CASE NO. 21071

APPLICATION OF TAP ROCK RESOURCES, LLC FOR COMPULSORY POOLING, LEA COUNTY, NEW MEXICO

EXHIBITS

- A. Application and Proposed Ad
- B. Landman's Affidavit
- C. Geologist's Affidavit
- D. Affidavit of Notice
- E Affidavit of Publication
- F. Pooling Checklist

STATE OF NEW MEXICO DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES OIL CONSERVATION DIVISION

APPLICATION OF TAP ROCK RESOURCES, LLC FOR COMPULSORY POOLING, LEA COUNTY, NEW MEXICO.

Case No. 2107(

APPLICATION

Tap Rock Resources, LLC applies for an order pooling all uncommitted mineral interests in the Wolfcamp formation underlying a (proximity tract) horizontal spacing unit comprised of the E/2W/2 and the W/2E/2 of Section 11, Township 24 South, Range 34 East, NMPM, Lea County, New Mexico, and in support thereof, states:

- Applicant is a working interest owner in the E/2W/2 and the W/2E/2 of Section
 and has the right to drill a well or wells thereon.
- 2. Applicant proposes to drill the Mandelbaum Fee Well Nos. 132H, 136H, 137H, 203H, 207H, 212H, 216H, and 217H to a depth sufficient to test the Wolfcamp formation, and dedicate the E/2W/2 and the W/2E/2 of Section 11 to the wells
- 3. Applicant has in good faith sought to obtain voluntary joinder of all other mineral interest owners in the E/2W/2 and the W/2E/2 of Section 11.
- 4. Although applicant attempted to obtain to obtain voluntary agreements from all mineral interest owners to participate in the drilling of the wells or to otherwise commit their interests to the wells, certain interest owners have failed or refused to join in dedicating their interests. Therefore, applicant seeks an order pooling all mineral interest owners in the Wolfcamp formation underlying the E/2W/2 and the W/2E/2 of Section 11, pursuant to NMSA 1978 §70-2-17.

EXHIBIT A

5. The pooling of mineral interests in the Wolfcamp formation underlying the E/2W/2 and the W/2E/2 of Section 11 will avoid the drilling of unnecessary wells, prevent waste, and protect correlative rights.

WHEREFORE, applicant requests that, after notice and hearing, the Division enter its order:

- A. Pooling all uncommitted mineral interests in Wolfcamp formation underlying the E/2W/2 and the W/2E/2 of Section 11;
- B. Designating Tap Rock Operating, LLC as operator of the wells;
- C. Considering the cost of drilling and completing the wells, and allocating the costs thereof among the wells' working interest owners;
- D. Approving actual operating charges and costs charged for supervision, together with a provision adjusting the rates pursuant to the COPAS accounting procedure; and
- E. Setting a 200% charge for the risk assumed by applicant in drilling and completing the wells in the event a working interest owner elects not to participate in the wells.

Respectfully submitted,

James Bruce

Post Office Box 1056

Santa Fe, New Mexico 87504

(505) 982-2043

jamesbruc@aol.com

Attorney for Tap Rock Resources, LLC

PROPOSED ADVERTISEMENT

~		
Case	No	
Cust	I TU.	

Application of Tap Rock Resources, LLC for a compulsory pooling, Lea County, New Mexico. Tap Rock Resources, LLC seeks an order pooling all mineral interests in the Wolfcamp formation underlying a (proximity tract) horizontal spacing unit comprised of the E/2W/2 and the W/2E/2 of Section 11, Township 24 South, Range 34 East, NMPM, Lea County, New Mexico. The unit will be dedicated to the Mandelbaum Fee Well Nos. 132H, 136H, 137H, 203H, 207H, 212H, 216H, and 217H. Also to be considered will be the cost of drilling and completing the wells and the allocation of the cost thereof, as well as actual operating costs and charges for supervision, designation of Tap Rock Operating, LLC as operator of the wells, and a 200% charge for the risk involved in drilling and completing the wells. The unit is located approximately 24 miles west-northwest of Jal, New Mexico.

STATE OF NEW MEXICO DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES OIL CONSERVATION DIVISION

APPLICATION OF TAP ROCK OPERATING, LLC FOR A STANDARD HORIZONTAL SPACING AND PRORATION UNIT AND COMPULSORY POOLING, LEA COUNTY, NEW MEXICO

Case Nos. 21071

AFFIDAVIT OF ERICA HIXSON

I, being duly sworn on oath, state the following:

- I am over the age of eighteen years and have the capacity to execute this Affidavit, which is based on my personal knowledge.
- I am employed as a Landman with Tap Rock Operating, LLC ("Tap Rock"), and I
 am familiar with the subject application and the lands involved.
- 3. This affidavit is submitted in connection with the filing by Tap Rock of the above-referenced compulsory pooling applications pursuant to 19.15.4.12.A(1) NMAC.
- 4. I have previously testified before the New Mexico Oil Conservation Division as an expert witness in petroleum land matters. My credentials as a petroleum landman have been accepted by the Division and made a matter of record.
- 5. The purpose of this application is to force pool working interest owners into the horizontal spacing unit ("HSU") described below, and in the wells to be drilled in the units.
- 6. No opposition is expected. Marathon Oil Permian, LLC ("MRO") and COG Operating LLC ("COG") were contacted regarding the proposed well. Tap Rock continues to work toward a voluntary agreement with both COG and MRO.
- 7. Tap Rock seeks an order pooling all mineral interests in the Antelope Ridge; Wolfcamp Pool (Pool Code 2220) underlying the W/2E/2 & E/2W/2 of Section 11, Township 24

EXHIBIT 3

South, Range 34 East, NMPM, Lea County, New Mexico. The proposed 320-acre spacing unit will be dedicated to the Mandelbaum #132H, #136H, #137H, #203H, #207H, #212H, #216H, and #217H, as the defining wells for the units.

- 1. A proposed C-102 for each well is attached as **Exhibit 1.** The wells will develop the Antelope Ridge; Wolfcamp Pool (Pool Code 2220), which is an oil pool.
- 2. The proposed surface hole, bottom hole, and first take point for each well can be found in the attached **Exhibit 1**. The proposed total vertical depth for each well can be found in the attached **Exhibit 5**.
- A tract map containing the composition of the HSU is attached hereto as Exhibit 2
 and shows that the HSU is comprised of one large fee tract.
- 4. The parties being pooled and the nature of their interest are found in **Exhibit 4** attached hereto. **Exhibit 4** also includes information regarding working interest owners and overriding royalty interest owners.
 - 5. There are no depth severances in the Wolfcamp formation in the proposed HSU.
- 6. I have conducted a diligent search of the public records in Lea County, New Mexico, where the wells will be located, and conducted phone directory and computer searches to obtain contact information for parties entitled to notification. I mailed all parties well proposals, including an Authorization for Expenditure ("AFE").
- 7. Tap Rock has made a good faith effort to obtain voluntary joinder of the working interest owners in the proposed wells.
- 8. **Exhibit 5** is a sample proposal letter and the AFE for each of the proposed wells. The estimated cost of each of the wells set forth in the AFE is fair, reasonable, and comparable to the costs of other wells of similar depths and lengths drilled in this area of New Mexico.

- 9. Tap Rock requests overhead and administrative rates of \$7000/month for drilling a well and \$700/month for a producing well. These rates are fair and comparable to the rates charged by other operators for wells of this type in this area of southeastern New Mexico. Tap Rock requests that these rates be adjusted periodically as provided in the COPAS Accounting Procedure.
- 10. Tap Rock requests the maximum cost, plus 200% risk charge be assessed against non-consenting working interest owners.
 - 11. Tap Rock requests that it be designated operator of the wells.
- 12. The Exhibits to this Affidavit were prepared by me, or compiled from Tap Rock's company business records.
- 13. The granting of this Application is in the interests of conservation, the prevention of waste, and the protection of correlative rights.
 - 14. The foregoing is correct and complete to the best of my knowledge and belief.

FURTHER AFFIANT SAYETH NAUGHT	Erica Hixson
STATE OF COLORADO))ss COUNTY OF JEFFERSON) Subscribed to and sworn before me this day of J	anuary 2020
EMILY KASA Notary Public State of Colorado Notary ID # 20184039277	Notary Public

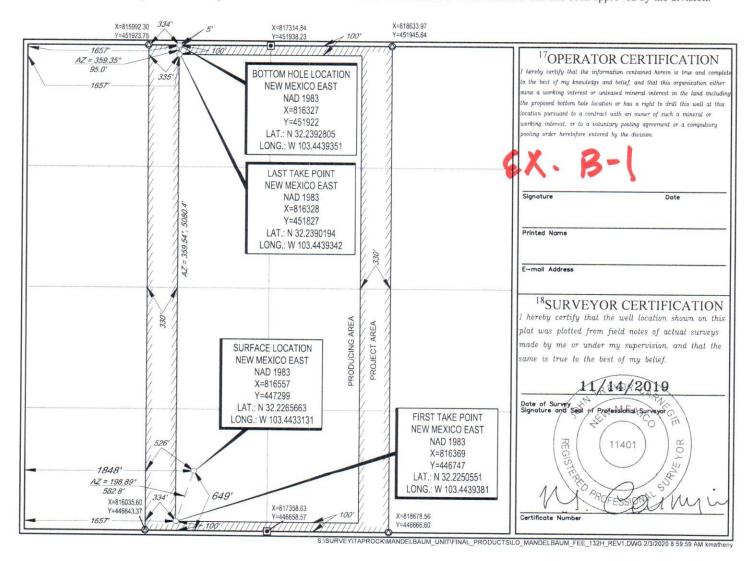
State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION 1220 South St. Francis Dr. Santa Fe, NM 87505

FORM C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

	API Number	r	2220	² Pool Code	Antel	ope Ridge; Wolfcamp	³ Pool Nam	e		
⁴ Property (Code		1	N		SProperty Name Well Nu NDELBAUM FEE 132				
70GRID #3720	1000	SOperator Name TAP ROCK OPERATING, LLC.							Elevation 3504'	
					¹⁰ Surface Lo	cation				
UL or lot no.	Section 11	Township 24-S	34-E	Lot Idn	Feet from the 649'	North/South line SOUTH	Feet from the 1848'	East/West line WEST	LEA County	
			¹¹ Be	ottom Hole	Location If Di	ifferent From Surf	ace			
UL or lot no.	Section 11	Township 24-S	Range 34-E	Lot Idn	Feet from the	North/South line NORTH	Feet from the 1657'	East/West line WEST	County	
¹² Dedicated Acres	¹³ Joint or 1	Infill 14Co	nsolidation Code	¹⁵ Order	No.					



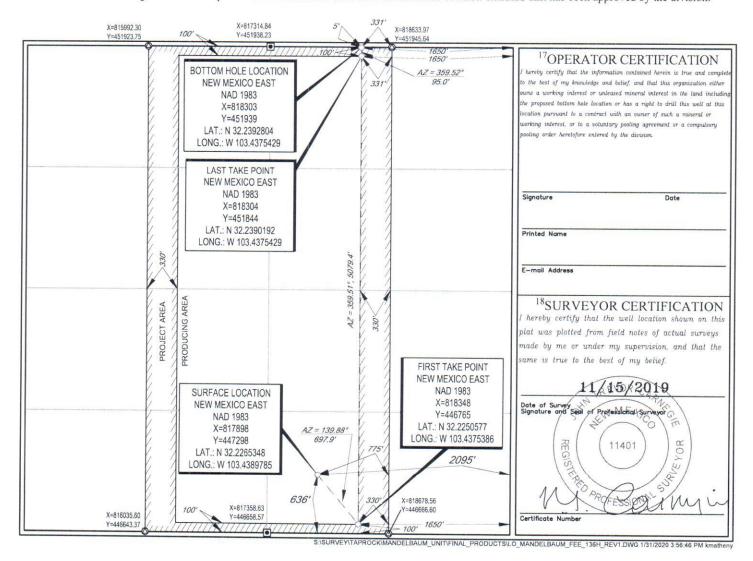
State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION 1220 South St. Francis Dr. Santa Fe, NM 87505

FORM C-102
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District Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

	API Number	Number ² Pool Code ³ Pool Name 2220 Antelope Ridge; Wolfcamp Pool							
⁴ Property C	Code]	⁵ Property N:	⁵ Property Name DELBAUM FEE 10			
70GRID N #3720					ATING, LLC.	⁹ Elevation			
					¹⁰ Surface Lo	cation			
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	11	24-S	34-E	-	636'	SOUTH	2095	EAST	LEA
			¹¹ B	Sottom Hol	e Location If D	ifferent From Surf	face		
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
В	11	24-S	34-E	-	5'	NORTH	1650'	EAST	LEA
¹² Dedicated Acres	¹³ Joint or I	Infill 14Cor	nsolidation Code	e ¹⁵ Order	r No.				



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 <u>District III</u> 1000 Rio Brazos Road, Aztec, NM 87410

Phone: (505) 334-6178 Fax: (505) 334-6170 <u>District IV</u> 1220 S. St. Francis Dr., Santa Fe, NM 87505 Phone: (505) 476-3460 Fax: (505) 476-3462 State of New Mexico
Energy, Minerals & Natural Resources
Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

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WELL LOCATION AND ACREAGE DEDICATION PLAT

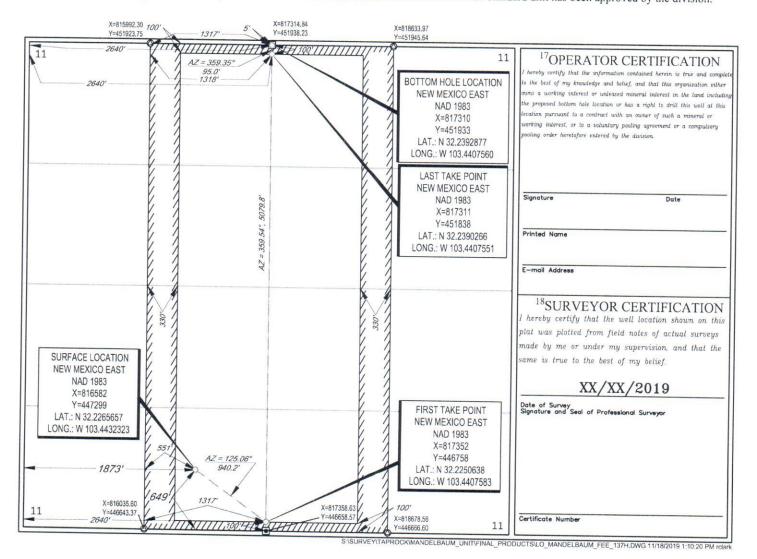
API Number	² Pool Code 2220	³ Pool Nar Antelope Ridge; Wolfcamp Pool	ame		
⁴ Property Code		roperty Name ELBAUM FEE	⁶ Well Number 137H		
OGRID No.		Perator Name OPERATING, LLC.	Elevation 3503'		
	100	face I costice			

Surface Location

UL or lot no.	Section 11	Township 24-S	Range 34-E	Lot Idn	Feet from the 649'	North/South line SOUTH	Feet from the 1873'	East/West line WEST	County LEA
			- 11					70000 BBN 3000	

¹¹Bottom Hole Location If Different From Surface

UL or lot no.	Section 11	Township 24-S	34-E	Lot Idn	Feet from the 5'	North/South line NORTH	Feet from the 2640'	East/West line WEST	Count
¹² Dedicated Acres	¹³ Joint or I	nfill 14Co	onsolidation Code	¹⁵ Order N	io.				



Phone: (505) 476-3460 Fax: (505) 476-3462

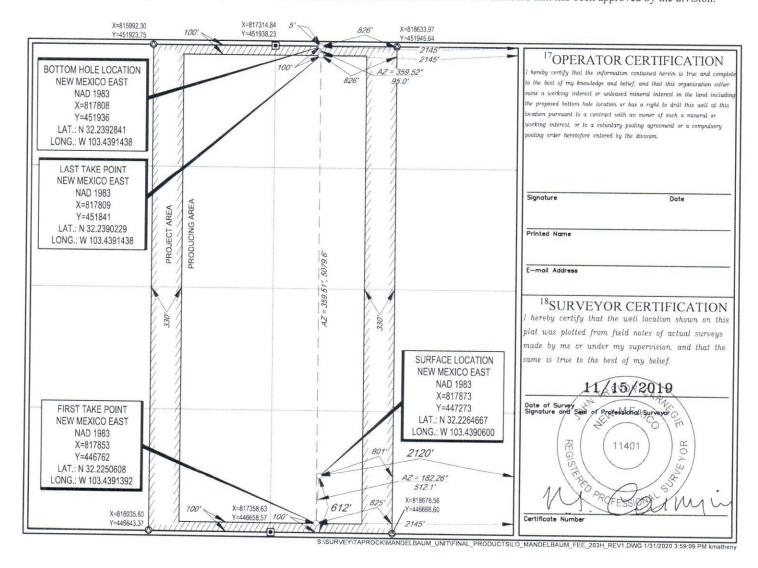
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WELL LOCATION AND ACREAGE DEDICATION PLAT

	API Numbe	r		² Pool Code			³ Pool Nam	e	
				2220		Antelope Ridge	; Wolfcamp Pool		
⁴ Property (Code			1	⁵ Property Na MANDELBAU				ell Number
7OGRID	No.				8Operator Na				203H
	March				Elevation				
#3720	43			;	3486'				
					10 Surface Loc	cation			
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	11	24-S	34-E	-	612'	SOUTH	2120'	EAST	LEA
			¹¹ B	ottom Hol	e Location If Di	fferent From Surf	face		
UL or lot no.	Section		Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
В	11	24-S	34-E	-	5'	NORTH	2145'	EAST	LEA
¹² Dedicated Acres	13 Joint or	Infill 14Co	onsolidation Code	e 15Order	No.				
				1					



N

24-S

11

34-E

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Santa Fe, NM 87505

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LEA

WELL LOCATION AND ACREAGE DEDICATION PLAT

1	API Number	mber ² Pool Code ³ Pool Name							
				2220		Antelope Ridge; W	olfcamp Pool		
⁴ Property C	ode				⁶ Well Numb	er			
	MANDELBAUM FEE						207H		
OGRID N	io.				⁸ Operator Nan	ne		⁹ Elevation	i.
#3720	43			TAP RO	OCK OPERA	TING, LLC.		3504	
					¹⁰ Surface Loca	ation		•	
or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	Co

11 Rottom Hole Location If Different From Surface

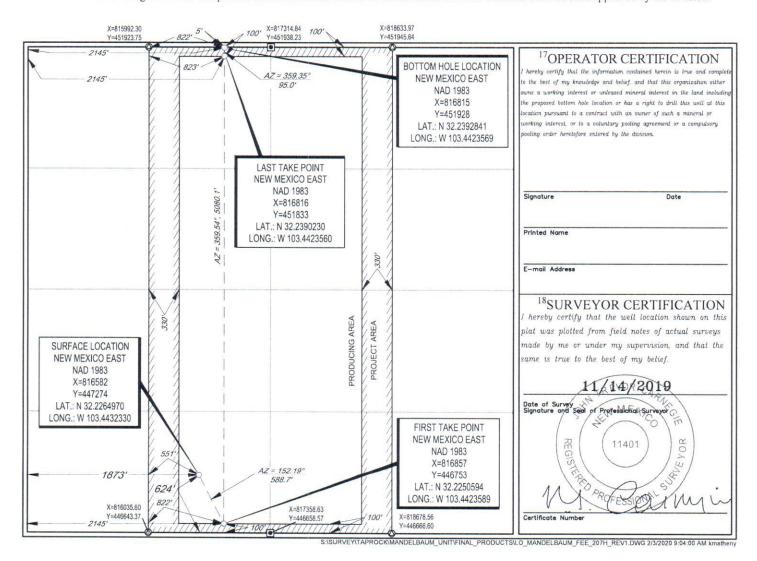
SOUTH

1873'

WEST

624

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	11	24-S	34-E	_	5	NORTH	2145'	WEST	LEA
¹² Dedicated Acres	¹³ Joint or I	nfill 14Co	nsolidation Code	¹⁵ Order N	vo.				



