM

Well Number: 111H

Section 6 - Test, Logging, Coring

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

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

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

GAMMA RAY LOG, CEMENT BOND LOG, MUD LOG/GEOLOGICAL LITHOLOGY LOG,

Coring operation description for the well:

No DSTs or cores are planned at this time.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4725

Anticipated Surface Pressure: 2497

Anticipated Bottom Hole Temperature(F): 160

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:

MH_W2_Pad_H2S_Plan_20191022150549.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

MH_111H_Horizontal_Plan_20191022150617.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

MH_111H_Drill_Plan_101619_20191022150637.pdf

CoFlex_Certs_20191022150657.pdf

Wellhead_3T_101619_20191022150706.pdf

MH_111H_Anticollision_Report_20191022150714.pdf

Other Variance attachment:



Drilling Operations Plan
Man Hands Fed Com #111H
Tap Rock Operating, LLC
SHL 12' FNL & 760' FWL, Sec. 34
BHL 30' FNL & 660' FWL, Sec. 22
T. 24S., R. 35E Lea County, NM

Elevation above Sea Level: 3278'

DRILLING PROGRAM

1. Estimated Tops

Formation	TVD	MD	Lithologies	Bearing
Quaternary Deposits	0	0	Surface	None
Rustler Anhydrite	464	469		Salt
Salado	884	884	Salt	Salt
Base Salt	4804	4805		Salt
Lamar	5244	5245	Limestone	None
Bell Canyon	5274	5275	Sandstone	Hydrocarbons
Cherry Canyon	6204	6205	Sandstone	Hydrocarbons
Brushy Canyon	7694	7695	Sandstone	Hydrocarbons
Bone Spring	8974	8975	Limestone	Hydrocarbons
KOP	9727	9728	Sandstone	Hydrocarbons
1st Bone Spring	10124	10167	Sandstone	Hydrocarbons
TD	10104	20620	Shale	Hydrocarbons

2. Notable Zones

1st Bone Spring Sand is the target formation.

3. Pressure Control

Pressure Control Equipment (See Schematics):

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

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 2,500 psi. The BOP will be tested in this manner after nipple-up if any break of the stack occurs.



Drilling Operations Plan
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Variance Requests:

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4. Casing & Cement

All Casing will be new.

Name	Hole Size	Casing Size	Standard	Tapered	Top MD	Bottom MD	Top TVD	BTM TVD	Grade	Weight	Thread	Collapse	Burst	Tension
Surface	17 1/2	13 3/8	API	No	0	550	0	550	J-55	54.5	BUTT	1.13	1.15	1.6
1st Intermediate	12 1/4	9 5/8	API	No	0	5300	0	5300	J-55	40	BUTT	1.13	1.15	1.6
Production	8 3/4	5 1/2	NON API	No	0	20620	0	10104	P-110	20	TXP	1.13	1.15	1.6

Name	Type	Top MD	Sacks	Yield	Cu. Ft	Weight	Excess	Cement	Additives
Surface	Tail	0	566	1.35	764	14.8	100%	C	5% NCI + LCM
1st Intermediate	Lead	0	1005	2.18	2191	12.7	65%	C	Bentonite + 1% CaCL ₂ + 8% NaCl + LCM
	Tail	4300	412	1.33	548	14.8	65%	C	5% NaCl + LCM
Production	Tail	4800	2924	1.71	5000	14.2	25%	H	Fluid Loss + Dispersant + Retarder + LCM



Drilling Operations Plan
Man Hands Fed Com #111H
Tap Rock Operating, LLC
SHL 12' FNL & 760' FWL, Sec. 34
BHL 30' FNL & 660' FWL, Sec. 22
T. 24S., R. 35E Lea County, NM

5. Mud Program

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

Name	Top	Bottom	Type	Mud Weight	Visc	Fluid Loss
Surface	0	550	FW Spud Mud	8.30	28	NC
Intermediate	550	5300	Brine Water	10.00	30-32	NC
Production	5300	20620	Cut Brine	9.00	15-20	<10

6. Cores, Tests, & Logs

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

7. Down Hole Conditions

No abnormal pressure or temperature is expected. Maximum expected bottom hole pressure is $\approx 4,725$ psi. Expected bottom hole temperature is $\approx 160^{\circ}$ F.

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

8. Other Conditions

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.



T

G

M

Azimuths to Grid North
True North: -0.52°
Magnetic North: 6.10°

Magnetic Field
Strength: 47710.1nT
Dip Angle: 60.03°
Date: 08/26/2019
Model: IGRF2015

To convert a Magnetic Direction to a Grid Direction, Add 6.10°

Tap Rock Resources, LLC
Project: Lea County, NM (NAD 83 NME)
Site: (Mulva Fed) Sec-27 T-24-S R-35-E
Well: Man Hands Fed Com #111H
Wellbore: OWB
Design: Plan #1
Lat: 32° 10' 52.355 N
Long: 103° 21' 41.278 W
Pad GL: 3278.0
KB: KB @ 3304.0usft

WELL DETAILS: Man Hands Fed Com #111H						
				3278.0		
0.0	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
			431017.00	842017.00	32° 10' 52.355 N	103° 21' 41.278 W

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0	NUDGE - Build 2.00
1607.7	2.15	90.00	1607.7	0.0	2.0	2.00	90.00	0.0	HOLD - 2286.2 at 1607.7 MD
3893.9	2.15	90.00	3892.3	0.0	88.0	0.00	0.00	-0.8	DROP - -2.00
4001.7	0.00	0.00	4000.0	0.0	90.0	2.00	180.00	-0.9	HOLD - 5727.2 at 4001.7 MD
9728.9	0.00	0.00	9727.2	0.0	90.0	0.00	0.00	-0.9	KOP - Build 10.00
10640.1	91.12	345.90	10300.0	566.6	-52.3	10.00	345.90	567.0	EOC/TRN - DLS 3.00 TFO 89.84
11091.7	91.13	359.45	10291.2	1013.4	-109.7	3.00	89.84	1014.4	Start 9529.9 hold at 11091.7 MD
20621.6	91.13	359.45	10104.0	10541.0	-201.0	0.00	0.00	10542.4	TD at 20621.6

DESIGN TARGET DETAILS					
Name	TVD	+N/-S	+E/-W	Northing	Easting
LTP (Man Hands Fed Com #111H)	10104.0	10471.0	-200.0	441488.00	841817.00
PBHL (Man Hands Fed Com #111H)	10104.0	10541.0	-201.0	441558.00	841816.00
FTP (Man Hands Fed Com #111H)	10300.0	111.0	-101.0	431128.00	841916.00

