

# **Before the Oil Conservation Division Examiner Hearing September 19<sup>th</sup>, 2019**

Case No. 16381

Crossbow Fed Com 23-27-8 WXY 2H, WA 4H, WXY 9H, WA 10H, WXY 8H, WXY 14H, WA 15H and WA 16H



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

# APPLICATION OF MARATHON OIL PERMIAN LLC FOR COMPUSLORY POOLING, EDDY COUNTY, NEW MEXICO.

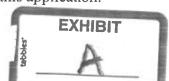
#### **CASE NO. 16381**

# **AFFIDAVIT**

STATE OF TEXAS	)
	) ss
COUNTY OF MIDLAND	)

Clayton W. Rule, being duly sworn, deposes and states:

- 1. I am over the age of 18, I am a land supervisor for Marathon Oil Permian LLC and have personal knowledge of the matters stated herein.
  - 2. I have not testified before the Oil Conservation Division ("Division") before.
  - 3. My resume is attached as Exhibit 1.
- 4. I received a Bachelors of Business Administration from Baylor University and a Masters of Business Administration from the University of Texas, Dallas.
- 5. I have worked as a landman or land supervisor since 2006, first at Jim Burgin & Associates, and then at Marathon. I have been working at Marathon since 2010.
- 6. I have been certified as a professional landman by the American Association of Professional Landmen and as a certified professional lease and title analysis by the National Association of Lease and Title Analysts.
- 7. My area of responsibility at Marathon includes the area of Eddy County in New Mexico.
  - 8. I am familiar with the application filed by Marathon in this case.
  - 9. I am familiar with the status of the lands that are subject to this application.



- 10. I submit the following information pursuant to NMAC 19.15.4.12.A(1) in support of the above referenced compulsory pooling applications.
  - 11. Attached as **Exhibit 2** is the application for Case No. 16381.
- 12. The purpose of these applications is to force pool working interest owners into the horizontal spacing unit described below, and in the wells to be drilled in the unit.
- 13. No opposition is expected because the interest owners being pooled have been contacted regarding the proposed wells, but have failed or refused to voluntarily commit their interests in the wells.
- 14. In this case, Marathon seeks an order from the Division pooling all uncommitted mineral interests within a Wolfcamp horizontal spacing unit underlying Sections 7 and 18, Township 23 South. Range 27 East, NMPM, Eddy County, New Mexico.
- 15. This spacing unit will be dedicated to the Crossbow Fed Com 23-27-8 WXY 2H, Crossbow Fed Com 23-27-8 WA 4H, Crossbow Fed Com 23-27-8 WXY 9H, Crossbow Fed Com 23-27-8 WA 10H, Crossbow Fed Com 23-27-8 WXY 8H, Crossbow Fed Com 23-27-8 WXY 14H, Crossbow Fed Com 23-27-8 WA 15H, and Crossbow Fed Com 23-27-8 16H wells, to be horizontally drilled.
  - 16. Attached as **Exhibit 3** are the proposed C-102s for the wells.
- 17. The wells will develop the Purple Sage Wolfcamp Pool, Pool Code 98220, which is a gas pool, and which is governed by special pool rules.
- 18. The wells will comply with the setback requirements for the Purple Sage Wolfcamp Pool.
- 19. A lease tract map outlining the unit being pooled is attached hereto as **Exhibit 4**. The parties being pooled and the percent of their interests is also included as part of Exhibit 4.
  - 20. There are no depth severances within the Wolfcamp formation.

- 21. I have conducted a diligent search of the public records in the county where the wells are located, and conducted phone directory and computer searches to locate contact information for parties entitled to notification, and mailed all parties well proposals, including an Authorization for Expenditure.
- 22. The proposal letters for the Wolfcamp wells were all received by the parties to whom they were sent. In other words, no proposal letters were returned or undeliverable.
- 23. Marathon sent a proposal letter to Magnum Hunter based on the title report it had at the time. Marathon also sent a letter to Cimarex, which acquired Magnum Hunter. Magnum Hunter also changed its name to Blue Ridge Resources in 2017. Marathon provided its counsel with addresses for Cimarex and Blue Ridge Resources, and, as Exhibit 8 demonstrates, Marathon's counsel sent notice letters including the pooling application and notice of the pooling hearing to both Cimarex and Blue Ridge Resources. After notice of Marathon's compulsory pooling application and hearing was sent, Mewbourne acquired Magnum Hunter's interest.
- 24. **Exhibit 5** is a summary of Marathon's efforts to obtain voluntary joinder. In my opinion, Marathon has made a good faith effort to obtain voluntary joinder of the working interest owners in the proposed wells.
- 25. **Exhibit 6** is an example of the proposal letters sent to working interest owners, which was sent in July 2018. In early August 2018, Marathon sent a follow up letter regarding certain information in the proposal letters and AFEs, which clarified that the anticipated costs associated with the wells were described in the AFEs themselves, and not in the proposal letter or summary information in the AFEs.
- 26. **Exhibit 7** contains the Authorization for Expenditure for the proposed wells. The estimated cost of the wells set forth therein is fair and reasonable, and is comparable to the costs of other wells of similar depths and length drilled in this area of New Mexico.

- 27. Marathon requests overhead and administrative rates of \$8000.00/month for drilling a well and \$800.00/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. Marathon requests that these rates be adjusted periodically as provided in the COPAS Accounting Procedure. Marathon requests the maximum cost plus 200% risk charge be assessed against non-consenting working interest owners.
  - 28. Marathon requests that it be designated operator of the wells.
- 29. Marathon requests that it be allowed a period of one (1) year between when the wells are drilled and when the first well is completed under the order.
- 30. The parties Marathon is seeking to pool were notified of this hearing. Marathon requests that overriding royalty interest owners be pooled.
- 31. **Exhibit 8** is an affidavit of notice prepared by counsel for Marathon that shows the parties who were notified of this hearing, the status of whether they received notice, and an affidavit of publication from the Carlsbad Current-Argus newspaper, showing that notice of this hearing was published on August 24, 2018.
- 32. The attachments to this affidavit were prepared by me, or compiled from company business records, or were prepared at my direction and the information provided herein is correct and complete to the best of my knowledge and belief.
- 33. The granting of this application is in the interests of conservation and the prevention of waste.

Clayton W. Rule

SUBSCRIBED AND SWORN to before me this 15 th day of September, 2019 by Clayton W. Rule on behalf of Marathon Oil Permian LLC.

Notary Public

My commission expires: 1/23/2023

JESSICA GORMAN
Notary Public, State of Texas
Commission Expires 01-23-2023
Notary ID 13008780-4

# Clayton W. Rule

3903 Morning Creek Ct, Fulshear, TX 77441 · 713-213-8051 · cwrule@marathonoil.com

Experienced Landman with a demonstrated history of successful execution on large-scale projects.

### **Professional Experience**

### Marathon Oil Company (8/2010 to Current)

Land Supervisor - Permian

- Experience coordinating land activities for both conventional and resources assets in Permian, Gulf Coast, Rocky Mountains and Mid-Con
  - o Exploration Projects
  - o Multi Rig Development Programs
  - o Legacy Production Management
- Served as Team Lead for over \$2.4B in A&D projects
  - o PSA Negotiation
  - o Diligence
  - o Defect Resolution
- Skilled negotiator of various land use and land trade agreements
- Ability to manage large teams of brokers, in house landmen and analysts
- Broad based knowledge of land, accounting and upstream operations
- Significant experience in Lease and Land Administration

## Jim Burgin & Associates, Inc. (8/2006 to 8/2010)

Landman

- Managed large trend leasing projects throughout the state of Texas
- Performed all aspects of title review including abstracting and curative
- Negotiated leases, damage settlements, and right of way acquisitions

#### Education

**Masters of Business Administration** 

University of Texas at Dallas – Richardson, Texas

**Bachelors of Business Administration** 

Baylor University - Waco, Texas

#### Certifications

#### **Certified Professional Landman**

• American Assocation of Professional Landmen

# Certified Professional Lease and Title Analyst

National Association of Lease and Title Analyst



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

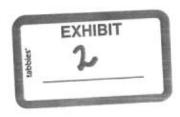
APPLICATION OF MARATHON
OIL PERMIAN LLC FOR A HORIZONTAL
STANDARD SPACING UNIT AND
COMPULSORY POOLING,
EDDY COUNTY, NEW MEXICO.

CASE NO. \_/6381

## **APPLICATION**

Marathon Oil Permian LLC ("Marathon"), OGRID Number 372098, through its undersigned attorneys, hereby makes an application to the Oil Conservation Division pursuant to the provisions of NMSA (1978), Section 70-2-17, for an order: (1) creating a 1280-acre, more or less, spacing unit covering Sections 7 and 8, Township 23 South, Range 27 East, NMPM, Eddy County, New Mexico; and, (2) pooling all mineral interests in the Wolfcamp formation underlying the spacing and proration unit. In support of this application, Marathon states as follows:

- 1. Marathon is an interest owner in the subject lands and has a right to drill a well thereon.
- Marathon seeks to dedicate Sections 7 and 8, Township 23 South, Range 27 East,
   NMPM, Eddy County, New Mexico to the proposed wells to form a 1280-acre, more or less,
   spacing unit.
- 3. Marathon plans to drill the Crossbow 23 27 8 WXY 2H, Crossbow 23 27 8 WA
  4H, Crossbow Federal 23 27 8 WXY 9H, Crossbow Federal 23 27 8 WA 10H, Crossbow



Federal 23 27 8 WXY 8H Crossbow Federal 23 27 8 WXY 14H, Crossbow Federal 23 27 8 WA 15H and Crossbow Federal 23 27 8 WA 16H wells to a depth sufficient to test the Wolfcamp formation. These wells will be horizontally drilled using the same drilling rig.

- 4. These wells will be located within the Purple Sage Wolfcamp Gas Pool, which is subject to special pool rules that establish 330 foot setback requirements. The producing intervals that Marathon seeks to drill will comply with the 330 foot setback requirements.
- 5. Marathon sought, but has been unable to obtain a voluntary agreement from all interest owners in the Wolfcamp formation underlying the proposed spacing unit to participate in the drilling of the wells or to otherwise commit their interests to the wells.
- 6. The creation of the unit and pooling of all interests in the Wolfcamp formation underlying the proposed spacing unit will prevent the drilling of unnecessary wells, prevent waste and protect correlative rights.

WHEREFORE, Marathon requests this application be set for hearing before an Examiner of the Oil Conservation Division on September 6, 2018, and after notice and hearing as required by law, the Division enter its order:

- A. Creating a spacing unit in the Wolfcamp formation comprised of Sections 7 and 8, Township 23 South, Range 27 East, NMPM, Eddy County, New Mexico;
- B. Pooling all mineral interests in the Wolfcamp formation underlying this spacing unit;
- C. Designating Marathon as operator of this unit and the wells to be drilled thereon;
- D. Authorizing Marathon to recover its costs of drilling, equipping and completing these wells;

- E. Approving actual operating charges and costs charged for supervision, together with a provision adjusting the rates pursuant to the COPAS accounting procedure; and
- F. Setting a 200% charge for the risk involved in drilling and completing the wells in the event a working interest owner elects not to participate in the wells.

Respectfully submitted,

MODRALL, SPERLING, ROEHL, HARRIS & SISK, P.A.

By:

Jennifer Bradfute
Deana M. Bennett

Post Office Box 2168

500 Fourth Street NW, Suite 1000

Albuquerque, New Mexico 87103-2168

Telephone: 505.848.1800 Attorneys for Applicant case No. : Application of Marathon Oil Permian LLC for a horizontal spacing and proration unit and compulsory pooling, Eddy County, New Mexico. Applicant seeks an order from the Division: (1) creating a 1280-acre, more or less, spacing unit in covering Sections 7 and 8, Township 23 South, Range 27 East, NMPM, Eddy County, New Mexico; and, (2) pooling all mineral interests in the Wolfcamp formation underlying this proposed spacing and proration unit. This proposed spacing unit will be the unit for the Crossbow 23 27 8 WXY 2H, Crossbow 23 27 8 WA 4H, Crossbow Federal 23 27 8 WXY 9H, Crossbow Federal 23 27 8 WXY 14H, Crossbow Federal 23 27 8 WXY 8H Crossbow Federal 23 27 8 WXY 14H, Crossbow Federal 23 27 8 WA 15H and Crossbow Federal 23 27 8 WA 16H wells, to be horizontally drilled. The producing area for these wells will be orthodox. Also to be considered will be the cost of drilling and completing said wells, the allocation of these costs as well as the actual operating costs and charges for supervision, designation of Marathon as operator of the wells, and a 200% charge for risk involved in drilling said wells. Said area is located approximately 8 miles southwest of Carlsbad, New Mexico.

AUG 07 2018 PHO3:36

District.1
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax (505) 334-6170
District IIV
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

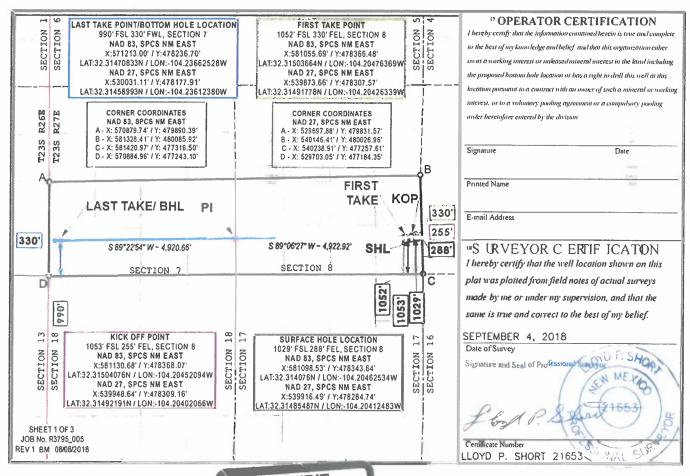
Form C-102 Revised August 1, 2011 Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1	API Numbe	r		<sup>2</sup> Pool Code			3 Pool Na	me		
				98220		PURPLE	E SAGE; WO	DLFCAMP (G.	AS)	
4 Property	Code		S Property Name						6 Well Number	
	[		CROSSBOW FED COM 23-27-8 WXY							
<sup>7</sup> OGRID	No.	*Operator Name							<sup>9</sup> Elevation	
37209	98	MARATHON OIL PERMIAN LLC						3158'		
					" Surface I	Location				
UL or lot no. Section T		Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	Count	
UL or lot no. Section Township			1 225		1000	COUTU	200	E A OTE	EDDI	

P	8	238	27E		1029	SOUTH	288	EAST	EDDY
			" Bo	ttom Ho	le Location If	Different Fron	n Surface		
UL or lot no. Section Township			Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	7	23S	27E		990	SOUTH	330	WEST	EDDY
12 Dedicated Acres	Joint o	r Infill	Consolidation	Code 15 Oi	der No.		•	·	
637.68									



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# WELL LOCATION AND ACREAGE DEDICATION PLAT

1	API Numbe	r		<sup>2</sup> Pool Code			<sup>3</sup> Pool Na	me			
				98220		PURPLE	SAGE; WC	LFCAMP (GA	MP (GAS)		
1 Property	Code		· ·		Property !	Vame		6,	<sup>6</sup> Well Number		
	ŀ	CROSSBOW FED COM 23-27-8 WA							4H		
7 OGRID	No.				<sup>9</sup> Elevation						
37209	8				3159'						
					<sup>10</sup> Surface I	ocation					
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County		
Р	8	23S	27E		1029	SOUTH	378	EAST	EDDY		

			" Bo	ttom Hol	e Location If	Different From	Surface		
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	7	23S	27E		330	SOUTH	330	WEST	EDDY
12 Dedicated Acres	<sup>13</sup> Joint o	r Infill 14 C	Consolidation (	Code 15 Or	der No.				
637.68									

SECTION 1	Columbia	SURFACE HOLE LOCATION 1029' FSL 378' FEL, SECTION 8 NAD 83, SPCS NM EAST X:581008.53' /Y:478343.64' LAT:32.31497403N / LON:-104.20491646W NAD 27, SPCS NM EAST X:539826.49' / Y:478284.74' LAT:32.31485518N / LON:-104.20441615W	OPERATOR CERTIFICATION  Thereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working
T23S R26E	CORNER COORDINATES NAD 83, SPCS NM EAST A - X: 570879.74' / Y: 479890.39' B - X: 581328.41' / Y: 48085.92' C - X: 581420.97' / Y: 477245.10' D - X: 570884.96' / Y: 477245.10'	CORNER COORDINATES NAD 27, SPCS NM EAST A - X: 529697.86' / Y: 479831.57' B - X: 540146.41' / Y: 480026.96' C - X: 540238.91' / Y: 477257.61' D - X: 529703.05' / Y: 477184 35'	micrest, or to a voluntary pooling agreement or a compulsory pooling arker heretofore entered by the division  —  Signature Date
A	LAST TAKE/	SHL 378'	Printed Name  E-mail Address
330'	BHL S 89*22'54* W~ 4,930.07' SECTION 7	SECTION 8 [330]  SECTION 8 [255]	SURVEYOR CERTIFICATION  I hereby certify that the well location shown on this  plat was plotted from field notes of actual surveys  made by me or under my supervision, and that the
13	LAST TAKE POINT/BOTTOM HOLE LOCATION	I INOT TAKE FORM	same is true and correct to the best of my belief.  SEPTEMBER 4, 2018  Date of Survey
SECTION	330' FSL 330' FWL, SECTION 7 NAD 83, SPCS NM EAST X:571214.30' / Y:477576.67' LAT:32.31289401N / LON:-104.23662299W NAD 27, SPCS NM EAST X:530032.40' / Y:477517.91' LAT:32.31277560N / LON:-104.23612156W	330' FSL 330' FSL SECTION 8 NAD 83, SPCS NM EAST X:581079.81' /Y:47764.86' LAT:32.31305294N / LON:-104.20468842W NAD 27, SPCS NM EAST X:539897.76' / Y:477585.97' LAT:32.31293407N / LON:-104.20418818W	Signature and Scal of Professional Spaces on:
	R3975_004 4 07/25/2018		Certificate Number LLOYD P. SHORT 2165

District J 1625 N French Dr., Hobbs, NM 88240 Phone: (575) 393-6161 Fax: (575) 393-0720 District II 811 S. First St., Artesia, NM 88210 Phone: (575) 748-1283 Fax: (575) 748-9720 District III 1000 Rio Brazos Road, Aztec, NM 87410 Phone: (505) 334-6178 Fax: (505) 334-6170 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505 Phone: (505) 476-3460 Fax: (505) 476-3462

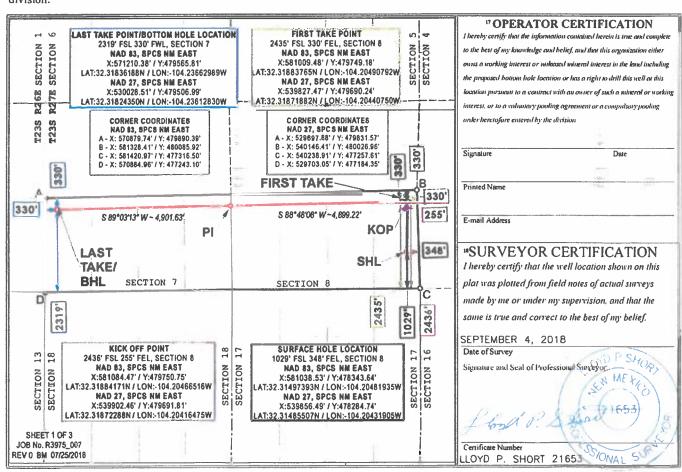
# State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION 1220 South St. Francis Dr. Santa Fe, NM 87505

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

☐ AMENDED REPORT

### WELL LOCATION AND ACREAGE DEDICATION PLAT

1	API Numbe	r		<sup>2</sup> Pool Co			<sup>3</sup> Pool Nan		- ·		
			i	98220	20 PURPLE SAGE; WOLFCAMP (GAS)						
<sup>4</sup> Property	Code		P		5 Property N	lame		6 //	<sup>6</sup> Well Number		
			(	CROSSI	BOW FED CO		9H				
<sup>7</sup> OGRID	No.				8 Operator l	,	<sup>9</sup> Elevation				
37209		3158'									
					<sup>∞</sup> Surface I	ocation					
UL or lot no.	Section	Township	Range	Lot ld	n Feet from the	North/South line	Feet from the	East/West line	County		
P	8	238	27E		1029	SOUTH	348	EAST	EDDY		
	•		" Bo	ttom Ho	ole Location If	Different From	Surface				
UL or lot no.	Section	Township	Range	Lot Id	n Feet from the	North/South line	Feet from the	East/West line	County		
L	7	238	27E		2319	SOUTH	330	WEST	EDDY		
12 Dedicated Acre	s Di Joint o	r Infili	14 Consolidation	Code 15 C	Order No.	,	,	•			
637.68											



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UL or lot no.