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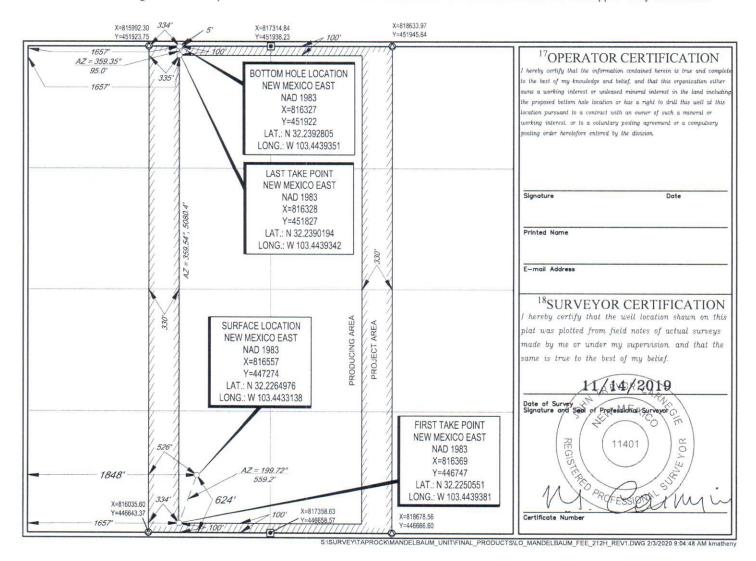
WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number	² Pool Code	³ Pool Name				
	2220	Antelope Ridge; Wolfcamp Pool				
⁴ Property Code	5Pr	operty Name	⁶ Well Number			
	MANDE	MANDELBAUM FEE				
OGRID No.	⁸ O _I	⁹ Elevation				
#372043	TAP ROCK OPERATING, LLC.					
	¹⁰ Surf	ace Location				

UL or lot no.	Section 11	Township 24-S	Range 34-E	Lot Idn	Feet from the 624'	North/South line SOUTH	Feet from the 1848'	East/West line WEST	LEA County
						fferent From Surf			
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	11	24-S	34-E	_	5'	NORTH	1657'	WEST	LEA

 C
 11
 24-S
 34-E
 5'
 NORTH
 1657'
 WEST
 LEA

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



API Number

State of New Mexico
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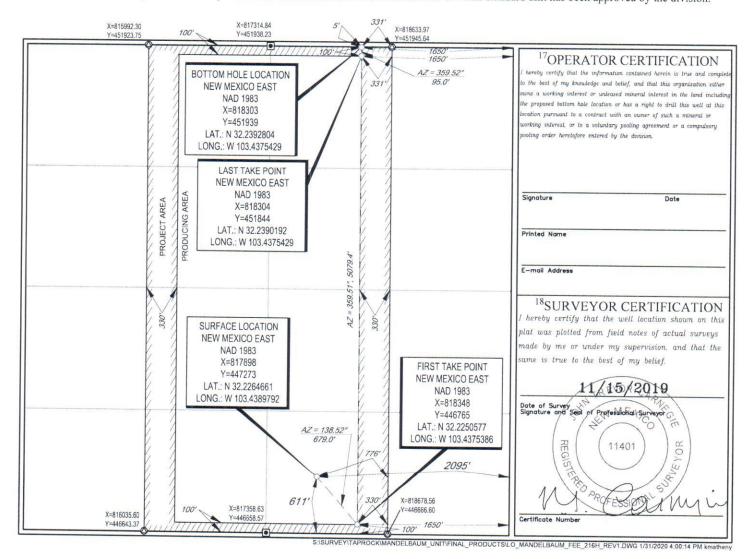
AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

				2220		Antelope Ridge; \	Nolfcamp Pool		
⁴ Property (]	⁵ Property N			61	Vell Number 216H
	⁷ OGRID №. #372043			TAP F		⁹ Elevation 3484'			
			2		10 Surface Lo	cation			
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	11	24-S	34-E	_	611'	SOUTH	2095	FAST	TEA

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 lin B 11 24-S 5' 34-ENORTH 1650' EAST LEA

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



API Number

State of New Mexico
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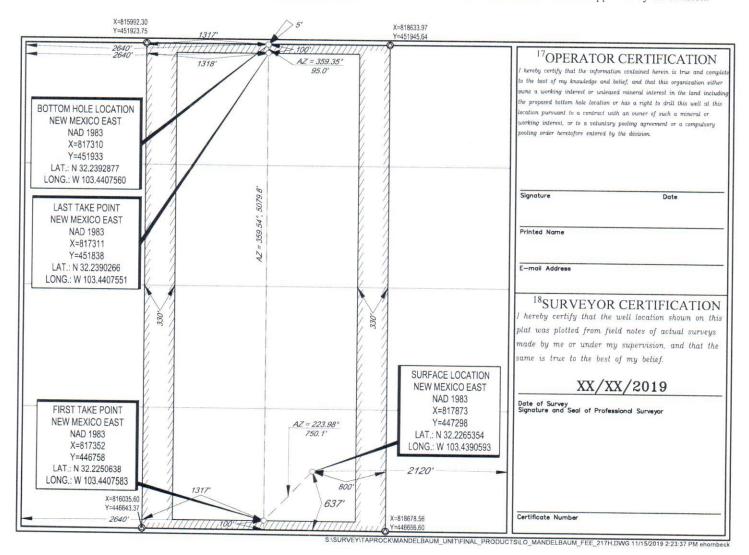
AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

				222	0	Antelope R	idge; Wolfcamp Po				
	⁴ Property Code ⁷ OGRID No.]	⁵ Property N. MANDELBAU				Vell Number 217H		
⁷ OGRID				TAP ROCK OPERATING, LLC.							
					¹⁰ Surface Lo	cation					
UL or lot no.	Section 11	Township 24-S	Range 34-E	Lot Idn	Feet from the 637'	North/South line SOUTH	Feet from the 2120'	East/West line EAST	County LEA		

¹¹Bottom Hole Location If Different From Surface

UL or lot no.	Section 11	Township 24-S	34-E	Lot Idn	Feet from the 5'	North/South line NORTH	Feet from the 2640'	East/West line WEST	LEA County
¹² Dedicated Acres	¹³ Joint or I	nfill 14Co	nsolidation Code	¹⁵ Order N	io.				





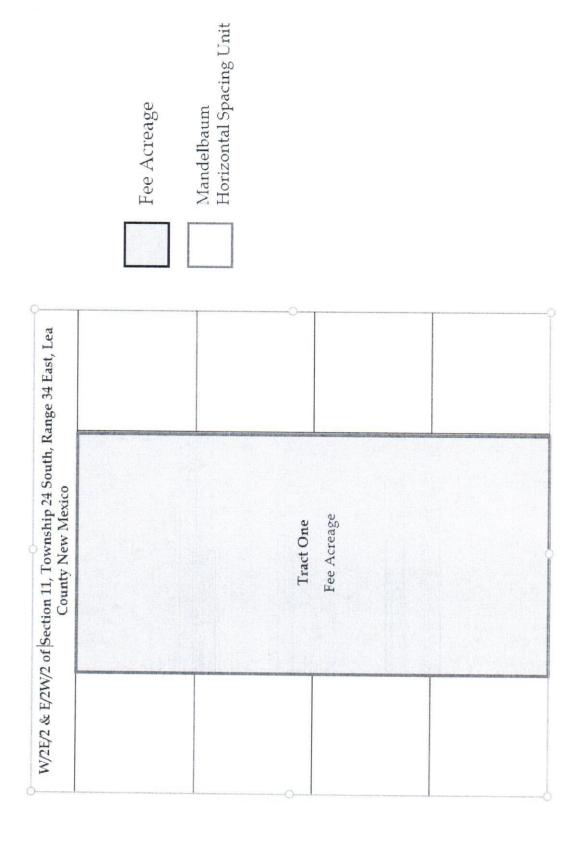


Exhibit 2 Case No. 21071



itace n regar	Ownership Type	Mineral Lease Number Ownership Type	Owners
W/2E/2 and E/2W/2 of Section 11, T24S R34E	Fee	N/A	GAJH 1989 Limited Partnership c/o UMC Petroleum Corporation
			Energen Resources Corporation
			COG Operating LLC
			Franklin Mountain Energy II, LLC
			Marathon Oil Permian, LLC
			Crown Oil Partners VI, LLC; and, Crump Energy Partners III, LLC

*final interest subject to division order title verification



Buffty	Interest Type Approximate Percentage	ge
Tap Rock Resources, LLC	Working Interest	10.156250%
COG Operating LLC	Uncommitted Working Interest 61.3	61.328125%
Marathon Oil Permian, LLC	Uncommitted Working Interest 17.3	17.394212%
Energen Resources Corporation	Unleased Mineral Interest	3.456038%
Crown Oil Partners VI, LLC; and, Crump Energy Partners III, LLC	Uncommitted Working Interest 3.1	3.128311%
GAJH 1989 Limited Partnership c/o UMC Petroleum Corporation	Unleased Mineral Interest 2.8	2.896439%
Franklin Mountain Energy II, LLC	Uncommitted Working Interest 1.6	1.640625%

Overriding Royalty Interest

Stryker Energy, LLC

Exhibit 4 Case No. 21071



October 4, 2019

Via Certified Mail

COG Operating LLC One Concho Center 600 W. Illinois Ave. Midland, Texas 79701

Ex. B-5

Re: Mandelbaum Well Proposals

Township 24 South, Range 34 East, Section 11

Lea County, New Mexico (the "Wells")

Tap Rock Operating, LLC (TRO), as Operator, hereby proposes to drill the following Wells by pad drilling to prevent waste and protect correlative rights. Accordingly, enclosed are AFEs dated September 30, 2019 for the following:

Well Name	Surface Hole Location (SHL)	Bottom Hole Location (BHL)	Formation	TVD	MD
Mandelbaum #122H	SE/4SW/4 Section 11	NE/4NW/4 Section 11	2 nd Bone Spring	11,000°	16,410
Mandelbaum #123H	SW/4SE/4 Section 11	NW/4NE/4 Section 11	Bone Spring	11,000'	16,410
Mandelbaum #132H	SE/4SW/4 Section 11	NE/4NW/4 Section 11	Wolfcamp A	11,860'	17,270
Mandelbaum #136H	SW/4SE/4 Section 11	NW/4NE/4 Section 11	Wolfcamp A	11,860'	17,270
Mandelbaum #137H	SE/4SW/4 Section 11	NE/4NW/4 Section 11	Wolfcamp A	11,860'	17,270
Mandelbaum #142H	SE/4SW/4 Section 11	NE/4NW/4 Section 11	1st Bone Spring	10,370	15,780
Mandelbaum #143H	SW/4SE/4 Section 11	NW/4NE/4 Section 11	1st Bone Spring	10,350'	15,780
Mandelbaum #192H	SE/4SW/4 Section 11	NE/4NW/4 Section 11	2 nd Bone Spring	10,600	16,010
Mandelbaum #193H	SW/4SE/4 Section 11	NW/4NE/4 Section 11	2 nd Bone Spring	10,600	16,010'
Mandelbaum #203H	SW/4SE/4 Section 11	NW/4NE/4 Section 11	Wolfcamp A	11,970'	17,380'
Mandelbaum #207H	SE/4SW/4 Section 11	NE/4NW/4 Section 11	Wolfcamp A	11,970'	17,380'
Mandelbaum #212H	SE/4SW/4 Section 11	NE/4NW/4 Section 11	Wolfcamp A	12,180'	17,590'
Mandelbaum #216H	SW/4SE/4 Section 11	NW/4NE/4 Section 11	Wolfcamp A	12,180'	17,590'
Mandelbaum #217H	SE/4SW/4 Section 11	NE/4NW/4 Section 11	Wolfcamp A	12,180'	17,590

The proposed locations and drilling plans described above are subject to change depending on surface or subsurface issues that may be encountered. TRO will advise you of any such



modifications. A separate AFE for facility costs is forthcoming. Your election to participate in the drilling and completion of the proposed wells will also be considered an election to participate in the construction of the production facility.

In the event you elect to participate in the proposed Wells, please execute the enclosed AFEs and return to me within 30 days. TRO is proposing to drill these wells under the terms of the AAPL Form 610-1989 Operating Agreement which will be provided after an election to participate is received. This Operating Agreement covers the E2W2 and W2E2 of Section 11, Township 24 South, Range 34 East, Lea County, New Mexico.

If you do not wish to participate in the Operation, TRO would like to offer the following terms:

- 3 year primary term, Term Assignment
- Royalty equal to the difference between existing burdens and 20%
- \$7,500 per net acre bonus consideration

The Term Assignment offer is subject to the approval of TRO's board and verification of title.

Additionally, TRO is open to discuss possible trades or other deal structures related to your interest in the proposed Wells. If an agreement cannot be reached within 30 days of the date of this letter, TRO will apply to the New Mexico Oil Conservation Division for compulsory pooling of your interest into a spacing unit for the proposed Wells to allow TRO to move forward with planning and drilling the Wells.

Should you have any questions regarding the above, please contact the undersigned.

Sincerely,

TAP ROCK OPERATING, LLC

Erica Hixson

Erica Hixson

Landman

Office: 720-460-3316 ehixson@taprk.com



COG	Operating LLC hereby elects to:	
-	_ participate in the Mandelbaum #122H	participate in the Mandelbaum #192H
	_ non-consent the Mandelbaum #122H	non-consent the Mandelbaum #192H
	_ participate in the Mandelbaum #123H	participate in the Mandelbaum #193H
	_ non-consent the Mandelbaum #123H	non-consent the Mandelbaum #193H
	_ participate in the Mandelbaum #132H	participate in the Mandelbaum #203H
	_ non-consent the Mandelbaum #132H	non-consent the Mandelbaum #203H
-	_ participate in the Mandelbaum #136H	participate in the Mandelbaum #207H
	_ non-consent the Mandelbaum #136H	non-consent the Mandelbaum #207H
	_ participate in the Mandelbaum #137H	participate in the Mandelbaum #212H
	non-consent the Mandelbaum #137H	non-consent the Mandelbaum #212H
	_ participate in the Mandelbaum #142H	participate in the Mandelbaum #216H
	non-consent the Mandelbaum #142H	non-consent the Mandelbaum #216H
	participate in the Mandelbaum #143H	participate in the Mandelbaum #217H
	non-consent the Mandelbaum #143H	non-consent the Mandelbaum #217H
Ву:		
Name:		
Title: _		
Date:		

602 Park Point Dr, Golden, Colorado 80401 Authorization For Expenditure

Name: AFE #: Mandlebaum 132H

County: State: Lea NM Date: September 30, 2019 MD/TVD: 17270 / 11860 Lateral Length: 4960 Geologic Target: Wolfcamp A

Well Description:

Drill, complete, and equip a horizontal Wolfcamp A well with a 4960 foot lateral.