FORMATIONS		
TVDPath	MDPath	Formation
464.0	464.0	Rustler Anhydrite
884.0	884.0	Top Salt
4804.0	4805.7	Base Salt
5244.0	5245.7	Delaware Mountain Gp
5244.0	5245.7	Lamar
5274.0	5275.7	Bell Canyon
5304.0	5305.7	Ramsey Sand
6204.0	6205.7	Cherry Canyon
7694.0	7695.7	Brushy Canyon
8974.0	8975.7	Bone Spring Lime
9004.0	9005.7	Upper Avalon
9254.0	9255.7	Middle Avalon
9674.0	9675.7	Lower Avalon
10124.0	10167.2	1st Bone Spring Sand



Tap Rock Resources, LLC

**Lea County, NM (NAD 83 NME)
(Mulva Fed) Sec-27_T-24-S_R-35-E
Man Hands Fed Com #111H**

OWB

Plan: Plan #1

Standard Planning Report

28 August, 2019



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Man Hands Fed Com #111H
Company:	Tap Rock Resources, LLC	TVD Reference:	KB @ 3304.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB @ 3304.0usft
Site:	(Mulva Fed) Sec-27_T-24-S_R-35-E	North Reference:	Grid
Well:	Man Hands Fed Com #111H	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	(Mulva Fed) Sec-27_T-24-S_R-35-E		
Site Position:		Northing:	431,446.00 usft
From:	Map	Easting:	841,909.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 10' 56.609 N
		Longitude:	103° 21' 42.490 W
		Grid Convergence:	0.52 °

Well	Man Hands Fed Com #111H		
Well Position	+N/-S	-429.0 usft	Northing: 431,017.00 usft
	+E/-W	108.0 usft	Easting: 842,017.00 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	Latitude: 32° 10' 52.355 N
			Longitude: 103° 21' 41.278 W
			Ground Level: 3,278.0 usft

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	08/26/19	6.61	60.03	47,710.11126001

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	359.45

Plan Survey Tool Program	Date	08/28/19		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	20,621.6 Plan #1 (OWB)	MWD	
			OWSG MWD - Standard	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,607.7	2.15	90.00	1,607.7	0.0	2.0	2.00	2.00	0.00	90.00	
3,893.9	2.15	90.00	3,892.3	0.0	88.0	0.00	0.00	0.00	0.00	
4,001.7	0.00	0.00	4,000.0	0.0	90.0	2.00	-2.00	0.00	180.00	
9,728.9	0.00	0.00	9,727.2	0.0	90.0	0.00	0.00	0.00	0.00	
10,640.1	91.12	345.90	10,300.0	566.6	-52.3	10.00	10.00	0.00	345.90	
11,091.7	91.13	359.45	10,291.2	1,013.4	-109.7	3.00	0.00	3.00	89.84	
20,621.6	91.13	359.45	10,104.0	10,541.0	-201.0	0.00	0.00	0.00	0.00	PBHL (Man Hands)

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Man Hands Fed Com #111H
Company:	Tap Rock Resources, LLC	TVD Reference:	KB @ 3304.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB @ 3304.0usft
Site:	(Mulva Fed) Sec-27_T-24-S_R-35-E	North Reference:	Grid
Well:	Man Hands Fed Com #111H	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
464.0	0.00	0.00	464.0	0.0	0.0	0.0	0.00	0.00	0.00
Rustler Anhydrite									
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
884.0	0.00	0.00	884.0	0.0	0.0	0.0	0.00	0.00	0.00
Top Salt									
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
NUDGE - Build 2.00									
1,607.7	2.15	90.00	1,607.7	0.0	2.0	0.0	2.00	2.00	0.00
HOLD - 2286.2 at 1607.7 MD									
1,700.0	2.15	90.00	1,699.9	0.0	5.5	-0.1	0.00	0.00	0.00
1,800.0	2.15	90.00	1,799.8	0.0	9.3	-0.1	0.00	0.00	0.00
1,900.0	2.15	90.00	1,899.8	0.0	13.0	-0.1	0.00	0.00	0.00
2,000.0	2.15	90.00	1,999.7	0.0	16.8	-0.2	0.00	0.00	0.00
2,100.0	2.15	90.00	2,099.6	0.0	20.5	-0.2	0.00	0.00	0.00
2,200.0	2.15	90.00	2,199.6	0.0	24.3	-0.2	0.00	0.00	0.00
2,300.0	2.15	90.00	2,299.5	0.0	28.1	-0.3	0.00	0.00	0.00
2,400.0	2.15	90.00	2,399.4	0.0	31.8	-0.3	0.00	0.00	0.00
2,500.0	2.15	90.00	2,499.3	0.0	35.6	-0.3	0.00	0.00	0.00
2,600.0	2.15	90.00	2,599.3	0.0	39.3	-0.4	0.00	0.00	0.00
2,700.0	2.15	90.00	2,699.2	0.0	43.1	-0.4	0.00	0.00	0.00
2,800.0	2.15	90.00	2,799.1	0.0	46.8	-0.4	0.00	0.00	0.00
2,900.0	2.15	90.00	2,899.1	0.0	50.6	-0.5	0.00	0.00	0.00
3,000.0	2.15	90.00	2,999.0	0.0	54.4	-0.5	0.00	0.00	0.00
3,100.0	2.15	90.00	3,098.9	0.0	58.1	-0.6	0.00	0.00	0.00
3,200.0	2.15	90.00	3,198.8	0.0	61.9	-0.6	0.00	0.00	0.00
3,300.0	2.15	90.00	3,298.8	0.0	65.6	-0.6	0.00	0.00	0.00
3,400.0	2.15	90.00	3,398.7	0.0	69.4	-0.7	0.00	0.00	0.00
3,500.0	2.15	90.00	3,498.6	0.0	73.2	-0.7	0.00	0.00	0.00
3,600.0	2.15	90.00	3,598.6	0.0	76.9	-0.7	0.00	0.00	0.00
3,700.0	2.15	90.00	3,698.5	0.0	80.7	-0.8	0.00	0.00	0.00
3,800.0	2.15	90.00	3,798.4	0.0	84.4	-0.8	0.00	0.00	0.00
3,893.9	2.15	90.00	3,892.3	0.0	88.0	-0.8	0.00	0.00	0.00
DROP - -2.00									
3,900.0	2.03	90.00	3,898.4	0.0	88.2	-0.8	2.00	-2.00	0.00
4,001.7	0.00	0.00	4,000.0	0.0	90.0	-0.9	2.00	-2.00	0.00
HOLD - 5727.2 at 4001.7 MD									
4,100.0	0.00	0.00	4,098.3	0.0	90.0	-0.9	0.00	0.00	0.00
4,200.0	0.00	0.00	4,198.3	0.0	90.0	-0.9	0.00	0.00	0.00
4,300.0	0.00	0.00	4,298.3	0.0	90.0	-0.9	0.00	0.00	0.00