API Number

Section

Township

Range

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

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County

### WELL LOCATION AND ACREAGE DEDICATION PLAT

Pool Code

				98220		PURPLE	SAGE; WO	LFCAMP (	MP (GAS)		
<sup>4</sup> Property	Code				* Well Number 10H						
<sup>7</sup> OGRID 37209				CROSSE MARA		*Elevation 3158					
<u> </u>	·				<sup>™</sup> Surface I	Location		, , , , , , , , , , , , , , , , , , , ,			
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West	ine County		
P	8	23S	27E		1029	SOUTH	318	EAST	EDDY		
5	" Bottom Hole Location If Different From Surface										

L 7 23S 27E 1654 SOUTH 330 WEST EDDY

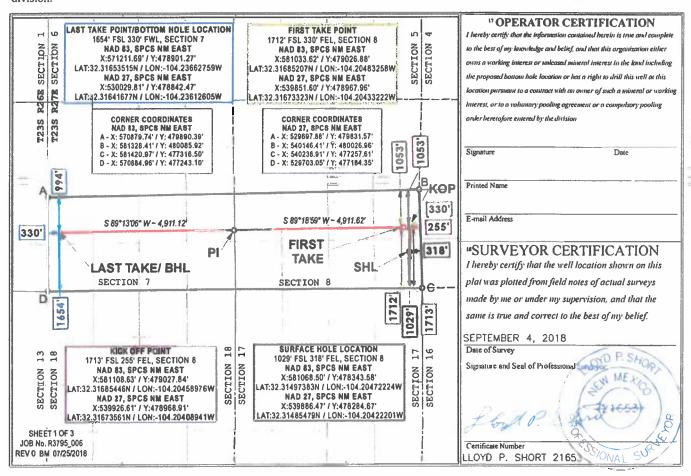
12 Dedicated Acres 13 Joint or Infill 14 Consolidation Code 15 Order No. 637.68

North/South line

Feet from the

East/West line

Feet from the



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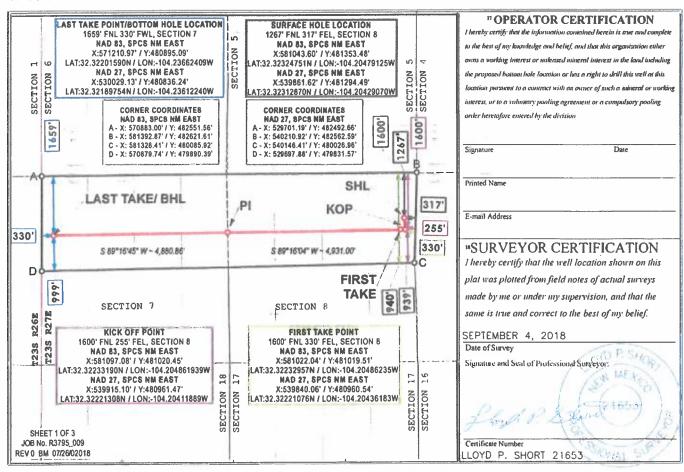
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## WELL LOCATION AND ACREAGE DEDICATION PLAT

	PURPLE SAGE; WO	Well Number
CKOSSBOW FED	COM 23-27-8 WXY	8H
<sup>8</sup> Opera	Plevation 3170'	
	MARATHON O	MARATHON OIL PERMIAN LLC

Surface Location East/West line County UL or lot no. Section Township Range Lot Idn Feet from the North/South line Feet from the 8 **23S** 27E 1267 NORTH 317 **EAST EDDY** Α "Bottom Hole Location If Different From Surface

til or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	7	23S	27E		1659	NORTH	330	WEST	EDDY
12 Dedicated Acres	Joint o	Infill 14 C	Consolidation C	ode 15 On	der No.				
638.16									



District I (625 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 Phote: (575) 748-1283 Fax: (575) 748-9720 District III 1000 Rio Brazos Road, Aztec, NM 87410 Phone: (505) 334-6178 Fax: (505) 334-6170 District IIV 1220 S. St. Francis Dr., Santa Fe, NM 87505 Phone: (505) 476-3460 Fax: (505) 476-3462

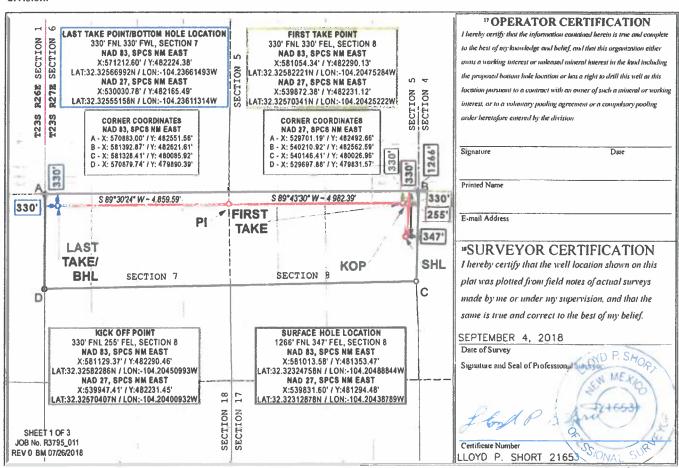
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#### WELL LOCATION AND ACREAGE DEDICATION PLAT

	3 n. ( M													
1 /	API Numbe	r			<sup>2</sup> Pool (	Code			<sup>3</sup> Pool Na					
					982	20		PURPLE	SAGE; WO	LFCAN	ЛР (GA	(S)		
<sup>4</sup> Property C	Code			<sup>5</sup> Property Name							Well Number			
					CROS	SBOW FE	D CON	1 23-27-8 W	/XY		14H			
OGRID 1	No.					<sup>8</sup> Operator Name						Elevation		
37209	8			MARATHON OIL PERMIAN LLC					3171'					
<u> </u>	□ Surface Location													
UL or lot no.	Section	Township	Р	Range	Lot	ldn Feet fr	om the	North/South line	Feet from the	East	/West line	County		
A	8	238	3 2	27E		126	5	NORTH	347	EAS	ST	EDDY		
				"Bo	ttom F	lole Locati	on If D	ifferent Fron	n Surface					
UL or lot no.	Section	Township	Р	Range	Lot	ldn Feet fr	om the	North/South line	Feet from the	East	West line	County		
D	7	238	2	27E		330		NORTH	330	WES	ST	EDDY		
12 Dedicated Acres 13 Joint or Infill 14 Consolida				lidation (	Code 1	Order No.								
638.16														



<u>District.1</u>
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
<u>District.11</u>
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
<u>District.111</u>
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
<u>District.117</u>

1220 S. St. Francis Dr., Santa Fe, NM 87505 Phone: (505) 476-3460 Fax: (505) 476-3462

638.16

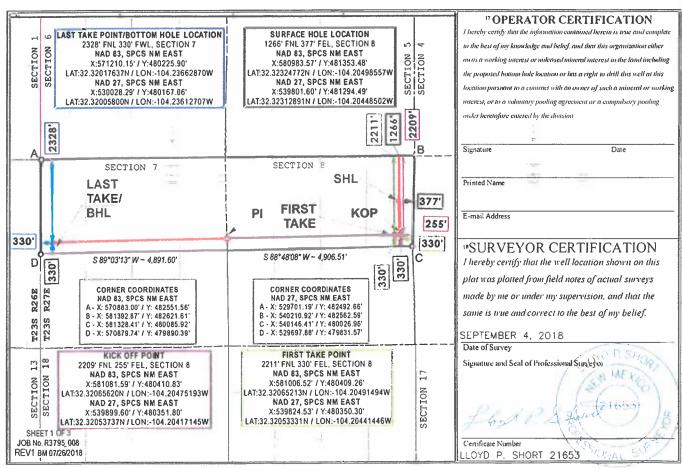
# State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION 1220 South St. Francis Dr. Santa Fe, NM 87505

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

☐ AMENDED REPORT

## WELL LOCATION AND ACREAGE DEDICATION PLAT

1	API Numbe	r		<sup>2</sup> Pool Code			<sup>3</sup> Pool Na					
				98220	LFCAM	P (G/	AS)					
1 Property	Code					<sup>6</sup> Well Number						
				CROSSI	BOW FED (	COM 23-27-8	WA		15H			
<sup>7</sup> OGRID	No.			8 Operator Name						Elevation		
37209	98			MARATHON OIL PERMIAN LLC						3171'		
/ <del></del>	□ Surface Location											
(IL or lot no.	Section	Township	Range	Lot idn	Feet from the	North/South line	Feet from the	East/\	Vest line	County		
Α	8	23S	27E		1266	NORTH	377	EAS	Т	EDDY		
			" Bo	ttom Hol	e Location If	Different Fron	n Surface					
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	Enst/\	Vest line	County		
Е	7	23S	27E		2328	NORTH	330	WES	т	EDDY		
12 Dedicated Acre	s <sup>13</sup> Joint o	r Infill 14	Consolidation	Code 15 Or	der No.							



District J 1625 N French Dr., Hobbs, NM 88240 Phone: (575) 393-6161 Fax: (575) 393-0720 District JI 811 S. First St., Artesia, NM 88210 Phone: (575) 748-1283 Fax: (575) 748-9720 District JII 1000 Rio Brazos Road, Aztec, NM 87410 Phone: (505) 334-6178 Fax: (505) 334-6170 District JV 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

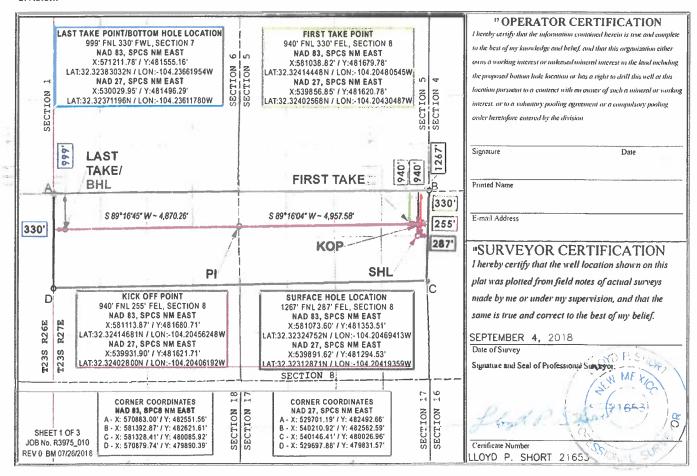
Form C-102 Revised August 1, 2011 Submit one copy to appropriate District Office

AMENDED REPORT

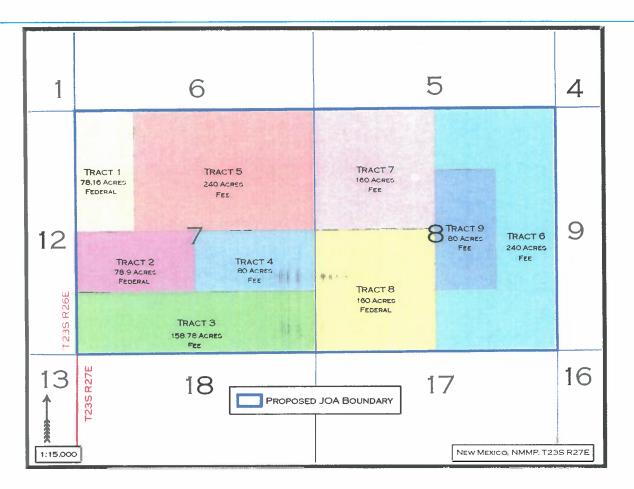
### WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number				<sup>2</sup> Pool Code <sup>3</sup> Pool Name				ıme		
98220 PURPLE SAGE; WOLFCAMP (GA					GAS)					
4 Property	Code				5 Property	Name			<sup>6</sup> Well Number	
CROSSBOW FED COM 23-27-8 WA						16H				
Operator Name						<sup>9</sup> Elevation				
37209	MARATHON OIL PERMIAN LLC 3166				3166'					
					<sup>10</sup> Surface I	Location				
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West li	ne County	
Α	A 8 23S 27E 1267 NORTH 287 E		EAST	EDDY						
"Bottom Hole Location If Different From Surface										

UL or lot no. Range Lot Idr Feet from the North/South line Feet from the East/West line 23S 27E 999 NORTH 330 WEST D EDDY 12 Dedicated Acres 3 Joint or Infill Consolidation Code 638.16



# Lease Tract Map Crossbow Federal 23 27 8 Spacing Unit (1280 acres)



· Total Federal Acres: 317.06

· Total Fee Acres: 958.78





# Summary of Interests: *Wolfcamp Formation* Crossbow Federal 23 27 8 Spacing Unit

Committed Working Interest: 88.46%

Interest Owner	Tract 1 WI	Tract 2 WI	Tract 3 WI	Tract 4 WI	Tract 5 WI	Tract 6 WI	Tract 7 WI	Tract 8 WI	Tract 9 WI	Unit WI
Marathon Oil Permian LLC	0.50972780	0.50972780	1.00000000	1.00000000	1.00000000	1.00000000	0.80498121	0.75633121	1.00000000	0.88463117

#### Uncommitted Working Interest: 11.54%

Interest Owner	Tract 1 WI	Tract 2 Wi	Tract 3 WI	Tract 4 WI	Tract 5 WI	Tract 6 WI	Tract 7 WI	Tract 8 WI	Tract 9 WI	Unit WI
Mewbourne Oil Company	0.45360312	0.45360312	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0 00000000	0.05584000
Warwick-Ares, LLC	0.03666908	0.03666908	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00451408
David M. Madden, Trustee of the Robert H. St. John Family Trust	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0 03611250	0.04815000	0.00000000	0.01056716
Grinch, LLC	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.10833750	0.14445000	0.00000000	0.03170147
DeAnne Shepard	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00150000	0.00200000	0.00000000	0.00043893
sland Resources	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.04782717	0.04782717	0.00000000	0.01199578
Texas Independent Exploration Inc.	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00124162	0.00124162	0.00000000	0.00031142
TOTALS	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000	1.00000000



# Summary of Interests: *ORI Bone Spring and Wolfcamp Formations* Crossbow Federal 23 27 8 Spacing Unit

Interest Owner	Tract 1 OR	Tract 2 ORI	Tract 3 ORI	Tract 4 OR	Tract 5 ORI	Tract 6 ORI	Tract 7 ORI	Tract 8 ORI	Tract 9 ORI	Unit ORI
Wallace H. Scott Unified Credit Trust	0.00297677	0.00297677								0.00036908
Magnum Hunter Production, Inc.	0.05372362	0.05372362								0.00666109
DM Holdings		1 11	0.01000000							0.00031352
sland Resources			0.00172500					0.00150000		0.00024219
owell Todd Armstrong		11	0.00010709					0.00006984		0.00001212
Madison M. Hinkle and wife, Susan M. Hinkle						0.01157407			0.00625000	0.00256911
Rolla R. Hinkle III						0.01428240		0.01111111	0.00625000	0.00447200
Jim Brannigan						0.00833333			0.01000000	0.00219463
Madison M. Hinkle						0.00270833		0.01111111		0.00190289
Chi Energy, Inc.						0.00250000				0.00047028
Mary K. Hughes								0.00625000		0.00078380
Morris E. Schertz								0.00277 <b>778</b>		0.00034835



# **Summary of Attempted Contacts: Crossbow**

- Marathon sent well proposal letters on July 12, 2018 and a revision on August 3, 2018.
- According to Marathon's records, all of the proposal letters were received by the parties to whom they were sent.
- Marathon sent Joint Operating Agreements to the working interest owners on January 8,2019 to see if they would participate in the well and/or execute a joint operating agreement.
- Marathon continued to attempt to contact the parties who had not executed an agreement.
- Marathon filed an application to force pool parties who had not entered in to an agreement.
- Marathon sent notices of the force pooling application to the addresses of record at the time of the filing of the application.
- Marathon then also published notice in a newspaper of general circulation in the county where the wells will be located.



Matt S. Tate, CPL Land Professional



Marathon Oil Company 5555 San Felipe Street Houston, TX 77056 Telephone: 713-296-2164 Fax: 713.235.8033 matthewstate@marathonoil.com

July 12, 2018

VIA OVERNIGHT DELIVERY

Chevron USA, Inc. 6301 Deauville Blvd. Midland, Texas 79706

Re: Crossbow Federal 23 27 8 2H, 4H, 8H, 9H, 10H, 14H, 15H and 16H Well Proposals

Sections 7 and 8, T23S-R27E Eddy County, New Mexico

Dear Working Interest Owner:

Marathon Oil Permian LLC ("MRO") proposes the drilling and completion of the following wells located in Sections 7 and 8, T23S-R27E, Eddy County, New Mexico, to be drilled from two separate pad locations currently in the E/2 NE/4 and E/2 SE/4 of Sec 8, T23S-R27E (subject to change).

Please note the following proposed wells replace the previously proposed Crossbow Federal 23 27 8 WXY 2H, TB 3H and WA 4H well proposals dated May 3, 2018.

- Crossbow Federal 23 27 8 WA 4H with a proposed first take point located 330' FEL and 330' FSL of Section 8, T23S-R27E, and a proposed last take point located 330' FWL and 330' FSL of Section 7, T23S-R27E. The well will have a targeted interval located in the Wolfcamp WA Formation (~9,092' TVD) with a productive lateral length approximately 9,841'. The total estimated drilling and completion cost is \$9,756,288 as shown in the attached AFE.
- Crossbow Federal 23 27 8 WXY 2H with a proposed first take point located 330' FEL and 990' FSL of Section 8, T23S-R27E, and a proposed last take point located 330' FWL and 990' FSL of Section 7, T23S-R27E. The well will have a targeted interval located in the Wolfcamp WXY Formation (~9,027' TVD) with a productive lateral length approximately 9,841'. The total estimated drilling and completion cost is \$9,756,288 as shown in the attached AFE.
- Crossbow Federal 23 27 8 WA 10H with a proposed first take point located 330' FEL and 1650' FSL of Section 8, T23S-R27E, and a proposed last take point located 330' FWL and 1650' FSL of Section 7, T23S-R27E. The well will have a targeted interval located in the Wolfcamp WA Formation (~9,092' TVD) with a productive lateral length approximately 9,841'. The total estimated drilling and completion cost is \$9,756,288 as shown in the attached AFE.
- Crossbow Federal 23 27 8 WXY 9H with a proposed first take point located 330' FEL and 2310' FSL of Section 8, T23S-R27E, and a proposed last take point located 330' FWL and 2310' FSL of Section 7, T23S-R27E. The well will have a targeted interval located in the Wolfcamp WXY Formation (~9,027' TVD) with a productive lateral length approximately 9,841'. The total estimated drilling and completion cost is \$9,756,288 as shown in the attached AFE.



- Crossbow Federal 23 27 8 WA 15H with a proposed first take point located 330' FEL and 2310' FNL of Section 8, T23S-R27E, and a proposed last take point located 330' FWL and 2310' FNL of Section 7, T23S-R27E. The well will have a targeted interval located in the Wolfcamp WA Formation (~9,092' TVD) with a productive lateral length approximately 9,900'. The total estimated drilling and completion cost is \$9,756,288 as shown in the attached AFE.
- Crossbow Federal 23 27 8 WXY 8H with a proposed first take point located 330' FEL and 1650' FNL of Section 8, T23S-R27E, and a proposed last take point located 330' FWL and 1650' FNL of Section 7, T23S-R27E. The well will have a targeted interval located in the Wolfcamp WXY Formation (~9,027' TVD) with a productive lateral length approximately 9,900'. The total estimated drilling and completion cost is \$9,756,288 as shown in the attached AFE.
- Crossbow Federal 23 27 8 WA 16H with a proposed first take point located 330' FEL and 990' FNL of Section 8, T23S-R27E, and a proposed last take point located 330' FWL and 990' FNL of Section 7, T23S-R27E. The well will have a targeted interval located in the Wolfcamp WA Formation (~9,092' TVD) with a productive lateral length approximately 9,900'. The total estimated drilling and completion cost is \$9,756,288 as shown in the attached AFE.
- Crossbow Federal 23 27 8 WXY 14H with a proposed first take point located 330' FEL and 330' FNL of Section 8, T23S-R27E, and a proposed last take point located 330' FWL and 330' FNL of Section 7, T23S-R27E. The well will have a targeted interval located in the Wolfcamp WXY Formation (~9,027' TVD) with a productive lateral length approximately 9,900'. The total estimated drilling and completion cost is \$9,756,288 as shown in the attached AFE.