COST CODES	DESCRIPTION	AMOUNT	CC	ST COD	INTANGIBLE COMPLETION COSTS DESCRIPTION	AMOUNT	C	ST COD	INTANGIBLE PRODUCTION COSTS DESCRIPTION	2202000000000
1 1	Land - Legal	10,000	2	1	Land - Legal	7,510	3		Land - Legal	AMOUNT
1 2	Land - Regulatory	5,000	2	2	Land - Regulatory		3	2	Land - Regulatory	
1 3	Land - Surface Damages	20,000	2	3	Land - Surface Damages		3	3	Land - Surface Damages	
1 4	Land - Survey	10,000	2	4	Land - Survey		3	4	Land - Survey	
1 5	Location/Pit Construction	140,000	2	5	Location/Pit Construction		3	5	Location/Pit Construction	
1 6	Remedial Dirtwork	0	2	6	Remedial Dirtwork		3	6	Remedial Dirtwork	5,
1 7	Reserve/Frac Pit Closing	0	2	7	Reserve/Frac Pit Closing		3	7		
1 8	Drilling - Contractor	637,712	2	8	Drilling - Contractor		3	8	Reserve/Frac Pit Closing	
1 9	Mob/Rig Up - Contractor/Trucking	123,250	2	9	Mob/Rig Up - Contractor/Trucking		3		Drilling - Contractor	
1 10	Cementing Services	0	2	10	Cementing Services		3	9	Mob/Rig Up - Contractor/Trucking	
1 11	Cementing Equipment	0	2	11	Cementing Equipment			10	Cementing Services	
1 12	Bits/Drill Out Assemblies	0	2	-	Bits/Drill Out Assemblies	55,516	3	11	Cementing Equipment	
1 13	Fluid Circulation Equipment/Services	109,887	2	_	Fluid Circulation Equipment/Services	55,516	3	12	Bits/Drill Out Assemblies	
1 14	Fluids/Chemicals	163,680	2	-	Fluids/Chemicals		3	13	Fluid Circulation Equipment/Services	
1 15	WBM Cuttings/Wastewater Disposal	133,920	2	15		39,832	3	14	Fluids/Chemicals	
1 16	OBM Cuttings/Chemical Disposal	49,600	2	-	WBM Cuttings/Wastewater Disposal	-	3	15	WBM Cuttings/Wastewater Disposal	
17	Fuel/Power	152,776		16	OBM Cuttings/Chemical Disposal		3	16	OBM Cuttings/Chemical Disposal	
18	Water	152,776	2	-	Fuel/Power	325,000	3	17	Fuel/Power	
19	Directional Drilling	268,329		18	Water	497,457	3	18	Water	
20	Mud Logging		2	19	Directional Drilling		3	19	Directional Drilling	
21	Open/Cased/Production Hole Logs	26,722	2	20	Mud Logging		3	20	Mud Logging	
22	Coring	0	2	21	Open/Cased/Production Hole Logs	10,550	3	21	Open/Cased/Production Hole Logs	
23	Geologic Supervision	0	2	22	Coring		3	22	Coring	
24		0	2	23	Geologic Supervision		3	23	Geologic Supervision	
-	Engineering Supervision	0	2	24	Engineering Supervision		3	24	Engineering Supervision	
25	Consultant Supervision	137,498	2	25	Consultant Supervision	100,000	3	25	Consultant Supervision	20,0
26	Freight/Transportation	20,000	2	26	Freight/Transportation	4,110	3	26	Freight/Transportation	
27	Labor	0	2	27	Labor	15,940	3	27	Labor	10,0
28	Supplies - Surface	2,500	2	28	Supplies - Surface	4,110	3	28	Supplies - Surface	85,0
29	Supplies - Living Quarters	1,000	2	29	Supplies - Living Quarters	4,110	3	29		
30	Rentals - Surface	68,999	2	30	Rentals - Surface	35,670	3		Supplies - Living Quarters	
31	Rentals - Living Quarters	35,138	2	31	Rentals - Living Quarters	28,690	3	30	Rentals - Surface	
32	Rentals - Downhole	0	2	32	Rentals - Downhole	28,690	-	31	Rentals - Living Quarters	
33	Rentals - Pipe & Handling Tools	0	2	33	Rentals - Pipe & Handling Tools		3	32	Rentals - Downhole	
34	Rentals - Frac Stack		2	34	Rentals - Frac Stack	0	3	33	Rentals - Pipe & Handling Tools	
35	Rentals - Frac Tanks		2	35	Rentals - Frac Tanks	115,270	3	34	Rentals - Frac Stack	
36	Coil Tubing Unit/Workover Rig		2	36		89,500	3	35	Rentals - Frac Tanks	
	Wireline/Slickline/Perforating		2	37	Coil Tubing Unit/Workover Rig	107,857	3	36	Coil Tubing Unit/Workover Rig	70,0
38	Temporary Packers/Plugs				Wireline/Slickline/Perforating	257,550	3	37	Wireline/Slickline/Perforating	
	High Pressure Pump Truck		2	38	Temporary Packers/Plugs	37,500	3	38	Temporary Packers/Plugs	
	Stimulation		2	39	High Pressure Pump Truck	102,200	3	39	High Pressure Pump Truck	
	Rentals - Pressure Control		2	40	Stimulation	1,258,294	3	40	Stimulation	
	Flowback Services		2	41	Rentals - Pressure Control		3	41	Rentals - Pressure Control	
	Water Transfer Services		2	42	Flowback Services	96,875	3	42	Flowback Services	
			2	43	Water Transfer Services	105,875	3	43	Water Transfer Services	
100	Flowback Water Trucking & Disposal		2	44	Flowback Water Trucking & Disposal	135,772	3	44	Flowback Water Trucking & Disposal	
	Permanent Equipment Installation		2	45	Permanent Equipment Installation		3	45	Permanent Equipment Installation	
	Pipeline Tapping Services		2	46	Pipeline Tapping Services		3	46	Pipeline Tapping Services	
	Plugging & Abandonment	0	2	47	Plugging & Abandonment		3	47	Plugging & Abandonment	
	Overhead	12,778	2	53	Overhead	22,155	3	53	Overhead	
1000	nsurance	31,086	2	54	Insurance	22,203	3	54	Insurance	5,00
55 (Contingency	107,994	2	55	Contingency	282.069	3	55		- Inches
	TOTAL INTANGIBLE DRILLING COSTS:	\$2,267,869	-		TOTAL INTANGIBLE COMPLETION COSTS:		3	33	TOTAL INTANGIBLE PRODUCTION COSTS:	19,50 \$214,500
	TANGIBLE DRILLING COSTS				CONTRACTOR COSTS:	>3,731,901		-	TOTAL INTANGIBLE PRODUCTION COSTS:	\$

COS	TCODES	DESCRIPTION	AMOUNT
4	60	Conductor Casing	
4	61	Surface Casing	42,59
4	62	1st Intermediate Casing	153,26
4	63	2nd Intermediate Casing	329,275
4	64	Production Casing	321,995
4	65	Tubing	
4	66	Wellhead	(
4	67	Permanent Packers/Hangers/Plugs	
4	68	Tanks	
4	69	Production Vessels	
4	70	Compressors	
4	71	Surface Flowlines	
4	72	Gathering Lines	
4	73	Valves & Controllers	
4	74	Artificial Lift Equipment	
4	75	Instrumentation & Measurement	
4	76	Electrical Grounding/Safety Equipment	
4	77	Permanent Equipment Installation	
4	80	Other - Surface	
4	81	Other - Downhole	

ace casing	42,599	5	61	Surface Casing	
ntermediate Casing	153,263	5	62	1st Intermediate Casing	
Intermediate Casing	329,275	5	63	2nd Intermediate Casing	
uction Casing	321,995	5	64	Production Casing	22,500
ng		5	65	Tubing	22,300
head	0	5	66	Wellhead	40,000
nanent Packers/Hangers/Plugs		5	67	Permanent Packers/Hangers/Plugs	40,000
S		5	68	Tanks	
uction Vessels		5	69	Production Vessels	
pressors		5	70	Compressors	
ce Flowlines		5	71	Surface Flowlines	
ering Lines		5	72	Gathering Lines	
es & Controllers		5	73	Valves & Controllers	
cial Lift Equipment		5	74	Artificial Lift Equipment	
umentation & Measurement		5	75	Instrumentation & Measurement	
rical Grounding/Safety Equipment		5	76	Electrical Grounding/Safety Equipment	
anent Equipment Installation		5	77	Permanent Equipment Installation	
r - Surface		5	80	Other - Surface	
r - Downhole		5	81	Other - Downhole	
TOTAL TANGIBLE DRILLING COSTS:	\$847,131	3	01	TOTAL TANGIBLE COMPLETION COSTS:	\$62,500
TOTAL DRILLING COSTS:	\$3,115,000			TOTAL COMPLETION COSTS:	\$3,794,401

DESCRIPTION

COST CODES

5 60 Conductor Casing

COS	TCODES	DESCRIPTION	AMOUNT
6	60	Conductor Casing	
6	61	Surface Casing	
6	62	1st Intermediate Casing	
6	63	2nd Intermediate Casing	
6	64	Production Casing	
6	65	Tubing	60,000
6	66	Wellhead	43,500
6	67	Permanent Packers/Hangers/Plugs	5,000
6	68	Tanks	
6	69	Production Vessels	82,000
6	70	Compressors	
6	71	Surface Flowlines	50,000
6	72	Gathering Lines	10,000
6	73	Valves & Controllers	
6	74	Artificial Lift Equipment	35,000
6	75	Instrumentation & Measurement	
5	76	Electrical Grounding/Safety Equipment	
5	77	Permanent Equipment Installation	
5	80	Other - Surface	
5	81	Other - Downhole	

TOTAL TANGIBLE PRODUCTION COSTS: \$285,500 TOTAL PRODUCTION COSTS: \$500,000

TOTAL WELL COST: \$7 409 401

602 Park Point Dr, Golden, Colorado 80401 Authorization For Expenditure

Name: Mandelbaum 136H

Name: Mar AFE #: 0 County: Lea State: NM Date: September 30, 2019 MD/TVD: 17270 / 11860 Lateral Length: 4960 Geologic Target: Wolfcamp A

Well Description:

Drill, complete, and equip a horizontal Wolfcamp A well with a 4960 foot lateral.

ST CODES	DESCRIPTION	AMOUNT	CO	T CODE	DESCRIPTION	AMOUNT	COS	TCODE	S DESCRIPTION	AMOUNT
1	Land - Legal	10,000	2	1	Land - Legal		3	1	Land - Legal	Amount
2	Land - Regulatory	5,000	2	2	Land - Regulatory		3	2	Land - Regulatory	
3	Land - Surface Damages	20,000	2	3	Land - Surface Damages		3	3	Land - Surface Damages	
4	Land - Survey	10,000	2	4	Land - Survey		3	4	Land - Survey	
5	Location/Pit Construction	140,000	2	5	Location/Pit Construction		3	5	Location/Pit Construction	
6	Remedial Dirtwork	0	2	6	Remedial Dirtwork		3	6	Remedial Dirtwork	
7	Reserve/Frac Pit Closing	0	2	7	Reserve/Frac Pit Closing		3	7	Reserve/Frac Pit Closing	
8	Drilling - Contractor	637,712	2	8	Drilling - Contractor		3	8	Drilling - Contractor	
9	Mob/Rig Up - Contractor/Trucking	123,250	2	9	Mob/Rig Up - Contractor/Trucking		3	9	Mob/Rig Up - Contractor/Trucking	
10	Cementing Services	0	2	10	Cementing Services		3	10	Cementing Services	
11	Cementing Equipment	0	2	11	Cementing Equipment		3	11	Cementing Services Cementing Equipment	
12	Bits/Drill Out Assemblies	0	2	12	Bits/Drill Out Assemblies	55,516	3	12	Bits/Drill Out Assemblies	
13	Fluid Circulation Equipment/Services	109,887	2	13	Fluid Circulation Equipment/Services	33,310	3	13	Fluid Circulation Equipment/Services	
14	Fluids/Chemicals	163,680	2	14	Fluids/Chemicals	39,832	3	14	Fluids/Chemicals	
15	WBM Cuttings/Wastewater Disposal	133,920	2	15	WBM Cuttings/Wastewater Disposal	39,032	3	15		
16	OBM Cuttings/Chemical Disposal	49,600	2	16	OBM Cuttings/Chemical Disposal		3		WBM Cuttings/Wastewater Disposal	
17	Fuel/Power	152,776	2	17	Fuel/Power	225 000		16	OBM Cuttings/Chemical Disposal	
18	Water	0	2	18	Water	325,000	3	17	Fuel/Power	
19	Directional Drilling	268,329	2	19	Directional Drilling	497,457	3	18	Water	
20	Mud Logging	26,722	2	20			3	19	Directional Drilling	
21	Open/Cased/Production Hole Logs	26,722		-	Mud Logging	- Complete V	3	20	Mud Logging	
22	Coring	0	2	21	Open/Cased/Production Hole Logs	10,550	3	21	Open/Cased/Production Hole Logs	
23	Geologic Supervision	0	2	22	Coring		3	22	Coring	
24	Engineering Supervision		2	23	Geologic Supervision		3	23	Geologic Supervision	
25		0	2	24	Engineering Supervision		3	24	Engineering Supervision	
	Consultant Supervision	137,498	2	25	Consultant Supervision	100,000	3	25	Consultant Supervision	
26	Freight/Transportation	20,000	2	26	Freight/Transportation	4,110	3	26	Freight/Transportation	1
27	Labor	0	2	27	Labor	15,940	3	27	Labor	
28	Supplies - Surface	2,500	2	28	Supplies - Surface	4,110	3	28	Supplies - Surface	
29	Supplies - Living Quarters	1,000	2	29	Supplies - Living Quarters	4,110	3	29	Supplies - Living Quarters	
30	Rentals - Surface	68,999	2	30	Rentals - Surface	35,670	3	30	Rentals - Surface	
31	Rentals - Living Quarters	35,138	2	31	Rentals - Living Quarters	28,690	3	31	Rentals - Living Quarters	
32	Rentals - Downhole	0	2	32	Rentals - Downhole	0	3	32	Rentals - Downhole	
33	Rentals - Pipe & Handling Tools	0	2	33	Rentals - Pipe & Handling Tools	0	3	33	Rentals - Pipe & Handling Tools	
34	Rentals - Frac Stack		2	34	Rentals - Frac Stack	115,270	3	34	Rentals - Frac Stack	
35	Rentals - Frac Tanks		2	35	Rentals - Frac Tanks	89,500	3	35	Rentals - Frac Tanks	
36	Coil Tubing Unit/Workover Rig		2	36	Coil Tubing Unit/Workover Rig	107,857	3	36	Coil Tubing Unit/Workover Rig	7
37	Wireline/Slickline/Perforating		2	37	Wireline/Slickline/Perforating	257,550	3	37	Wireline/Slickline/Perforating	
38	Temporary Packers/Plugs		2	38	Temporary Packers/Plugs	37,500	3	38	Temporary Packers/Plugs	
39	High Pressure Pump Truck		2	39	High Pressure Pump Truck	102,200	3	39	High Pressure Pump Truck	-
40	Stimulation		2	40	Stimulation	1,258,294	3	40	Stimulation	-
41	Rentals - Pressure Control		2	41	Rentals - Pressure Control	1,230,234	3	41	Rentals - Pressure Control	
42	Flowback Services		2	42	Flowback Services	96.875	3	42	Flowback Services	
43	Water Transfer Services		2	43	Water Transfer Services	105,875	3	43	Water Transfer Services	
44	Flowback Water Trucking & Disposal		2	44	Flowback Water Trucking & Disposal	135,772	3	44		
45	Permanent Equipment Installation		2	45	Permanent Equipment Installation	133,112	3	45	Flowback Water Trucking & Disposal	
46	Pipeline Tapping Services		2	46	Pipeline Tapping Services		3	45	Permanent Equipment Installation	
47	Plugging & Abandonment	0	2	47	Plugging & Abandonment		-	-	Pipeline Tapping Services	
53	Overhead	12,778	2	53	Overhead	22.455	3	47	Plugging & Abandonment	
54	Insurance	31,086	2	54		22,155	3	53	Overhead	
55	Contingency	107,994	2	55	Insurance		3	54	Insurance	
	TOTAL INTANGIBLE DRILLING COSTS:			22	Contingency	\$3,731,901	3	55	Contingency	1

TAN	GIBLE	DRILLING	COSTS

cos	TCODES	DESCRIPTION	AMOUNT
4	60	Conductor Casing	0
4	61	Surface Casing	42,599
4	62	1st Intermediate Casing	153,263
4	63	2nd Intermediate Casing	329,275
4	64	Production Casing	321,995
4	65	Tubing	
4	66	Wellhead	0
4	67	Permanent Packers/Hangers/Plugs	
4	68	Tanks	
4	69	Production Vessels	
4	70	Compressors	
4	71	Surface Flowlines	
4	72	Gathering Lines	
4	73	Valves & Controllers	
4	74	Artificial Lift Equipment	
4	75	Instrumentation & Measurement	
4	76	Electrical Grounding/Safety Equipment	
4	77	Permanent Equipment Installation	
4	80	Other - Surface	
4	81	Other - Downhole	

TANGIBLE COMPLETION COSTS

COS	TCODES	DESCRIPTION	AMOUNT
5	60	Conductor Casing	
5	61	Surface Casing	
5	62	1st Intermediate Casing	
5	63	2nd Intermediate Casing	
5	64	Production Casing	22,500
5	65	Tubing	
5	66	Wellhead	40,000
5	67	Permanent Packers/Hangers/Plugs	
5	68	Tanks	
5	69	Production Vessels	
5	70	Compressors	
5	71	Surface Flowlines	
5	72	Gathering Lines	
5	73	Valves & Controllers	
5	74	Artificial Lift Equipment	
5	75	Instrumentation & Measurement	
5	76	Electrical Grounding/Safety Equipment	
5	77	Permanent Equipment Installation	
5	80	Other - Surface	
5	81	Other - Downhole	

TOTAL TANGIBLE DRILLING COSTS: \$847,131

TOTAL DRILLING COSTS: \$3,115,000

Other - Downhole

TOTAL TANGIBLE COMPLETION COSTS: \$62,500

TOTAL COMPLETION COSTS: \$3,794,401

TANGIBLE PRODUCTION COSTS

cos	TCODES	DESCRIPTION	AMOUNT
6	60	Conductor Casing	
6	61	Surface Casing	
6	62	1st Intermediate Casing	
6	63	2nd Intermediate Casing	
6	64	Production Casing	
6	65	Tubing	60,000
6	66	Wellhead	43,500
6	67	Permanent Packers/Hangers/Plugs	5,000
6	68	Tanks	
6	69	Production Vessels	82,000
6	70	Compressors	
6	71	Surface Flowlines	50,000
6	72	Gathering Lines	10,000
6	73	Valves & Controllers	
6	74	Artificial Lift Equipment	35,000
6	75	Instrumentation & Measurement	
6	76	Electrical Grounding/Safety Equipment	
6	77	Permanent Equipment Installation	
6	80	Other - Surface	
6	81	Other - Downhole	

TOTAL TANGIBLE PRODUCTION COSTS: \$285,500

TOTAL PRODUCTION COSTS: \$500,000

TOTAL WELL COST: \$7,409,401

602 Park Point Dr, Golden, Colorado 80401 Authorization For Expenditure

Name: AFE #: Mandelbaum 137H

County: Lea State:

Date: September 30, 2019 MD/TVD: 17270 / 11860 Lateral Length: 4960

55,516

39,832

325,000 497,457

10,550

4,110 15,940 4,110 4,110 35,670 28,690

115,270 89,500 107,857 257,550 37,500 102,200 1,258,294

> 105,875 135,772

> 22,155 282,069

Geologic Target: Wolfcamp A

Well Description:

Drill, complete, and equip a horizontal Wolfcamp A well with a 4960 foot lateral.