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Man Hands Fed Com #111H
Company:	Tap Rock Resources, LLC	TVD Reference:	KB @ 3304.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB @ 3304.0usft
Site:	(Mulva Fed) Sec-27_T-24-S_R-35-E	North Reference:	Grid
Well:	Man Hands Fed Com #111H	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)
4,400.0	0.00	0.00	4,398.3	0.0	90.0	-0.9	0.00	0.00	0.00
4,500.0	0.00	0.00	4,498.3	0.0	90.0	-0.9	0.00	0.00	0.00
4,600.0	0.00	0.00	4,598.3	0.0	90.0	-0.9	0.00	0.00	0.00
4,700.0	0.00	0.00	4,698.3	0.0	90.0	-0.9	0.00	0.00	0.00
4,800.0	0.00	0.00	4,798.3	0.0	90.0	-0.9	0.00	0.00	0.00
4,805.7	0.00	0.00	4,804.0	0.0	90.0	-0.9	0.00	0.00	0.00
Base Salt									
4,900.0	0.00	0.00	4,898.3	0.0	90.0	-0.9	0.00	0.00	0.00
5,000.0	0.00	0.00	4,998.3	0.0	90.0	-0.9	0.00	0.00	0.00
5,100.0	0.00	0.00	5,098.3	0.0	90.0	-0.9	0.00	0.00	0.00
5,200.0	0.00	0.00	5,198.3	0.0	90.0	-0.9	0.00	0.00	0.00
5,245.7	0.00	0.00	5,244.0	0.0	90.0	-0.9	0.00	0.00	0.00
Delaware Mountain Gp - Lamar									
5,275.7	0.00	0.00	5,274.0	0.0	90.0	-0.9	0.00	0.00	0.00
Bell Canyon									
5,300.0	0.00	0.00	5,298.3	0.0	90.0	-0.9	0.00	0.00	0.00
5,305.7	0.00	0.00	5,304.0	0.0	90.0	-0.9	0.00	0.00	0.00
Ramsey Sand									
5,400.0	0.00	0.00	5,398.3	0.0	90.0	-0.9	0.00	0.00	0.00
5,500.0	0.00	0.00	5,498.3	0.0	90.0	-0.9	0.00	0.00	0.00
5,600.0	0.00	0.00	5,598.3	0.0	90.0	-0.9	0.00	0.00	0.00
5,700.0	0.00	0.00	5,698.3	0.0	90.0	-0.9	0.00	0.00	0.00
5,800.0	0.00	0.00	5,798.3	0.0	90.0	-0.9	0.00	0.00	0.00
5,900.0	0.00	0.00	5,898.3	0.0	90.0	-0.9	0.00	0.00	0.00
6,000.0	0.00	0.00	5,998.3	0.0	90.0	-0.9	0.00	0.00	0.00
6,100.0	0.00	0.00	6,098.3	0.0	90.0	-0.9	0.00	0.00	0.00
6,200.0	0.00	0.00	6,198.3	0.0	90.0	-0.9	0.00	0.00	0.00
6,205.7	0.00	0.00	6,204.0	0.0	90.0	-0.9	0.00	0.00	0.00
Cherry Canyon									
6,300.0	0.00	0.00	6,298.3	0.0	90.0	-0.9	0.00	0.00	0.00
6,400.0	0.00	0.00	6,398.3	0.0	90.0	-0.9	0.00	0.00	0.00
6,500.0	0.00	0.00	6,498.3	0.0	90.0	-0.9	0.00	0.00	0.00
6,600.0	0.00	0.00	6,598.3	0.0	90.0	-0.9	0.00	0.00	0.00
6,700.0	0.00	0.00	6,698.3	0.0	90.0	-0.9	0.00	0.00	0.00
6,800.0	0.00	0.00	6,798.3	0.0	90.0	-0.9	0.00	0.00	0.00
6,900.0	0.00	0.00	6,898.3	0.0	90.0	-0.9	0.00	0.00	0.00
7,000.0	0.00	0.00	6,998.3	0.0	90.0	-0.9	0.00	0.00	0.00
7,100.0	0.00	0.00	7,098.3	0.0	90.0	-0.9	0.00	0.00	0.00
7,200.0	0.00	0.00	7,198.3	0.0	90.0	-0.9	0.00	0.00	0.00
7,300.0	0.00	0.00	7,298.3	0.0	90.0	-0.9	0.00	0.00	0.00
7,400.0	0.00	0.00	7,398.3	0.0	90.0	-0.9	0.00	0.00	0.00
7,500.0	0.00	0.00	7,498.3	0.0	90.0	-0.9	0.00	0.00	0.00
7,600.0	0.00	0.00	7,598.3	0.0	90.0	-0.9	0.00	0.00	0.00
7,695.7	0.00	0.00	7,694.0	0.0	90.0	-0.9	0.00	0.00	0.00
Brushy Canyon									
7,700.0	0.00	0.00	7,698.3	0.0	90.0	-0.9	0.00	0.00	0.00
7,800.0	0.00	0.00	7,798.3	0.0	90.0	-0.9	0.00	0.00	0.00
7,900.0	0.00	0.00	7,898.3	0.0	90.0	-0.9	0.00	0.00	0.00
8,000.0	0.00	0.00	7,998.3	0.0	90.0	-0.9	0.00	0.00	0.00
8,100.0	0.00	0.00	8,098.3	0.0	90.0	-0.9	0.00	0.00	0.00
8,200.0	0.00	0.00	8,198.3	0.0	90.0	-0.9	0.00	0.00	0.00
8,300.0	0.00	0.00	8,298.3	0.0	90.0	-0.9	0.00	0.00	0.00
8,400.0	0.00	0.00	8,398.3	0.0	90.0	-0.9	0.00	0.00	0.00