These proposed locations and target depths are subject to change depending on any surface or subsurface concerns encountered. The AFE's represent an estimate of the costs that will be incurred to drill and complete the wells, but those electing to participate in the wells are responsible for their proportionate share of the actual costs incurred.

Marathon proposes drilling these wells under the terms of the 1989 AAPL JOA and a copy will be provided to you following this proposal. The JOA will contain the following general provisions:

- 100%/300%/300% non-consent penalty
- \$8,000/\$800 drilling and producing rates
- Contract area covering Section 7 and 8, T23S-R27E, limited to the Wolfcamp Formation

If your election is to participate in the drilling and completion of the wells, please sign and return a copy of this letter along with the enclosed AFE within thirty (30) days of receipt of this proposal.

Should you have any questions regarding this or other matters, please don't hesitate to contact me at the above listed numbers or email address.

Sincerely,

Matt S. Tate, CPL Permian Basin

# Crossbow Federal 23 27 8 4H, 2H, 10H, 9H, 15H, 8H, 16H and 14H elects to participate in the drilling, completing, and equipping of the Crossbow Federal 23 27 8 WA 4H. elects NOT to participate in the drilling, completing, and equipping of the Crossbow Federal 23 27 8 WA 4H. elects to participate in the drilling, completing, and equipping of the Crossbow Federal 23 27 8 WXY 2H. elects NOT to participate in the drilling, completing, and equipping of the Crossbow Federal 23 27 8 WXY 2H. elects to participate in the drilling, completing, and equipping of the Crossbow Federal 23 27 8 WA 10H. elects NOT to participate in the drilling, completing, and equipping of the Crossbow Federal 23 27 8 WA 10H. elects to participate in the drilling, completing, and equipping of the Crossbow Federal 23 27 8 WXY 9H. elects NOT to participate in the drilling, completing, and equipping of the Crossbow Federal 23 27 8 WXY 9H. elects to participate in the drilling, completing, and equipping of the Crossbow Federal 23 27 8 WA 15H. elects NOT to participate in the drilling, completing, and equipping of the Crossbow Federal 23 27 8 WA 15H. elects to participate in the drilling, completing, and equipping of the Crossbow Federal 23 27 8 WXY 8H. elects NOT to participate in the drilling, completing, and equipping of the Crossbow Federal 23 27 8 WXY 8H. elects to participate in the drilling, completing, and equipping of the Crossbow Federal 23 27 8 WA 16H. elects NOT to participate in the drilling, completing, and equipping of the Crossbow Federal 23 27 8 WA 16H. elects to participate in the drilling, completing, and equipping of the Crossbow Federal 23 27 8 WXY 14H. elects NOT to participate in the drilling, completing, and equipping of the Crossbow Federal 23 27 8 WXY 14H. Chevron USA, Inc. Print Name:

Date:

Matt S. Tate, CPL Land Professional



Marathon Oil Company 5555 San Felipe Street Houston, TX 77056 Telephone: 713-296-2164 Fax: 713.235.8033 matthewstate@marathonoil.com

August 3, 2018

VIA OVERNIGHT DELIVERY

Chevron USA, Inc. 6301 Deauville Blvd. Midland, Texas 79706

Re: Clarification to Marathon Oil Permian LLC's Crossbow Federal 23 27 8 2H, 4H, 8H, 9H, 10H, 14H, 15H and 16H Well Proposals Sections 7 and 8, T23S-R27E Eddy County, New Mexico

Dear Working Interest Owner:

Marathon Oil Permian LLC ("MRO") recently proposed the subject wells by letter dated July 10, 2018, which contained certain discrepancies. The following information provided in the proposal package can be disregarded:

- Please disregard the total estimated drilling and completion cost of \$9,756,288 provided for each well on pages 1 and 2 of the proposal letter.
- Please disregard all information provided under the "Project Description & Reason for Expenditure" portion of the AFE.

All other information provided in the well proposal letter and the AFE's is correct, including the first and last take points, target interval, TVD, lateral length and all cost described in the AFE.

Should you have any questions regarding this or other matters, please don't hesitate to contact me at the above listed numbers or email address.

Sincerely,

Matt S. Tate, CPL Permian Basin



Drilling Project #
Pad Project #
DATE: 7/10/2018

Permian Asset Te	nam .					
Field	PURPLE SAGE; WOLFCAMP (GAS) [94			Location 23,28,30	Rig	480
Lease / Facility	CROSSBOW FEDERAL 23 27 8 WXY 2	H		The state of the s	IEW MEXICO	
Operator	MARATHON OIL PERMIAN LLC			County/Parish E		
				Estimated Start Date 1		
Fatimeter	Come Cont This AFE. 60 762 458			Estimated Completion Date 2	5-M8r-2018	
Estimated	Gross Cost This AFE: \$9,762,456					
Project Descripti	ion & Reason for Expenditure:	Drill, Comple	te, & Equip s	Horizontal Well		
testing, comple include installa The well will be	anned to be drilled and completed wit eting, and equipping the well is \$7,057 ation of transitional and long term artific e drilled to a total vertical depth of 9,51 2' in the WOLFCAMP WXY formation ant.	,016 as det cial lift syste 30' and a tot	ailed in the ms. tal measur	e provided authority for expensed depth of 14,474', with an	estimated treatable	his wili lateral
Prepared By	AG PRADEEP, , MATTHEW RUGAARD, JOSH SHAN	INON, MATT HE	NSCHEN, BILL	Y MOORE., LANE NEAL		
	Final Approval					
	Title Approva					
		Date:				
Title: Regio	onal Vice President Permian Asset Team					
	0-	_41_141_	4 1			
	Pa	rticipant's .	Approvat			
	Name of					
	Company:					
	Cianchira					
	Signature.					
	Title:			Date:		
		1000				
		100				



MARATHON OIL PERMIAN LLC AUTHORITY FOR EXPENDITURE DETAIL OF ESTIMATED WELL COSTS DATE 7/10/2018

DRILLING & LOCATION PREPARED BY MATTHEW RUGAARD

COMPLETION PREPARED BY JOSH SHANNON

FACILITIES PREPARED BY MATT HENSCHEN

ARTIFICIAL LIFT PREPARED BY BILLY MOORE

Asset Team	PERMIAN			
Fleid	PURPLE SAGE; WOLL FORMATION	N: WOLFCAMP	WILDCAT	EXPLORATION
Lease/Facility	CROSSBOW FEDERAL 23 27 8 WXY 2H	-	DEVELOPMENT	RECOMPLETION
Location	EDDY COUNTY		X EXPLOITATION	WORKOVER
Prospect	MALAGA			
riospect	TINONGA			
Est Total Depth	19,119 Est	t Drilling Days 22.8	Est Completion Day	3 11
	Particol T			
LOCATION COST	INTANGIBLE			
GL CODE	ρ	ESCRIPTION		ESTIMATED COST
7001270	Location and Access			37,500
7001250	Land Broker Fees and Services			37,500
	TOTAL LOCATION COST - INTANGIBLE			75,000
DRILLING COST -	FANCIDIE			
DKILDNG COST -	ANGIBLE			
2012010	Conductor Pipe			28,000
7012050				***************************************
7012050	Surface Casing			16,000
7012050	Intermediate Casing 1			61,000
7012050	Intermediate Casing 2			207,000
7012050	Production Casing			137,000
7012050	Orig Uner Hanger, Tieback Eq & Csg Accessories			55,000
7012550	Drilling Wellhead Equipment		····	50,000
7012040	Casing & Tubing Access			24,000
7012270	Miscellaneous MRO Materials			5,000
	TOTAL DRILLING - TANGIBLE			583,000
DRILLING COST -	NTANGIBLE			
7019200	Drilling Rig Mob/Demob			33,750
7019220	Drilling Rig - day work/footage			565,000
7019040	Directional Drilling Services		-	191,700
		Surface		
7019020	Cement and Cementing Service			15,000
7019020	Cement and Cementing Service	intermediate		25,000
7019020	Cement and Cementing Service	Intermediate	e 2	40,000
7019020	Cement and Cementing Service	Production		60,000
7019140	Mud Fluids & Services			66,600
7012310	Solids Control equipment			41,000
7012020	Bits			
				70,000
7019010	Casing Crew and Services			30,000
7016350	Fuel (Rig)		100	70,000
7019140	Fuel (Mud)			18,000
7001460	Water (non potable)			25,000
7019000	Well Logging Services			
7019150	Mud Logging+geosteering			19,000
7019250		ande)		
	Stabilizers, Hole Openers, Underreamers (DH ren	iters)		15,000
7019110	Casing Inspection/cleaning			15,000
7019110	Drill pipe/collar inspection services			10,000
7016180	Freight - truck			25,000
7001460	Water hauling and disposal (includes soil farming	g)		60,000
7001440	Vacuum Trucks			10,000
7000030	Contract Labor • general			30,000
7018150	Rental Tools and Equipment (surface rentals)			90,400
7018150	Rig Equipment and Misc.			11,300
7001110	Telecommunications Services			5,000
7001120	Consulting Services			106,220
7001400	Safety and Environmental			36,160
7018120	Rental Buildings (trailers)			18,080
7019310	Coring (sidewalls & analysis)			
7011010	8% Contingency & Taxes			144,871
	and a series			144,0/1
	Maria managana armandar			
	TOTAL DRILLING - INTANGIBLE			\$1,847,081
-				
				4
	TOTAL DRILLING COST			\$2,430,081
ONIDI PERON. SA	NCIDIC .			
OMPLETION - TA	ACIBLE			
201	W. M. L.			
7012580	Tubing			75,000
7012040	Tubing Accessories (nipple, wireline entry)			15,000
7012550	Wellhead Equip			20,000
7012560	Packers - Completion Equipment			60,000
	YOTAL COMMISSION: TANIGINES			

MARATHON OIL PERMIAN LLC AUTHORITY FOR EXPENDITURE DETAIL OF ESTIMATED WELL COSTS PERMIAN Asset Team Field Lease/Facility

FORMATION: WOLFCAMP

PURPLE SAGE; WOLI
CROSSBOW FEDERAL 23 27 8 WKY 2H

COMPLETION - I	INTANGIBLE
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GL CODE	DESCRIPTION	ESTIMATED COST
7001,270	Location and Access (dress location after rig move, set anchors)	20,000
7019220	Drilling Rig During Completion	80,000
7019140	Mud Fluids & Services	
7019030	Coiled Tubing Services (3 runs)	240,000
7019240	Snubbing Services	
7019270	Pulling/Swab Units	
7016350	Fuel (from drig)	
7019010	Casing Crew and Services	
7019020	Cement and Cementing Services	¥
7019080	Well Testing Services (flow hand & equip)	195,000
7019320	Fracturing Services	3,550,000
7019330	Perforating	300,000
7019360	Wireline Services	10,000
7001460	Water Hauling & Disposal (frac fluids)	600,000
7016180	Freight - Truck (haul pipe; drig & compl)	15,000
7018150	BOP Rental & Testing	<u> </u>
7018150	Rental Tools and Equipment ( incl drig; lightplant, hydra-walk)	
7018150	CT Downhole Rental Equipment (ie. Bit, BHA)	
7000030	Contract Labor - general	50,000
7001110	Telecommunications Services	130,000
7001400	Safety and Environmental	
7001120	Consulting Services	60,000
7018150	Zipper Manifold	165,000
7019300	Frack Stack Rentals	70,000
7016190	Freight (Transportation Services)	
7018150	Equipment Rental ( w/o operator, frac tanks, lightplants)	140,000
7018120	Rental Buildings (trailers)	60,000
7000030	Contract Labor - Pumping (pump-down pumps)	120,000
7011010	8% Contingency & Taxes	402,800
	YOTAL COMPLETION - INTANGIBLE	\$6,207,800

### TOTAL COMPLETION COST

### \$6,377,800

#### SURFACE EQUIPMENT - TANGIBLE

7012350	Misc. Piping, Fittings & Valves		85,794
7006640	Company Labor & Burden		
7000030	Contract Labor - General		67,540
7001110	Telecommunication equip (Telemetry)		
7012410	Line Pipe & Accessories		26,786
7012270	Miscellaneous Materials (containment system)		43,227
7008060	SCADA		
7016180	Freight - truck		0
7001190	Contract Engineering		29,116
7012290	Metering and Instrumentation		235,924
7012290	I&E Materials		
7012200	Gas Treating		
7012200	Dehydration	-	
7012010	Compressor		- 1
7012350	Power		
7012610	Vapor Recovery Unit		
7012440	Separator & other pressure vessels	1	85,919
7012500	Tanks		144,894
7012100	Heater Treater		17,330
7012640	Flare & Accessories		11,646
7000010	Electrical Labor		29,116
7000010	Mechanical Labor		4
7012480	Rod Pumping unit & Pad		
7012180	Pumping Unit Engine		
7012350	Electrical Power (electrical cooperative construction costs)		23,293
то	TAL SURFACE EQUIPMENT - TANGIBLE		\$800,575

# TOTAL SURFACE EQUIPMENT COST

**TOTAL ARTIFICIAL LIFT COST** 

\$	800	,5	7	5

79,000

75,000

2,430,081

6,377,800

TOTAL COST

\$\_

RTIFICIAL LIFT	
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7006640	Company Labor	2,500
7012180	Gas Lift Equipment	38,000
7012480	Rod Pumping, Sucker Rods & Rod Pump	
7012140	Elect Sub Pumps (ESP)	<u> </u>
7019350	Well Services-Well/Wellhead Services	20,000
7012270	Materials & Supplies-Tangible	13,000
7012550	Surface Wellhead Equipment	5,500
7012390	Pig Launchers/Receivers & Rei Equip	
7012010	8% Contingency & Taxes	
	TOTAL ARTIFICIAL LIFT	79,000

# SUMMARY OF ESTIMATED DRILLING WELL COSTS

TOTAL LOCATION COST TOTAL DRILLING COST TOTAL COMPLETIONS COST TOTAL SURFACE EQUIPMENT COST TOTAL ARTIFICIAL LIFT COST

GRAND TOTAL COST

\$ 800,575 \$ 79,000

\$9,762,456



Drilling Project #
Pad Project #
DATE: 7/10/2018

CROSSBOW FEDERAL 23 27 8 WA 4H  Operator  MARATHON OIL PERMIAN LLC  Estimated Start Date  Estimated Completion Date  Estimated Completion Date  Estimated Completion Date  This well is planned to be drilled and completed with multistage fracturing using plug and perf. The estimated cost of drilling testing, completing, and equipping the well is \$7,057,016 as detailed in the provided authority for expenditure document. The include installation of transitional and long term artificial lift systems.  The well will be drilled to a total vertical depth of 9,580' and a total measured depth of 14,474', with an estimated treatable latength of 4,632' in the WOLFCAMP WXY formation and will be completed with an estimated 30 stages and approximately 2 lbs/ft of proppant.	Permian Asset To Field	eam PURPLE SAGE;WOLFCAMP (6	GAS) (98220)		Location 23,28,30		Rig	480
Estimated Start Date 18-Feb-2018 Estimated Completion Date 25-Mar-2018 Estimated Completion Date 25-Mar-2018  Estimated Gross Cost This AFE: \$9,762,458  Project Description & Reason for Expenditure: Dritt, Complete, & Equip a Hortzontal Well  This well is planned to be drilled and completed with multistage fracturing using plug and perf. The estimated cost of drillin testing, completing, and equipping the well is \$7,057,016 as detailed in the provided authority for expenditure document. Trinclude installation of transitional and long term artificial lift systems.  The well will be drilled to a total vertical depth of 9,580° and a total measured depth of 14,474°, with an estimated treatable lateral performance of the WOLFCAMP WXY formation and will be completed with an estimated 30 stages and approximately 2 lbs/ft of proppant.  Propagate by:  AG PRADEEP, MATTHEW RUGAARD, JOSH SHANNON, MATT HENSCHEN, BILLY MOORE, LANE NEAL  Final Approval  Date:  Title: Regional Vice President Permian Asset Team  Participant's Approval  Name of Company:  Signature:  Signature:  Signature:  Signature:						State NEW MEXIC		
Estimated Gross Cost This AFE: \$9,762,456  Project Description & Reason for Expenditure:  Dritt, Complete, & Equip a Horizontal Well  This well is planned to be drilled and completed with multistage fracturing using plug and perf. The estimated cost of drilling testing, completing, and equipping the well is \$7,057,016 as detailed in the provided authority for expenditure document. The include installation of transitional and long term artificial lift systems.  The well will be drilled to a total vertical depth of 9,580° and a total measured depth of 14,474°, with an estimated treatable is length of 1,432° in the WOLFCAMP WXY formation and will be completed with an estimated 30 stages and approximately 2 lbs/ft of proppant.  Preserve by  AG PRADEEP, MATTHEW RUGAARD, JOSH SHANNON, MATT HENSCHEN, BILLY MOORE, LANE HEAL  Final Approval  Date:  Tritle: Regional Vice President Permian Asset Team  Participant's Approval  Name of Company:  Signature.	Operator	MARATHON OIL PERMIAN LL	C		County	Parish EDDY		
Estimated Gross Cost This AFE: \$9,762,456  Project Description & Reason for Expenditure: Dritt, Complete, & Equip a Horizontal Well  This well is planned to be drilled and completed with multistage fracturing using plug and perf. The estimated cost of drillin testing, completing, and equipping the well is \$7,057,016 as detailed in the provided authority for expenditure document. Thinclude installation of transitional and long term artificial lift systems.  The well will be drilled to a total vertical depth of 9,580° and a total measured depth of 14,474°, with an estimated treatable lateral to 4,632° in the WOLFCAMP WXY formation and will be completed with an estimated 30 stages and approximately 2 lbs/ft of proppant.  Property by:  AG PRADEEP, MATTHEW RUGAARD, JOSH SHANNON, MATTHENSCHEN, BILLY MOORE, LANE NEAL  Final Approval  Date:  Titte: Regional Vice President Permian Asset Team  Participant's Approval  Name of Company.  Signature					Estimated Sta	rt Date 18-Feb-2018	3	
Project Description & Reason for Expenditure:  Dritt, Complete, & Equip & Hortzontal Well  This well is planned to be drilled and completed with multistage fracturing using plug and perf. The estimated cost of drillin testing, completing, and equipping the well is \$7,057,016 as detailed in the provided authority for expenditure document. The include installation of transitional and long term artificial lift systems.  The well will be drilled to a total vertical depth of 9,580' and a total measured depth of 14,474', with an estimated treatable latelength of 4,632' in the WOLFCAMP WXY formation and will be completed with an estimated 30 stages and approximately 2 lbs/ft of proppant.  Present by:  AG PRADEEP, MATTHEW RUGAARD, JOSH SHANNON, MATT HENSCHEN, BILLY MOORE, LANE NEAL  Final Approval  Date:  Tritle: Regional Vice President Permian Asset Team  Participant's Approval  Name of Company:  Signature  Signature					Estimated Completion	n Date <u>25-Mar-2018</u>	3	
This well is planned to be drilled and completed with multistage fracturing using plug and perf. The estimated cost of drillin testing, completing, and equipping the well is \$7,057,016 as detailed in the provided authority for expenditure document. The include installation of transitional and long term artificial lift systems.  The well will be drilled to a total vertical depth of 9,580' and a total measured depth of 14,474', with an estimated treatable is length of 4,632' in the WOLFCAMP WXY formation and will be completed with an estimated 30 stages and approximately 2 ibs/ft of proppant.  **Prepared by:  **AG PRADEEP**, MATTHEW RUGAARD, JOSH SHANNON, MATT HENSCHEN, BILLY MOORE**, LANE NEAL  **Final Approval**  **Date:**  **Tritle: Regional Vice President Permian Asset Team**  **Participant's Approval**  **Name of Company**  **Signature**  **Signature**  **Signature**  **Signature**  **Signature**  **Tritle: Regional Vice President Permian Asset Team**  **Participant's Approval**  **Name of Company**  **Signature**  **Signature**  **Signature**  **Signature**  **Signature**  **Participant's Approval**  **Name of Company**  **Signature**  **Signature**  **Signature**  **Participant's Approval**  **Participant's Approval**  **Name of Company**  **Signature**  **Signature**  **Signature**  **Participant's Approval**  **Partic	Estimate	d Gross Cost This AFE: \$9,76	32,458					
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Final Approval  Date:  Title: Regional Vice President Permian Asset Team  Participant's Approval  Name of Company:  Signature:	testing, complinely include installation the well will be length of 4,632	eting, and equipping the well is ation of transitional and long ter e drilled to a total vertical depth 2' in the WOLFCAMP WXY for	\$7,057,016 as detaile m artificial lift systems n of 9,580' and a total	ed in the p s. measure	provided authority f	or expenditure do with an estimated	cument. T	his will
Title: Regional Vice President Permian Asset Team  Participant's Approval  Name of Company.  Signature:	Prepared By:	AG PRADEEP, MATTHEW RUGAARD, JA	OSH SHANNON, MATT HENS(	CHEN, BILLY 1	MOORE., LANE NEAL			
Title: Regional Vice President Permian Asset Team  Participant's Approval  Name of Company.  Signature:	repared by	NOTIONALLI, MATTHEW HOUSEND, &	SOLI OF STATE OF THE STATE OF	JALLIA, BILLET	NOONE, DAVE NOOL			
Title: Regional Vice President Permian Asset Team  Participant's Approval  Name of Company.  Signature:								
Title: Regional Vice President Permian Asset Team  Participant's Approval  Name of Company:  Signature:		Final Approval						
Title: Regional Vice President Permian Asset Team  Participant's Approval  Name of Company:  Signature:			Date:					
Name of CompanySignature:	Title: Regio	nal Vice President Permian Asset Tear						
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CompanySignature:			Participant's Ap	provai				
Signature:		Name of						
		Company:	<del></del>			<del></del>		
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Jale		Trito			Date:			
		the.			Date.			
				200				