AMOUN	INTANGIBLE COMPLETION COSTS DESCRIPTION	CODES	cos	AMOUNT	DESCRIPTION	CODES	cos
AMOUN	Land - Legal	1	2	10,000	Land - Legal	1	1
	Land - Regulatory	2	2	5,000	Land - Regulatory	2	1
	Land - Surface Damages	3	2	20,000	Land - Surface Damages	3	1
	Land - Survey	4	2	10,000	Land - Survey	4	1
	Location/Pit Construction	5	2	140,000	Location/Pit Construction	5	1
	Remedial Dirtwork	6	2	0	Remedial Dirtwork	6	1
	Reserve/Frac Pit Closing	7	2	0	Reserve/Frac Pit Closing	7	1
	Drilling - Contractor	8	2	637,712	Drilling - Contractor	8	1
	Mob/Rig Up - Contractor/Trucking	9	2	123,250	Mob/Rig Up - Contractor/Trucking	9	1
	Cementing Services	10	2	0	Cementing Services	10	1
	Cementing Equipment	11	2	0	Cementing Equipment	11	1
5	Bits/Drill Out Assemblies	12	2	0	Bits/Drill Out Assemblies	12	1
5	Fluid Circulation Equipment/Services	13	2	109,887	Fluid Circulation Equipment/Services	13	1
	Fluids/Chemicals	14	2	163,680	Fluids/Chemicals	14	1
3	WBM Cuttings/Wastewater Disposal	15	2	133,920	WBM Cuttings/Wastewater Disposal	15	1
	OBM Cuttings/Chemical Disposal	16	2	49,600	OBM Cuttings/Chemical Disposal	16	1
-	Fuel/Power	17	2	152,776	Fuel/Power	17	1
32!	Water	18	2	0	Water	18	1
49		19	2	268,329	Directional Drilling	19	1
	Directional Drilling Mud Logging	20	2	26,722	Mud Logging	20	1
		21	2	0	Open/Cased/Production Hole Logs	21	1
10	Open/Cased/Production Hole Logs Coring	22	2	0	Coring	22	1
		23	2	0	Geologic Supervision	23	1
	Geologic Supervision	24	2	0	Engineering Supervision	24	1
	Engineering Supervision	25	100	137,498	Consultant Supervision	25	1
100	Consultant Supervision		2	20,000	Freight/Transportation	26	1
	Freight/Transportation	26	2		Labor	27	1
15	Labor	27	2	2,500	Supplies - Surface	28	1
	Supplies - Surface	100/10	2	1,000	Supplies - Living Quarters	29	1
4	Supplies - Living Quarters	29	2	68,999	Rentals - Surface	30	
35	Rentals - Surface	30		35,138	Rentals - Living Quarters	31	
28	Rentals - Living Quarters	31	2		Rentals - Downhole		
	Rentals - Downhole	32	2	0	Rentals - Pipe & Handling Tools		
	Rentals - Pipe & Handling Tools	33	2	0	Rentals - Frac Stack		
115	Rentals - Frac Stack	34	2		Rentals - Frac Tanks		
89	Rentals - Frac Tanks	35	2		Coil Tubing Unit/Workover Rig		
107	Coil Tubing Unit/Workover Rig	36	2		Wireline/Slickline/Perforating		
257	Wireline/Slickline/Perforating	37	2		Temporary Packers/Plugs		
37	Temporary Packers/Plugs	38	2		High Pressure Pump Truck		
102	High Pressure Pump Truck		2		Stimulation	39.55	
1,258	Stimulation		2		Rentals - Pressure Control		
	Rentals - Pressure Control	costs.	2		Flowback Services		
96	Flowback Services		2		Water Transfer Services		
105	Water Transfer Services		2		Flowback Water Trucking & Disposal		
135	Flowback Water Trucking & Disposal		2				
	Permanent Equipment Installation		2		Permanent Equipment Installation		1
	Pipeline Tapping Services		2		Pipeline Tapping Services	- 100	
	Plugging & Abandonment		2	0	Plugging & Abandonment		t
22	Overhead	-	2	12,778	Overhead		-
	Insurance	-	2	31,086	Insurance	-	+
282	Contingency	55	2	107,994	Contingency	55	

	T CODE		AMOUNT
3	1	Land - Legal	
3	2	Land - Regulatory	
3	3	Land - Surface Damages	
3	4	Land - Survey	
3	5	Location/Pit Construction	5,00
3	6	Remedial Dirtwork	
3	7	Reserve/Frac Pit Closing	
3	8	Drilling - Contractor	
3	9	Mob/Rig Up - Contractor/Trucking	
3	10	Cementing Services	
3	11	Cementing Equipment	
3	12	Bits/Drill Out Assemblies	
3	13	Fluid Circulation Equipment/Services	
3	14	Fluids/Chemicals	
3	15	WBM Cuttings/Wastewater Disposal	
3	16	OBM Cuttings/Chemical Disposal	
3	17	Fuel/Power	
3	18	Water	
3	19	Directional Drilling	
3	20	Mud Logging	
3	21	Open/Cased/Production Hole Logs	
3	22	Coring	
3	23	Geologic Supervision	
3	24	Engineering Supervision	
3	25	Consultant Supervision	20,00
3	26	Freight/Transportation	10,00
3	27	Labor	85,00
3	28	Supplies - Surface	
3	29	Supplies - Living Quarters	
3	30	Rentals - Surface	
3	31	Rentals - Living Quarters	
3	32	Rentals - Downhole	
3	33	Rentals - Pipe & Handling Tools	
3	34	Rentals - Frac Stack	
3	35	Rentals - Frac Tanks	
3	36	Coil Tubing Unit/Workover Rig	70,00
3	37	Wireline/Slickline/Perforating	70,00
3	38	Temporary Packers/Plugs	
3	39	High Pressure Pump Truck	-
3	40	Stimulation	
3	41	Rentals - Pressure Control	
3	42	Flowback Services	
3	43	Water Transfer Services	======================================
3	44	Flowback Water Trucking & Disposal	
3	45	Permanent Equipment Installation	
3	46	Pipeline Tapping Services	
3	47		
3	53	Plugging & Abandonment Overhead	
	34545		5,000
3	54	Insurance	
3	55	Contingency	19,50

TANGIBLE DRILLING COSTS	
DESCRIPTION	AMO
ictor Casing	
e Casing	

COS	T CODES	DESCRIPTION	AMOUNT
4	60	Conductor Casing	
4	61	Surface Casing	42,59
4	62	1st Intermediate Casing	153,263
4	63	2nd Intermediate Casing	329,279
4	64	Production Casing	321,995
4	65	Tubing	
4	66	Wellhead	(
4	67	Permanent Packers/Hangers/Plugs	
4	68	Tanks	
4	69	Production Vessels	
4	70	Compressors	
4	71	Surface Flowlines	
4	72	Gathering Lines	
4	73	Valves & Controllers	
4	74	Artificial Lift Equipment	
4	75	Instrumentation & Measurement	
4	76	Electrical Grounding/Safety Equipment	
4	77	Permanent Equipment Installation	
4	80	Other - Surface	
4	81	Other - Downhole	

TOTAL TANGIBLE DRILLING COSTS:	\$847,131
TOTAL DRILLING COSTS:	\$3,115,000

cos	TCODES	DESCRIPTION	AMOUNT
5	60	Conductor Casing	
5	61	Surface Casing	
5	62	1st Intermediate Casing	
5	63	2nd Intermediate Casing	
5	64	Production Casing	22,50
5	65	Tubing	
5	66	Wellhead	40,00
5	67	Permanent Packers/Hangers/Plugs	
5	68	Tanks	
5	69	Production Vessels	
5	70	Compressors	
5	71	Surface Flowlines	
5	72	Gathering Lines	
5	73	Valves & Controllers	
5	74	Artificial Lift Equipment	
5	75	Instrumentation & Measurement	
5	76	Electrical Grounding/Safety Equipment	
5	77	Permanent Equipment Installation	
5	80	Other - Surface	
5	81	Other - Downhole	

TOTAL COMPLETION COSTS: \$3,794,401

cos	TCODES	DESCRIPTION	AMOUNT
6	60	Conductor Casing	
6	61	Surface Casing	
6	62	1st Intermediate Casing	
6	63	2nd Intermediate Casing	
6	64	Production Casing	
6	65	Tubing	60,000
6	66	Wellhead	43,500
6	67	Permanent Packers/Hangers/Plugs	5,000
6	68	Tanks	
6	69	Production Vessels	82,000
6	70	Compressors	
6	71	Surface Flowlines	50,000
6	72	Gathering Lines	10,000
6	73	Valves & Controllers	
6	74	Artificial Lift Equipment	35,000
6	75	Instrumentation & Measurement	
5	76	Electrical Grounding/Safety Equipment	
6	77	Permanent Equipment Installation	
6	80	Other - Surface	
5	81	Other - Downhole	

TOTAL TANGIBLE PRODUCTION COSTS: \$285,500 TOTAL PRODUCTION COSTS: \$500,000

602 Park Point Dr, Golden, Colorado 80401 Authorization For Expenditure

Name: Mandelbaum 203H

AFE #: County: State: Date: September 30, 2019 MD/TVD: 17380 / 11970 Lateral Length: 4960 Geologic Target: Wolfcamp A

Well Description:

Drill, complete, and equip a horizontal Wolfcamp A well with a 4960 foot lateral.

OST CODE	INTANGIBLE DRILLING COSTS DESCRIPTION	AMOUNT	co	ST CODES	INTANGIBLE COMPLETION COSTS DESCRIPTION	AMOUNT	cos	TCODES	INTANGIBLE PRODUCTION COSTS DESCRIPTION	AMOUNT
1 1	Land - Legal	10,000	2	1	Land - Legal		3	1	Land - Legal	
1 2	Land - Regulatory	5,000	2	2	Land - Regulatory		3	2	Land - Regulatory	
1 3	Land - Surface Damages	20,000	2	3	Land - Surface Damages		3	3	Land - Surface Damages	
1 4	Land - Survey	10,000	2	4	Land - Survey		3	4	Land - Survey	
1 5	Location/Pit Construction	140,000	2	5	Location/Pit Construction		3	5	Location/Pit Construction	5.0
1 6	Remedial Dirtwork	0	2	6	Remedial Dirtwork		3	6	Remedial Dirtwork	
1 7	Reserve/Frac Pit Closing	0	2	7	Reserve/Frac Pit Closing		3	7	Reserve/Frac Pit Closing	
1 8	Drilling - Contractor	635,199	2	8	Drilling - Contractor		3	8	Drilling - Contractor	
1 9	Mob/Rig Up - Contractor/Trucking	123,250	2	9	Mob/Rig Up - Contractor/Trucking		3	9	Mob/Rig Up - Contractor/Trucking	
1 10	Cementing Services	0	2	10	Cementing Services		3	10	Cementing Services	
1 11	Cementing Equipment	0	2	11	Cementing Equipment		3	11	Cementing Equipment	
1 12	Bits/Drill Out Assemblies	0	2	12	Bits/Drill Out Assemblies	55,516	3	12	Bits/Drill Out Assemblies	
1 13	Fluid Circulation Equipment/Services	109,457	2	13	Fluid Circulation Equipment/Services	33,310	3	13	Fluid Circulation Equipment/Services	
1 14	Fluids/Chemicals	163,680	2	14	Fluids/Chemicals	39,832	3	14	Fluids/Chemicals	
1 15	WBM Cuttings/Wastewater Disposal	133,920	2	15	WBM Cuttings/Wastewater Disposal	33,032	3	15	WBM Cuttings/Wastewater Disposal	
1 16	OBM Cuttings/Chemical Disposal	49,600	2	16	OBM Cuttings/Chemical Disposal		3	16	OBM Cuttings/Chemical Disposal	-
1 17	Fuel/Power	152,276	2	17	Fuel/Power	325,000	3	17	Fuel/Power	
1 18	Water	0	2	18	Water	497,457		18	Water	
1 19	Directional Drilling	267.280	2	19	Directional Drilling	497,457	3	19	Directional Drilling	
20	Mud Logging	26,592	2	20	Mud Logging	-	3			
21	Open/Cased/Production Hole Logs	26,392	2	21		40.550	-	20	Mud Logging	
22	Coring				Open/Cased/Production Hole Logs	10,550	3	21	Open/Cased/Production Hole Logs	
23		0	2	22	Coring		3	22	Coring	
	Geologic Supervision	0	2	23	Geologic Supervision	-	3	23	Geologic Supervision	
24	Engineering Supervision	0	2	24	Engineering Supervision		3	24	Engineering Supervision	
25	Consultant Supervision	137,048	2	25	Consultant Supervision	100,000	3	25	Consultant Supervision	20,0
26	Freight/Transportation	20,000	2	26	Freight/Transportation	4,110	3	26	Freight/Transportation	10,0
27	Labor	0	2	27	Labor	15,940	3	27	Labor	85,0
28	Supplies - Surface	2,500	2	28	Supplies - Surface	4,110	3	28	Supplies - Surface	
29	Supplies - Living Quarters	1,000	2	29	Supplies - Living Quarters	4,110	3	29	Supplies - Living Quarters	
30	Rentals - Surface	68,729	2	30	Rentals - Surface	35,670	3	30	Rentals - Surface	
31	Rentals - Living Quarters	35,023	2	31	Rentals - Living Quarters	28,690	3	31	Rentals - Living Quarters	
32	Rentals - Downhole	0	2	32	Rentals - Downhole	0	3	32	Rentals - Downhole	
33	Rentals - Pipe & Handling Tools	0	2	33	Rentals - Pipe & Handling Tools	0	3	33	Rentals - Pipe & Handling Tools	
34	Rentals - Frac Stack		2	34	Rentals - Frac Stack	115,270	3	34	Rentals - Frac Stack	
35	Rentals - Frac Tanks		2	35	Rentals - Frac Tanks	89,500	3	35	Rentals - Frac Tanks	
36	Coil Tubing Unit/Workover Rig		2	36	Coil Tubing Unit/Workover Rig	107,857	3	36	Coil Tubing Unit/Workover Rig	70,0
37	Wireline/Slickline/Perforating		2	37	Wireline/Slickline/Perforating	257,550	3	37	Wireline/Slickline/Perforating	
38	Temporary Packers/Plugs		2	38	Temporary Packers/Plugs	37,500	3	38	Temporary Packers/Plugs	
39	High Pressure Pump Truck		2	39	High Pressure Pump Truck	102,200	3	39	High Pressure Pump Truck	
40	Stimulation		2	40	Stimulation	1,258,294	3	40	Stimulation	
41	Rentals - Pressure Control		2	41	Rentals - Pressure Control		3	41	Rentals - Pressure Control	
42	Flowback Services		2	42	Flowback Services	96,875	3	42	Flowback Services	
43	Water Transfer Services		2	43	Water Transfer Services	105.875	3	43	Water Transfer Services	
44	Flowback Water Trucking & Disposal		2	44	Flowback Water Trucking & Disposal	135,772	3	44	Flowback Water Trucking & Disposal	
45	Permanent Equipment Installation		2	45	Permanent Equipment Installation		3	45	Permanent Equipment Installation	
46	Pipeline Tapping Services		2	46	Pipeline Tapping Services		3	46	Pipeline Tapping Services	
47	Plugging & Abandonment	0	2	47	Plugging & Abandonment		3	47	Plugging & Abandonment	
53	Overhead	12,728	2	53	Overhead	22.155	3	53	Overhead	
54	Insurance	31,284	2	54	Insurance	22,155				5,0
55	Contingency	107,728	2	55	Contingency	282,069	3	54	Insurance	
	TOTAL INTANGIBLE DRILLING COSTS:		-	33	Continuency	202,069	3	55	Contingency	19,50

cos	CODES	DESCRIPTION	AMOUNT
4	60	Conductor Casing	0
4	61	Surface Casing	42,599
4	62	1st Intermediate Casing	153,263
4	63	2nd Intermediate Casing	332,787
4	64	Production Casing	324,057
4	65	Tubing	
4	66	Wellhead	0
4	67	Permanent Packers/Hangers/Plugs	
4	68	Tanks	
4	69	Production Vessels	
4	70	Compressors	
4	71	Surface Flowlines	
4	72	Gathering Lines	
4	73	Valves & Controllers	
4	74	Artificial Lift Equipment	
4	75	Instrumentation & Measurement	
4	76	Electrical Grounding/Safety Equipment	
4	77	Permanent Equipment Installation	
13		200 A C C C C C C C C C C C C C C C C C C	

80 Other - Surface 81 Other - Downhole

TANGIBLE DRILLING COSTS

COST	CODES	DESCRIPTION	AMOUNT
5	60	Conductor Casing	
5	61	Surface Casing	
5	62	1st Intermediate Casing	
5	63	2nd Intermediate Casing	
5	64	Production Casing	22,50
5	65	Tubing	
5	66	Wellhead	40,00
5	67	Permanent Packers/Hangers/Plugs	
5	68	Tanks	
5	69	Production Vessels	
5	70	Compressors	
5	71	Surface Flowlines	
5	72	Gathering Lines	
5	73	Valves & Controllers	
5	74	Artificial Lift Equipment	
5	75	Instrumentation & Measurement	
5	76	Electrical Grounding/Safety Equipment	
5	77	Permanent Equipment Installation	
5	80	Other - Surface	
5	81	Other - Downhole	

TANGIBLE COMPLETION COSTS

cos	CODES	DESCRIPTION	AMOUNT
6	60	Conductor Casing	
6	61	Surface Casing	
6	62	1st Intermediate Casing	
6	63	2nd Intermediate Casing	
6	64	Production Casing	
6	65	Tubing	60,000
6	66	Wellhead	43,500
6	67	Permanent Packers/Hangers/Plugs	5,000
6	68	Tanks	
6	69	Production Vessels	82,000
6	70	Compressors	
6	71	Surface Flowlines	50,000
6	72	Gathering Lines	10,000
6	73	Valves & Controllers	
6	74	Artificial Lift Equipment	35,000
6	75	Instrumentation & Measurement	
6	76	Electrical Grounding/Safety Equipment	
6	77	Permanent Equipment Installation	
6	80	Other - Surface	
6	81	Other - Downhole	

TOTAL WELL COST: \$7,409,401

TOTAL TANGIBLE DRILLING COSTS: \$852,706 TOTAL TANGIBLE COMPLETION COSTS: \$62,500 TOTAL TANGIBLE PRODUCTION COSTS: \$285,500 TOTAL DRILLING COSTS: \$3,115,000 TOTAL COMPLETION COSTS: \$3,794,401 TOTAL PRODUCTION COSTS: \$500,000

602 Park Point Dr, Golden, Colorado 80401 Authorization For Expenditure

Mandelbaum 207H

Name: AFE #: County: State: Lea NM Date: September 30, 2019 MD/TVD: 17380 / 11970 Lateral Length: 4960 Geologic Target: Wolfcamp A

Well Description:

Drill, complete, and equip a horizontal Wolfcamp A well with a 4960 foot lateral.