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Man Hands Fed Com #111H
Company:	Tap Rock Resources, LLC	TVD Reference:	KB @ 3304.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB @ 3304.0usft
Site:	(Mulva Fed) Sec-27_T-24-S_R-35-E	North Reference:	Grid
Well:	Man Hands Fed Com #111H	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)
8,500.0	0.00	0.00	8,498.3	0.0	90.0	-0.9	0.00	0.00	0.00
8,600.0	0.00	0.00	8,598.3	0.0	90.0	-0.9	0.00	0.00	0.00
8,700.0	0.00	0.00	8,698.3	0.0	90.0	-0.9	0.00	0.00	0.00
8,800.0	0.00	0.00	8,798.3	0.0	90.0	-0.9	0.00	0.00	0.00
8,900.0	0.00	0.00	8,898.3	0.0	90.0	-0.9	0.00	0.00	0.00
8,975.7	0.00	0.00	8,974.0	0.0	90.0	-0.9	0.00	0.00	0.00
Bone Spring Lime									
9,000.0	0.00	0.00	8,998.3	0.0	90.0	-0.9	0.00	0.00	0.00
9,005.7	0.00	0.00	9,004.0	0.0	90.0	-0.9	0.00	0.00	0.00
Upper Avalon									
9,100.0	0.00	0.00	9,098.3	0.0	90.0	-0.9	0.00	0.00	0.00
9,200.0	0.00	0.00	9,198.3	0.0	90.0	-0.9	0.00	0.00	0.00
9,255.7	0.00	0.00	9,254.0	0.0	90.0	-0.9	0.00	0.00	0.00
Middle Avalon									
9,300.0	0.00	0.00	9,298.3	0.0	90.0	-0.9	0.00	0.00	0.00
9,400.0	0.00	0.00	9,398.3	0.0	90.0	-0.9	0.00	0.00	0.00
9,500.0	0.00	0.00	9,498.3	0.0	90.0	-0.9	0.00	0.00	0.00
9,600.0	0.00	0.00	9,598.3	0.0	90.0	-0.9	0.00	0.00	0.00
9,675.7	0.00	0.00	9,674.0	0.0	90.0	-0.9	0.00	0.00	0.00
Lower Avalon									
9,700.0	0.00	0.00	9,698.3	0.0	90.0	-0.9	0.00	0.00	0.00
9,728.9	0.00	0.00	9,727.2	0.0	90.0	-0.9	0.00	0.00	0.00
KOP - Build 10.00									
9,750.0	2.11	345.90	9,748.3	0.4	89.9	-0.5	10.00	10.00	0.00
9,800.0	7.11	345.90	9,798.2	4.3	88.9	3.4	10.00	10.00	0.00
9,850.0	12.11	345.90	9,847.4	12.4	86.9	11.5	10.00	10.00	0.00
9,900.0	17.11	345.90	9,895.8	24.6	83.8	23.8	10.00	10.00	0.00
9,950.0	22.11	345.90	9,942.9	40.9	79.7	40.1	10.00	10.00	0.00
10,000.0	27.11	345.90	9,988.3	61.1	74.7	60.3	10.00	10.00	0.00
10,050.0	32.11	345.90	10,031.8	85.0	68.6	84.4	10.00	10.00	0.00
10,100.0	37.11	345.90	10,072.9	112.6	61.7	112.0	10.00	10.00	0.00
10,150.0	42.11	345.90	10,111.4	143.5	54.0	142.9	10.00	10.00	0.00
10,167.2	43.83	345.90	10,124.0	154.8	51.1	154.3	10.00	10.00	0.00
1st Bone Spring Sand									
10,200.0	47.11	345.90	10,147.0	177.5	45.4	177.1	10.00	10.00	0.00
10,250.0	52.11	345.90	10,179.4	214.4	36.1	214.1	10.00	10.00	0.00
10,300.0	57.11	345.90	10,208.3	254.0	26.2	253.7	10.00	10.00	0.00
10,350.0	62.11	345.90	10,233.6	295.8	15.7	295.6	10.00	10.00	0.00
10,400.0	67.11	345.90	10,255.1	339.6	4.7	339.5	10.00	10.00	0.00
10,450.0	72.11	345.90	10,272.5	385.0	-6.7	385.1	10.00	10.00	0.00
10,500.0	77.11	345.90	10,285.7	431.8	-18.5	431.9	10.00	10.00	0.00
10,550.0	82.11	345.90	10,294.7	479.4	-30.4	479.7	10.00	10.00	0.00
10,600.0	87.11	345.90	10,299.4	527.7	-42.6	528.1	10.00	10.00	0.00
10,640.1	91.12	345.90	10,300.0	566.6	-52.3	567.0	10.00	10.00	0.00
EOC/TRN - DLS 3.00 TFO 89.84									
10,700.0	91.12	347.70	10,298.9	624.9	-66.0	625.5	3.00	0.01	3.00
10,800.0	91.13	350.70	10,296.9	723.1	-84.7	723.9	3.00	0.00	3.00
10,900.0	91.13	353.70	10,294.9	822.1	-98.3	823.0	3.00	0.00	3.00
11,000.0	91.13	356.70	10,293.0	921.8	-106.7	922.7	3.00	0.00	3.00
11,091.7	91.13	359.45	10,291.2	1,013.4	-109.7	1,014.4	3.00	0.00	3.00
Start 9529.9 hold at 11091.7 MD									
11,100.0	91.13	359.45	10,291.0	1,021.7	-109.8	1,022.7	0.00	0.00	0.00
11,200.0	91.13	359.45	10,289.0	1,121.6	-110.8	1,122.7	0.00	0.00	0.00