MARATHON OIL PERMIAN LLC AUTHORITY FOR EXPENDITURE DETAIL OF ESTIMATED WELL COSTS DATE 7/10/2018

DRILLING & LOCATION PREPARED BY MATTHEW RUGAARD

COMPLETION PREPARED BY JOSH SHANNON

FACILITIES PREPARED BY MATT HENSCHEN

ARTIFICIAL LIFT PREPARED BY BILLY MOORE

Asset Team	PERMIAN	
Field	PURPLE SAGE; WOLD FORMATION: WOLFCAMP WILDCAT	EXPLORATION
Lease/Facility	CROSSBOW FEDERAL 23 27 8 WA 4H DEVELOPMENT	RECOMPLETION
Location	EDDY COUNTY X EXPLOITATION	WORKOVER
Prospect	MALAGA	-
Est Total Depth	19,209 Est Orilling Days 22.8 Est Completion Days	11
est rotal Deput	13,605	
LOCATION COST - I	NTANGIBLE	
GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access	37,500
7001250	Land Broker Fees and Services	37,500
	TOTAL LOCATION COST - INTANGIBLE	75,000
	TOTAL LOCATION COST - INTERNATION	13,000
DRILLING COST - TA	INGIBLE	
		***
7012050	Conductor Pipe	28,000
7012050	Surface Casing	16,000
7012050	Intermediate Casing 1	61,000
7012050	Intermediate Casing 2	207,000
7012050	Production Casing	137,000
7012050	Orig Liner Hanger, Tieback Eq & Csg Accessories	55,000
7012550	Drilling Wellhead Equipment	50,000
		24,000
7012040	Casing & Tubing Access	
7012270	Miscellaneous MRO Materials	5,000
	TOTAL DRILLING - TANGIBLE	583,000
DRILLING COST - IN	TANGIBLE	
7019200	Dalling Die Stah / Damah	33,750
7019220	Orilling Rig Mob/Demob	
	Orilling Rig - day work/footage	565,000
7019040	Directional Drilling Services	191,700
7019020	Cement and Cementing Service Surface	15,000
7019020	Cement and Cementing Service Intermediate 1	25,000
7019020	Cement and Cementing Service Intermediate 2	40,000
7019020	Cement and Cementing Service Production	60,000
7019140	Mud Fluids & Services	66,600
7012310	Solids Control equipment	41,000
7012020	Bits	70,000
7019010	Casing Crew and Services	30,000
7016350	Fuel (Rig)	70,000
7019140	Fuel (Mud)	18,000
7001460	Water (non potable)	25,000
7019000	Well Logging Services	
7019150	Mud Logging-geosteering	19,000
7019250	Stabilizers, Hole Openers, Underreamers (DH rentals)	15,000
7019110	Casing inspection/cleaning	15,000
7019110	Drill pipe/collar inspection services	10,000
		****
7016180	Freight - truck	25,000
7001460	Water hauling and disposal (includes soil farming)	60,000
7001440	Vacuum Trucks	10,000
7000030	Contract Labor - general	30,000
7018150	Rental Tools and Equipment (surface rentals)	90,400
7018150	Rig Equipment and Misc.	11,300
7001110	Telecommunications Services	5,000
7001120	Consulting Services	106,220
7001400	Safety and Environmental	36,160
7018120	Rental Buildings (trailers)	18,080
7019310	Coring (sidewalls & analysis)	25,000
7011010	8% Contingency & Taxes	144,871
	TOTAL DRILLING - INTANGIBLE	\$1,847,081
-		
	TOTAL OBULING COST	An
	TOTAL DRILLING COST	\$2,430,081
COMPLETION - TAN	GIRLF	
COM SCHOOL IN		
7012580	Tubing	75,000
7012040	Tubing Accessories (nipple, wireline entry)	15,000
7012550	Wellhead Equip	
		20,000
7012560	Packers - Completion Equipment	60,000
	TOTAL COMPLETION - TANGIBLE	\$170,000

MARATHON OIL PERMIAN LLC AUTHORITY FOR EXPENDITURE

DETAIL OF ESTIMATED WELL COSTS PERMIAN Asset Team

PURPLE SAGE;WOLI CROSSBOW FEDERAL 23 27 8 WA 4H FORMATION: WOLFCAMP Field Lease/Facility

COMP	LETION -	INTANGIBLE	

Total	GL CODE	DESCRIPTION	ESTIMATED COST
7019320			20,00
7019120			80,00
7015030   Colled Tubing Services (3 runs)   240   7015240   Snubbing Services (5 runs)			
70152/10   Snubbing Services			240.00
Pulling/Swab Units			2.0)00
Total   Fuel (from drig)   Casing Crew and Services   Cement and Cementing Services   195,			
Total   Cement and Cementing Services   195			
7019080   Weil Testing Services (flow hand & equip)   195,   7019320   Fracturing Services   3,550,   3,550,   7019330   Perforating   300,   7019360   Wireline Services   10,   7001460   Water Hauling & Disposal (frac fluids)   600,   7016180   Freight - Yruck (haul pipe; drig & compl)   15,   7018150   8DP Rental & Testing   7018150   Rental Tools and Equipment (incl drig; Eightplant,hydra-walk)   7018150   CT Downhole Rental Equipment (inc. Bit, BitA)			
7019320   Fracturing Services   3,550,   7019330   Perforating   300,   300,   7019360   Wireline Services   10,   300,   3			195,00
7019330   Perforating   300,   7019360   Wireline Services   10,			3,550,00
7013360   Wireline Services   10,			300.00
7001460   Water Hauling & Disposal (frac fluids)   600,   7016180   Freight - Truck (haul pipe; drig & compi)   15,   7018150   BOP Rental & Testing   7018150   Rental Tools and Equipment (incl drig: lightplant.hydra-waik)   7018150   CT Downhole Rental Equipment (incl drig: lightplant.hydra-waik)			10,00
7016180			600,00
7018150   BOP Rental & Testing			15,00
7018150   Rental Tools and Equipment (Incl drig; lightplant,hydra-walk)			23,00
TOTAL COMPLETION - INTANGIBLE   TOTAL COMPLETION COST   S6,377,i   TOTAL COMPLETION COST   Cost to the cost of the c			
TOTAL COMPLETION COST   S6,377,4   S50, TOTAL COMPLETION COST   S6,377,4   S70,12350   Misc. Piping, Ritings & Valves   S50, TOTAL COMPLETION COST   S6,377,4   S70,12350   Misc. Piping, Ritings & Valves   S5, S77,4   S70,12350   Misc. Piping, Ritings & Valves   S5, S77,4   S70, S70, S70, S70, S70, S70, S70, S70,			
TODI110   Telecommunications Services   130,			50.00
7001400   Safety and Environmental			130,00
TOD1120   Consulting Services   60,			
7018150   Zipper Manifold   165,   7018150   7018150   Frack Stack Rentals   70,   7016190   Frack Stack Rentals   70,   7016190   Frack Stack Rentals   70,   7018150   Equipment Rental (w/o operator, frac tanks, lightplants)   140,   7018120   Rental Buildings (trailers)   60,   7000030   Contract Labor - Pumping (pump-down pumps)   120,   7011010   8% Contingency & Taxes   402,   7011010			60,00
7019300   Frack Stack Rentals   70,   7019300   Frack Stack Rentals   70,   7019300   Fraight (Transportation Services)   140,   7018150   Equipment Rental (w/o operator, frac tanks, lightplants)   140,   7018120   Rental Buildings (trailers)   60,   7000030   Contract Labor - Pumping (pump-down pumps)   120,   7011010   8% Contingency & Taxes   402,   7011010   70714			165,00
7016190   Freight (Transportation Services)   140,   140			70,00
7018150   Equipment Rental ( w/o operator, frac tanks, lightplants)   140,   7018120   Rental Buildings ( trailers)   60,   7000030   Contrect Labor - Pumping (pump-down pumps)   120,   7011010   8% Contingency & Taxes   402,   TOTAL COMPLETION - INTANGIBLE   \$6,377,      TOTAL COMPLETION COST   \$6,377,			70,00
7018120   Rental Buildings (trailers)   60,			140,00
7000030   Contract Labor - Pumping (pump-down pumps)   120,			60,00
7011010         8% Contingency & Taxes         402.           TOTAL COMPLETION - INTANGIBLE         \$6,207           TOTAL COMPLETION COST         \$6,377,i           RFACE EQUIPMENT - TANGIBLE           7012350         Misc. Piping, fittings & Valves         85.			120,00
TOTAL COMPLETION - INTANGIBLE \$6,207  TOTAL COMPLETION COST \$6,377,i  RFACE EQUIPMENT - TANGIBLE  7012350 Misc. Piping, fittings & Valves 85.			402,80
RFACE EQUIPMENT - TANGIBLE 7012350 Misc. Piping, Fittings & Valves 85.	7021010		\$6,207,80
7012350 Misc. Piping, Fittings & Valves 85,		TOTAL COMPLETION COST	\$6,377,80
	RFACE EQUIPMEN	NT - TANGIBLE	
	7012350	Misc. Piping, Fittings & Valves	85,79

85,794	Misc. Piping, Fittings & Valves	7012350
	Company Labor & Burden	7006640
67,540	Contract Labor - General	7000030
	Telecommunication equip (Telemetry)	7001110
26,786	Line Pipe & Accessories	7012410
43,227	Miscellaneous Materials (containment system)	7012270
	SCADA	7008060
+	Freight - truck	7016180
29,116	Contract Engineering	7001190
235,914	Metering and Instrumentation	7012290
	I&E Materials	7012290
-	Gas Treating	7012200
	Dehydration	7012200
	Compressor	7012010
+	Power	7012350
	Vapor Recovery Unit	7012610
85,919	Separator & other pressure vessels	7012440
144,894	Tanks	7012500
17,330	Heater Treater	7012100
11,646	Flare & Accessories	7012640
29,116	Electrical Labor	7000010
181	Mechanical Labor	7000010
	Rod Pumping unit & Pad	7012480
	Pumping Unit Engine	7012180
23,293	Electrical Power (electrical cooperative construction costs)	7012350
\$800,575	TOTAL SURFACE EQUIPMENT - TANGIBLE	1

### TOTAL SURFACE EQUIPMENT COST

TOTAL ARTIFICIAL LIFT COST

7006640	Company Labor	2,500
7012180	Gas Lift Equipment	38,000
7012480	Rod Pumping, Sucker Rods & Rod Pump	
7012140	Elect Sub Pumps (ESP)	
7019350	Well Services-Well/Wellhead Services	20,000
7012270	Materials & Supplies-Tangible	13,000
7012550	Surface Wellhead Equipment	5,500
7012390	Pig Launchers/Receivers & Rel Equip	150
7011010	8% Contingency & Taxes	

# SUMMARY OF ESTIMATED DRILLING WELL COSTS

TOTAL LOCATION COST TOTAL DRILLING COST TOTAL COMPLETIONS COST TOTAL COST

79,000

800,575

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75,000 2,430,081 6,377,800 TOTAL SURFACE EQUIPMENT COST TOTAL ARTIFICIAL LIFT COST

GRAND TOTAL COST

\$ 800,575 \$ 79,000 \$9,762,456



	Drilling Project #	
	Pad Project #	
DATE:	7/10/2018	

Field Lease / Facility	PURPLE SAGE; WOLFCAN CROSSBOW FEDERAL 23	27 8 WXY 9H	Location 23	State	Rig NEW MEXICO	48
Operator	MARATHON OIL PERMIAN	LLC		County/Parish		
				ted Start Date mpletion Date		
Estimated	Gross Cost This AFE:\$	9,762,456	Estiliated Co	IIIpieuoii Date	20-Wai-2010	
Project Descripti	on & Reason for Expenditure:	Drill, Complete, &	Equip a Horizontal Well			
	•					-
testing, comple include installa The well will be	anned to be drilled and cor eting, and equipping the we tition of transitional and long e drilled to a total vertical de the WOLFCAMP WXY ant.	Il is \$7,057,016 as detailed term artificial lift systems. epth of 9,580' and a total n	d in the provided auti	nority for expension $1,474'$ , with ar	enditure document	. This wil
Prepared By:	AG PRADEEP, , MATTHEW RUGAAS	RD. JOSH SHANNON, MATT HENSCH	EN. BILLY MOORE. LANE N	IEAL.		
toparou by.						
	Final Approval					
Title: Regio	nal Vice President Permian Asset	Date Team	<del></del>			
		Participant's App	roval			
		i araaqaana o rapp				
	Name of Company:					
	Signature:					
+	Title:		Date	*		
-						
464				1944		

DATE 7/10/2018

DRILLING & LOCATION PREPARED BY MATTHEW RUGAARD

COMPLETION PREPARED BY JOSH SHANNON

FACILITIES PREPARED BY MATT HENSCHEN

ARTIFICIAL LIFT PREPARED BY BILLY MOORE

Elaid	PURPLE SAGE; WOLL	FORMATION: WOLFCAMP		WILDCAT	EXPLORATION
Field		PORTION: WOLFDON	_	DEVELOPMENT	RECOMPLETION
Lease/Facility	CROSSBOW FEDERAL 23 27 8 WXY 9H				_
Location	EDDY COUNTY		<u>X</u>	EXPLOITATION	WORKOVER
Prospect	MALAGA				
Est Total Depth	19,199	Est Drilling Days	22.8	Est Completion Day	rs 11
LOCATION COST	· INTANGIBLE				
GL CODE		DESCRIPTION			ESTIMATED COST
7001270	Location and Access	20001111 11011			37,500
7001250	Land Broker Fees and Services	·			37,500
	TOTAL LOCATION COST - INTANGIBLE				75,000
DRILLING COST -	TANGIRIF				
Dillianto coot	1701010				
7012050	Conductor Pipe				28,000
7012050	Surface Casing				16,000
7012050	Intermediate Casing 1		•	•	61,000
7012050	Intermediate Casing 2				207,000
7012050	Production Casing				137,000
7012050	Drig Liner Hanger, Tieback Eq & Cs	Accessories			55,000
7012550	Drilling Wellhead Equipment				50,000
7012040	Casing & Tubing Access				24,000
7012270	Miscellaneous MRO Materials			_	5,000
	_		•		
	TOTAL DRILLING - TANGIBLE				583,000
					303,000
DRILLING COST -	INTANGIBLE				
7019200	Driffing Rig Mob/Demob				33,750
7019220	Drilling Rig - day work/footage				565,000
7019040	Directional Drilling Services				191,700
7019020	Cement and Cementing Service		Surface		
					15,000
7019020	Cement and Cementing Service		Intermediate 1		25,000
7019020	Cement and Cementing Service		Intermediate 2		40,000
7019020	Cement and Cementing Service		Production		60,000
7019140	Mud Fluids & Services				66,600
7012310	Solids Control equipment				41,000
7012020	Bits				70,000
7019010	Casing Crew and Services				30,000
7016350	Fuel (Rig)				
7019140					70,000
	Fuel (Mud)				18,000
7001460	Water (non potable)				25,000
7019000	Well Logging Services				
7019150	Mud Logging+geosteering				19,000
7019250	Stabilizers, Hole Openers, Underrea	mers (DH rentals)			15,000
7019110	Casing inspection/cleaning				15,000
7019110	Drill pipe/colfar inspection services				10,000
7016180	Freight - truck		1722		25,000
7001460	Water hauling and disposal (include	es soil farming)			
7001440	Vacuum Trucks	10			60,000
					10,000
7000030	Contract Labor - general		:=-		30,000
7018150	Rental Tools and Equipment (surface	e rentals)			90,400
7018150	Rig Equipment and Misc.				11,300
7001110	Telecommunications Services				5 000
7001120	Consulting Services				106,220
7001400	Safety and Environmental				35,160
7018120	Rental Buildings (trailers)				18,080
7019310	Coring (sidewalls & analysis)				
7011010	8% Contingency & Taxes				144,871
	TOTAL DRILLING - INTANGIBLE				** *** ***
	CONCORDING - INTANGIBLE				\$1,847,081
	TOTAL DRILLING COST				£2 420 000
	TOTAL DAILLING COST				\$2,430,081
COMPLETION - TA	NGIBLE				
7012580	Tubing				75,000
7012040	Tubing Accessories (nipple, wireline	entry)			15,000
7012550	Wellhead Equip				20,000
7012560	Packers - Completion Equipment				60,000
	Comment of the Commen				90,000
	TOTAL COMPLETION: TANCOLE				4
	TOTAL COMPLETION - TANGIBLE				\$170,000