ST CODES	DESCRIPTION	AMOUNT	COS	TCODES	DESCRIPTION	AMOUNT	COS	T CODE	DESCRIPTION	S
1	Land - Legal	10,000	2	1	Land - Legal	AMOUNT	3	1	Land - Legal	AMOUN
2	Land - Regulatory	5,000	2	2	Land - Regulatory		3	2	Land - Regulatory	-
3	Land - Surface Damages	20,000	2	3	Land - Surface Damages		3	3	Land - Surface Damages	
4	Land - Survey	10,000	2	4	Land - Survey		3	4	Land - Survey	-
5	Location/Pit Construction	140,000	2	5	Location/Pit Construction		3	5	Location/Pit Construction	
6	Remedial Dirtwork	0	2	6	Remedial Dirtwork		3	6	Remedial Dirtwork	-
7	Reserve/Frac Pit Closing	0	2	7	Reserve/Frac Pit Closing		3	7		-
8	Drilling - Contractor	635,199	2	8	Drilling - Contractor		3	8	Reserve/Frac Pit Closing	
9	Mob/Rig Up - Contractor/Trucking	123,250	2	9	Mob/Rig Up - Contractor/Trucking			9	Drilling - Contractor	
10	Cementing Services	0	2	10	Cernenting Services		3	10	Mob/Rig Up - Contractor/Trucking	-
11	Cementing Equipment	0	2	11	Cementing Services Cementing Equipment		3		Cementing Services	-
12	Bits/Drill Out Assemblies	0	2	12	Bits/Drill Out Assemblies	55.516		11	Cementing Equipment	-
13	Fluid Circulation Equipment/Services	109,457	2	13	Fluid Circulation Equipment/Services	55,516	3	12	Bits/Drill Out Assemblies	
14	Fluids/Chemicals	163,680	2	14	Fluids/Chemicals		3	13	Fluid Circulation Equipment/Services	
15	WBM Cuttings/Wastewater Disposal	133,920		-		39,832	3	14	Fluids/Chemicals	-
16	OBM Cuttings/Chemical Disposal	49,600	2	15 16	WBM Cuttings/Wastewater Disposal		3	15	WBM Cuttings/Wastewater Disposal	
17	Fuel/Power		2		OBM Cuttings/Chemical Disposal		3	16	OBM Cuttings/Chemical Disposal	
18	Water	152,276	2	17	Fuel/Power	325,000	3	17	Fuel/Power	
19	Directional Drilling	0	2	18	Water	497,457	3	18	Water	
		267,280	2	19	Directional Drilling		3	19	Directional Drilling	
20	Mud Logging	26,592	2	20	Mud Logging		3	20	Mud Logging	
21	Open/Cased/Production Hole Logs	0	2	21	Open/Cased/Production Hole Logs	10,550	3	21	Open/Cased/Production Hole Logs	
22	Coring	0	2	22	Coring		3	22	Coring	
23	Geologic Supervision	0	2	23	Geologic Supervision		3	23	Geologic Supervision	
24	Engineering Supervision	0	2	24	Engineering Supervision		3	24	Engineering Supervision	
25	Consultant Supervision	137,048	2	25	Consultant Supervision	100,000	3	25	Consultant Supervision	
26	Freight/Transportation	20,000	2	26	Freight/Transportation	4,110	3	26	Freight/Transportation	
27	Labor	0	2	27	Labor	15,940	3	27	Labor	
28	Supplies - Surface	2,500	2	28	Supplies - Surface	4,110	3	28	Supplies - Surface	
29	Supplies - Living Quarters	1,000	2	29	Supplies - Living Quarters	4,110	3	29	Supplies - Living Quarters	
30	Rentals - Surface	68,729	2	30	Rentals - Surface	35,670	3	30	Rentals - Surface	
31	Rentals - Living Quarters	35,023	2	31	Rentals - Living Quarters	28,690	3	31	Rentals - Living Quarters	
32	Rentals - Downhole	0	2	32	Rentals - Downhole	0	3	32	Rentals - Downhole	
33	Rentals - Pipe & Handling Tools	0	2	33	Rentals - Pipe & Handling Tools	0	3	33	Rentals - Pipe & Handling Tools	1
34	Rentals - Frac Stack		2	34	Rentals - Frac Stack	115,270	3	34	Rentals - Frac Stack	-
35	Rentals - Frac Tanks		2	35	Rentals - Frac Tanks	89,500	3	35	Rentals - Frac Tanks	1
36	Coil Tubing Unit/Workover Rig		2	36	Coil Tubing Unit/Workover Rig	107.857	3	36	Coil Tubing Unit/Workover Rig	
37	Wireline/Slickline/Perforating		2	37	Wireline/Slickline/Perforating	257,550	3	37		+
38	Temporary Packers/Plugs		2	38	Temporary Packers/Plugs	37,500	3	38	Wireline/Slickline/Perforating	
39	High Pressure Pump Truck		2	39	High Pressure Pump Truck	102,200	1		Temporary Packers/Plugs	-
40	Stimulation		2	40	Stimulation		3	39	High Pressure Pump Truck	-
41	Rentals - Pressure Control		2	41	Rentals - Pressure Control	1,258,294	3	40	Stimulation	
42	Flowback Services		2	42	Flowback Services	24 424	3	41	Rentals - Pressure Control	
43	Water Transfer Services		2	42		96,875	3	42	Flowback Services	-
44	Flowback Water Trucking & Disposal				Water Transfer Services	105,875	3	43	Water Transfer Services	
45			2	44	Flowback Water Trucking & Disposal	135,772	3	44	Flowback Water Trucking & Disposal	
45	Permanent Equipment Installation		2	45	Permanent Equipment Installation		3	45	Permanent Equipment Installation	
	Pipeline Tapping Services		2	46	Pipeline Tapping Services		3	46	Pipeline Tapping Services	
47	Plugging & Abandonment	0	2	47	Plugging & Abandonment		3	47	Plugging & Abandonment	
53	Overhead	12,728	2	53	Overhead	22,155	3	53	Overhead	
54	Insurance	31,284	2	54	Insurance		3	54	Insurance	
55	Contingency	107,728	2	55	Contingency	282,069	3	55	Contingency	
	TOTAL INTANGIBLE DRILLING COSTS:	\$2 762 704			TOTAL INTANGIBLE COMPLETION COSTS:	\$3,731,901			TOTAL INTANGIBLE PRODUCTION COSTS	

TANGIBLE DRILLING CO	STS
DESCRIPTION	AMO
uctor Casing	
ce Casing	

COST CODES

4	60	Conductor Casing	(
4	61	Surface Casing	42,599
4	62	1st Intermediate Casing	153,263
4	63	2nd Intermediate Casing	332,787
4	64	Production Casing	324,057
4	65	Tubing	
4	66	Wellhead	(
4	67	Permanent Packers/Hangers/Plugs	
4	68	Tanks	
4	69	Production Vessels	
4	70	Compressors	
4	71	Surface Flowlines	
4	72	Gathering Lines	
4	73	Valves & Controllers	
4	74	Artificial Lift Equipment	
4	75	Instrumentation & Measurement	
4	76	Electrical Grounding/Safety Equipment	
4	77	Permanent Equipment Installation	
4	80	Other - Surface	
4	81	Other - Downhole	

TANGIBLE COMPLETION COSTS

cos	CODES	DESCRIPTION	AMOUNT
5	60	Conductor Casing	
5	61	Surface Casing	
5	62	1st Intermediate Casing	
5	63	2nd Intermediate Casing	
5	64	Production Casing	22,50
5	65	Tubing	
5	66	Wellhead	40,00
5	67	Permanent Packers/Hangers/Plugs	
5	68	Tanks	
5	69	Production Vessels	
5	70	Compressors	
5	71	Surface Flowlines	
5	72	Gathering Lines	
5	73	Valves & Controllers	
5	74	Artificial Lift Equipment	
5	75	Instrumentation & Measurement	
5	76	Electrical Grounding/Safety Equipment	
5	77	Permanent Equipment Installation	
5	80	Other - Surface	
5	81	Other - Downhole	

TOTAL TANGIBLE DRILLING COSTS: \$852,706 TOTAL DRILLING COSTS: \$3,115,000

TOTAL TANGIBLE	COMPLETION COSTS:	\$62,500
TOTAL	COMPLETION COSTS.	62 704 401

TANGIBLE PRODUCTION COSTS

cos	TCODES	DESCRIPTION	AMOUNT
6	60	Conductor Casing	
6	61	Surface Casing	
6	62	1st Intermediate Casing	
6	63	2nd Intermediate Casing	
6	64	Production Casing	
6	65	Tubing	60,000
6	66	Wellhead	43,500
6	67	Permanent Packers/Hangers/Plugs	5,000
6	68	Tanks	
6	69	Production Vessels	82,000
6	70	Compressors	
6	71	Surface Flowlines	50,000
6	72	Gathering Lines	10,000
6	73	Valves & Controllers	
6	74	Artificial Lift Equipment	35,000
6	75	Instrumentation & Measurement	
6	76	Electrical Grounding/Safety Equipment	
6	77	Permanent Equipment Installation	
6	80	Other - Surface	
6	81	Other - Downhole	

TOTAL TANGIBLE PRODUCTION COSTS: TOTAL PRODUCTION COSTS: \$500,000

TOTAL WELL COST: \$7,409.401

602 Park Point Dr, Golden, Colorado 80401 Authorization For Expenditure

e: Mandelbaum 212H

Name: Mand AFE #: 0 County: Lea State: NM Date: September 30, 2019 MD/TVD: 17590 / 12180 Lateral Length: 4960 Geologic Target: Wolfcamp A

Well Description:

Drill, complete, and equip a horizontal Wolfcamp A well with a 4960 foot lateral.

ST CODES	DESCRIPTION	AMOUNT	cos	CODES	DESCRIPTION	AMOUNT	cos	TCODES	DESCRIPTION	AMOUNT
1	Land - Legal	10,000	2	1	Land - Legal		3	1	Land - Legal	A STATE OF THE STA
2	Land - Regulatory	5,000	2	2	Land - Regulatory		3	2	Land - Regulatory	
3	Land - Surface Damages	20,000	2	3	Land - Surface Damages		3	3	Land - Surface Damages	
4	Land - Survey	10,000	2	4	Land - Survey		3	4	Land - Survey	
5	Location/Pit Construction	140,000	2	5	Location/Pit Construction		3	5	Location/Pit Construction	5,
6	Remedial Dirtwork	0	2	6	Remedial Dirtwork		3	6	Remedial Dirtwork	
7	Reserve/Frac Pit Closing	0	2	7	Reserve/Frac Pit Closing		3	7	Reserve/Frac Pit Closing	
8	Drilling - Contractor	630,400	2	8	Drilling - Contractor		3	8	Drilling - Contractor	
9	Mob/Rig Up - Contractor/Trucking	123,250	2	9	Mob/Rig Up - Contractor/Trucking		3	9	Mob/Rig Up - Contractor/Trucking	
10	Cementing Services	0	2	10	Cementing Services		3	10	Cementing Services	
11	Cementing Equipment	0	2	11	Cementing Equipment		3	11	Cementing Equipment	
12	Bits/Drill Out Assemblies	0	2	12	Bits/Drill Out Assemblies	55,516	3	12	Bits/Drill Out Assemblies	
13	Fluid Circulation Equipment/Services	108,637	2	13	Fluid Circulation Equipment/Services		3	13	Fluid Circulation Equipment/Services	
14	Fluids/Chemicals	163,680	2	14	Fluids/Chemicals	39,832	3	14	Fluids/Chemicals	
15	WBM Cuttings/Wastewater Disposal	133,920	2	15	WBM Cuttings/Wastewater Disposal		3	15	WBM Cuttings/Wastewater Disposal	
16	OBM Cuttings/Chemical Disposal	49,600	2	16	OBM Cuttings/Chemical Disposal		3	16	OBM Cuttings/Chemical Disposal	
17	Fuel/Power	151,322	2	17	Fuel/Power	325,000	3	17	Fuel/Power	
18	Water	0	2	18	Water	497,457	3	18	Water	
19	Directional Drilling	265,276	2	19	Directional Drilling	437,437	3	19	Directional Drilling	
20	Mud Logging	26,344	2	20	Mud Logging		3	20	Mud Logging	
21	Open/Cased/Production Hole Logs	26,344	2	21	Open/Cased/Production Hole Logs	10,550	3	21	Open/Cased/Production Hole Logs	
22	Coring	0				10,550	3	22	Coring	
-		1	2	22	Coring		3	-	-	
23	Geologic Supervision	0	2	23	Geologic Supervision		-	23	Geologic Supervision	
24	Engineering Supervision	0	2	24	Engineering Supervision		3	24	Engineering Supervision	
25	Consultant Supervision	136,190	2	25	Consultant Supervision	100,000	3	25	Consultant Supervision	20
26	Freight/Transportation	20,000	2	26	Freight/Transportation	4,110	3	26	Freight/Transportation	10
27	Labor	0	2	27	Labor	15,940	3	27	Labor	85
28	Supplies - Surface	2,500	2	28	Supplies - Surface	4,110	3	28	Supplies - Surface	
29	Supplies - Living Quarters	1,000	2	29	Supplies - Living Quarters	4,110	3	29	Supplies - Living Quarters	
30	Rentals - Surface	68,214	2	30	Rentals - Surface	35,670	3	30	Rentals - Surface	
31	Rentals - Living Quarters	34,804	2	31	Rentals - Living Quarters	28,690	3	31	Rentals - Living Quarters	
32	Rentals - Downhole	0	2	32	Rentals - Downhole	0	3	32	Rentals - Downhole	
33	Rentals - Pipe & Handling Tools	0	2	33	Rentals - Pipe & Handling Tools	0	3	33	Rentals - Pipe & Handling Tools	
34	Rentals - Frac Stack		2	34	Rentals - Frac Stack	115,270	3	34	Rentals - Frac Stack	
35	Rentals - Frac Tanks		2	35	Rentals - Frac Tanks	89,500	3	35	Rentals - Frac Tanks	
36	Coil Tubing Unit/Workover Rig		2	36	Coil Tubing Unit/Workover Rig	107,857	3	36	Coil Tubing Unit/Workover Rig	70
37	Wireline/Slickline/Perforating		2	37	Wireline/Slickline/Perforating	257,550	3	37	Wireline/Slickline/Perforating	
38	Temporary Packers/Plugs		2	38	Temporary Packers/Plugs	37,500	3	38	Temporary Packers/Plugs	
39	High Pressure Pump Truck		2	39	High Pressure Pump Truck	102,200	3	39	High Pressure Pump Truck	
40	Stimulation		2	40	Stimulation	1,258,294	3	40	Stimulation	
41	Rentals - Pressure Control		2	41	Rentals - Pressure Control	2,200,20	3	41	Rentals - Pressure Control	
42	Flowback Services		2	42	Flowback Services	96,875	3	42	Flowback Services	
43	Water Transfer Services		2	43	Water Transfer Services	105,875	3	43	Water Transfer Services	
44	Flowback Water Trucking & Disposal		2	44	Flowback Water Trucking & Disposal	135,772	3	44	Flowback Water Trucking & Disposal	
	Permanent Equipment Installation		2	45	Permanent Equipment Installation	133,112	3	45	Permanent Equipment Installation	
45 46	Pipeline Tapping Services		2	46	Pipeline Tapping Services		3	45	Pipeline Tapping Services	
47	Plugging & Abandonment	0	2	47	Plugging & Abandonment		3	46		
53	Overhead Overhead			53	Overhead	22.455	3	-	Plugging & Abandonment	
1		12,632	2		1	22,155		53	Overhead	5
-	Insurance	31,662	2	54	Insurance		3	54	Insurance	
55	Contingency	107,222	2	55	Contingency	282,069	3	55	Contingency	19

		TANGIBLE DRILLING COSTS	
COST	CODES	DESCRIPTION	AMOUNT
4	60	Conductor Casing	(
4	61	Surface Casing	42,599
4	62	1st Intermediate Casing	153,26
4	63	2nd Intermediate Casing	339,492
4	64	Production Casing	327,995
4	65	Tubing	
4	66	Wellhead	(
4	67	Permanent Packers/Hangers/Plugs	
4	68	Tanks	
4	69	Production Vessels	
4	70	Compressors	
4	71	Surface Flowlines	
4	72	Gathering Lines	
4	73	Valves & Controllers	
4	74	Artificial Lift Equipment	
4	75	Instrumentation & Measurement	
4	76	Electrical Grounding/Safety Equipment	
4	77	Permanent Equipment Installation	
4	80	Other - Surface	
4	81	Other - Downhole	

TOTAL TANGIBLE DRILLING COSTS: \$863,348

COSI	CODES	DESCRIPTION	AMOUNT
5	60	Conductor Casing	
5	61	Surface Casing	
5	62	1st Intermediate Casing	
5	63	2nd Intermediate Casing	
5	64	Production Casing	22,50
5	65	Tubing	
5	66	Wellhead	40,00
5	67	Permanent Packers/Hangers/Plugs	
5	68	Tanks	
5	69	Production Vessels	
5	70	Compressors	
5	71	Surface Flowlines	
5	72	Gathering Lines	
5	73	Valves & Controllers	
5	74	Artificial Lift Equipment	
5	75	Instrumentation & Measurement	
5	76	Electrical Grounding/Safety Equipment	
5	77	Permanent Equipment Installation	
5	80	Other - Surface	
5	81	Other - Downhole	
		TOTAL TANGIBLE COMPLETION COSTS:	\$62,500

TANGIBLE COMPLETION COSTS

COST	CODES	DESCRIPTION	AMOUNT
6	60	Conductor Casing	
6	61	Surface Casing	
6	62	1st Intermediate Casing	
6	63	2nd Intermediate Casing	
6	64	Production Casing	
6	65	Tubing	60,000
6	66	Wellhead	43,500
6	67	Permanent Packers/Hangers/Plugs	5,000
6	68	Tanks	
6	69	Production Vessels	82,000
6	70	Compressors	
6	71	Surface Flowlines	50,000
6	72	Gathering Lines	10,000
6	73	Valves & Controllers	
6	74	Artificial Lift Equipment	35,000
6	75	Instrumentation & Measurement	
6	76	Electrical Grounding/Safety Equipment	
6	77	Permanent Equipment Installation	
6	80	Other - Surface	
6	81	Other - Downhole	

 TOTAL DRILLING COSTS:
 \$3,115,000
 TOTAL COMPLETION COSTS:
 \$3,794,401
 TOTAL PRODUCTION COSTS:
 \$500,000

 TOTAL WELL COST:
 \$7,409,401

602 Park Point Dr, Golden, Colorado 80401 Authorization For Expenditure

Name: Mandelbaum 216H

AFE #: County: State: Lea NM Date: September 30, 2019 MD/TVD: 17590 / 12180 Lateral Length: 4960 Geologic Target: Wolfcamp A

Well Description:

Drill, complete, and equip a horizontal Wolfcamp A well with a 4960 foot lateral.