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Man Hands Fed Com #111H
Company:	Tap Rock Resources, LLC	TVD Reference:	KB @ 3304.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB @ 3304.0usft
Site:	(Mulva Fed) Sec-27_T-24-S_R-35-E	North Reference:	Grid
Well:	Man Hands Fed Com #111H	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)
11,300.0	91.13	359.45	10,287.1	1,221.6	-111.7	1,222.6	0.00	0.00	0.00
11,400.0	91.13	359.45	10,285.1	1,321.6	-112.7	1,322.6	0.00	0.00	0.00
11,500.0	91.13	359.45	10,283.1	1,421.6	-113.6	1,422.6	0.00	0.00	0.00
11,600.0	91.13	359.45	10,281.2	1,521.6	-114.6	1,522.6	0.00	0.00	0.00
11,700.0	91.13	359.45	10,279.2	1,621.5	-115.6	1,622.6	0.00	0.00	0.00
11,800.0	91.13	359.45	10,277.2	1,721.5	-116.5	1,722.5	0.00	0.00	0.00
11,900.0	91.13	359.45	10,275.3	1,821.5	-117.5	1,822.5	0.00	0.00	0.00
12,000.0	91.13	359.45	10,273.3	1,921.5	-118.4	1,922.5	0.00	0.00	0.00
12,100.0	91.13	359.45	10,271.4	2,021.4	-119.4	2,022.5	0.00	0.00	0.00
12,200.0	91.13	359.45	10,269.4	2,121.4	-120.4	2,122.5	0.00	0.00	0.00
12,300.0	91.13	359.45	10,267.4	2,221.4	-121.3	2,222.4	0.00	0.00	0.00
12,400.0	91.13	359.45	10,265.5	2,321.4	-122.3	2,322.4	0.00	0.00	0.00
12,500.0	91.13	359.45	10,263.5	2,421.3	-123.2	2,422.4	0.00	0.00	0.00
12,600.0	91.13	359.45	10,261.5	2,521.3	-124.2	2,522.4	0.00	0.00	0.00
12,700.0	91.13	359.45	10,259.6	2,621.3	-125.1	2,622.4	0.00	0.00	0.00
12,800.0	91.13	359.45	10,257.6	2,721.3	-126.1	2,722.4	0.00	0.00	0.00
12,900.0	91.13	359.45	10,255.6	2,821.2	-127.1	2,822.3	0.00	0.00	0.00
13,000.0	91.13	359.45	10,253.7	2,921.2	-128.0	2,922.3	0.00	0.00	0.00
13,100.0	91.13	359.45	10,251.7	3,021.2	-129.0	3,022.3	0.00	0.00	0.00
13,200.0	91.13	359.45	10,249.8	3,121.2	-129.9	3,122.3	0.00	0.00	0.00
13,300.0	91.13	359.45	10,247.8	3,221.1	-130.9	3,222.3	0.00	0.00	0.00
13,400.0	91.13	359.45	10,245.8	3,321.1	-131.8	3,322.2	0.00	0.00	0.00
13,500.0	91.13	359.45	10,243.9	3,421.1	-132.8	3,422.2	0.00	0.00	0.00
13,600.0	91.13	359.45	10,241.9	3,521.1	-133.8	3,522.2	0.00	0.00	0.00
13,700.0	91.13	359.45	10,239.9	3,621.1	-134.7	3,622.2	0.00	0.00	0.00
13,800.0	91.13	359.45	10,238.0	3,721.0	-135.7	3,722.2	0.00	0.00	0.00
13,900.0	91.13	359.45	10,236.0	3,821.0	-136.6	3,822.1	0.00	0.00	0.00
14,000.0	91.13	359.45	10,234.0	3,921.0	-137.6	3,922.1	0.00	0.00	0.00
14,100.0	91.13	359.45	10,232.1	4,021.0	-138.5	4,022.1	0.00	0.00	0.00
14,200.0	91.13	359.45	10,230.1	4,120.9	-139.5	4,122.1	0.00	0.00	0.00
14,300.0	91.13	359.45	10,228.2	4,220.9	-140.5	4,222.1	0.00	0.00	0.00
14,400.0	91.13	359.45	10,226.2	4,320.9	-141.4	4,322.0	0.00	0.00	0.00
14,500.0	91.13	359.45	10,224.2	4,420.9	-142.4	4,422.0	0.00	0.00	0.00
14,600.0	91.13	359.45	10,222.3	4,520.8	-143.3	4,522.0	0.00	0.00	0.00
14,700.0	91.13	359.45	10,220.3	4,620.8	-144.3	4,622.0	0.00	0.00	0.00
14,800.0	91.13	359.45	10,218.3	4,720.8	-145.3	4,722.0	0.00	0.00	0.00
14,900.0	91.13	359.45	10,216.4	4,820.8	-146.2	4,821.9	0.00	0.00	0.00
15,000.0	91.13	359.45	10,214.4	4,920.7	-147.2	4,921.9	0.00	0.00	0.00
15,100.0	91.13	359.45	10,212.4	5,020.7	-148.1	5,021.9	0.00	0.00	0.00
15,200.0	91.13	359.45	10,210.5	5,120.7	-149.1	5,121.9	0.00	0.00	0.00
15,300.0	91.13	359.45	10,208.5	5,220.7	-150.0	5,221.9	0.00	0.00	0.00
15,400.0	91.13	359.45	10,206.5	5,320.6	-151.0	5,321.9	0.00	0.00	0.00
15,500.0	91.13	359.45	10,204.6	5,420.6	-152.0	5,421.8	0.00	0.00	0.00
15,600.0	91.13	359.45	10,202.6	5,520.6	-152.9	5,521.8	0.00	0.00	0.00
15,700.0	91.13	359.45	10,200.7	5,620.6	-153.9	5,621.8	0.00	0.00	0.00
15,800.0	91.13	359.45	10,198.7	5,720.6	-154.8	5,721.8	0.00	0.00	0.00
15,900.0	91.13	359.45	10,196.7	5,820.5	-155.8	5,821.8	0.00	0.00	0.00
16,000.0	91.13	359.45	10,194.8	5,920.5	-156.7	5,921.7	0.00	0.00	0.00
16,100.0	91.13	359.45	10,192.8	6,020.5	-157.7	6,021.7	0.00	0.00	0.00
16,200.0	91.13	359.45	10,190.8	6,120.5	-158.7	6,121.7	0.00	0.00	0.00
16,300.0	91.13	359.45	10,188.9	6,220.4	-159.6	6,221.7	0.00	0.00	0.00
16,400.0	91.13	359.45	10,186.9	6,320.4	-160.6	6,321.7	0.00	0.00	0.00
16,500.0	91.13	359.45	10,184.9	6,420.4	-161.5	6,421.6	0.00	0.00	0.00
16,600.0	91.13	359.45	10,183.0	6,520.4	-162.5	6,521.6	0.00	0.00	0.00