DETAIL OF ESTIMATED WELL COSTS

Asset Team PERMIAN FORMATION: WOLFCAMP Field PURPLE SAGE:WOU

	CROSSBOW FEDERAL 23 27 8 WXY 9H	
	TANACINE P	
COMPLETION - If		
GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access (dress location after rig move, set anchors)	20,000
7019220	Drilling Rig During Completion  Mud Fluids & Services	80,000
7019140	Colled Tubing Services (3 runs)	240,000
7019030	Snubbing Services (3 TURE)	240,000
7019240	Pulling/Swab Units	
7019270 7016350	Fuel (from drig)	
7019010	Casing Crew and Services	
7019020	Cement and Cementing Services	
7019080	Well Testing Services (flow hand & equip)	195,000
7019320	Fracturing Services	3,550,000
7019330	Perforating	300,000
7019360	Wireline Services	10,000
7001460	Water Hauling & Disposal (frac fluids)	600,000
7016180	Freight - Truck (haul pipe; drig & compl)	15,000
7018150	80P Rental & Testing	14
7018150	Rental Tools and Equipment ( incl drig; Bightplant, hydra-walk)	
7018150	CT Downhole Rental Equipment (ie. Bit, BHA)	
7000030	Contract Labor - general	50,000
7001110	Telecommunications Services	130,000
7001400	Safety and Environmental	
7001120	Consulting Services	60,000
7018150	Zipper Manifold	165,000
7019300	Frack Stack Rentals	70,000
7016190	Freight (Transportation Services)	
7018150	Equipment Rental ( w/o operator, frac tanks, lightplants)	140,000
7018120	Rental Buildings (trailers)	60,000
7000030	Contract Labor - Pumping (pump-down pumps)	120,000
7011010	8% Contingency & Taxes	402,800
	TOTAL COMPLETION - INTANGIBLE	\$6,207,800
	TOTAL CONTENTION - INVANDIBLE	30,207,000
	TOTAL COMPLETION COST	\$6,377,800
SURFACE EQUIPA	MENT - TANGIBLE	
7012350	MBsc. Piping, Fittings & Valves	85,794
7006640	Company Labor & Burden	05,754
	compeny casti a series	
	Contract Labor - General	67 540
7000030	Contract Labor - General Telecompunitation equin (Telemetry)	67,540
7000030 7001110	Telecommunication equip (Telemetry)	
7000030 7001110 7012410	Telecommunication equip (Telemetry)  Line Pipe & Accessories	26,786
7000030 7001110 7012410 7012270	Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system)	26,786
7000030 7001110 7012410	Telecommunication equip (Telemetry)  Line Pipe & Accessories  Miscellaneous Materials (containment system)  SCADA	26,786
7000030 7001110 7012410 7012270 7008060 7016180	Telecommunication equip (Telemetry) Une Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck	26,786 43,227
7000030 7001110 7012410 7012270 7008060	Telecommunication equip (Telemetry)  Line Pipe & Accessories  Miscellaneous Materials (containment system)  SCADA	26,786 43,227
7000030 7001110 7012410 7012270 7008060 7016180 7001190	Telecommunication equip (Telemetry) Une Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering	26,786 43,227 29,116
700030 7001110 7012410 7012270 7008060 7016180 7001190 7012290	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA  Freight - truck  Contract Engineering  Metering and instrumentation	26,766 43,227 29,116 235,914
7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290	Telecommunication equip (Telemetry)  Une Pipe & Accessories  Miscellaneous Materials (containment system)  SCADA  Freight - truck  Contract Engineering  Metering and Instrumentation  I&E Materials	26,766 43,227 29,116 235,914
7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200	Telecommunication equip (Telemetry)  Line Pipe & Accassories  Miscellaneous Materials (containment system)  SCADA  Freight - truck  Contract Engineering  Metering and Instrumentation  I&E Materials  Gas Treating	26,786 43,227 29,116 235,914
7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200	Telecommunication equip (Telemetry) Une Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration	26,786 43,227 29,116 235,914
7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012200 7012200 7012200	Telecommunication equip (Telemetry)  Une Pipe & Accessories  Miscellaneous Materials (containment system)  SCADA  Freight - truck  Contract Engineering  Metering and Instrumentation  IBE Materials  Gas Treating  Dehydration  Compressor  Power  Vapor Recovery Unit	26,786 43,227 29,116 235,914
7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and Instrumentation  I&E Materials  Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels	26,786 43,227 29,116 235,914
7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012010 7012350 7012610 7012350 7012610 7012500	Telecommunication equip (Telemetry)  Une Pipe & Accessories  Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and Instrumentation  I&E Materials  Gas Treating Dehydration Compressor Power  Vapor Recovery Unit Separator & other pressure vessels Tanks	26,785 43,227 29,116 235,914 
7000030 700110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012200 70122101 7012350 7012440 7012440 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500	Telecommunication equip (Telemetry)  Line Pipe & Accessories  Miscelianeous Materials (containment system)  SCADA  Freight - truck  Contract Engineering  Metering and Instrumentation  I&E Materials  Gas Treating  Dehydration  Compressor  Power  Vapor Recovery Unit  Separator & other pressure vessels  Tanks  Heater Treater	26,786 43,227 29,116 235,914 85,919 144,894 17,330
7000030 700110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012010 7012350 7012610 7012400 7012400 7012500 7012610 7012500 7012610	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories	26,786 43,227 29,116 235,914 85,919 144,894 17,330 11,646
7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012200 7012100 7012350 7012610 701240 7012500 7012100 7012500 7012100 7012500 7012100 7012500 7012100 7012560 7000010	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and Instrumentation  I&E Materials  Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor	26,786 43,227 29,116 235,914 85,919 144,894 17,330
7000030 700110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012200 70122100 7012250 7012010 7012440 7012560 7012560 7012100 7012640 7012560 7012010 7012640 7012600 701200010	Telecommunication equip (Telemetry)  Line Pipe & Accessories  Miscellaneous Materials (containment system)  SCADA  Freight - ruck  Contract Engineering  Metering and Instrumentation  I&E Materials  Gas Treating  Dehydration  Compressor  Power  Vapor Recovery Unit  Separator & other pressure vessels  Tanks  Heater Treater  Flare & Accessories  Electrical Labor  Mechanical Labor	26,786 43,227 29,116 235,914 85,919 144,894 17,330 11,646
7000030 700110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012200 7012210 701240 701240 701250 7012610 701260 701260 7012100 7012100 7012400 7012400 7012400 7012400 7012400 7012400 7012400 7012400 7012400 7012400 7012400 7012480	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad	26,786 43,227 29,116 235,914 85,919 144,894 17,330 11,646
7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012100 7012350 7012610 7012440 7012500 7012100 7012440 7000010 7000010 7000010 7012480 7012180	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Neater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine	26,786 43,227 29,116 235,914  85,919 144,894 17,330 11,646 29,116
7000030 700110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012210 7012210 701240 701240 701250 7012610 7012400 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad	25,785 43,227 29,116 235,914  85,919 144,894 17,330 11,646
7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012100 7012350 7012610 7012440 7012500 7012100 7012440 7000010 7000010 7000010 7012480 7012180	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Neater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine	25,785 43,227 29,116 235,914  85,919 144,894 17,330 11,646 29,116
7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012100 7012350 7012610 7012440 7012500 7012100 7012440 7000010 7000010 7000010 7012480 7012180	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Neater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)	25,785 43,227 29,116 235,914  85,919 144,894 17,330 11,646 29,116
7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012100 7012350 7012610 7012440 7012500 7012100 7012440 7000010 7000010 7000010 7012480 7012180	Telecommunication equip (Telemetry)  Line Pipe & Accessories  Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and Instrumentation  I&E Materials  Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vassels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE	25,785 43,227 29,116 235,914  85,919 144,894 17,330 11,646 29,116
7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012100 7012350 7012610 7012440 7012500 7012100 7012440 7000010 7000010 7000010 7012480 7012180	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Neater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)	25,785 43,227 29,116 235,914  85,919 144,894 17,330 11,646 29,116
7000030 700110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012010 7012400 7012400 7012400 7012400 7012400 7012400 7012400 7012400 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100	Telecommunication equip (Telemetry)  Line Pipe & Accessories  Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and Instrumentation  I&E Materials  Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vassels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE	26,765 43,227 29,116 235,914  85,919 144,894 17,330 11,646 29,116
7000030 700110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012010 7012400 7012400 7012400 7012400 7012400 7012400 7012400 7012400 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100	Telecommunication equip (Telemetry)  Line Pipe & Accessories  Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and Instrumentation  I&E Materials  Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vassels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE	26,765 43,227 29,116 235,914  85,919 144,894 17,330 11,646 29,116
7000030 700110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012010 7012400 7012400 7012400 7012400 7012400 7012400 7012400 7012400 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100	Telecommunication equip (Telemetry)  Line Pipe & Accessories  Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and Instrumentation  I&E Materials  Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vassels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE	26,765 43,227 29,116 235,914  85,919 144,894 17,330 11,646 29,116
7000030 700110 7012410 7012270 7008060 7016180 7016180 7001190 7012290 7012290 7012200 7012200 7012200 7012210 7012250 7012610 7012440 7012500 7012100 7012480 7012500 7012100 7012500 7012100 7012500 7012100 7012500 7012100 7012500 7012100 7012500 7012100 7012500 7012100 7012500 7012100 7012500	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT COST	25,786 43,227 29,116 235,914  85,919 144,894 17,330 11,646 29,116  23,2393 \$800,575
7000030 700110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012210 7012210 701240 701250 701240 701240 701250 7012100 7012100 7012100 7012100 7012100 701250 7012100 701250 7012100 701250 7012100 701250 7012100 701250 7012100 701260 7012100 701260 7012180 7012180 7012180	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT COST  Company Labor	25,765 43,227 29,116 235,914  85,919 144,894 17,330 11,646 29,116  23,293 \$800,575
7000030 700110 7012410 7012270 7008060 7016180 701190 7012290 7012290 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012210 701240 7012500 7012100 7012500 7012100 7012500 7012100 7012500 7012100 7012500 7012100 7012500 7012100 7012500 7012100 7012500 7012100 7012500 7012100 7012500 7012100 7012500 7012180	Telecommunication equip (Telemetry)  Line Pipe & Accessories  Miscellaneous Materials (containment system)  SCADA  Freight - truck Contract Engineering Metering and Instrumentation  I&E Materials  Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT COST  Company Labor Gas Uft Equipment	25,765 43,227 29,116 235,914  85,919 144,894 17,330 11,646 29,116  23,293 \$800,575
7000030 700110 7001210 7012210 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012210 7012250 7012610 7012400 7012550 7012100 7012550 7012100 7012550 ARTIFICIAL LIFT 7006640 7012180 7012180 7012180 7012180 7012180	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT COST  Company Labor Gas Lift Equipment Rod Pumping, Sucker Rods & Rod Pump	25,765 43,227 29,116 235,914  85,919 144,894 17,330 11,646 29,116  23,293 \$800,575
7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012010 7012010 7012400 7012400 701250 7012610 7012400 7012500 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA  Freight - truck Contract Engineering Metering and instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  TOTAL SURFACE EQUIPMENT COST  Company Labor Gas Uff Equipment Rod Pumping Socker Rods & Rod Pump Elect Sub Pumps (SSP)	25,765 43,227 29,116 235,914  85,919 144,894 172,330 11,646 29,116  23,293 \$800,575 \$ 800,575
7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012290 7012200 7012010 7012010 7012100 7012400 7012400 7012400 7012400 7012180	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and Instrumentation  IBE Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT COST  Company Labor Gas Lift Equipment Rod Pumping Sucker Rods & Rod Pump Elect Sub Pumps (ESSP) Well Services-Well/Wellhead Services	25,785 43,227 29,116 235,914  85,919 144,894 17,330 11,646 29,116  23,293 \$800,575 \$ 800,575
7000030 7001110 7012410 7012270 7008060 7016180 7016180 701190 7012290 7012290 7012290 7012200 7012010 7012101 701240 701250 7012100 701240 701250 7012100 701250 7012100 701250 7012100 701250 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Fower (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGISLE  TOTAL SURFACE EQUIPMENT COST  Company Labor Gas Lift Equipment Rod Pumping Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Sarvices-Well/Wellhead Services Materials & Supplies-Tangible	26,786 43,227 29,116 235,914  85,919 144,894 17,330 11,646 29,116  23,2393 \$800,575 \$ 0,500 38,000 20,000 13,000
7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012290 7012200 7012010 7012010 7012100 7012400 7012400 7012400 7012400 7012180	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT COST  Company Labor Gas Utt Equipment Rod Pumping, Socker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services Well/Meditead Services Materials & Supplies-Tangible Surface Wellhead Equipment Meterials & Supplies-Tangible Surface Wellhead Equipment	26,786 43,227 29,116 235,914  85,919 144,894 17,330 11,646 29,116  23,2393 \$800,575 \$ 0,500 38,000 20,000 13,000
7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012200 7012210 7012400 7012400 7012400 7012400 7012100 7012400 7012100 7012400 7012100 7012400 7012100 7012400 7012180	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  TOTAL SURFACE EQUIPMENT COST  Company Labor Gas Utf Equipment Rod Pumping, Socker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Well/Weilhead Services Materials & Supplies-Tangible Surface Weilhead Equipment Pig Launchers/Receivers & Rel Equip  8% Contingency & Taxes	26,766 43,227 29,116 235,914  85,919 144,894 17,330 11,646 29,116  23,293 \$800,575 \$ 800,575 \$ 2,500 38,000 13,000 5,500
7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012210 7012210 701240 701240 701250 7012180	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  TOTAL SURFACE EQUIPMENT COST  Company Labor Gas Lift Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services Well/Meditead Services Materials & Supplies-Tangible Surface Wellhead Equipment Pig Launchers/Receivers & Rell Equip	26,785 43,227 29,116 235,914  85,919 144,894 17,330 11,646 29,116 23,293 \$800,575 \$ 800,575 \$ 2,500 38,000
7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012200 7012210 7012400 7012400 7012400 7012400 7012100 7012400 7012100 7012400 7012100 7012400 7012100 7012400 7012180	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tenhs Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGISLE  TOTAL SURFACE EQUIPMENT COST  Company Labor Gas Lift Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Sarvices-Well/Wellhead Services Materials & Supplies-Tangible Surface Wellhead Equipment Pig Launchers/Receivers & Rel Equip  8x Contingency & Taxes  TOTAL ATIFICIAL LIFT	26,786 43,227 29,116 235,914 235,914  85,919 144,894 17,330 11,646 29,116 23,233 \$800,575 \$800,575 \$2,500 38,000 20,000 13,000 5,500 .
7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012200 7012210 7012400 7012400 7012400 7012400 7012100 7012400 7012100 7012400 7012100 7012400 7012100 7012400 7012180	Telecommunication equip (Telemetry)  Line Pipe & Accessories Miscellaneous Materials (containment system)  SCADA Freight - truck Contract Engineering Metering and instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  TOTAL SURFACE EQUIPMENT COST  Company Labor Gas Utf Equipment Rod Pumping, Socker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Well/Weilhead Services Materials & Supplies-Tangible Surface Weilhead Equipment Pig Launchers/Receivers & Rel Equip  8% Contingency & Taxes	26,785 43,227 29,116 235,914  85,919 144,894 17,330 11,646 29,116  23,293 \$800,575 \$ 800,575 \$ 2,500 38,000 13,000 5,500

TOTAL LOCATION COST TOTAL DRILLING COST TOTAL COMPLETIONS COST

75,000 2,430,081 6,377,800 TOTAL SURFACE EQUIPMENT COST TOTAL ARTIFICIAL LIFT COST

GRAND TOTAL COST

\$ 800,575 \$ 79,000

\$9,762,456



Drilling Project #
Pad Project #
DATE: 7/10/2018

Permian Asset 1	ream .				
Field	PURPLE SAGE;WOLFC	MP (GAS) [98220]	Location 23,28,30	Rig	481
Lease / Facility	CROSSBOW FEDERAL		State NEW MEXICO		
Operator	MARATHON OIL PERMIA		County/Parish EDDY		
0,000			Estimated Start Date 18	-Feb-2018	_
			Estimated Completion Date 25		
Estimate	d Gross Cost This AFE:	\$9.834.324	· <u> </u>		
Project Descrip	tion & Reason for Expenditure	Drill, Complete	, & Equip a Horizontal Well		-
testing, comp include install The well will be	leting, and equipping the vation of transitional and loose drilled to a total vertical 2' in the WOLFCAMP WX	vell is \$7,057,016 as detaing term artificial lift system depth of 9,580' and a total	fracturing using plug and perf. The es iled in the provided authority for expen ns. Il measured depth of 14,474', with an e ompleted with an estimated 30 stages	diture document. estimated treatab	This wil
Prepared By	AG PRADEEP, MATTHEW RUGA	VARD, JOSH SHANNON, MATT HEN	SCHEN, BILLY MOORE, , LANE NEAL		
	Final Approval				
		Date <sup>-</sup>			
Title: Regi	onal Vice President Permian Ass				
		Participant's A	pproval		
	Name of				
	Company:				
	Signature:				
	Title:		Date:	*	
				and the	
	1481			7	
	See .			40	

DATE 7/10/2018

DRILLING & LOCATION PREPARED BY MATTHEW RUGAARD
COMPLETION PREPARED BY JOSH SHANNON
FACILITIES PREPARED BY MATT HENSCHEN
ARTIFICIAL LIFT PREPARED BY BILLY MOORE

Asset Team	PERMIAN	
fleld	PURPLE SAGE; WOLI FORMATION: WOLFCAMP WILDCAT	EXPLORATION
Lease/Facility	CROSSBOW FEDERAL 23 27 8 WA 10H DEVELOPMENT	RECOMPLETION
Location	EDDY COUNTY X EXPLOITATION	WORKOVER
Prospect	MALAGA	_ *********
Prospect	34 Martin	
e	AS ASSAULT PROVIDE AS A STATE OF	44
Est Total Depth	19,202 Est Oritling Days 22.8 Est Completion Da	ys11
LOCATION COST	- INTANGIBLE	
GI. CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access	37,500
7001250	land Broker Fees and Services	37,500
	TOTAL LOCATION COST - INTANGIBLE	75,000
		7 3,000
DRILLING COST -	TANGIBLE	
7012050	Conductor Pipe	28,000
7012050	Surface Casing	16,000
7012050	Intermediate Casing 1	61,000
7012050	Intermediate Casing 2	207,000
7012050	Production Casing	137,000
7012050	Orig Liner Hanger, Tieback Eq & Csg Accessories	55,000
7012550	Drilling Wellhead Equipment	50,000
7012040	Casing & Tubing Access	24,000
7012270	Miscellaneous MRO Materials	5,000
~		
	TOTAL DRILLING - TANGIBLE	583,000
	Total smalles - randide.	363,000
DRILLING COST -	INTANGIBLE	
7019200	Drilling Rig Mob/Demob	33,750
7019220	Drilling Rig - day work/footage	632,800
7019040	Directional Drilling Services	191,700
7019020	Cement and Cementing Service Surface	15,000
7019020	Cement and Cementing Service Intermediate 1	
		25,000
7019020	Cement and Cementing Service Intermediate 2	40,000
7019020	Cement and Cementing Service Production	60,000
7019140	Mud Fluids & Services	66,600
7012310	Solids Control equipment	41,000
7012020	8lts	70,000
7019010	Casing Crew and Services	30,000
7016350	Fuel (Rig)	70,000
7019140	Fuel (Mud)	18,000
7001460	Water (non potable)	25,000
7019000	Well Logging Services	23,000
7019150	find Logging-geosteering	10.000
		19,000
7019250	Stabilizers, Hole Openers, Underreamers (DH rentals)	15,000
7019110	Casing inspection/cleaning	15,000
7019110	Drill pipe/collar inspection services	10,000
7016180	Freight - truck	25,000
7001460	Water hauling and disposal (Includes soll farming)	60,000
7001440	Vecuum Trucks	10,000
7000030	Contract Labor - general	30,000
7018150	Rental Tools and Equipment (surface rentals)	90,400
7018150	Rig Equipment and Misc.	11,300
7001110	Telecommunications Services	5,000
7001120	Consulting Services	106,220
7001400	Safety and Environmental	
7018120		36,160
	Rental Buildings (trailers)	18,080
7019310	Coring (sldewalls & analysis)	
7011010	8% Contingency & Taxes	148,939
	TOTAL DRILLING - INTANGIBLE	\$1,918,949
	TOTAL DRILLING COST	\$2,501,949
COMPLETION TO	NGIBLE	
COMPLETION - TA	TOTAL	
7012580	Tubing	****
		75,000
7012040	Tubing Accessories (nipple, wireline entry)	15,000
7012550	Wellhead Equip	20,000
7012560	Packers - Completion Equipment	60,000
	TOTAL COMPLETION - TANGIBLE	