TCODE		AMOUNT	_	T CODE		AMOUNT	CO	ST CODE	S DESCRIPTION	AMOUN
1	Land - Legal	10,000	2	1	Land - Legal		3	1	Land - Legal	
2	Land - Regulatory	5,000	2	2	Land - Regulatory		3	2	Land - Regulatory	
3	Land - Surface Damages	20,000	2	3	Land - Surface Damages		3	3	Land - Surface Damages	
4	Land - Survey	10,000	2	4	Land - Survey		3	4	Land - Survey	
5	Location/Pit Construction	140,000	2	5	Location/Pit Construction		3	5	Location/Pit Construction	
6	Remedial Dirtwork	0	2	6	Remedial Dirtwork		3	6	Remedial Dirtwork	
7	Reserve/Frac Pit Closing	0	2	7	Reserve/Frac Pit Closing		3	7	Reserve/Frac Pit Closing	
8	Drilling - Contractor	630,400	2	8	Drilling - Contractor		3	8	Drilling - Contractor	
9	Mob/Rig Up - Contractor/Trucking	123,250	2	9	Mob/Rig Up - Contractor/Trucking		3	9	Mob/Rig Up - Contractor/Trucking	
10	Cementing Services	0	2	10	Cementing Services		3	10	Cementing Services	
11	Cementing Equipment	0	2	11	Cementing Equipment		3	11	Cementing Equipment	
12	Bits/Drill Out Assemblies	0	2	12	Bits/Drill Out Assemblies	55,516	3	12	Bits/Drill Out Assemblies	
13	Fluid Circulation Equipment/Services	108,637	2	13	Fluid Circulation Equipment/Services		3	13	Fluid Circulation Equipment/Services	
14	Fluids/Chemicals	163,680	2	14	Fluids/Chemicals	39,832	3	14	Fluids/Chemicals	-
15	WBM Cuttings/Wastewater Disposal	133,920	2	15	WBM Cuttings/Wastewater Disposal		3	15	WBM Cuttings/Wastewater Disposal	-
16	OBM Cuttings/Chemical Disposal	49,600	2	16	OBM Cuttings/Chemical Disposal		3	16	OBM Cuttings/Chemical Disposal	
17	Fuel/Power	151,322	2	17	Fuel/Power	325,000	3	17	Fuel/Power	-
18	Water	0	2	18	Water	497,457	3	18	Water	-
19	Directional Drilling	265,276	2	19	Directional Drilling	437,437	3	19	Directional Drilling	-
20	Mud Logging	26,344	2	20	Mud Logging		3	20	Mud Logging	-
21	Open/Cased/Production Hole Logs	0	2	21	Open/Cased/Production Hole Logs	10,550	3	21		-
22	Coring	0	2	22	Coring	10,330	3	22	Open/Cased/Production Hole Logs	-
23	Geologic Supervision	0	2	23	Geologic Supervision				Coring	-
24	Engineering Supervision	0	2	24	Engineering Supervision		3	23	Geologic Supervision	-
25	Consultant Supervision	136,190	2	25	Consultant Supervision		3	24	Engineering Supervision	
26	Freight/Transportation	20,000	2	26		100,000	3	25	Consultant Supervision	
27	Labor	20,000	2	27	Freight/Transportation Labor	4,110	3	26	Freight/Transportation	
28	Supplies - Surface	2,500				15,940	3	27	Labor	
29	Supplies - Living Quarters	-	2	28	Supplies - Surface	4,110	3	28	Supplies - Surface	
30	Rentals - Surface	1,000	2	29	Supplies - Living Quarters	4,110	3	29	Supplies - Living Quarters	
31		68,214	2	30	Rentals - Surface	35,670	3	30	Rentals - Surface	
	Rentals - Living Quarters	34,804	2	31	Rentals - Living Quarters	28,690	3	31	Rentals - Living Quarters	
32	Rentals - Downhole	0	2	32	Rentals - Downhole	0	3	32	Rentals - Downhole	
33	Rentals - Pipe & Handling Tools	0	2	33	Rentals - Pipe & Handling Tools	0	3	33	Rentals - Pipe & Handling Tools	
34	Rentals - Frac Stack		2	34	Rentals - Frac Stack	115,270	3	34	Rentals - Frac Stack	
35	Rentals - Frac Tanks		2	35	Rentals - Frac Tanks	89,500	3	35	Rentals - Frac Tanks	
36	Coil Tubing Unit/Workover Rig		2	36	Coil Tubing Unit/Workover Rig	107,857	3	36	Coil Tubing Unit/Workover Rig	
37	Wireline/Slickline/Perforating		2	37	Wireline/Slickline/Perforating	257,550	3	37	Wireline/Slickline/Perforating	
38	Temporary Packers/Plugs		2	38	Temporary Packers/Plugs	37,500	3	38	Temporary Packers/Plugs	
39	High Pressure Pump Truck		2	39	High Pressure Pump Truck	102,200	3	39	High Pressure Pump Truck	
40	Stimulation		2	40	Stimulation	1,258,294	3	40	Stimulation	
41	Rentals - Pressure Control		2	41	Rentals - Pressure Control		3	41	Rentals - Pressure Control	
42	Flowback Services		2	42	Flowback Services	96,875	3	42	Flowback Services	
43	Water Transfer Services		2	43	Water Transfer Services	105,875	3	43	Water Transfer Services	
44	Flowback Water Trucking & Disposal		2	44	Flowback Water Trucking & Disposal	135,772	3	44	Flowback Water Trucking & Disposal	
45	Permanent Equipment Installation		2	45	Permanent Equipment Installation	200,172	3	45	Permanent Equipment Installation	
46	Pipeline Tapping Services		2	46	Pipeline Tapping Services		3	46	Pipeline Tapping Services	-
47	Plugging & Abandonment	0	2	47	Plugging & Abandonment		3	47		-
53	Overhead	12,632	2	53	Overhead	22,155			Plugging & Abandonment	-
54	Insurance	31,662	2	54	Insurance	22,155	3	53	Overhead	
55	Contingency	107,222	2	55	Contingency	303.055	3	54	Insurance	-
	I	101,222		23	Contingency	282,069	3	55	Contingency	

TANGIBLE (DRILLING	COSTS
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COST CODES		DESCRIPTION	AMOUNT
4	60	Conductor Casing	C
4	61	Surface Casing	42,599
4	62	1st Intermediate Casing	153,263
4	63	2nd Intermediate Casing	339,492
4	64	Production Casing	327,995
4	65	Tubing	
4	66	Wellhead	0
4	67	Permanent Packers/Hangers/Plugs	
4	68	Tanks	
4	69	Production Vessels	
4	70	Compressors	
4	71	Surface Flowlines	
4	72	Gathering Lines	
4	73	Valves & Controllers	
4	74	Artificial Lift Equipment	
4	75	Instrumentation & Measurement	
4	76	Electrical Grounding/Safety Equipment	
4	77	Permanent Equipment Installation	
4	80	Other - Surface	
4	81	Other - Downhole	

TOTAL TANGIBLE DRILLING COSTS: \$863,348

TOTAL DRILLING COSTS: \$3,115,000

TANGIBLE COMPLETION COSTS

COST	CODES	DESCRIPTION	AMOUNT
5	60	Conductor Casing	
5	61	Surface Casing	
5	62	1st Intermediate Casing	
5	63	2nd Intermediate Casing	
5	64	Production Casing	22,500
5	65	Tubing	
5	66	Wellhead	40,000
5	67	Permanent Packers/Hangers/Plugs	
5	68	Tanks	
5	69	Production Vessels	
5	70	Compressors	
5	71	Surface Flowlines	
5	72	Gathering Lines	
5	73	Valves & Controllers	
5	74	Artificial Lift Equipment	
5	75	Instrumentation & Measurement	
5	76	Electrical Grounding/Safety Equipment	
5	77	Permanent Equipment Installation	
5	80	Other - Surface	
5	81	Other - Downhole	

COST	CODES	DESCRIPTION
6	60	Conductor Casing
6	61	Surface Casing
6	62	1st Intermediate Casing
6	63	2nd Intermediate Casing
6	64	Production Casing
6	65	Tubing
6	66	Wellhead
6	67	Permanent Packers/Hangers/Plugs
6	68	Tanks
6	69	Production Vessels
6	70	Compressors
6	71	Surface Flowlines
6	72	Gathering Lines
6	73	Valves & Controllers
6	74	Artificial Lift Equipment
6	75	Instrumentation & Measurement
6	76	Electrical Grounding/Safety Equipment
6	77	Permanent Equipment Installation
6	80	Other - Surface
6	81	Other - Downhole

TOTAL TANGIBLE PRODUCTION COSTS: \$285,500

TANGIBLE PRODUCTION COSTS

TOTAL COMPLETION COSTS: \$3,794,401 TOTAL PRODUCTION COSTS: \$500,000

TOTAL WELL COST: \$7 409 401

60,000 43,500 5,000 82,000 50,000 10,000 35,000

602 Park Point Dr, Golden, Colorado 80401 Authorization For Expenditure

Name: Mandelbaum 217H

AFE #: County: State: Date: September 30, 2019 MD/TVD: 17590 / 12180 Lateral Length: 4960 Geologic Target: Wolfcamp A

Well Description:

Drill, complete, and equip a horizontal Wolfcamp A well with a 4960 foot lateral.

COST COL	DES	INTANGIBLE DRILLING COSTS DESCRIPTION	AMOUNT	cos	ST CODE	INTANGIBLE COMPLETION COSTS DESCRIPTION	AMOUNT		ST CODE	INTANGIBLE PRODUCTION COSTS	
1 1	1	Land - Legal	10,000	2	1	Land - Legal	AMOUNT	3	1	S DESCRIPTION Land - Legal	AMOUNT
1 2	2	Land - Regulatory	5,000	2	2	Land - Regulatory		3	2	Land - Regulatory	-
1 3	3	Land - Surface Damages	20,000	2	3	Land - Surface Damages		3	3	Land - Surface Damages	
1 4	4	Land - Survey	10,000	2	4	Land - Survey		3	4		-
1 5	5	Location/Pit Construction	140,000	2	5	Location/Pit Construction			1	Land - Survey	100
1 6		Remedial Dirtwork	0	2	6	Remedial Dirtwork		3	5	Location/Pit Construction	5,00
1 7	7	Reserve/Frac Pit Closing	0	2	7	Reserve/Frac Pit Closing		3	6	Remedial Dirtwork	
1 8	В	Drilling - Contractor	630,400	2	8	Drilling - Contractor		1		Reserve/Frac Pit Closing	
1 9		Mob/Rig Up - Contractor/Trucking	123,250	2	9			3	8	Drilling - Contractor	
1 10	-	Cementing Services	123,230	2		Mob/Rig Up - Contractor/Trucking Cementing Services		3	9	Mob/Rig Up - Contractor/Trucking	-
1 11		Cementing Equipment	0	2	11	Cementing Services Cementing Equipment		3	10	Cementing Services	-
1 12		Bits/Drill Out Assemblies	0	2	12			3	11	Cementing Equipment	-
1 13		Fluid Circulation Equipment/Services	108,637	2	13	Bits/Drill Out Assemblies	55,516	3	12	Bits/Drill Out Assemblies	
1 14		Fluids/Chemicals	163,680			Fluid Circulation Equipment/Services		3	13	Fluid Circulation Equipment/Services	
1 15		WBM Cuttings/Wastewater Disposal	133,920	2	14	Fluids/Chemicals	39,832	3	14	Fluids/Chemicals	
1 16		OBM Cuttings/Chemical Disposal	The second secon	2	15	WBM Cuttings/Wastewater Disposal		3	15	WBM Cuttings/Wastewater Disposal	
1 17	_	Fuel/Power	49,600	2	16	OBM Cuttings/Chemical Disposal		3	16	OBM Cuttings/Chemical Disposal	
1 18	-	Water	151,322	2	17	Fuel/Power	325,000	3	17	Fuel/Power	
1 19	_	Directional Drilling	0	2	18	Water	497,457	3	18	Water	
1 20	_		265,276	2	19	Directional Drilling		3	19	Directional Drilling	
-		Mud Logging	26,344	2	20	Mud Logging		3	20	Mud Logging	
1 21		Open/Cased/Production Hole Logs	0	2	21	Open/Cased/Production Hole Logs	10,550	3	21	Open/Cased/Production Hole Logs	
1 22	- 1	Coring	0	2	22	Coring		3	22	Coring	
1 23		Geologic Supervision	0	2	23	Geologic Supervision		3	23	Geologic Supervision	
1 24		Engineering Supervision	0	2	24	Engineering Supervision		3	24	Engineering Supervision	
1 25		Consultant Supervision	136,190	2	25	Consultant Supervision	100,000	3	25	Consultant Supervision	20,00
1 26		Freight/Transportation	20,000	2	26	Freight/Transportation	4,110	3	26	Freight/Transportation	10,00
1 27		Labor	0	2	27	Labor	15,940	3	27	Labor	85,00
1 28		Supplies - Surface	2,500	2	28	Supplies - Surface	4,110	3	28	Supplies - Surface	
1 29	9	Supplies - Living Quarters	1,000	2	29	Supplies - Living Quarters	4.110	3	29	Supplies - Living Quarters	
1 30	0	Rentals - Surface	68,214	2	30	Rentals - Surface	35,670	3	30	Rentals - Surface	
1 31	1	Rentals - Living Quarters	34,804	2	31	Rentals - Living Quarters	28,690	3	31	Rentals - Living Quarters	
1 32	2	Rentals - Downhole	0	2	32	Rentals - Downhole	0	3	32	Rentals - Downhole	
1 33	3	Rentals - Pipe & Handling Tools	0	2	33	Rentals - Pipe & Handling Tools	0	3	33	Rentals - Pipe & Handling Tools	
1 34	1	Rentals - Frac Stack		2	34	Rentals - Frac Stack	115,270	3	34	Rentals - Frac Stack	
1 35	5	Rentals - Frac Tanks		2	35	Rentals - Frac Tanks	89,500	3	35	Rentals - Frac Tanks	
1 36	5	Coil Tubing Unit/Workover Rig		2	36	Coil Tubing Unit/Workover Rig	107,857	3	36		
1 37	7	Wireline/Slickline/Perforating		2	37	Wireline/Slickline/Perforating	257,550	3		Coil Tubing Unit/Workover Rig	70,00
1 38	3	Temporary Packers/Plugs		2	38	Temporary Packers/Plugs	37,500	3	37	Wireline/Slickline/Perforating	
1 39	9	High Pressure Pump Truck		2	39	High Pressure Pump Truck	102,200	1	38	Temporary Packers/Plugs	
1 40)	Stimulation		2	40	Stimulation		3	39	High Pressure Pump Truck	
41		Rentals - Pressure Control		2	41	Rentals - Pressure Control	1,258,294	3	40	Stimulation	
1 42		Flowback Services		2	42	Flowback Services		3	41	Rentals - Pressure Control	
43	,	Water Transfer Services		2	43	Water Transfer Services	96,875	3	42	Flowback Services	
44		Flowback Water Trucking & Disposal		2	44		105,875	3	43	Water Transfer Services	
45		Permanent Equipment Installation		2	45	Flowback Water Trucking & Disposal	135,772	3	44	Flowback Water Trucking & Disposal	
46		Pipeline Tapping Services		2		Permanent Equipment Installation		3	45	Permanent Equipment Installation	
47		Plugging & Abandonment	0		46	Pipeline Tapping Services		3	46	Pipeline Tapping Services	
53		Overhead	-	2	47	Plugging & Abandonment		3	47	Plugging & Abandonment	
54	_	Insurance	12,632	2	53	Overhead	22,155	3	53	Overhead	5,00
55	_	Contingency	31,662	2	54	Insurance		3	54	Insurance	
33	-		107,222	2	55	Contingency	282,069	3	55	Contingency	19,500
		TOTAL INTANGIBLE DRILLING COSTS:	¢2 251 652			TOTAL INTANGIBLE COMPLETION COSTS:	\$3,731,901			TOTAL INTANGIBLE PRODUCTION COSTS:	

TANGIBLE	DRILLING	COSTS

COST CODES		T CODES DESCRIPTION				
4	60	Conductor Casing	C			
4	61	Surface Casing	42,599			
4	62	1st Intermediate Casing	153,263			
4	63	2nd Intermediate Casing	339,492			
4	64	Production Casing	327,995			
4	65	Tubing				
4	66	Wellhead	0			
4	67	Permanent Packers/Hangers/Plugs				
4	68	Tanks				
4	69	Production Vessels				
4	70	Compressors				
4	71	Surface Flowlines				
4	72	Gathering Lines				
4	73	Valves & Controllers				
4	74	Artificial Lift Equipment				
4	75	Instrumentation & Measurement				
4	76	Electrical Grounding/Safety Equipment				
1	77	Permanent Equipment Installation				
1	80	Other - Surface				
1	81	Other - Downhole				

TOTAL DRILLING COSTS: \$3,115,000

	TCODE	DESCRIPTION	AMOUNT
5	60	Conductor Casing	
5	61	Surface Casing	
5	62	1st Intermediate Casing	
5	63	2nd Intermediate Casing	
5	64	Production Casing	22,500
5	65	Tubing	
5	66	Wellhead	40,000
5	67	Permanent Packers/Hangers/Plugs	
5	68	Tanks	
5	69	Production Vessels	
5	70	Compressors	
5	71	Surface Flowlines	
5	72	Gathering Lines	
5	73	Valves & Controllers	
5	74	Artificial Lift Equipment	
5	75	Instrumentation & Measurement	
5	76	Electrical Grounding/Safety Equipment	
5	77	Permanent Equipment Installation	
5	80	Other - Surface	
5	81	Other - Downhole	

TANGIBLE COMPLETION COSTS

TOTAL TANGIBLE COMPLETION COSTS: \$62,500

TOTAL	COMPLETION	COSTS:	\$3,794,401

		TANGIBLE PRODUCTION COSTS	
	TCODES	DESCRIPTION	AMOUNT
6	60	Conductor Casing	
6	61	Surface Casing	
6	62	1st Intermediate Casing	
6	63	2nd Intermediate Casing	
6	64	Production Casing	
6	65	Tubing	60,00
6	66	Wellhead	43,50
6	67	Permanent Packers/Hangers/Plugs	5,00
6	68	Tanks	
6	69	Production Vessels	82.00
6	70	Compressors	
6	71	Surface Flowlines	50,00
6	72	Gathering Lines	10.00
6	73	Valves & Controllers	
6	74	Artificial Lift Equipment	35,00
6	75	Instrumentation & Measurement	
6	76	Electrical Grounding/Safety Equipment	
6	77	Permanent Equipment Installation	
6	80	Other - Surface	
6	81	Other - Downhole	

TOTAL TANGIBLE PRODUCTION COSTS: \$285,500 TOTAL PRODUCTION COSTS: \$500,000

TOTAL WELL COST. \$7 400 401

Summary of Communication

Communication	10/4/19 - Sent well proposals 10/30/19 - Tap Rock Emails Devon to advise title shows GAJH is c/o Devon, various title research is done to confirm 1/14/19 - Tap Rock sends JOA. 1/15/19 to Present - Parties work towards voluntary joinder or leasing interest. 10/4/19 - Sent well proposals 1/22/20 - Energen advise they've traded to COG 1/28/20 - Tap Rock still shows some of the interest was not assigned to COG, and is still in Energen entity. Energen researching now.	10/4/19 - Sent well proposals 11/25/19 - COG requests JOA, Tap Rock provides 1/28/20 to Present - Parties work towards voluntary joinder or trade	1, 10/4/19 – Sent well proposals 1/14/20 – Franklin Mountain requests JOA, Tap Rock provides 10/4/19 – Sent well proposals 11/11/19 to Present – Parties work towards voluntary joinder or trade, which has been agreed to in principle. 10/4/19 – Sent well proposals 10/4/19 – Crown/Crump asks about drilling plans, Tap Rock answers 10/16/19 – Crown/Crump asks about drilling plans, Tap Rock answers 1/27 to Present – Parties work towards voluntary joinder or acquisition
Party	GAJH 1989 Limited Partnership c/o UMC Petroleum Corporation / Devon Energen Resources Corporation	COG Operating LLC	Franklin Mountain Energy II, 10/4/19 LLC 11/14/20 10/4/19 Marathon Oil Permian, LLC to in prin Crown Oil Partners VI, LLC; and, Crump Energy Partners III, 10/16/19 LLC





STATE OF NEW MEXICO DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES OIL CONSERVATION DIVISION

APPLICATION OF TAP ROCK OPERATING, LLC
FOR A STANDARD HORIZONTAL SPACING
AND PRORATION UNIT AND COMPULSORY POOLING,
LEA COUNTY, NEW MEXICO

Case No. 21071

AFFIDAVIT OF EMILY LANGE

I, being duly sworn on oath, state the following:

- I am over the age of 18, and I have personal knowledge of the matters stated herein.
- 2. I am employed as a petroleum geologist for Tap Rock Operating, LLC ("Tap Rock"), and I am familiar with the subject applications and the geology involved.
- 3. This affidavit is submitted in connection with the filing by Tap Rock of the above-referenced compulsory pooling applications pursuant to 19.15.4.12.A(1) NMAC.
- 4. I have previously testified before the New Mexico Oil Conservation Division as an expert witness in petroleum geology matters. My credentials as a petroleum geologist have been accepted by the Division and made a matter of record.
 - a. I hold a Bachelor's degree in Geology from the University of Southern California, which I completed in 2012. I am currently working towards a Master's degree in Geology at Southern Methodist University.
 - I have been employed as a petroleum geologist since 2013. I have worked in New Mexico since 2015.