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Man Hands Fed Com #111H
Company:	Tap Rock Resources, LLC	TVD Reference:	KB @ 3304.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB @ 3304.0usft
Site:	(Mulva Fed) Sec-27_T-24-S_R-35-E	North Reference:	Grid
Well:	Man Hands Fed Com #111H	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)
16,700.0	91.13	359.45	10,181.0	6,620.3	-163.4	6,621.6	0.00	0.00	0.00
16,800.0	91.13	359.45	10,179.1	6,720.3	-164.4	6,721.6	0.00	0.00	0.00
16,900.0	91.13	359.45	10,177.1	6,820.3	-165.4	6,821.6	0.00	0.00	0.00
17,000.0	91.13	359.45	10,175.1	6,920.3	-166.3	6,921.5	0.00	0.00	0.00
17,100.0	91.13	359.45	10,173.2	7,020.2	-167.3	7,021.5	0.00	0.00	0.00
17,200.0	91.13	359.45	10,171.2	7,120.2	-168.2	7,121.5	0.00	0.00	0.00
17,300.0	91.13	359.45	10,169.2	7,220.2	-169.2	7,221.5	0.00	0.00	0.00
17,400.0	91.13	359.45	10,167.3	7,320.2	-170.1	7,321.5	0.00	0.00	0.00
17,500.0	91.13	359.45	10,165.3	7,420.1	-171.1	7,421.4	0.00	0.00	0.00
17,600.0	91.13	359.45	10,163.3	7,520.1	-172.1	7,521.4	0.00	0.00	0.00
17,700.0	91.13	359.45	10,161.4	7,620.1	-173.0	7,621.4	0.00	0.00	0.00
17,800.0	91.13	359.45	10,159.4	7,720.1	-174.0	7,721.4	0.00	0.00	0.00
17,900.0	91.13	359.45	10,157.4	7,820.1	-174.9	7,821.4	0.00	0.00	0.00
18,000.0	91.13	359.45	10,155.5	7,920.0	-175.9	7,921.3	0.00	0.00	0.00
18,100.0	91.13	359.45	10,153.5	8,020.0	-176.9	8,021.3	0.00	0.00	0.00
18,200.0	91.13	359.45	10,151.6	8,120.0	-177.8	8,121.3	0.00	0.00	0.00
18,300.0	91.13	359.45	10,149.6	8,220.0	-178.8	8,221.3	0.00	0.00	0.00
18,400.0	91.13	359.45	10,147.6	8,319.9	-179.7	8,321.3	0.00	0.00	0.00
18,500.0	91.13	359.45	10,145.7	8,419.9	-180.7	8,421.3	0.00	0.00	0.00
18,600.0	91.13	359.45	10,143.7	8,519.9	-181.6	8,521.2	0.00	0.00	0.00
18,700.0	91.13	359.45	10,141.7	8,619.9	-182.6	8,621.2	0.00	0.00	0.00
18,800.0	91.13	359.45	10,139.8	8,719.8	-183.6	8,721.2	0.00	0.00	0.00
18,900.0	91.13	359.45	10,137.8	8,819.8	-184.5	8,821.2	0.00	0.00	0.00
19,000.0	91.13	359.45	10,135.8	8,919.8	-185.5	8,921.2	0.00	0.00	0.00
19,100.0	91.13	359.45	10,133.9	9,019.8	-186.4	9,021.1	0.00	0.00	0.00
19,200.0	91.13	359.45	10,131.9	9,119.7	-187.4	9,121.1	0.00	0.00	0.00
19,300.0	91.13	359.45	10,130.0	9,219.7	-188.3	9,221.1	0.00	0.00	0.00
19,400.0	91.13	359.45	10,128.0	9,319.7	-189.3	9,321.1	0.00	0.00	0.00
19,500.0	91.13	359.45	10,126.0	9,419.7	-190.3	9,421.1	0.00	0.00	0.00
19,600.0	91.13	359.45	10,124.1	9,519.6	-191.2	9,521.0	0.00	0.00	0.00
19,700.0	91.13	359.45	10,122.1	9,619.6	-192.2	9,621.0	0.00	0.00	0.00
19,800.0	91.13	359.45	10,120.1	9,719.6	-193.1	9,721.0	0.00	0.00	0.00
19,900.0	91.13	359.45	10,118.2	9,819.6	-194.1	9,821.0	0.00	0.00	0.00
20,000.0	91.13	359.45	10,116.2	9,919.5	-195.0	9,921.0	0.00	0.00	0.00
20,100.0	91.13	359.45	10,114.2	10,019.5	-196.0	10,020.9	0.00	0.00	0.00
20,200.0	91.13	359.45	10,112.3	10,119.5	-197.0	10,120.9	0.00	0.00	0.00
20,300.0	91.13	359.45	10,110.3	10,219.5	-197.9	10,220.9	0.00	0.00	0.00
20,400.0	91.13	359.45	10,108.4	10,319.5	-198.9	10,320.9	0.00	0.00	0.00
20,500.0	91.13	359.45	10,106.4	10,419.4	-199.8	10,420.9	0.00	0.00	0.00
20,600.0	91.13	359.45	10,104.4	10,519.4	-200.8	10,520.8	0.00	0.00	0.00
20,621.6	91.13	359.45	10,104.0	10,541.0	-201.0	10,542.4	0.00	0.00	0.00

TD at 20621.6

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Man Hands Fed Com #111H
Company:	Tap Rock Resources, LLC	TVD Reference:	KB @ 3304.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB @ 3304.0usft
Site:	(Mulva Fed) Sec-27_T-24-S_R-35-E	North Reference:	Grid
Well:	Man Hands Fed Com #111H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #1		

Design Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
LTP (Man Hands Fed - plan misses target center by 1.4usft at 20551.6usft MD (10105.4 TVD, 10471.0 N, -200.3 E) - Point	0.00	0.00	10,104.0	10,471.0	-200.0	441,488.00	841,817.00	32° 12' 35.980 N	103° 21' 42.504 W
PBHL (Man Hands Fe - plan hits target center - Rectangle (sides W100.0 H10,430.0 D30.0)	-1.13	359.45	10,104.0	10,541.0	-201.0	441,558.00	841,816.00	32° 12' 36.672 N	103° 21' 42.509 W
FTP (Man Hands Fed - plan misses target center by 209.0usft at 10265.3usft MD (10188.6 TVD, 226.3 N, 33.2 E) - Point	0.00	0.00	10,300.0	111.0	-101.0	431,128.00	841,916.00	32° 10' 53.462 N	103° 21' 42.442 W

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
464.0	464.0	Rustler Anhydrite			
884.0	884.0	Top Salt			
4,805.7	4,804.0	Base Salt			
5,245.7	5,244.0	Delaware Mountain Gp			
5,245.7	5,244.0	Lamar			
5,275.7	5,274.0	Bell Canyon			
5,305.7	5,304.0	Ramsey Sand			
6,205.7	6,204.0	Cherry Canyon			
7,695.7	7,694.0	Brushy Canyon			
8,975.7	8,974.0	Bone Spring Lime			
9,005.7	9,004.0	Upper Avalon			
9,255.7	9,254.0	Middle Avalon			
9,675.7	9,674.0	Lower Avalon			
10,167.2	10,124.0	1st Bone Spring Sand			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,500.0	1,500.0	0.0	0.0	NUDGE - Build 2.00
1,607.7	1,607.7	0.0	2.0	HOLD - 2286.2 at 1607.7 MD
3,893.9	3,892.3	0.0	88.0	DROP - -2.00
4,001.7	4,000.0	0.0	90.0	HOLD - 5727.2 at 4001.7 MD
9,728.9	9,727.2	0.0	90.0	KOP - Build 10.00
10,640.1	10,300.0	566.6	-52.3	EOC/TRN - DLS 3.00 TFO 89.84
11,091.7	10,291.2	1,013.4	-109.7	Start 9529.9 hold at 11091.7 MD
20,621.6	10,104.0	10,541.0	-201.0	TD at 20621.6

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.



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 Windssocks and / Wind Streamers:

- Windssocks at mud pit area should be high enough to be visible
- Windssock 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