PERMIAN

Asset Team	PERMIAN	
Fleid Lease/Facility	PURPLE SAGE;WOLI FORMATION: WOLFCAMP CROSSBOW FEDERAL 23 27 8 WA 10H	
COMPLETION - INTA	NGIBLE	
GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access (dress location after rig move, set anchors)	20,00
7019220	Drilling Rig During Completion	80,00
7019140	Mud Fluids & Services	
7019030	Coiled Tubing Services (3 runs)	240,00
7019240	Snubbing Services	
7019270	Pulling/Swab Units	
7016350	Fuel (from drig)	
7019010	Casing Crew and Services	
7019020	Cement and Cementing Services	
7019080	Well Testing Services (flow hand & equip)	195,00
7019320	Fracturing Services	3,550,00
7019330	Perforating	300 00
7019360	Wireline Services	10,00
7001460	Water Hauling & Disposal (frac fluids)	600,00
7016180	Freight - Truck (haul pipe; drig & compi)	15,00
7018150	BOP Rental & Testing	
7018150	Rental Tools and Equipment ( incl drig; lightplant, hydra-walk)	
7018150	CT Downhale Rental Equipment (ie. Bit, BHA)	
7000030	Contract Labor - general	50,00
7001110	Telecommunications Services	130,00
7001400	Safety and Environmental	
7001120	Consulting Services	60,00
7018150	Zipper Manifold	165,00
7019300	Frack Stack Rentals	70,00
7016190	Freight (Transportation Services)	
7018150	Equipment Rental ( w/o operator, frac tanks, lightplants)	140,00
7018120	Rental Buildings (trailers)	60,00
7000030	Contract Labor - Pumping (pump-down pumps)	120,00
7011010	8% Contingency & Taxes	402,80
	TOTAL COMPLETION - INTANGIBLE	\$6,207,80
	TOTAL COMPLETION COST	\$6,377,80
	IT - TANGIBLE	
OKFACE EQUIPMEN		
	AND MAKE MAKE AND A LINE	
7012350	Misc. Piping, Pittings & Valves	85,79
7012350 7006640	Company Labor & Burden	
7012350 7006640 7000030	Company Labor & Burden Contract Labor - General	85,79- 67,54
7012350 7006640 7000030 7001110	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry)	67,541
7012350 7006640 7000030 7001110 7012410	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories	67,540 26,780
7012350 7006640 7000030 7001110 7012410 7012270	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemebry) Line Pipe & Accessories Miscelianeous Materials (containment system)	67,541
7012350 7006640 7000030 7001110 7012410 7012270 7008060	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA	67,54 26,78
7012350 7006640 7000030 7001110 7012410 7012270 7008060 7016180	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck	67,54 26,78 43,22
7012350 7006640 7000030 7001110 7012410 7012270 7008060 7016180 7001190	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering	67,54 26,78 43,22 29,11
7012350 7006540 700030 7001110 7012410 7012270 7008060 7016180 7001190 7012290	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and Instrumentation	67,54 26,78 43,22 29,11
7012350 7006640 700030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and Instrumentation I&E Materials	67,54 26,78 43,22 29,11
7012350 7006540 7000630 7001110 7012240 7012270 7008060 7016180 7001190 7012290 7012290 7012290	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and instrumentation I&E Materials Gas Treeting	67,54 26,78 43,22 29,11
7012350 7006540 7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and Instrumentation I&E Materials Ges Treating Dehydration	67,54 26,78 43,22 29,11
7012350 7006540 700030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012200 7012200 7012210	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration Compressor	67,54 26,78 43,22 29,11
7012350 7006540 7000630 7001110 70122410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012200 7012201 7012201 7012201 7012350	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and instrumentation i&E Materials Gas Treating Dehydration Compressor Power	67,54 26,78 43,22 29,11
7012350 7006540 7000030 7001110 7012410 7012270 7008060 7001180 7011290 7012290 7012290 7012200 7012200 7012210 7012250 7012250 7012250 7012610	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit	67,54 26,78 43,22 29,11 235,91
7012350 7006540 7000030 7001110 7012410 7012270 7008060 7016180 7001290 7012290 7012290 7012200 7012200 7012350 7012350 7012410	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscelianeous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels	67,54( 26,784 43,22) 29,11( 235,914
7012350 7006540 7000630 7001110 70122410 7012270 7008060 7001390 7012290 7012290 7012290 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012010 701250	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and instrumentation i&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tenks	67,54 26,78 43,22 29,11 235,91 85,915 144,694
7012350 7006640 7000630 7001110 7012410 7012270 7008660 7016180 7001190 7012290 7012290 7012200 7012200 7012350 7012618 7012440 7012550 7012440	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tenks Heater Treater	67,54 26,78 43,22 29,111 235,914 85,911 144,894 17,334
7012350 7006540 700030 7001110 7012410 7012270 7008060 7016180 7001290 7012290 7012290 7012200 7012200 7012010 7012350 7012440 7012500 7012400 7012400 7012400 7012400 7012400 7012400 7012500 7012400 7012500 7012400 7012500 7012400 7012500 7012400 7012500	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and instrumentation Like Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories	67,54 26,78 43,22 29,11 235,91 85,91 144,89 17,333 11,644
7012350 7006540 700030 7001110 70122410 7012270 7008060 7016180 7001390 7012290 7012290 7012200 7012200 7012200 7012200 7012200 7012200 7012210 7012200 7012610 7012640 7012500 7012500 7012100 7012500 7012100 7012540 7012640 7012640 7000010	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA SCADA Freight - truck Contract Engineering Metering and instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor	67,54 26,78 43,22 29,11 235,91 85,91 144,69 17,23 11,64
7012350 7006640 7000630 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012200 701200 7012500 7012640 7012500 7012640 7000010	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tenks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor	67,54 26,78 43,22 29,11 235,91 85,91 144,69 17,23 11,64
7012350 7006540 7000030 7001110 7012410 7012270 7008060 7016180 7001390 7012290 7012290 7012200 7012200 7012200 70122101 7012350 7012610 7012440 7012500 7012440 7012500 7012440 7012500 7012440 7012500 7012440 7012500 7012440 7012500 7012440 7012500 7012440 7012500 7012440 7012500 7012440	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad	67,54 26,78 43,22 29,11 235,91 85,91 144,89 17,333 11,644
7012350 7006540 7000030 7001110 7012410 7012270 7008060 7016180 7012290 7012290 7012290 7012200 7012200 7012210 7012350 7012440 7012500 7012480 7012480	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA SCADA Freight - truck Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping Unit Engine	67,54 26,78 43,22 29,31 235,91 85,91 144,69 17,33 11,64 29,316
7012350 7006640 700030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012200 7012210 7012210 7012260 7012610 7012610 7012610 7012610 7012610 7012610 7012610 7012610 7012610 7012610 7012500 7012100 7012100 7012100 7012500 7012100 7012500 7012100 7012500 7012100 7012500 7012100 7012500 7012500 7012500 7012500 7012500 7012500	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping Unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)	67,54 26,78 43,22 29,31 235,91 85,91 144,69 17,33 11,64 29,316
7012350 7006640 700030 7001110 7012410 7012270 7008060 7016180 7011290 7012290 7012290 7012200 7012200 7012210 7012210 7012610 7012610 7012640 7012640 7000010 7000010 7000010 7012180 7012180 7012180	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA SCADA Freight - truck Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping Unit Engine	85,915 11,4,894 29,110 29,111 235,91.
7012350 7006640 7000630 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012210 7012200 7012260 7012610 7012640 7012640 7000010 7000010 7000010 7012480 7012180	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping Unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)	26,784 26,784 43,227 29,110 235,914
7012350 7006540 7000630 7001110 7012410 7012270 7008060 7001180 7001390 7012290 7012290 7012290 7012200 7012200 7012350 7012410 7012440 7012500 7012440 7012500 7012440 7012500 7012640 7000010 7012480 7012180 7012350	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and instrumentation i&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)	67,54 26,78 43,22 29,11 235,91 85,91 144,89 17,33 11,64 29,11( 23,29;
7012350 7006640 7000630 7001110 7012410 7012270 7008660 7016180 701190 7012290 7012290 7012290 7012200 7012200 7012250 7012010 7012440 7012500 7012640 7012640 7000010 7012640 7000010 7012480 7012180 7012180	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and instrumentation like Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tenks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs) FOTAL SURFACE EQUIPMENT COST	67,54  26,78  43,22  29,111  235,91  85,913  144,894  17,336  11,644  29,116  23,293  \$800,575
7012350 7006540 7000030 7001110 7012410 7012270 7008660 7001180 7001290 7012290 7012290 7012200 7012200 70122100 7012410 701250 7012610 701250 7012400 7012400 7012500 7012400 7012500 7012500 7012500 7012100 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and Instrumentation 1&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mec	85,915 26,784 43,22; 29,114 235,914 85,915 144,894 17,336 11,644 29,116 23,293 \$800,575
7012350 7006640 700030 7001110 7012240 7012270 7008060 7001390 7012290 7012290 7012290 7012200 7012200 7012200 70122100 7012350 7012410 7012640 701250 7012100 7012640 7012100 7012400 701250 7012100 7012640 7000010 7000010 7000010 7000010 7000010 7000010 7012480 7012180 7012180	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and instrumentation like Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs) IOTAL SURFACE EQUIPMENT COST  Company Labor Gas Lift Equipment	85,915 85,915 144,894 17,334 29,310 23,293 \$800,575
7012350 7006640 7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012250 70122610 7012440 7012550 7012640 7012640 7012180 7012180 7012180 7012180 7012180 7012180	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and instrumentation like Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tenks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  FOTAL SURFACE EQUIPMENT COST  Company Labor Gas Lift Equipment Rod Pumping, Sucker Rods & Rod Pump	85,911 29,111 29,111 235,91 85,911 144,69 17,331 11,644 29,111 23,29; \$800,575
7012350 7006640 7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012290 7012200 7012200 7012200 7012200 7012250 7012610 7012640 7000010 7012640 7012180 7012350 7012180 7012180 7012350	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and instrumentation J&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Flore (electrical cooperative construction costs)  FOTAL SURFACE EQUIPMENT COST  Company Labor Gas Uff Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP)	85,911 235,91 29,11 235,91 85,911 144,69 17,331 11,644 29,111 23,29; \$800,575
7012350 7006640 700030 7001110 7012240 7012270 7008060 7001390 7012290 7012290 7012290 7012200 7012200 7012200 70122100 7012350 7012410 7012400 701250 7012100 7012100 701250 7012100 701250 7012100 701250 7012100 701250 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs) FOTAL SURFACE EQUIPMENT - TANGIBLE  FOTAL SURFACE EQUIPMENT COST  Company Labor Gas Lift Equipment Rod Pumping, Sucker Rods & Rod Pump Electrics-Well/Wellhead Services Well Services-Well/Wellhead Services	85,913 20,314 29,314 235,914 85,915 144,894 17,334 11,646 29,314 \$800,575 \$800,575
7012350 7006640 7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012250 70122100 701240 7012550 7012640 7012640 7012180	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and instrumentation like Materials Gas Treating Dehydration Compresor Power Vapor Recovery Unit Separator & other pressure vessels Tenks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Red Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  Company Labor Gas Uff Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Well/Wellhead Services Materials & Supplies-Tangible	26,784 26,78 26,78 43,22 29,111 235,91 235,91 144,89 17,334 11,644 29,111 23,29; \$800,575 \$ 800,575 \$ 2,500 38,000
7012350 7006640 7000030 7001110 7012410 7012270 7008060 7001190 7012290 7012290 7012290 7012200 7012200 7012350 7012410 7012500 7012400 7012500 7012400 7012500 7012500 7012180	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tenks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Mechanical Labor Bod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  ICOTAL SURFACE EQUIPMENT - TANGIBLE  Company Labor Gas Uft Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Weil/Wellhead Services Materials & Supplies-Tangible Surface Wellhead Sequipment Materials & Supplies-Tangible	29,311 29,311 235,93: 85,91: 144,89: 17,33( 11,644 29,11( 23,291 \$800,575 \$800,575
7012350 7006640 700030 7001110 7012240 7008060 7006180 7001390 7012290 7012290 7012290 7012290 7012200 7012290 7012210 7012350 7012610 7012640 701250 7012100 7012640 701250 7012100 7012640 700010 7012640 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012100 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012150 7012250 7012350	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Mechanical Labor Mechanical Labor Mechanical Labor Flower (electrical cooperative construction costs) FOTAL SURFACE EQUIPMENT - TANGIBLE  FOTAL SURFACE EQUIPMENT - TANGIBLE  FOTAL SURFACE EQUIPMENT COST  Company Labor Gas Lift Equipment Rod Pumping, sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Well/Wellhead Services Materials & Supplies-Tangible Surface Wellhead Equipment Pig Launchers/Receivers & Rel Equip	29,311 29,311 235,93: 85,91: 144,89: 17,33( 11,644 29,11( 23,291 \$800,575 \$800,575
7012350 7006640 7000030 7001110 7012410 7012270 7008060 7001190 7012290 7012290 7012290 7012200 7012200 7012350 7012410 7012500 7012400 7012500 7012400 7012500 7012500 7012180	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tenks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Mechanical Labor Bod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  ICOTAL SURFACE EQUIPMENT - TANGIBLE  Company Labor Gas Uft Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Weil/Wellhead Services Materials & Supplies-Tangible Surface Wellhead Sequipment Materials & Supplies-Tangible	26,784 26,78 26,78 43,22 29,111 235,91 235,91 144,89 17,334 11,644 29,111 23,29; \$800,575 \$ 800,575 \$ 2,500 38,000
7012350 7006640 700030 7001110 70122410 7012270 7008060 7001390 7012290 7012290 7012290 7012290 7012200 7012290 7012210 7012210 7012280 7012410 7012480 7012480 7012180	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Mechanical Labor Mechanical Labor Sold Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  FOTAL SURFACE EQUIPMENT COST  Company Labor Gas Uff Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Well/Wellhead Services Materials & Supplies-Tangible Surface Wellhead Equipment Pig Launchers/Receivers & Rel Equip 8% Contingency & Taxes	\$5,915 26,784 43,222 29,314 235,914 144,694 17,334 11,644 29,314 23,293 \$800,575 \$800,575 2,500 38,000 13,000 5,500
7012350 7006640 7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012250 70122100 701240 7012550 7012180 7012190 7012190 7012190	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and instrumentation Like Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  FOTAL SURFACE EQUIPMENT COST  Company Labor Gas Lift Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Well/Wellhead Services Materials & Supplies-Tangible Surface Wellhead Equipment Pig Launchers/Receivers & Rel Equip Stront Contingency & Taxes	\$5,91 26,78 43,22 29,11 235,91 144,89 17,33 11,64 29,11 23,29; \$800,575 \$800,575
7012350 7006640 7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012290 7012200 7012200 7012290 7012200 70122100 7012350 701240 701240 7012550 7012180 7012190 7012190 7012190	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Mechanical Labor Mechanical Labor Sold Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  FOTAL SURFACE EQUIPMENT COST  Company Labor Gas Uff Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Well/Wellhead Services Materials & Supplies-Tangible Surface Wellhead Equipment Pig Launchers/Receivers & Rel Equip 8% Contingency & Taxes	\$5,915 26,784 43,222 29,314 235,914 144,694 17,334 11,644 29,314 23,293 \$800,575 \$800,575 2,500 38,000 13,000 5,500
7012350 7006640 7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012250 70122100 701240 7012550 7012180 7012190 7012190 7012190	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and instrumentation Like Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  FOTAL SURFACE EQUIPMENT COST  Company Labor Gas Lift Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Well/Wellhead Services Materials & Supplies-Tangible Surface Wellhead Equipment Pig Launchers/Receivers & Rel Equip Stront Contingency & Taxes	\$ 29,311 29,311 235,91 85,912 144,894 17,333 11,644 29,114 23,291 \$800,575 \$ 800,575 \$ 2,500 38,000 79,000
7012350 7006640 7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012250 70122100 701240 7012550 7012180 7012190 7012190 7012190	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs) TOTAL SURFACE EQUIPMENT - TANGIBLE FOTAL SURFACE EQUIPMENT COST  Company Labor Gas Lift Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services Well/Wellhead Services Materials & Supplies - Tangible Surface Wellhead Equipment Pig Launchers/Receivers & Rel Equip SX Contingency & Taxes  COTAL ARTIFICIAL LIFT COST  SUMMARY OF ESTIMATED DRILLING WELL COSTS	\$ 23,291 \$ 800,575 \$ 800,575 \$ 79,000
7012350 7006640 7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012250 70122100 701240 7012550 7012180 7012190 7012190 7012190	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and instrumentation Lik E Materials Gas Treating Dehydration Compressor Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels —————————————————————————————————	\$ 75,000  \$ 75,000  \$ 75,000
7012350 7006640 7000030 7001110 7012410 7012270 7008060 7016180 7001190 7012290 7012200 7012200 7012200 7012200 7012200 7012200 7012200 7012250 70122100 701240 7012550 7012180 7012190 7012190 7012190	Company Labor & Burden Contract Labor - General Telecommunication equip (Telemetry) Line Pipe & Accessories Miscellaneous Materials (containment system) SCADA Freight - truck Contract Engineering Metering and instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs) TOTAL SURFACE EQUIPMENT - TANGIBLE FOTAL SURFACE EQUIPMENT COST  Company Labor Gas Lift Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services Well/Wellhead Services Materials & Supplies - Tangible Surface Wellhead Equipment Pig Launchers/Receivers & Rel Equip SX Contingency & Taxes  COTAL ARTIFICIAL LIFT COST  SUMMARY OF ESTIMATED DRILLING WELL COSTS	\$ 29,114 235,914 25,914 285,915 285,915 235,916 235,916 235,916 235,916 24,896 25,116 25,116 26,116 27,116 28,116 29,116 20,000 38,000 55,500 79,000 \$ 79,000

TOTAL SURFACE EQUIPMENT COST TOTAL ARTIFICIAL LIFT COST

GRAND TOTAL COST

\$ 800,575 \$ 79,000

\$9,834,324



Drilling Project #
Pad Project #
DATE: 7/10/2018

Permian Asset To	nam.				
Field	PURPLE SAGE;WOLFCAMP (G	AS) [98220]	Location 23,28,30	Rig	480
Lease / Facility	CROSSBOW FEDERAL 23 27 8			EW MEXICO	
Operator	MARATHON OIL PERMIAN LLC		County/Parish E		
operator .			Estimated Start Date 18		
			Estimated Completion Date 25		
Estimated	Gross Cost This AFE: \$9,76	2,456			
Project Descripti	on & Reason for Expenditure:	Drill, Complete, &	Equip a Horizontal Well		
testing, completed include installation the well will be	eting, and equipping the well is a tion of transitional and long term of drilled to a total vertical depth of in the WOLFCAMP WXY form	\$7,057,016 as detailed n artificial lift systems. of 9,580' and a total n	cturing using plug and perf. The es d in the provided authority for expen neasured depth of 14,474', with an o apleted with an estimated 30 stages	diture document. T	his will ateral
Prepared By	AG PRADEEP., MATTHEW RUGAARD, AO	ISH SHANNON, MATT MENSCH	GEN, BILLY MOORE, LANE NEAL		
		0			
Title: Regio	nal Vice President Permian Asset Team	Date:			
ribo. riogio	THE THE PRODUCTION OF THE PRODUCT OF THE	•			
		Participant's App	roval		
	Name of Company:				
	Company.				
	Signature:	<del> </del>			
	Title		Date: _=		
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			181		
			-		

DATE 7/10/2018

DRILLING & LOCATION PREPARED BY MATTHEW RUGAARD
COMPLETION PREPARED BY JOSH SHANNON
FACILITIES PREPARED BY MATT HENSCHEN
ARTIFICIAL LIFT PREPARED BY BILLY MOORE

Asset Team	PERMIAN			
Field	PURPLE SAGE:WOU	FORMATION: WOLFCAMP	WILDCAT	EXPLORATION
Lease/Facility	CROSSBOW FEDERAL 23 27 8 WXY 8H		DEVELOPMENT	RECOMPLETION
Location	EDDY COUNTY		X EXPLOITATION	WORKOVER
Prospect	MALAGA		<del></del>	<del></del>
Est Total Depth	19,181	Est Drilling Days	22.8 Est Completio	on Days11
LOCATION COST	- INTANGIBLE			
GL CODE		DESCRIPTION		ESTIMATED COST
	1	DEJONIF (1014		37,500
7001270	Location and Access			37,500
7001250	Land Broker Fees and Services			
	TOTAL LOCATION COST - INTANGIBLE			75,000
DRILLING COST -	TANGIBLE			
7012050	Conductor Pipe			28,000
7012050	Surface Casing			16,000
7012050	Intermediate Casing 1			61,000
7012050	Intermediate Casing 2			207,000
7012050	Production Casing			137,000
7012050	Orig Liner Hanger, Tieback Eq & Cs	g Accessories		55,000
7012550	Drilling Wellhead Equipment			50,000
7012040	Casing & Tubing Access			24,000 5,000
7012270	Miscellaneous MRO Materials			3,000
	TOTAL DRILLING - TANGIBLE			583,000
DRILLING COST -	INTANGIBLE			
7019200	Drilling Rig Mob/Demob			33,750
7019220	Drilling Rig - day work/footage			565 000
7019040	Directional Drilling Services			191,700
7019020	Cement and Cementing Service		Surface	15,000
7019020	Cement and Cementing Service		Intermediate 1	25,000
7019020	Cement and Cementing Service		Intermediate 2	40,000
7019020	Cement and Cementing Service		Production	60,000
7019140	Mud Fluids & Services			66,600
7012310	Solids Control equipment			41,000
7012020	Blts			70,000
7019010	Casing Crew and Services			30,000
7016350	Fuel (Rig)			70,000
7019140	Fuel (Mud)			18,000
7001460	Water (non potable)			25,000
7019000	Well Logging Services			10.000
7019150	Mud Logging-geosteering	anner (Dil nemerle)		19,000
7019250 7019110	Stabilizers, Hole Openers, Underre Casing Inspection/cleaning	amers (ou tenters)		15,000 15,000
7019110	Drill pipe/collar inspection service:			
7016180	Freight - truck			10,000
7001460	Water hauling and disposal (includ	es soil farming)		60,000
7001440	Vacuum Trucks			10,000
7000030	Contract Labor - general			30 000
7018150	Rental Tools and Equipment (surfa	ce rentals)		90,400
7018150	Rig Equipment and Misc.	50 m		11,300
7001110	Telecommunications Services			5,000
7001120	Consulting Services			106,220
7001400	Safety and Environmental		<u> </u>	36,160
7018120	Rental Buildings (trailers)			18,080
7019310 7011010	Coring (sidewalls & analysis) 8% Contingency & Taxes			144,871
	TOTAL DRILLING - INTANGIBLE			\$1,847,081
	TOTAL DRILLING COST			\$2,430,081
COMPLETION - TA	ANGIRIF			- delicate
		4		
7012580	Tubing			75,000
7012040	Tubing Accessories (nipple, wireling	e engy)		15,000
7012550	Wellhead Equip Packers - Completion Equipment			20,000
7012560	rackers - completion equipment		·	60,000
	YOYAL COMMISSION, TANGERS			4470.000

\$6,377,800

MARATHON OIL PERMIAN LLC
AUTHORITY FOR EXPENDITURE

DETAIL OF ESTIMATED WELL COSTS

Asset Team PERMIAN
Reld PURPLE SAGE; WOLL FORMATION: WOLFCAMP
Lease/Facility CROSSBOW FEDERAL 23 27 8 W/NY 8H

COMPLETION - INTANGIBLE

GL CODE
7001270 Location and Access (dress location after rig move, set anchors)
7019220 Drilling Rig During Completion