- 5. **Exhibit 8** is a Project Locator Map depicting the location of the Horizontal Spacing Unit ("HSU") within the Delaware Basin. Within Section 11 of 24S 34E, are the Mandelbaum Fee 132H, 136H, 137H, 203H, 207H, 212H, 216H, & 217H wells (the "Wells").
- 6. **Exhibit 9** is a Gun Barrel Diagram showing the planned Wolfcamp horizontal spacing for the Wells. This diagram shows the projected development of the eight Wolfcamp Wells, all spaced 990' away from the nearest well in the same zone. A nearby type log has been included (for log descriptions, see Exhibit 11 below) to show approximate depths and reservoir quality of the selected landing zones.
- 7. **Exhibit 10** is a Wolfcamp A Structure Map. This map shows the location of the Mandelbaum HSU outlined by the red box. The surface/bottom hole locations of the Mandelbaum Wells are shown, zoomed in, to the right. The map is the top of the Wolfcamp A formation in subsea vertical depth. The contour intervals are 25 feet each. There is a monoclinal dip down to the south. The orientation of the Mandelbaum Wells will each be approximately along dip. There are no horizontal wells in the direct vicinity that have targeted similar intervals. However, horizontal wells shown on the map are all Wolfcamp producers. The vertical wells controlling the structure map have the sub-sea vertical depth posted in pink. The subsequent cross-section from A-A' is also identified to locate our closest control on the reservoir properties for the Mandelbaum Wells. I do not observe any faulting, pinch-outs, or other geologic impediments or hazards to developing this targeted interval with a horizontal well.
- 8. Exhibit 11 is a Wolfcamp Stratigraphic Cross Section (flattened on the Wolfcamp A surface). Wells 1 & 4 (moving left to right) have a triple combo log. Wells 2 & 3 show only gamma ray and/or resistivity and are utilized here to show correlation of our target intervals across the Mandelbaum HSU. Track 1 has a gamma ray log with interpreted color fill for lithology and

scaled from 0 to 200 api units and a caliper log scaled from 0 to 16. For gamma ray, the blue colors indicate carbonate, yellow to orange are sandstone/siltstones, and the darker browns are shale facies. For caliper, higher values indicate irregularities in hole diameter. Track 2 has the deep resistivity log, scaled from 0.2 ohmm to 2000 ohmm. The blue shading cutoff is at 50 ohmm or less to help identify the more siliciclastic rocks. Track 3 is the porosity track and contains the red neutron porosity curve and the blue density porosity curve, both scaled from 30% to -10%. The pink shading on the neutron porosity curve highlights anything greater than 15% to identify zones with increased clay content. The green shading on the density porosity curve highlights anything greater than 10% porosity. This cutoff indicates the best rock properties for reservoir evaluation. The cross-section identifies the key tops used to evaluate reservoirs and landing targets for the Mandelbaum Wells. Simplified wellbores for the Mandelbaum Wells are on the cross-section showing the landing target intervals in the green shaded box. The targeted reservoir has a constant thickness of approximately 600' and exhibits constant reservoir facies throughout the HSU.

- 9. **Exhibit 12** is an Isopach Map of the Gross Wolfcamp interval. This map shows the location of the Mandelbaum HSU outlined by the red box. The surface/bottom hole locations of the Mandelbaum Wells are shown, zoomed in, to the right. The anticipated gross thickness of the interval is 600 feet throughout the HSU. The contour intervals are 10'. There are no horizontal wells that have targeted this interval in the direct vicinity, and all the horizontals shown on the map are landed in the Wolfcamp formation. The location of the previous cross-section from A-A' is also shown on this map.
 - 10. Based on my geologic study of the area, I conclude the following:
 - a. The horizontal spacing and proration unit is justified from a geologic standpoint.

- b. There are no structural impediments or faulting that will interfere with horizontal development.
- Each quarter-quarter section in the unit will contribute more or less equally to production.
- d. The preferred well orientation in this area is south-north. This is because the inferred orientation of the maximum horizontal stress is roughly northwestsoutheast.
- 11. **Exhibit 13** shows a Simplified Wellbore Diagram for each of the Wells in the HSU and demonstrate that the first and last take points for each well will be standard.
- 12. The Exhibits to this Affidavit were prepared by me, or compiled from Tap Rock's company business records.
- 13. The granting of this Application is in the interests of conservation and the prevention of waste.
 - 14. The foregoing is correct and complete to the best of my knowledge and belief.

FURTHER AFFIANT SAYETH NAUGHT

Emily Lange EMILY RNGE

STATE OF COLORADO) ss COUNTY OF JEFFERSON)

Subscribed to and sworn before me this 31 day of January, 2020.

ERICA ROCHELLE HIXSON

Notary Public

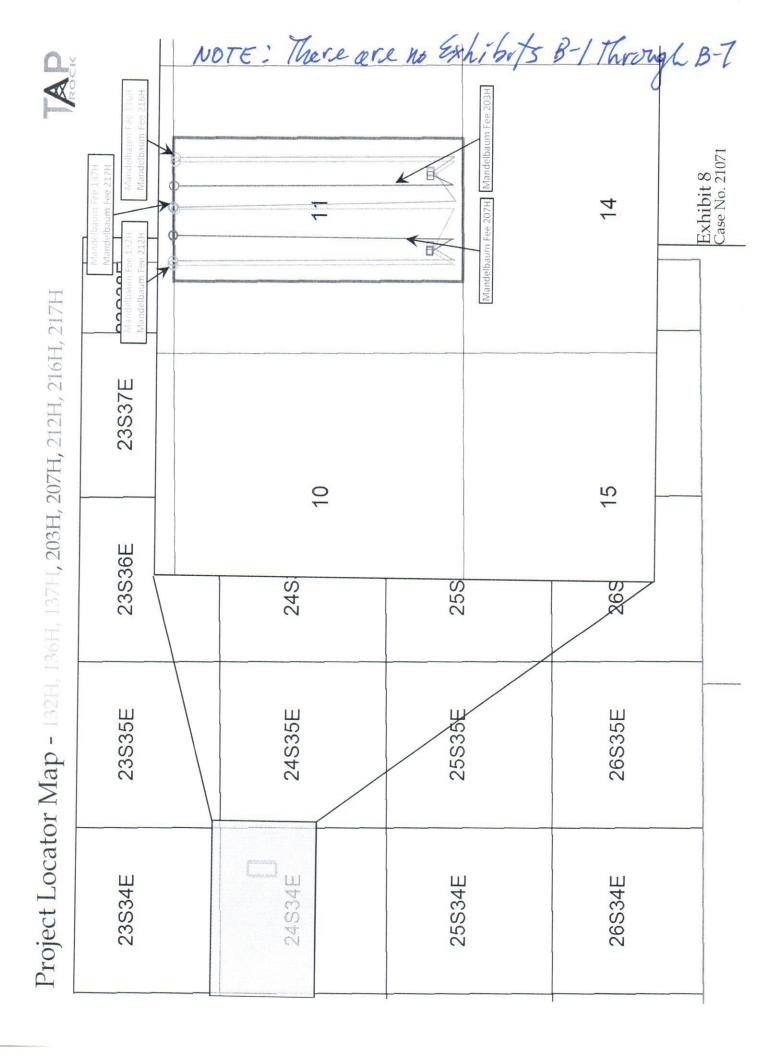
State of Colorado

Notary ID # 20174044145

My Commission Expires 10-24-2021

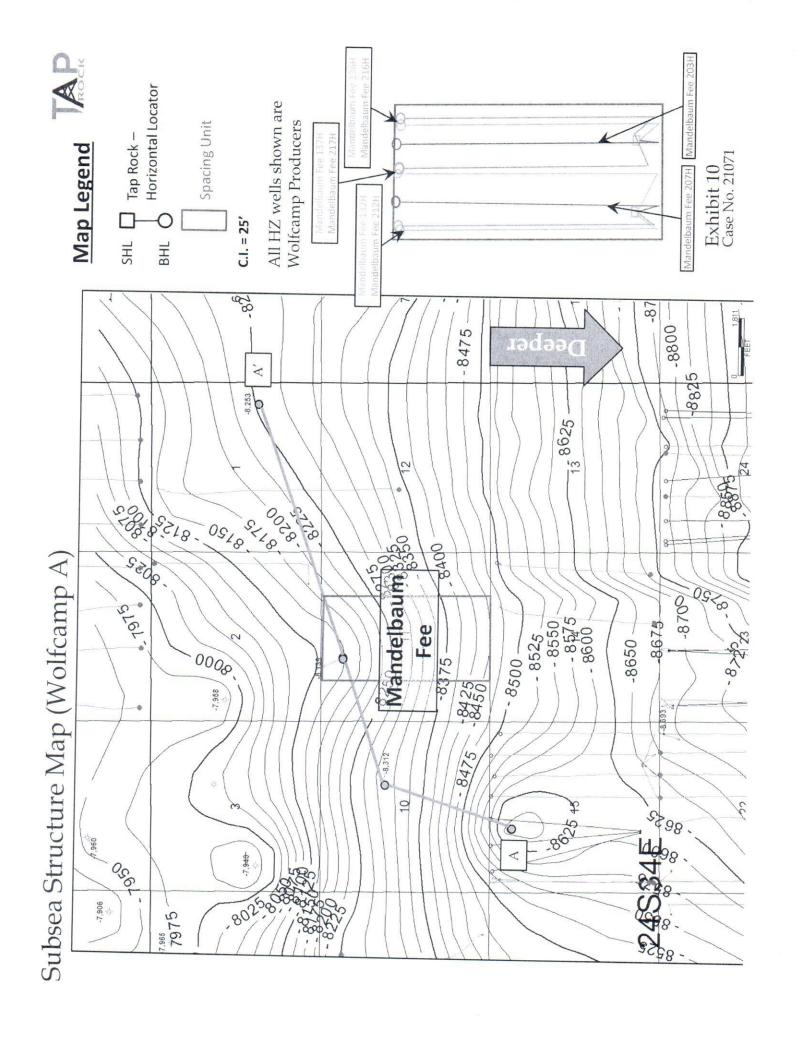
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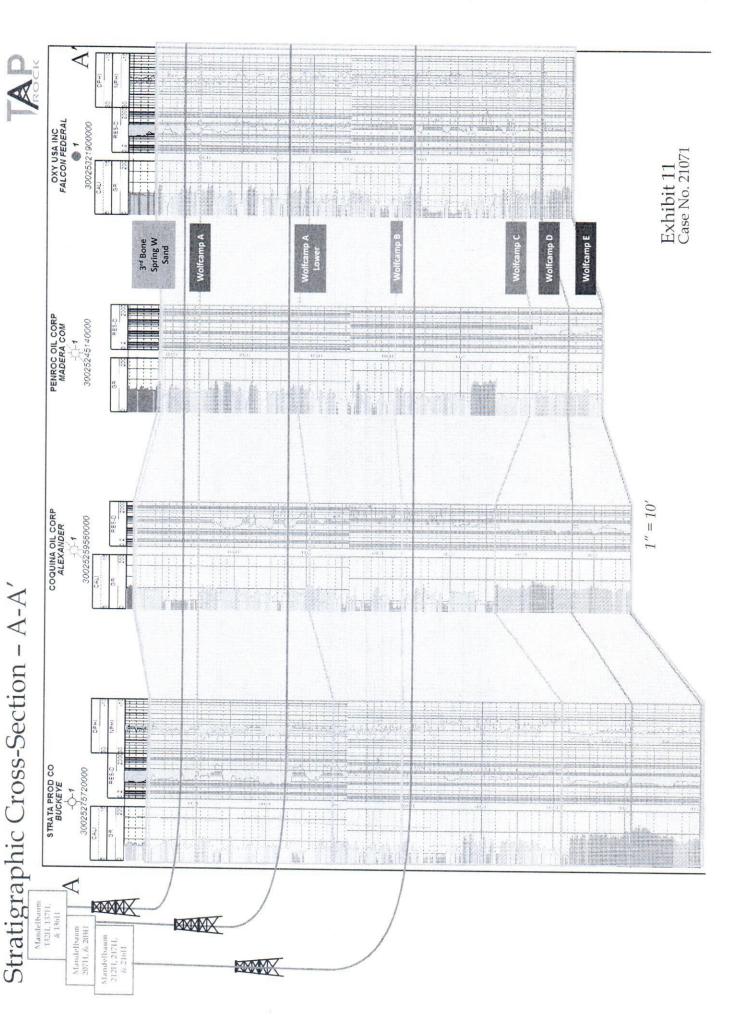
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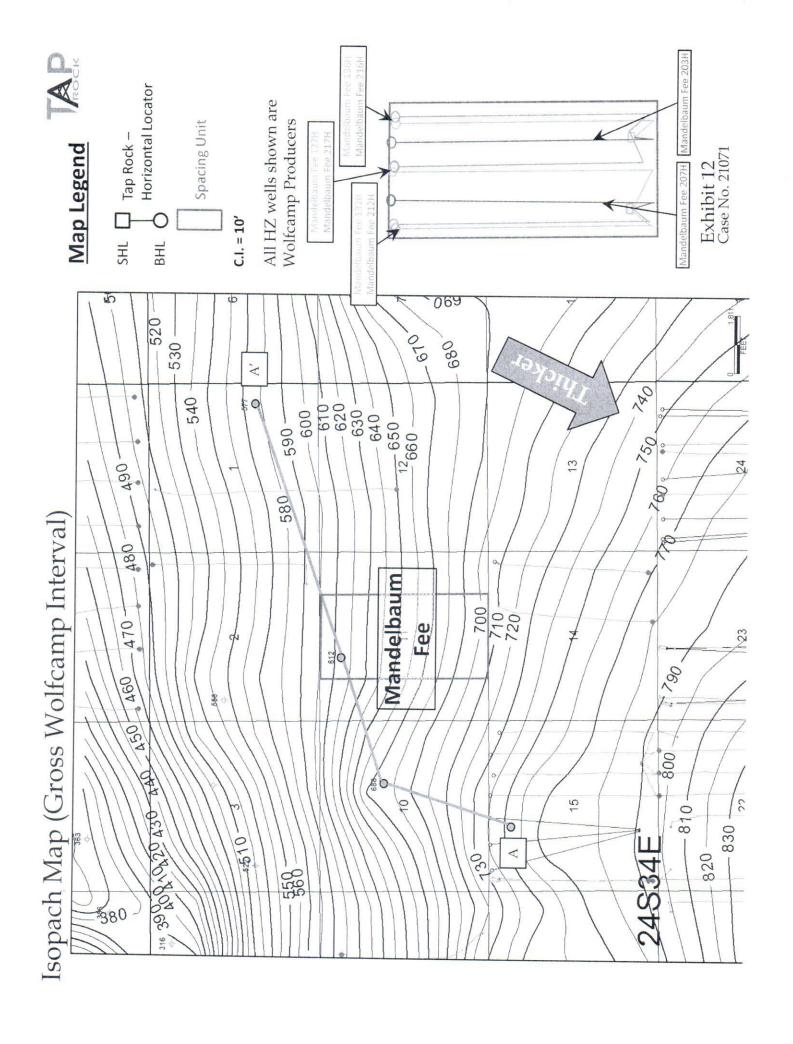


Gun Barrel - Wolfcamp Target Zone Development

	O IK Development		Exhibit 9 Case No. 21071
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Slot 7	Mandelbaum HSU	137 0 2640 FWI	217 O 2640' FWL
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Mandelbaum Fee 132H (1 mile S-N Lateral)



*Diagram not to scale South line of Sec 11-245-34E Last perforation no closer than 100' from South Line of Sec 11-245-34E 100' from South Line of Sec 11-245-34E Mandelbaum Fee 132H Plan Well Path 100' from North Line of Sec 11-24S-34E First perforation no closer than 100' from North Line of Sec 11-24S-34E South Line of Sec 11-24S-34E Mandelbaum Fee 132H Surface Hole: 649' FSL & 1348' FWL of see 11-245-34E Bottom Hole: 5' FNL & 1657' FWL of sec 11-245-34E

Exhibit 13A Case No. 21071

Mandelbaum Fee 136H (1 mile S-N Lateral)



*Diagram not to scale South line of Sec 11-24S-34E Last perforation no closer than 100' from South Line of Sec 11-245-34E 100' from South Line of Sec 11-245-34E Mandelbaum Fee 136H Plan Well Path 100' from North Line of Sec 11-24S-34E First perforation no closer than 100' from North Line of Sec 11-24S-34E South Line of Sec 11-24S-34E Mandelbaum Fee 136H Surface Hole: 636' FSL & 2095' FEL of sec 11-245-34E Bottom Hole: 5' FNL & 1650' FEL of sec 11-245-34E

Exhibit 13B Case No. 21071

Mandelbaum Fee 137H (1 mile S-N Lateral)



*Diagram not to scale South line of Sec 11-245-34E Last perforation no closer than 100' from South Line of Sec 11-245-34E 100' from South Line of Sec 11-245-34E Mandelbaum Fee 137H Plan Well Path 100' from North Line of Sec 11-24S-34E First perforation no closer than 100' from North Line of Sec 11-24S-34E South Line of Sec 11-245-34E Mandelbaum Fee 137H Surface Hole: 649' FSL & 1873' FWL of sec 11-245-34E Bottom Hole: 5' FNL & 2640' FWL of sec 11-245-34E

Exhibit 13C Case No. 21071

Mandelbaum Fee 203H (1 mile S-N Lateral)



| IUCEIDAUIII FEE 2051| (1 mile S| Mandelbaum Fee 2051| (1 mile S| Mandelbaum Fee 2051|
| Surface Hole: 612' FSI & 2145' FEI of sec 11-245-34E
| Bottom Hole: 5' FNI & 2145' FEI of sec 11-245-34E