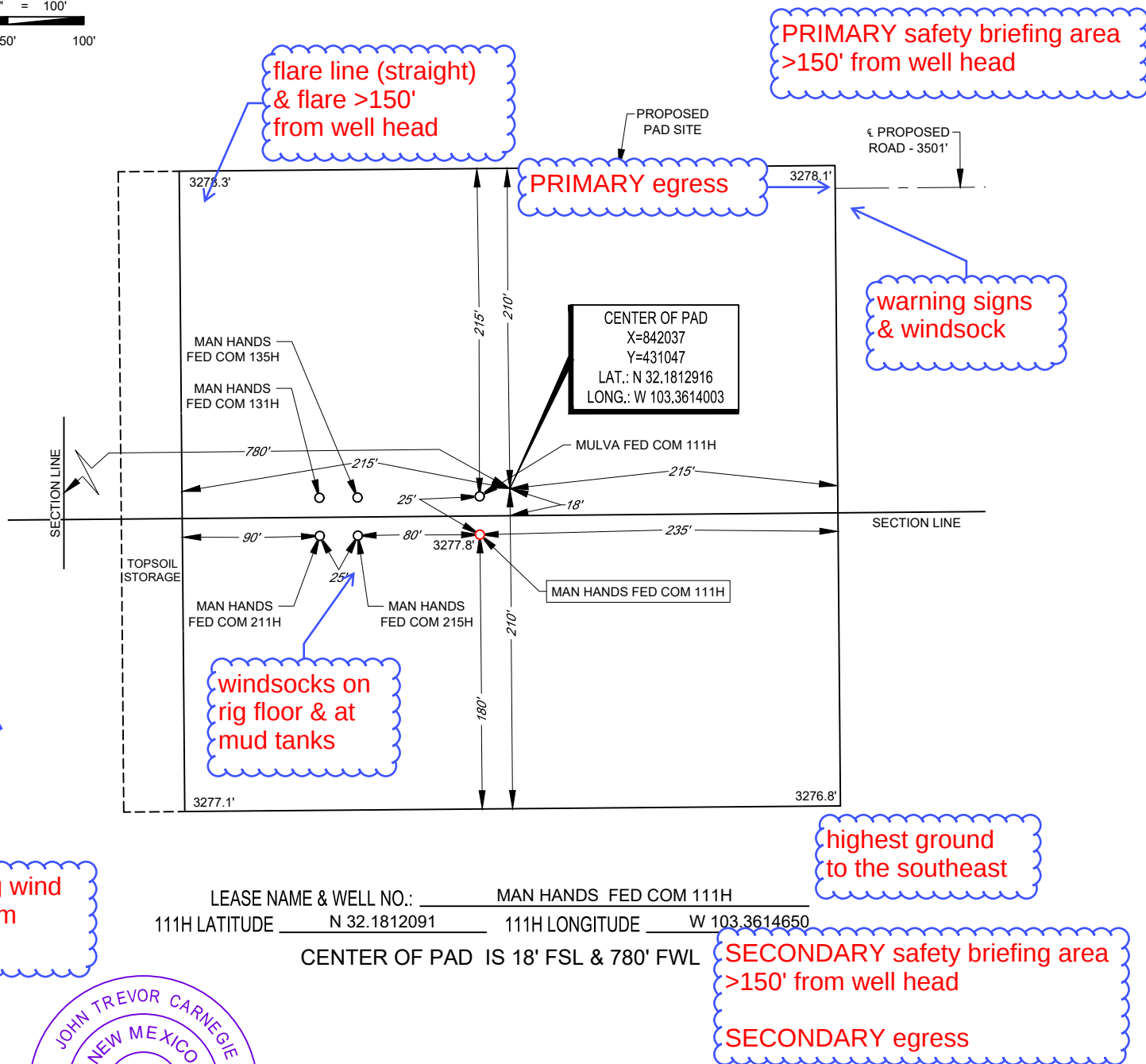
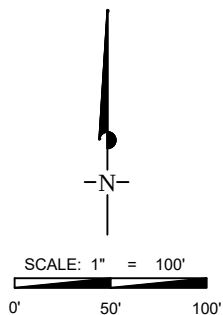
Emergency Contacts		
Carlsbad Police Department	575.887.7551	911
Carlsbad Medical Center	575.887.4100	911
Eddy County Fire Service	575.628.5450	911
Eddy County Sherriff	575.887.7551	911
Lea County Fire Service	575.391.2983	911
Lea County Sherriff	575.396.3611	911
Jal Police Department	575.395.2121	911
Jal Fire Department	575.395.2221	911
Tap Rock Resources	720.772.5090	

EXHIBIT 2B



SECTION 34, TOWNSHIP 24-S, RANGE 35-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

DETAIL VIEW
SCALE: 1" = 100'



John Trevor Carnegie, P.S. No. 11401

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

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

ORIGINAL DOCUMENT SIZE: 8.5" X 11"



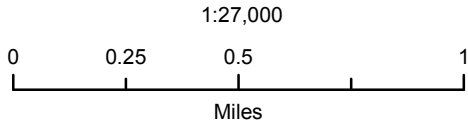
1400 EVERMAN PARKWAY, Ste. 146 • FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 • FAX (817) 744-7554
2903 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
WWW.TOPOGRAPHIC.COM

Tap Rock Operating, LLC

Man Hands W2 Pad
H2S Contingency Plan:
Radius Map

Section 27, Township 24S, Range 35E
Lea County, New Mexico

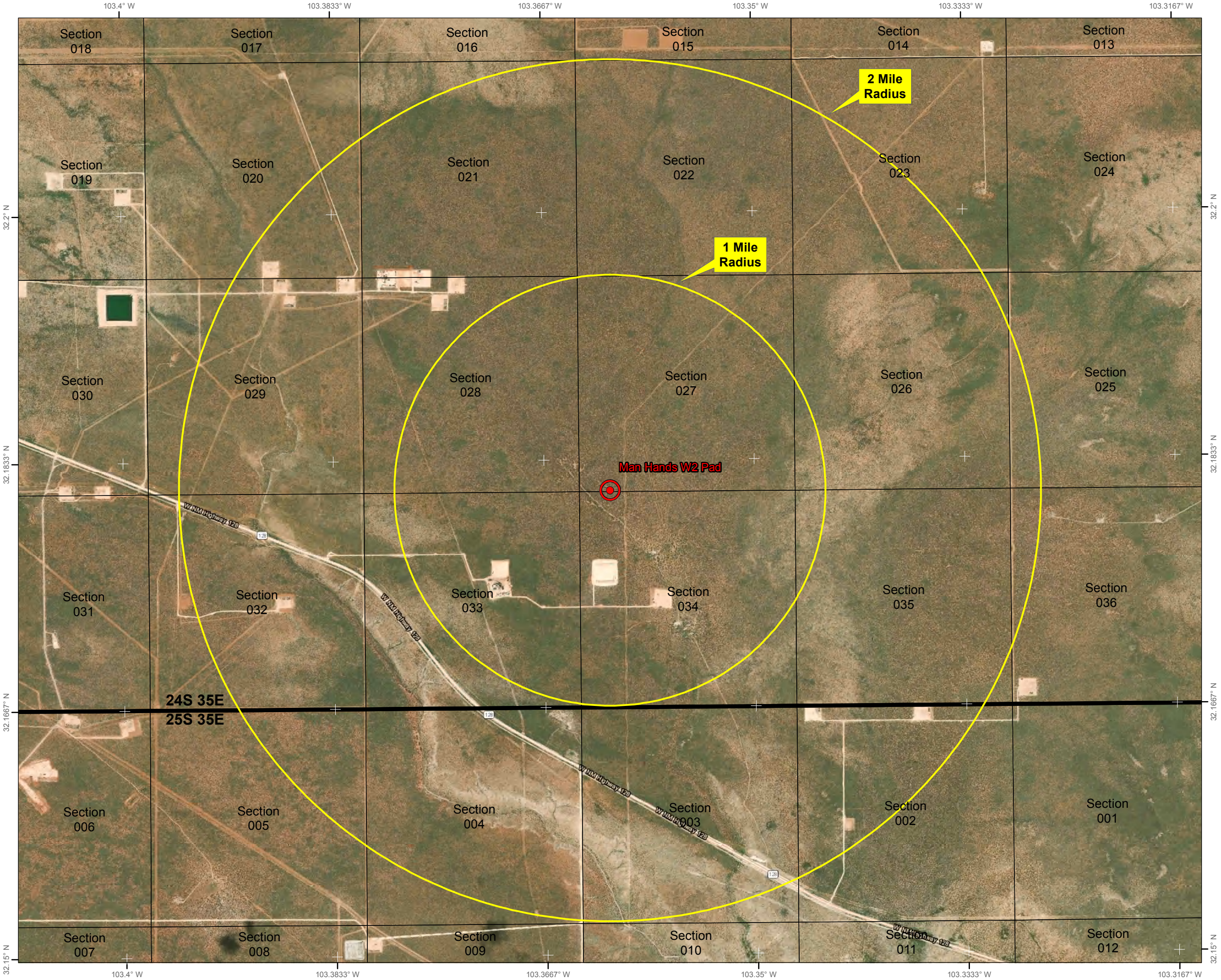
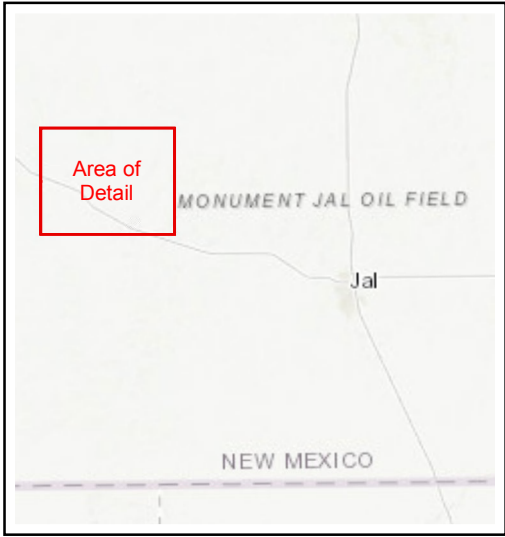
 Surface Hole Location