**ESTIMATED COST** Location and Access (dress location after rig move, set anchors) 20,000 **Drilling Rig During Completion** 80,000 7019140 Mud Fluids & Services 240,000 Colled Tubing Services (3 runs) 7019030 7019240 **Snubbing Services** 7019270 Pulling/Swab Units 7016350 Fuel (from drig) **Casing Crew and Services** 7019010 7019020 Cement and Cementing Services 7019080 Well Testing Services (flow hand & equip) 195,000 7019320 Fracturing Services 3,550,000 300,000 7019330 Perforating Wireline Services 10,000 7019360 7001460 Water Hauling & Disposal (frec fluids) 600,000 7016180 Freight - Truck (haul pipe; drig & compl) 15,000 7018150 **BOP Rental & Testing** Rental Tools and Equipment ( incl drig; lightplant, hydra-walk) 7018150 7018150 CT Downhole Rental Equipment (ie. Bit, BHA) 50,000 7000030 Contract Labor - general Telecommunications Services 130,000 7001110 7001400 Safety and Environmental 60,000 7001120 **Consulting Services** 2)pper Manifold 165,000 7018150 Frack Stack Rentals 70,000 7016190 Freight (Transportation Services) Equipment Rental ( w/o operator, frac tanks, lightplants) 140,000 7018150 Rental Buildings (trailers) 60,000 7018120 7000030 Contract Labor - Pumping (pump-down pumps) 120,000

7011010 8% Contingency & Taxes 402,800

TOTAL COMPLETION - INTANGIBLE \$6,207,800

### TOTAL COMPLETION COST

SURFACE EQUIPMENT - TANGIBLE 7012350 Misc. Piping, Fittings & Valves 85,794 7006640 Company Labor & Burden Contract Labor - General 7000030 67,540 7001110 Telecommunication equip (Telemetry) 26,786 7012410 Une Pipe & Accessories Miscellaneous Materials (containment system) 43,227 7012270 SCADA 7008060 7016180 Freight - truck 29,116 Contract Engineering 7001190 7012290 Metering and Instrumentation 235,914 7012290 I&E Materials 7012200 **Gas Treating** 7012200 Dehydration 7012010 Compressor 7012350 7012610 Vapor Recovery Unit 7012440 Separator & other pressure vessels 85,919 7012500 Tanks 144,894 7012100 **Heater Treater** 17,330 7012540 Flare & Accessories 11,646 29,116 7000010 Electrical Labor 7000010 Mechanical Labor 7012480 Rod Pumping unit & Pad 7012180 7012350 Electrical Power (electrical cooperative construction costs) 23,293

## TOTAL SURFACE EQUIPMENT COST

ARTIFICIAL UFT 7006640 Company Labor 7012180 Gas Lift Equipment 38,000 7012480 Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) 7019350 Well Services-Well/Wellhead Services 20,000 7012270 Materials & Supplies-Tangible 13,000 7012550 Surface Wellhead Equipment 5,500 7012390 Pig Launchers/Receivers & Rel Equip 7011010 8% Contingency & Taxes TOTAL ARTIFICIAL LIFT 79,000

### SUMMARY OF ESTIMATED DRILLING WELL COSTS

TOTAL LOCATION COST TOTAL DRILLING COST TOTAL COMPLETIONS COST

TOTAL SURFACE EQUIPMENT - TANGIBLE

TOTAL ARTIFICIAL LIFT COST

TOTAL COST

\$ 75,000 \$ 2,430,081 \$ 6,377,800

79,000

\$800,575

800.575

\$

TOTAL SURFACE EQUIPMENT COST TOTAL ARTIFICIAL LIFT COST

GRAND TOTAL COST

800,575 79,000 \$9,762,456



AUTHORITY FOR EXPENDITURE EXPLORATION & PRODUCTION

Drilling Project #
Pad Project #
DATE: 7/10/2018

PIRPLE SAGE; WOLFCAMP (GAS); [88220] Location 23,28,30  CROSSBOW FEDERAL 32,32 # WYY 14H  MARATHON OIL PERMIAN LLC  Estimated Completion Date 25-Mer-2018  Estimated Gross Cost This AFE: \$9,755,036  Project Description & Reason for Expenditure:  Drill, Complete, & Equip a Horizontal Well  This well is planned to be drilled and completed with multistage fracturing using plug and perf. The estimated cost of drilling testing, completing, and equipping the well is \$7.057,016 as detailed in the provided authority for expenditure document. Thinclude installation of transitional and long term artificial lift systems.  The well will be drilled to a total vertical depth of 9,580 and a total measured depth of 14,474', with an estimated treatable is length of 4,632' in the WOLFCAMP WXY formation and will be completed with an estimated 30 stages and approximately 2 ibs/ft of proppant.  Final Approval  Title Regional Vice President Permian Asset Team  Participant's Approval  Name of Company.  Signature.  Date:  Date	Permian Asset 1			
Estimated Gross Cost This AFE: \$9,755,036  Estimated Gross Cost This AFE: \$9,755,036  Estimated Gross Cost This AFE: \$9,755,036  Estimated Completion Date 25-Mar-2018  Estimated Gross Cost This AFE: \$9,755,036  Project Description & Reason for Expenditure  Date: Date				<u> </u>
Estimated Start Date 18-Feb-2018 Estimated Gross Cost This AFE: \$9,755,036  Project Description & Reason for Expenditure: Drill, Complete, & Equip a Horizontal Well  This well is planned to be drilled and completed with multistage fracturing using plug and perf. The estimated cost of drillin testing, completing, and equipping the well is \$7,057,016 as detailed in the provided authority for expenditure document. Thinclude installation of transitional and long term artificial lift systems.  The well will be drilled to a total vertical depth of 9,580° and a total measured depth of 14,474°, with an estimated treatable is length of 4,632° in the WOLFCAMP WXY formation and will be completed with an estimated 30 stages and approximately 2 has/ft of proppant.  Final Approval  Date:  Participant's Approval  Name of Company:  Signature.  Title:				
Estimated Gross Cost This AFE:\$9,755,036  Project Description & Reason for Expenditure  This well is planned to be drilled and completed with multistage fracturing using plug and perf. The estimated cost of drilling testing, completing, and equipping the well is \$7,057,016 as detailed in the provided authority for expenditure document. This well into drilled to a total vertical depth of 9,505 and a total merical before the drilled to a total vertical depth of 9,505 and a total measured depth of 14,474', with an estimated treatable is length of 4,632' in the WOLFCAMP WXY formation and will be completed with an estimated 30 stages and approximately 2 barft of proppant.  Final Approval  Date:	Operator	MARATHON OIL PERMIAN LLC		
Estimated Gross Cost This AFE: \$9,755,036  Project Description & Reason for Expenditure: Drill, Complete, & Equip a Horizontal Well  This well is planned to be drilled and completed with multistage fracturing using plug and perf. The estimated cost of drilling testing, completing, and equipping the well is \$7,057,016 as detailed in the provided authority for expenditure document. Thindude installation of transitional and long term artificial lift systems.  The well will be drilled to a total vertical depth of 9,580' and a total measured depth of 14,474', with an estimated treatable is length of 4,632' in the WOLFCAMP WXY formation and will be completed with an estimated 30 stages and approximately 2 bis/ft of proppant.  **Proposed By**  **AG PRADEEPMATTHEW RUGAARD_JOSH SHANNON, MATT HENSCHEN, BILLY MOORELANE NEAL  **Final Approval**  **Date:				
This well is planned to be drilled and completed with multistage fracturing using plug and perf. The estimated cost of drilling testing, completing, and equipping the well is \$7,057,016 as detailed in the provided authority for expenditure document. Thinclude installation of transitional and long term artificial lift systems.  The well will be drilled to a total vertical depth of 9,580° and a total measured depth of 14,474°, with an estimated treatable is length of 4,632° in the WOLFCAMP WXY formation and will be completed with an estimated 30 stages and approximately 2 barft of proppant.  **Proposed By**  **AG PRADEEP**, MATTHEW RUGAARD**, JOSH SHANNON, MATTHENSCHEN, BELLY MOORE**, LANE NEAL**  **Final Approval**  **Date**  **Participant's Approval**  **Name of Company**  **Signature**  **Signature**  **Title:**  **Date**  **Title:**  **Date**  **Title:**  **Date**  **Date	Estimate	d Gross Cost This AFE: \$9,755,036	<u></u>	11101 2010
testing, completing, and equipping the well is \$7.057,016 as detailed in the provided authority for expenditure document. Thindude installation of transitional and long term artificial lift systems.  The well will be drilled to a total vertical depth of 9,580' and a total measured depth of 14,474', with an estimated treatable is length of 4,632' in the WOLFCAMP WXY formation and will be completed with an estimated 30 stages and approximately 2 lbs/ft of proppant.  AG PRADEEP, MATTHEW RUGAARD, JOSH SHANNON, MATT HENSCHEN, BILLY MOORE, LANE NEAL  Final Approval  Date:  Participant's Approval  Name of Company:  Signature.  Title:	Project Descrip	tion & Reason for Expenditure: Drill, Complete	, & Equip a Horizontal Well	
Final Approval  Date:  Title: Regional Vice President Permian Asset Team  Participant's Approval  Name of Company:  Signature:  Title:	testing, complined installed the well will be length of 4,63	leting, and equipping the well is \$7,057,016 as detai ation of transitional and long term artificial lift system be drilled to a total vertical depth of 9,580' and a tota 2' in the WOLFCAMP WXY formation and will be c	iled in the provided authority for expend ns. Il measured depth of 14,474', with an e	fiture document. This will stimated treatable lateral
Final Approval  Date:  Title: Regional Vice President Permian Asset Team  Participant's Approval  Name of Company  Signature.  Title:				
Final Approval  Date:  Title: Regional Vice President Permian Asset Team  Participant's Approval  Name of Company:  Signature:  Title:				
Final Approval  Date:  Title: Regional Vice President Permian Asset Team  Participant's Approval  Name of Company:  Signature:  Title:			/	
Final Approval  Date:  Title: Regional Vice President Permian Asset Team  Participant's Approval  Name of Company:  Signature:  Title:				
Final Approval  Date:  Title: Regional Vice President Permian Asset Team  Participant's Approval  Name of Company:  Signature:  Title:				
Title: Regional Vice President Permian Asset Team  Participant's Approval  Name of Company:  Signature:  Title:	Prepared By	AG PRADEEP, , MATTHEW RUGAARD, JOSH SHANNON, MATT HENS	SCHEN, BILLY MOORE, LANE NEAL	
Title: Regional Vice President Permian Asset Team  Participant's Approval  Name of Company:  Signature:  Title:				
Participant's Approval  Name of Company  Signature:  Title:		Final Approval		
Participant's Approval  Name of Company:  Signature:  Title:				
Name of Company:  Signature:  Title:	Title: Regid	onal Vice President Permian Asset Team		
Name of Company:  Signature:  Title:  Date:				
Name of Company:  Signature:  Title:				
Company		Participant's A	pproval	
Signature:  Title:		Name of		
Title: Date:		Company		
Title: Date:				
Title: Date:		Signature:		
		Title	Date	9
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DATE 7/10/2018

DRILLING & LOCATION PREPARED BY MATTHEW RUGAARD

COMPLETION PREPARED BY JOSH SHANNON

FACILITIES PREPARED BY MATT HENSCHEN

ARTIFICIAL LIFT PREPARED BY BILLY MOORE

Asset Team	PERMIAN	
Field	PURPLE SAGE; WOLI FORMATION: WOLFCAMP WILDCAT	EXPLORATION
Lease/Facility	CROSSBOW FEDERAL 23 27 8 WKY 14H DEVELOPMENT	RECOMPLETION
Location	EDDY COUNTY X EXPLOITATION	WORKOVER
Prospect	MALAGA	
Est Total Depth	19,229 Est Drilling Days 22.8 Est Completion Da	ys <u>11</u>
LOCATION COST - I	NTANGIRIF	
EDCATION COST -	111714160	
GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access	37,500
7001250	Land Broker Fees and Services	37,500
	TOTAL LOCATION COST - INTANGIBLE	75,000
DRILLING COST - TA	ANGIBLE	
7012050	Conductor Pipe	28,000
7012050	Surface Casing	15,000
7012050	intermediate Casing 1	55,000
7012050	Intermediate Casing 2	207,000
7012050	Production Casing	137,000
7012050	Drig Liner Hanger, Tieback Eq & Csg Accessories	55,000
7012550	Drilling Wellhard Equipment	50,000
7012040	Casing & Tubing Access	24,000
	Miscellaneous MRO Materials	5,000
7012270	MISCENERADOS MINO MACENTAIS	3,000
	TOTAL DRILLING - TANGIBLE	576,000
DRILLING COST - IN	TANGIBLE	
7019200	Drilling Rig Mob/Demob	33,750
7019220	Drilling Rig - day work/footage	\$65,000
7019040	Directional Drilling Services	191,700
7019020	Cement and Cementing Service Surface	15,000
7019020	Cement and Cementing Service Intermediate 1	25,000
7019020	Cement and Cementing Service Intermediate 2	40,000
7019020	Cement and Cementing Service Production	60,000
7019140	Mud Fluids & Services	66,600
7012310	Solids Control equipment	41,000
7012020	8lts	70,000
7019010	Casing Crew and Services	30,000
7016350	fuel (Rig)	70,000
7019140	Fuel (Mud)	18,000
7001460	Water (non potable)	25,000
		23,000
7019000	Well Logging Services	
7019150	Mud Logging-geosteering	19,000
7019250	Stabilizers, Hole Openers, Underreamers (DH rentals)	15,000
7019110	Casing inspection/cleaning	15,000
7019110	Drill pipe/collar inspection services	10,000
7016180	Freight - truck	25,000
7001460	Water hauling and disposal (includes soil farming)	60,000
7001440	Vacuum Trucks	10,000
7000030	Contract Labor - general	30,000
7018150	Rental Tools and Equipment (surface rentals)	90,400
7018150	Rig Equipment and Misc.	11,300
7001110	Telecommunications Services	5,000
7001120	Consulting Services	106,220
7001400	Safety and Environmental	36,160
7018120	Rental Buildings (trailers)	18,080
7019310	Coring (sidewalls & analysis)	· ·
7011010	8% Contingency & Taxes	144,451
	TOTAL DRILLING - INTANGIBLE	£1 04E 564
	TOTAL ANICOTAG - INTIMITATION	\$1,846,661
	TOTAL DRILLING COST	\$2,422,661
COMPLETION - TAN	GIBLE	
7012580	Tubing	75,000
7012040	Tubing Accessories (nipple, wireline entry)	15,000
7012550	Wellhead Equip	20,000
7012560	Packers - Completion Equipment	60,000
	TOTAL COLOR STICK TANCING	*****

MARATHON OIL PERMIAN LLC AUTHORITY FOR EXPENDITURE

DETAIL OF ESTIMATED WELL COSTS

PERMIAN PURPLE SAGE;WOU Asset Team Field FORMATION: WOLFCAMP

Field	PURPLE SAGE; WOLI FORMATION: WOLFCAMP	
Lease/Facility	CROSSBOW FEDERAL 23 27 8 WXY 14H	
COMPLETION - INT	ANGIBLE	
GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access (dress location after rig move, set anchors)	20,000
7019220	Drilling Rig During Completion	80,000
7019140	Mud Fluids & Services	
7019030	Colled Tubing Services (3 runs)	240,000
7019240	Snubbing Services	
7019270	Pulling/Sweb Units	
7016350	Fuel (from drig)	
7019010	Casing Crew and Services	
7019020	Cement and Cementing Services	- "
7019080	Well Testing Services (flow hand & equip)	195,000
7019320	Fracturing Services	3,550,000
7019330	Perforating	300,000
7019360	Wireline Services	10,000
7001460	Water Hauling & Disposal (frac fluids)	600,000
7016180	Freight - Truck (haul pipe; drig & compi)	15,000
7018150	BOP Rental & Testing	
7018150	Rental Tools and Equipment ( incl drig; lightplant, hydra-walk)	
7018150	CT Downhole Rental Equipment (le. Bit, BHA)	
7000030	Contract Labor - general	50,000
7001110 7001400	Telecommunications Services Safety and Environmental	130,000
7001120	Consulting Services	
	Zipper Manifold	60,000
7018150 7019300	Frack Stack Rentals	165,000
7016190	Freight (Transportation Services)	70 000
7018150	Equipment Rental ( w/o operator, frac tanks, lightplants)	448,000
7018130	Rental Buildings (trailers)	140,000
7000030	Contract Labor - Pumping (pump-down pumps)	120,000
7011010	S% Contingency & Taxes	120,000 402,800
7021010	on contingent at takes	402,800
	TOTAL COMPLETION - INTANGIBLE	\$6,207,800
	TOTAL COMPLETION COST	\$6,377,800
SURFACE EQUIPME	AT - TANGIRIE	
JOHN MEE EQUIT INTE	MI - MICOLOGE	
7012350	Misc. PipIng, Fittings & Valves	85,794
7006640	Company Labor & Burden	
7000030	Contract Labor - General	67,540
7001110	Telecommunication equip (Telemetry)	
7012410	Une Pipe & Accessories	26,786
7012270	Miscellaneous Materials (containment system)	43,227
7008060	SCADA	10
7016180	Freight - truck	1
7001190	Contract Engineering	29,116
7012290	Metering and instrumentation	235,914
7012290	I&E Materials	
7012200	Gas Treating	- 1
7012200	Dehydration	
7012010	Compressor	
7012350	Power	-
7012610	Vapor Recovery Unit	
7012440	Separator & other pressure vessels	85,919
7012500	Tanks	144,894
7012100	Heater Treater	17,330
7012640	Flare & Accessories	11,646
7000010	Electrical Labor	29,116
7000010	Mechanical Labor	
7012480	Rod Pumping unit & Pad	
7012180	Pumping Unit Engine	
7012350	Electrical Power (electrical cooperative construction costs)	23,293
	TOTAL SURFACE EQUIPMENT - TANGIBLE	\$800,575
Page 1000-1	TOTAL SURFACE EQUIPMENT COST	\$ 800,575
APTISICIAL		4
ARTIFICIAL LIFT		
7006640	Company Labor	2,500
7012180	Gas Lift Equipment	38,000
7012480	Rod Pumping, Sucker Rods & Rod Pump	[70]
7012140	Elect Sub Pumps (ESP)	100
7019350	Well Services-Well/Wellhead Services	20,000
7012270	Materials & Supplies-Tangible	13,000
7012550	Surface Wellhead Equipment	5,500
7012390	Pig Launchers/Receivers & Rei Equip	(3)
7011010	8% Contingency & Taxes	24
	TOTAL ARTIFICIAL UFT	79,000
	TOTAL ARTIFICIAL LIFT COST	
	The state of the s	\$ 79,000
	SUMMARY OF ESTIMATED DRILLING WELL COSTS	TOTAL COST
	TOTAL LOCATION COST	\$ 75,000
	TOTAL DRILLING COST	\$ 2,422,661
	TOTAL COMPLETIONS COST	\$ 6,377,800

GRAND TOTAL COST

\$ 800,575 \$ 79,000

\$9,755,036



	Drilling Project#
	Pad Project#
DATE:	7/10/2018

Permian Asset T			
Field	PURPLE SAGE; WOLFCAMP (GAS) [98220]	Location 23,28,30	Ria 48
Lease / Facility	CROSSBOW FEDERAL 23 27 8 WA 15H		N MEXICO
Operator	MARATHON OIL PERMIAN LLC	County/Parish EDI	
		Estimated Start Date 18-F	eb-2018
		Estimated Completion Date 25-h	Mar-2018
Estimate	d Gross Cost This AFE: \$9,729,596		
Project Descript	tion & Reason for Expenditure: Drill, Complete,	& Equip a Horizontal Well	
testing, complined include installation. The well will be	anned to be drilled and completed with multistage freting, and equipping the well is \$7,057,016 as detailed aton of transitional and long term artificial lift systems of drilled to a total vertical depth of 9,580' and a total 2' in the WOLFCAMP WXY formation and will be coant.	ed in the provided authority for expendi s. measured depth of 14,474', with an es	ture document. This wi timated treatable lateral
Propared By.	AG PRADEEP, , MATTHEW RUGAARD, JOSH SHANNON, MATT HENSO	CHEN, BILLY MOORE, , LANE NEAL	
	Final Approval		
Trde Regio	nal Vice President Permian Asset Team		
	Participant's Ap	proval	
	Name of Company.		
	Signature:		

DATE 7/10/2018
DRILLING & LOCATION PREPARED BY MATTHEW RUGARD
COMPLETION PREPARED BY JOSH SHANNON
FACILITIES PREPARED BY MATT HENSCHEN
ARTIFICIAL LIFT PREPARED BY BILLY MOORE