*Diagram not to scale
South line of Sec 11-245-34E

100' from South Line of Sec 11-245-34E

100' from North Line of Sec 11-245-34E

South Line of Sec 11-245-34E

Last perforation no closer than 100' from South Line of Sec 11-24S-34E

Mandelbaum Fee 203H Plan Well Path

First perforation no closer than 100' from North Line of Sec 11-24S-34E

Exhibit 13D Case No. 21071

Mandelbaum Fee 207H (1 mile S-N Lateral)



*Diagram not to scale

Mandelbaum Fee 207H Surface Hole: 624' FSL & 1873' FWL of sec 11-245-34E Bottom Hole: 5' FNL & 2145' FWL of sec 11-245-34E

South line of Sec 11-24S-34E Last perforation no closer than 100' from South Line of Sec 11-245-34E 100' from South Line of Sec 11-245-34E Mandelbaum Fee 207H Plan Well Path 100' from North Line of Sec 11-245-34E First perforation no closer than 100' from North Line of Sec 11-24S-34E South Line of Sec 11-24S-34E

Exhibit 13E Case No. 21071

Mandelbaum Fee 212H (1 mile S-N Lateral)



*Diagram not to scale South line of Sec 11-24S-34E Last perforation no closer than 100' from South Line of Sec 11-245-34E 100' from South Line of Sec 11-245-34E Mandelbaum Fee 212H Plan Well Path 100' from North Line of Sec 11-24S-34E First perforation no closer than 100' from North Line of Sec 11-24S-34E South Line of Sec 11-24S-34E Mandelbaum Fee 212H Surface Hole: 624' FSL & 1848' FWL of sec 11-245-34E Bottom Hole: S' FNL & 1657' FWL of sec 11-245-34E

Exhibit 13F Case Nos. 20724 & 20725

Mandelbaum Fee 216H (1 mile S-N Lateral)



*Diagram not to scale South line of Sec 11-24S-34E Last perforation no closer than 100' from South Line of Sec 11-245-34E 100' from South Line of Sec 11-245-34E Mandelbaum Fee 216H Plan Well Path 100' from North Line of Sec 11-24S-34E First perforation no closer than 100' from North Line of Sec 11-24S-34E South Line of Sec 11-245-34E Mandelbaum Fee 193H Surface Hole: 611' FSL & 2095' FEL of sec 11-245-34E Bottom Hole: 5' FNL & 1650' FEL of sec 11-245-34E

Exhibit 13G Case Nos. 20724 & 20725

Mandelbaum Fee 217H (1 mile S-N Lateral)



*Diagram not to scale South line of Sec 11-24S-34E Last perforation no closer than 100' from South Line of Sec 11-245-34E 100' from South Line of Sec 11-245-34E Mandelbaum Fee 217H Plan Well Path 100' from North Line of Sec 11-24S-34E First perforation no closer than 100' from North Line of Sec 11-24S-34E South Line of Sec 11-24S-34E Mandelbaum Fee 217H Surface Hole: 637' FSL & 2120' FEL of sec 11-245-34E Bottom Hole: 5' FNL & 2640' FWL of sec 11-245-34E

Exhibit 13H Case Nos. 20724 & 20725

STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT OIL CONSERVATION DIVISION

APPLICATION OF TAP ROCK RESOURCES, LLC FOR COMPULSORY POOLING, LEA COUNTY, NEW MEXICO.

Cana	NT.		
Case	NO.		

SELF-AFFIRMED STATEMENT OF NOTICE

COUNTY OF SANTA FE)
) ss
STATE OF NEW MEXICO)

James Bruce deposes and states:

- 1. I am over the age of 18, and have personal knowledge of the matters stated herein.
- 2. I am an attorney for Tap Rock Resources, LLC.
- 3. Tap Rock Resources, LLC has conducted a good faith, diligent effort to find the names and correct addresses of the interest owners entitled to receive notice of the application filed herein.
- 4. Notice of the application was provided to the interest owners, at their last known addresses, by certified mail. Copies of the notice letter and certified return receipts are attached hereto as Attachment A.
 - 5. Applicant has complied with the notice provisions of Division Rules.
- 6. I understand that this Self-Affirmed Statement will be used as written testimony in this case. I affirm that my testimony in paragraphs 1 through 5 above is true and correct and is made under penalty of perjury under the laws of the State of New Mexico. My testimony is made as of the date handwritten next to my signature below.

Date: 4 1/4 2020

James Bruce

EXHIBIT

JAMES BRUCE ATTORNEY AT LAW

POST OFFICE BOX 1056 SANTA FE, NEW MEXICO 87504

369 MONTEZUMA, NO. 213 SANTA FE, NEW MEXICO 87501

(505) 982-2043 (Phone) (505) 660-6612 (Cell) (505) 982-2151 (Fax)

jamesbruc@aol.com

January 30, 2020

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

To: Persons on Exhibit A

Ladies and gentlemen:

Enclosed is an application for compulsory pooling, filed with the New Mexico Oil Conservation Division by Tap Rock Resources, LLC, regarding Wolfcamp wells in the E/2W/2 and W/2E/2 of Section 11, Township 24 South, Range 34 East, NMPM, Lea County, New Mexico.

This case is scheduled for hearing at 8:15 a.m. on Thursday, February 20, 2020, in Porter Hall at the Division's offices at 1220 South St. Francis Drive, Santa Fe, New Mexico 87505. You are not required to attend this hearing, but as an interest owner that may be affected by this application, you may appear and present testimony. Failure to appear at that time and become a party of record will preclude you from contesting this matter at a later date.

A party appearing in a Division case is required by Division Rules to file a Pre-Hearing Statement no later than Wednesday, February 13, 2020. This statement must be filed with the Division's Santa Fe office at the above address, and should include: The names of the party and its attorney; a concise statement of the case; the names of the witnesses the party will call to testify at the hearing; the approximate time the party will need to present its case; and identification of any procedural matters that need to be resolved prior to the hearing. The Pre-Hearing Statement must also be provided to the undersigned.

Very truly yours,

James Bruce

Attorney for Tap Rock Resources, LLC

ATTACHMENT A

EXHIBIT A

Working Interest Parties

GAJH 1989 Limited Partnership 410 Seventeenth Street, Suite No. 1400 Denver, CO 80202

Marathon Oil Permian LLC 5555 San Felipe Street Houston, TX 77056

Energen Resources Corporation 605 Richard Arrington, Jr. Boulevard North Birmingham, AL 35203

Franklin Mountain Energy II, LLC 123 W. Mills Street Suite 600 El Paso, Texas 79901

Crown Oil Partners VI, LLC Crump Energy Partners III, LLC P.O. Box 50820 Midland, TX 79710

COG Operating LLC 600 W. Illinois Ave Midland, Texas 79701

Overriding Royalty Party

Stryker Energy, LLC P.o. Box 53448 Houston,, Texas 77052

SE	SENDER: COMPLETE HIS SECTION	COMPLETE THIS SECTION DELIVER A. Signature		CERTIFIED Domestic Mail Only	ii only		_
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FAQs >

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FAQs

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JAMES BRUCE ATTORNEY AT LAW

POST OFFICE BOX 1056 SANTA FE, NEW MEXICO 87504

369 MONTEZUMA, NO. 213 SANTA FE, NEW MEXICO 87501

(505) 982-2043 (Phone) (505) 660-6612 (Cell) (505) 982-2151 (Fax)

jamesbrue:a aol.com

February 27, 2020

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

To: Persons on Exhibit A

Ladies and gentlemen:

Enclosed is an application for compulsory pooling, filed with the New Mexico Oil Conservation Division by Tap Rock Resources, LLC, regarding Wolfcamp wells in the E/2W/2 and W/2E/2 of Section 11, Township 24 South, Range 34 East, NMPM, Lea County, New Mexico.

This case is scheduled for hearing at 8:15 a.m. on Thursday, March 19, 2020, in Porter Hall at the Division's offices at 1220 South St. Francis Drive, Santa Fe, New Mexico 87505. You are not required to attend this hearing, but as an interest owner that may be affected by this application, you may appear and present testimony. Failure to appear at that time and become a party of record will preclude you from contesting this matter at a later date.

A party appearing in a Division case is required by Division Rules to file a Pre-Hearing Statement no later than Thursday, March 12, 2020. This statement must be filed with the Division's Santa Fe office at the above address, and should include: The names of the party and its attorney; a concise statement of the case; the names of the witnesses the party will call to testify at the hearing; the approximate time the party will need to present its case; and identification of any procedural matters that need to be resolved prior to the hearing. The Pre-Hearing Statement must also be provided to the undersigned.

Very truly yours,

Attorney for Tap Rock Resources, LLC

ATTACHMENT

EXHIBIT A

GAJH 1989 Limited Partnership c/o Devon Energy Production Company, L.P. 333 West Sheridan Oklahoma City, Oklahoma 73102

A. Signature A. Signature A. Signature A. Signature C. Date of Delivery D. Is delivery address different from item 1? Yes, enter delivery address below: B. No	3. Service Type Adult Signature Adult Signature Restricted Delivery Registered Mail Restricted Delivery Certified Mail Restricted Delivery Certified Mail Restricted Delivery Rectingue Confirmation Certified Mail Restricted Delivery Certified Mail Restricted Delivery Signature Confirmation Cover 5500) ricted Delivery Signature Confirmation Restricted Delivery Restricted Delivery
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Affidavit of Publication

STATE OF NEW MEXICO COUNTY OF LEA

I, Todd Bailey, Editor of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

> Beginning with the issue dated January 26, 2020 and ending with the issue dated January 26, 2020.

Sworn and subscribed to before me this 26th day of January 2020.

My commission expires October 29, 2022



OFFICIAL SEAL Amity E. Hipp NOTARY PUBLIC - STATE OF NEW MEXICO

My Commission Expires

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said

LEGAL

LEGAL

LEGAL NOTICE **JANUARY 26, 2020**

To: Marathon Oil Permian LLC, Energen Resources Corporation, Franklin Mountain Energy II LLC, Crown Oil Partners VI LLC, Crump Energy Partners III LLC, COG Operating LLC, and Devon Energy Production Company LP, or your successors or assigns: Tap Rock Resources, LLC seeks an order production of the Motor Resources of the Wolfeams pooling all mineral interests in the Wolfcamp pooling all mineral interests in the Wolfcamp formation underlying a (proximity tract) horizontal spacing unit comprised of the E/2W/2 and the W/2E/2 of Section 11, Township 24 South, Range 34 East, NMPM, Lea County, New Mexico. The unit will be dedicated to the Mandelbaum Fee Well Nos. 132H, 136H, 137H, 203H, 207H, 212H, 216H, and 217H. Also to be considered will be the cost of drilling and completing the wells and the allocation drilling and completing the wells and the allocation of the cost thereof, as well as actual operating costs of the cost thereof, as well as actual operating costs and charges for supervision, designation of Tap Rock Operating, LLC as operator of the wells, and a 200% charge for the risk involved in drilling and completing the wells. The application is scheduled to be heard at 8:15 a.m. on Thursday, February 6, 2020 at the Division's offices at 1220 South St. Francis Drive, Santa Fe, New Mexico 87505. As an interest owner to the well unit you have the right to enter an appearance and participate in the case. Failure to appear will preclude you from contesting this matter at a later date. The attorney for applicant is James Bruce, P.O. Box 1056, Santa Fe, New Mexico 87504. The unit is located approximately 16-1/2 miles northwest of Jal, New Mexico.

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JAMES BRUCE JAMES BRUCE, ATTORNEY AT LAW P.O. BOX 1056 SANTA FE, NM 87504

EXHIBIT



COMPULSORY POOLING APPLICATION CHECKLIST

ALL INFORMATION IN THE	APPLICATION MUST BE SUPPORTED BY SIGNED AFFIDAVITS	

Case:		21071
Date	April 16, 2020	
Applicant	Tap Rock Resources, LLC	
Designated Operator & OGRID	Tap Rock Operating, LLC/OGRID No. 372043	
(affiliation if applicable)	The operator is the operating entity for applicant	
Applicant's Counsel:	James Bruce	
Case Title:	Application of Tap Rock Resources, LLC for Compulsory Pooling, Lea County, New Mexico	
Entries of Appearance/Intervenors:	Marathon Oil Permian LLC/Jennifer Bradfute COG Operating LLC/Ocean Munds-Dry et al.	
Well Family	Mandelbaum Fee Wells	
Formation/Pool		
Formation Name(s) or Vertical Extent:	Wolfcamp formation	
Primary Product (Oil or Gas):	Oil	
Pooling this vertical extent:	Entire Wolfcamp formation	
Pool Name and Pool Code:	Antelope Ridge; Wolfcamp/2220	
Well Location Setback Rules:	Statewide rules and current horizontal well rules	
Spacing Unit Size:	Quarter-quarter Section/40 acre	
Spacing Unit	quarter section, 45 dere	
Type (Horizontal/Vertical)	Horizontal	
Size (Acres)	320 acres	
Building Blocks:	40 acres	
Orientation:	South-North	
Description: TRS/County	E/2W/2 and W/2E/2 §11-24S-34E, NMPM, Lea County	
Standard Horizontal Well Spacing Unit (Y/N), If No, describe	Yes	
Other Situations		
Depth Severance: Y/N. If yes, description	No	
Proximity Tracts: If yes, description	No	
Proximity Defining Well: if yes, description	Mandelbaum Fee Well No. 137H	
Applicant's Ownership in Each Tract	Exhibit B-3	
Vell(s)		
Name & API (if assigned), surface and pottom hole location, footages, completion target, orientation, completion status (standard or non-tandard)	Mandelbaum Fee Well No. 132H API No. 30-025-PENDING SHL: 649 FSL & 1848 FWL §11 BHL: 5 FNL & 1657 FWL §11 FTP: 100 FSL & 1657 FWL §11 LTP: 100 FNL & 1657 FWL §11 Formation: Wolfcamp/TVD 11860 Completion location expected to	EXHIBIT F D feet/MD 17270 feet be standard

Mandelbaum Fee Well No. 136H

API No. 30-025-PENDING

SHL: 636 FSL & 2095 FEL §11 BHL: 5 FNL & 1650 FEL §11 FTP: 100 FSL & 1650 FEL §11 LTP: 100 FNL & 1650 FEL §11

Formation: Wolfcamp/TVD 11860 feet/MD 17270 feet

Completion location expected to be standard

Mandelbaum Fee Well No. 137H

API No. 30-015-PENDING SHL: 649 FSL & 1873 FWL §11 BHL: 5 FNL & 2640 FWL §11 FTP: 100 FSL & 2640 FWL §11 LTP: 100 FNL & 2640 FWL §11

Formation: Wolfcamp/TVD 11860 feet/MD 17270 feet

Completion location expected to be standard

Mandelbaum Fee Well No. 203H

API No. 30-025-PENDING SHL: 612 FSL & 2120 FEL §11 BHL: 5 FNL & 2145 FEL §11 FTP: 100 FSL & 2145 FEL §11 LTP: 100 FNL & 2145 FEL §11

Formation: Wolfcamp/TVD 11970 feet/MD 17380 feet

Completion location expected to be standard

Mandelbaum Fee Well No. 207H

API No. 30-015-PENDING SHL: 624 FSL & 1873 FWL §11 BHL: 5 FNL & 2145 FWL §11 FTP: 100 FSL & 2145 FWL §11 LTP: 100 FNL & 2145 FWL §11

Formation: Wolfcamp/TVD 11970 feet/MD 17380 feet

Completion location expected to be standard

Mandelbaum Fee Well No. 212H

API No. 30-015-PENDING SHL: 624 FSL & 1848 FWL §11 BHL: 5 FNL & 1657 FWL §11 FTP: 100 FSL & 1657 FWL §11 LTP: 100 FNL & 1657 FWL §11

Formation: Wolfcamp/TVD 12180 feet/MD 17590 feet

Completion location expected to be standard

Mandelbaum Fee Well No. 216H

API No. 30-025-PENDING SHL: 611 FSL & 2095 FEL §11 BHL: 5 FNL & 1650 FEL §11 FTP: 100 FSL & 1650 FEL §11 LTP: 100 FNL & 1650 FEL §11

	Formation: Wolfcamp/TVD 12180 feet/MD 17590 feet
	Completion location expected to be standard
	Mandelbaum Fee Well No. 217H
	API No. 30-025-PENDING
1	SHL: 637 FSL & 2640 FWL §11
	BHL: 5 FNL & 2640 FWL §11
1	FTP: 100 FSL & 2640 FWL §11
1	LTP: 100 FNL & 2640 FWL §11
	Formation: Wolfcamp/TVD 12180 feet/MD 17590 feet
Horizontal Well First and Last Take Points	See above
Completion Target (Formation, TVD and MD)	See Above
AFE Capex and Operating Costs	
Drilling Supervision/Month \$	\$7000
Production Supervision/Month \$	\$700
Justification for Supervision Costs	Exhibit B page 3
Requested Risk Charge	Cost + 200%/Exhibit B page 3
Notice of Hearing	
Proposed Notice of Hearing	Exhibit A
Proof of Mailed Notice of Hearing (20	
days before hearing)	Exhibit D
Proof of Published Notice of Hearing (10	
days before hearing)	Exhibit E
Ownership Determination	
Land Ownership Schematic of the	
Spacing Unit	Exhibit B-2
Tract List (including lease numbers and	
owners)	Exhibits B-3 and B-4
Pooled Parties (including ownership	
type)	Exhibit B-4
Unlocatable Parties to be Pooled	
Ownership Depth Severance (including	
percentage above & below)	None
Joinder	
Sample Copy of Proposal Letter	Exhibit B-5
List of Interest Owners (i.e. Exhibit A of	
JOA)	Exhibit B-3
Chronology of Contact with the	
Chronology of Contact with Non-Joined	
Overhead Pates In Proposal Latte	Exhibit B-6
Overhead Rates In Proposal Letter	
Cost Estimate to Drill and Complete	Exhibit B-5
Cost Estimate for Production 5	Exhibit B-5
Cost Estimate for Production Facilities	Exhibit B-5
Geology Summary /including an acid	
Summary (including special	
considerations)	Exhibit C
Spacing Unit Schematic	Exhibit C-8

Gunbarrel/Lateral Trajectory Schematic	Exhibit C-9
Well Orientation (with rationale)	Standup/Exhibit C
Target Formation	Wolfcamp
HSU Cross Section	Exhibit C-11
Depth Severance Discussion	Not Applicable
Forms, Figures and Tables	
C-102	Exhibit B-1
Tracts	Exhibit B-2
Summary of Interests, Unit	
Recapitulation (Tracts)	Exhibit B-4
General Location Map (including basin)	Exhibit C-8
Well Bore Location Map	Exhibit C-9
Structure Contour Map - Subsea Depth	Exhibit C-10
Cross Section Location Map (including	
wells)	Exhibit C-11
Cross Section (including Landing Zone)	Exhibit C-11
Additional Information	
CERTIFICATION: I hereby certify that the	
information provided in this checklist is	
complete and accurate.	
Printed Name (Attorney or Party	
Representative):	James Bruce
Signed Name (Attorney or Party	R.
Representative):	James Muce
Date:	April 14, 2020