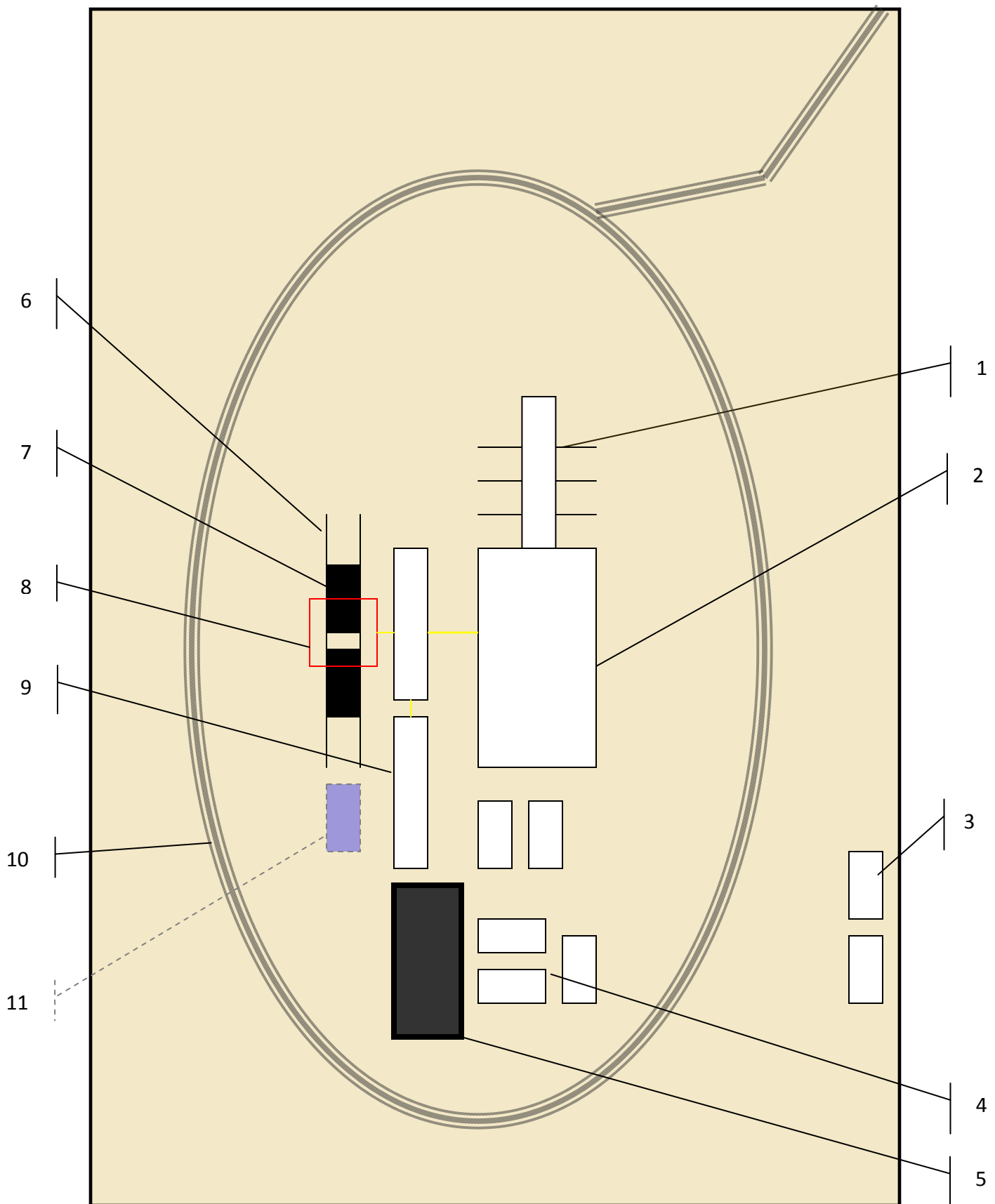


NAD 1983 New Mexico State Plane East
FIPS 3001 Feet



Prepared by Permits West, Inc., October 14, 2019
for Catena Resources Operating, LLC





Schematic Closed Loop Drilling Rig*

1. Pipe Rack
2. Drill Rig
3. House Trailers/ Offices
4. Generator/Fuel/Storage
5. Overflow-Frac Tank
6. Skids
7. Roll Offs
8. Hopper or Centrifuge
9. Mud Tanks
10. Loop Drive
11. Generator (only for use with centrifuge)

***Not drawn to scale: Closed loop system requires at least 30 feet beyond mud tanks. Ideally 60 feet would be available**



Above: Centrifugal Closed Loop System



Closed Loop Drilling System: Mud tanks to right (1)
Hopper in air to settle out solids (2)
Water return pipe (3)
Shaker between hopper and mud tanks (4)
Roll offs on skids (5)

Flow Chart for Drilling Fluids and Solids