A	DEPARTMENT		
Asset Team	PURPLE SAGE; WOLI FORMATION: WOLFCAMP	WILDCAT	EXPLORATION
Reid Lesse/Facility	CROSSBOW FEDERAL 23 27 8 WA 15H	DEVELOPMENT	RECOMPLETION
Location	EDDY COUNTY	X EXPLOITATION	WORKOVER
Prospect	MALAGA		-
Est Total Depth	19,285 Est Drilling Days 22.	8 Est Completion Day	3 11
LOCATION COST -	INTANGIBLE		
GL CODE	DESCRIPTION		ESTIMATED COST
7001270	Location and Access		37,500
7001250	Land Broker Fees and Services		37,500
	TOTAL LOCATION COST - INTANGIBLE		75,000
DRILLING COST - 1	TANGIRIE		
DRILLING COST -	ANGIBLE		
******	Conductor Man		28,000
7012050	Conductor Pipe		16,000
7012050 7012050	Surface Casing Intermediate Casing 1		61,000
7012050	Intermediate Casing 2		207,000
7012050	Production Casing		106,000
7012050	Drig Liner Hanger, Tieback Eq & Csg Accessories		55,000
7012550	Drilling Wellhead Equipment		50,000
7012340	Casing & Tubing Access		24,000
7012270	Miscellaneous MRO Materials		5,000
702270	material recording model res		3,000
	TOTAL DRILLING - TANGIBLE		552,000
DRIVING COST I	NITANOIDI E		
DRILLING COST - I	NIANGIBLE		
7019200	Orilling Rig Mob/Demob		33,750
7019220	Orilling Rig - day work/footage		565,000
7019040	Directional Drilling Services		191,700
7019020	Cement and Cementing Service Surface		15,000
7019020	Cement and Cementing Service Intermed	iate 1	25,000
7019020	Cement and Cementing Service Intermed	iate 2	40,000
7019020	Cement and Cementing Service Production	on .	60,000
7019140	Mud Fluids & Services		66,600
7012310	Solids Control equipment		41,000
7012020	Bits		70,000
7019010	Casing Crew and Services		30,000
7016350	Fuel (Rig)		70,000
7019140	Fuel (Mud)	221	18,000
7001460	Water (non potable)		25,000
7019000	Well Logging Services		
7019150	Mud Logging-geosteering		19,000
7019250	Stabilizers, Hole Openers, Underreamers (OH rentals)		15,000
7019110	Casing Inspection/cleaning		15,000
7019110	Drill pipe/collar inspection services		10,000
7016180	_Freight - truck		=25,000
7001460	Water hauling and disposal (includes soil farming)  Vacuum Trucks		60,000
7001440 7000030			10,000
	Contract Labor - general		=-30,000 =-90,400
7018150 7018150	Rental Tools and Equipment (surface rentals)  Rig Equipment and Misc.		
7001110	Telecommunications Services		11,300
	Consulting Services		5,000
7001120 7001400	Safety and Environmental		106,220
7018120	Rental Buildings (trailers)		36,160 18,080
7019310	Coring (sidewalls & analysis)		18,080
7011010	8% Contingency & Taxes		143,011
	or contragette) a reace		145,011
	TOTAL DRILLING - INTANGIBLE		\$1,845,221
-			
	TOTAL DRILLING COST		\$2,397,221
COMPLETION - TA	NGIBLE		
7012580	Tubing Tubing		75,000
7012040	Tubing Accessories (nipple, wireline entry) Wellhead Equip		15,000
7012550 7012560	Packers - Completion Equipment		20,000
, , , , , , , , , , , , , , , , , , , ,	sand-sanan adademang		60,000
	TOTAL COMPLETION - TANGIBLE		\$170,000

PERMIAN

Field Lease/Facility COMPLETION - INT	PURPLE SAGE; WOLI FORMATION: WOLFCAMP	
COMPLETION - INT	CROSSBOW FEDERAL 23 27 8 WA 15H	
	CHOSSION FEDERAL STATE WAS SAL	
	ANGIBLE	
GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access (dress location after rig move, set anchors)	20,000
7019220	Orilling Rig During Completion	80,000
7019140	Mud Fluids & Services	
7019030	Colled Tubing Services (3 runs)	240,000
7019240	Snubbing Services	
7019270	Pulling/Swab Units	
7016350	Fuel (from drig)	
7019010	Casing Crew and Services	
7019020	Cement and Cementing Services	
7019080	Well Testing Services (flow hand & equip)	195,000
7019320	Fracturing Services	3,550,000
7019330	Perforating	300,000
7019360	Wireline Services	10,000
7001460	Water Hauling & Disposal (frac fluids)	600,000
7016180	Freight - Truck (haul pipe; drig & compl)	15,000
7018150	BOP Rental & Testing	
7018150	Rental Tools and Equipment (Inci drig; lightplant,hydra-walk)	
7018150	CT Downhole Rental Equipment (Ie. Bit, BHA)	
		50,000
7000030	Contract Labor - general	
7001110	Telecommunications Services	130,000
7001400	Safety and Environmental	
7001120	Consulting Services	60,000
7018150	Zipper Manifold	165,000
7019300	Frack Stack Rentals	70,000
7016190	Freight (Transportation Services)	
7018150	Equipment Rental ( w/o operator, frac tanks, lightplants)	140,000
7018120	Rental Buildings (trailers)	60,000
7000030	Contract Labor - Pumping (pump-down pumps)	120,000
7011010	8% Contingency & Taxes	402,800
	TOTAL COMPLETION - INTANGIBLE	\$6,207,800
	TOTAL COMPLETION COST	\$6,377,800
	TOTAL GOVERNMENT COOK	35,377,000
SURFACE EQUIPME	NT - TANGIBLE	
	and and the state of the state	
7012350	Misc. Piping, Fittings & Valves	85,794
7006640	Company Labor & Burden	<del>.</del>
7000030	Contract Labor - General	67,540
7001110	Telecommunication equip (Telemetry)	
7012410	Line Pipe & Accessories	26,786
7012270	Miscellaneous Materials (containment system)	43,227
7008060	SCADA	**
7016180	Freight - truck	
7001190	Contract Engineering	29,116
7012290	Metering and instrumentation	235,914
7012290	ISE Materials	
7012200	Gas Treating	
- 7012200	Dehydration	
7012010	Compressor	
7012350	Power	-
7012610	Vapor Recovery Unit	
7012440	Separator & other pressure vessels	85,919
7012500	Tanks	144,894
7012100	Heater Treater	17,330
7012640	Flare & Accessories	11,646
7000010	Electrical Labor	29,116
7000010	Mechanical Labor	
7012480	Rod Pumping unit & Pad	-
7012180	Pumping Unit Engine	
7012350	Electrical Power (electrical cooperative construction costs)	23,293
-	TOTAL SURFACE EQUIPMENT - TANGIBLE	\$800,575
ARTIFICIAL LIFT	TOTAL SURFACE EQUIPMENT COST	\$ 800,575
	Commentation	
7006640	Company Labor	2,500
7012180	Gas Lift Equipment	38,000
7012480	Rod Pumping, Sucker Rods & Rod Pump	
	Elect Sub Pumps (ESP)	
7012140	Well Services-Well/Wellhead Services	
7012140 7019350	show the first for the first form th	20,000
7012140 7019350 7012270	Materials & Supplies-Tangible	13,000
7012140 7019350 7012270 7012550	Surface Wellhead Equipment	
7012140 7019350 7012270 7012550 7012390	Surface Welihead Equipment Pig Launchers/Receivers & Rel Equip	13,000
7012140 7019350 7012270 7012550	Surface Wellhead Equipment	13,000
7012140 7019350 7012270 7012550 7012390	Surface Welihead Equipment Pig Launchers/Receivers & Rel Equip	13,000
7012140 7019350 7012270 7012550 7012390	Surface Wellhead Equipment Pig Launchers/Receivers & Rei Equip 8% Contingency & Taxes	13,000 5,500
7012140 7019350 7012270 7012550 7012390	Surface Welihead Equipment Pig Launchers/Receivers & Rel Equip 8% Contingency & Taxes TOTAL ARTIFICIAL LIFT	13,000 5,500 - 79,000
7012140 7019350 7012270 7012550 7012390	Surface Wellhead Equipment Pig Launchers/Receivers & Rel Equip 3% Contingency & Taxes TOTAL ARTIFICIAL LIFT TOTAL ARTIFICIAL LIFT COST	13,000 5,500 - - - 79,000 \$ 79,000
7012140 7019350 7012270 7012550 7012390	Surface Wellhead Equipment Pig Launchers/Receivers & Rel Equip S% Contingency & Taxes  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT COST  SUMMARY OF ESTIMATED DRILLING WELL COSTS	\$ 79,000  TOTAL COST

TOTAL SURFACE EQUIPMENT COST TOTAL ARTIFICIAL LIFT COST

GRAND TOTAL COST

\$ 800,575 \$ 79,000 \$9,729,596



AUTHORITY FOR EXPENDITURE EXPLORATION & PRODUCTION

Drilling Project #
Pad Project #
DATE: 7/10/2018

Permian Asset T		D (040) M00001	1 22 28 20	O:- 400
Field Lease / Facility	PURPLE SAGE; WOLFCAM CROSSBOW FEDERAL 23		Location 23,28,30 State	Rig 480 NEW MEXICO
Operator	MARATHON OIL PERMIAN		County/Parish	·
орогано			Estimated Start Date	
			Estimated Completion Date	25-Mar-2018
Estimate	d Gross Cost This AFE:\$	9,762,456		
Project Descript	tion & Reason for Expenditure:	Drill, Complete, &	Equip a Horizontal Well	
testing, complined include installation. The well will be	eting, and equipping the we ation of transitional and long e drilled to a total vertical de 2' in the WOLFCAMP WXY	II is \$7,057,016 as detailed term artificial lift systems. opth of 9,580' and a total m	cturing using plug and perf. The earling in the provided authority for expenses as a contract of 14,474', with an appleted with an estimated 30 stages.	enditure document. This will estimated treatable lateral
Prepared By	Final Approval	O. JOSH SHARKON, WATT HERSON	or, bell moone, over here	
		Date:		
Title: Regio	onal Vice President Permian Asset			
		Participant's App	roval	
	Name of Company:			
	Signature.			
	Title:		Date	

DATE 7/10/2018

DRILLING & LOCATION PREPARED BY MATTHEW RUGAARD
COMPLETION PREPARED BY JOSH SHANNON
FACILITIES PREPARED BY MATTHENSCHEN
ARTIFICIAL LIFT PREPARED BY BILLY MOORE

			ARTIF	CIAL LIFT PREPARED BY	BILLY MOORE
Asset Team	PERMIAN				
Fleid		DRMATION: WOLFCAMP	WILDCAT		EXPLORATION
		HUMATION, WOOD COM	DEVELOPM		RECOMPLETION
Lease/Facility	CROSSBOW FEDERAL 23 27 8 WA 16H		X EXPLOITAT		WORKOVER
Location	EDDY COUNTY		_A EXPLOITAT		MOUNOAEK
Prospect	MALAGA				
Est Total Depth	19,249	Est Drilling Days	22.8	Est Completion Days	11
LOCATION COST	- INTANGIBLE				
GL CODE		DESCRIPTION			ESTIMATED COST
7001270	Location and Access				37,500
7001250	Land Broker Fees and Services				37,500
7002230	Sallo Dione: 1 day allo 3d Flores				
	TOTAL LOCATION COST - INTANGIBLE				75,000
DRILLING COST -	TANGIBLE				
7012050	Conductor Pipe				28,000
7012050	Surface Casing				16,000
7012050	Intermediate Casing 1				61,000
7012050	Intermediate Casing 2				207,000
7012050					
	Production Casing				137,000
7012050	Orig Uner Hanger, Tieback Eq & Csg Ac	pessories			55,000
7012550	Dritting Welthead Equipment				50,000
7012040	Casing & Tubing Access				24,000
7012270	Miscellaneous MRO Materials				5,000
	TOTAL DRILLING - TANGIBLE				583,000
DRILLING COST -	INTANGIBLE				
7019200	Drilling Rig Mob/Demob				33,750
7019220	Drilling Rig - day work/footage				565,000
7019040	Directional Drilling Services				191,700
7019020	Cement and Cementing Service		Surface		
7019020	Cement and Cementing Service		Intermediate 1		15,000
7019020	Cement and Cementing Service		Intermediate 2		25,000
					40,000
7019020	Cement and Cementing Service		Production		60,000
7019140	Mud Fluids & Services				66,600
7012310	Solids Control equipment				41,000
7012020	Bits				70,000
7019010	Casing Crew and Services				30,000
7016350	Fuel (Rig)				70,000
7019140	Fuel (Mud)				18,000
7001460	Water (non potable)				25,000
7019000	Well Logging Services				
7019150	Mud Logging+geosteering				19,000
7019250	Stabilizers, Hole Openers, Underreame	rs (DH rentals)			15,000
7019110	Casing Inspection/cleaning				15,000
7019110	Orill pipe/collar inspection services				10,000
7016180	Freight - truck				25,000
7001460	Water hauling and disposal (includes so	oli farming)			60,000
7001440	Vacuum Trucks				10,000
7000030	Contract Labor - general			<del></del>	30,000
7018150	Rental Tools and Equipment (surface re	ntals)			90,400
7018150	Rig Equipment and Misc.				
7001110	Telecommunications Services				11,300
7001120	Consulting Services			· · · · · · · · · · · · · · · · · · ·	5,000
7001120	Safety and Environmental				106,220
					36,160
7018120	Rental Buildings (trailers)				18,080
7019310 7011010	Coring (sidewalls & analysis) 8% Contingency & Taxes				144,871
	TOTAL DRILLING - INTANGIBLE				\$1,847,081
	TOTAL DRILLING COST				\$2,430,081
COMPLETION - TA	NGIBLE				
7012580	Tubing				75,000
7012040	Tubing Accessories (nipple, wireline ent	:ry)			15,000
7012550	Welthead Equip				20,000
7012560	Packers - Completion Equipment				60,000
	TOTAL COMPLETION - TANGIBLE				\$170,000

Reid Lease/Facility		
COMPRESSOR INTO	PURPLE SAGE; WOLI FORMATION: WOLFCAMP CROSSBOW FEDERAL 23 27 8 WA 16H	
COMPLETION - IN	ANGIBLE	
GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access (dress location after rig move, set anchors)	20,000
7019220	Drilling Rig During Completion	80,000
7019140	Mud Fluids & Services	
7019030	Colled Tubing Services (3 runs)	240,000
7019240	Snubbling Services	
7019270	Pulling/Swab Units	
7016350	Fuel (from drig)	
7019010	Casing Crew and Services	
7019020	Cement and Cementing Services	
7019080	Well Testing Services (flow hand & equip)	195,000
7019320	Fracturing Services	3,550,000
7019330	Perforating	300,000
7019360	Wireline Services	10,000
7001460	Water Hauling & Disposal (frac fluids)	600,000
7016180	Freight - Truck (haul pipe; drig & compl)	15,000
7018150	BOP Rental & Testing	
7018150	Rental Tools and Equipment ( incl drig; lightplant, hydra-walk)	
7018150	CT Downhole Rental Equipment (le. Bit, BHA)	
7000030	Contract Labor - general	50,000
7001110	Telecommunications Services	130,000
7001400	Safety and Environmental	
7001120	Consulting Services	60,000
7018150	Zipper Manifold	165,000
7019300	Frack Stack Rentals	70,00
7016190	Freight (Transportation Services)	
7018150	Equipment Rental ( w/o operator, frac tanks, lightplants)	140,000
7018120	Rental Buildings (trailers)	60,000
7000030	Contract Labor - Pumping (pump-down pumps)	120,000
7011010	8% Contingency & Taxes	402,800
	TOTAL COMPLETION - INTANGIBLE	\$6,207,80
	TOTAL COMPLETION COST	\$6,377,800
URFACE EQUIPME	nt - Tangible	
7012350	Misc. Piping, Fittings & Valves	85,794
7006640	Company Labor & Burden	
7000030	Contract Labor - General	67,540
7001110	Telecommunication equip (Telemetry)	07,540
7012410	Line Pipe & Accessories	26,786
7012270	Miscellaneous Materials (containment system)	43,227
7008060	SCADA	
7000000	Freight - truck	
7016180		
7016180 7001190		20 116
7001190	Contract Engineering	
7001190 7012290	Contract Engineering Metering and Instrumentation	
7001190 7012290 7012290	Contract Engineering Metering and Instrumentation I&E Materials	
7001190 7012290 7012290 7012200	Contract Engineering Metering and Instrumentation IBE Meterials Gas Treating	
7001190 7012290 7012290 7012200 7012200	Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration	
7001190 7012290 7012290 7012200 7012200 7012200	Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration Compressor	
7001190 7012290 7012290 7012200 7012200 7012010 7012350	Contract Engineering Metering and Instrumentation Like Materials Gas Treating Dehydration Compressor Power	
7001190 7012290 7012290 7012200 7012200 7012010 7012350 7012610	Contract Engineering Metering and Instrumentation  Like Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit	235,914
7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012010 7012350 7012610 7012440	Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels	235,914
7001190 7012290 7012290 7012200 7012200 7012010 7012350 7012610	Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks	235,914 85,919 144,894
7001190 7012290 7012290 7012200 7012200 7012200 7012010 7012350 7012610 7012640 7012500 7012100	Contract Engineering Metering and Instrumentation I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure wessels Tanks Heater Treater	235,914 85,919 144,894 17,330
7001190 7012290 7012290 7012200 7012200 7012200 7012350 7012610 701240 7012500 7012100 7012500 701260	Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Hare & Accessories	85,919 85,919 144,894 17,330 11,646
7001190 7012290 7012290 7012200 7012200 7012200 7012350 7012610 701240 7012500 7012100 7012500 7012100 7012640 7012640 701200	Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Yapor Recovery Unit Separator & other pressure wessels Tanks Heater Treater Hare & Accessories Electrical Labor	85,919 85,919 144,894 17,330
7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012210 7012260 7012610 7012500 7012500 7012600 7012600 7012600 7000010	Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Rare & Accessories Electrical Labor Mechanical Labor	85,919 85,919 144,894 17,330 11,646
7001190 7012290 7012290 7012200 7012200 7012200 7012210 7012350 7012610 701240 7012500 7012600 7012600 7012600 7012600 7012600 7012600 7012680	Contract Engineering Metering and Instrumentation  Like Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Hare & Accessories Electrical Labor Mechanical Labor Recol Pumping unit & Pad	85,919 85,919 144,894 17,330 11,646
7001190 7012290 7012290 7012200 7012200 7012200 7012010 7012400 7012440 7012500 7012440 7012640 7000010 7012680 7012180	Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Red Pumping Unit & Pad Pumping Unit Engine	85,919 85,919 144,894 17,330 11,646 29,116
7001190 7012290 7012290 7012200 7012200 7012200 7012010 7012610 7012440 7012440 7012500 7012640 7012640 7012640 7012640 7012640 7012640 7012640 7012640 7012640 7012640 7012640	Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Hare & Accessories Electrical Labor Mechanical Labor Red Pumping Unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)	85,919 85,919 144,894 17,330 11,646 29,116
7001190 7012290 7012290 7012200 7012200 7012200 7012010 7012350 7012610 701240 7012500 7012100 7012500 7012640 7012500 7012640 7000010 7012640 7000010 7012480 7012180	Contract Engineering Metering and Instrumentation  I&E Materials  Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Hare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  YOTAL SURFACE EQUIPMENT - YANGIBLE	85,919  85,919  144,894  17,330  11,646  29,116
7001190 7012290 7012290 7012200 7012200 7012200 7012350 7012610 701240 7012500 7012640 7012500 7012640 7012500 7012640 7012640 7012640 7012640 7012640 7012640 7012640 7012640 7012640 7012640 7012640 7012640 7012640 7012640	Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Hare & Accessories Electrical Labor Mechanical Labor Red Pumping Unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)	85,919 85,919 144,894 17,330 11,646 29,116
7001190 7012290 7012290 7012200 7012200 701200 7012010 7012350 7012610 701240 7012500 7012100 7012640 7000010 7000010 7012480 7012180 7012350	Contract Engineering Metering and Instrumentation  I&E Materials  Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Hare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  YOTAL SURFACE EQUIPMENT - YANGIBLE	85,919 85,919 144,894 17,330 11,646 29,116 23,293 \$800,575
7001190 7012290 7012290 7012200 7012200 701200 7012010 7012350 7012610 7012500 7012100 7012500 7012100 7012500 7012100 7012600 7012100 7000010 7000010 7000010 7012480 7012180 7012350	Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - YANGIBLE	235,914 85,919 144,894 17,330 11,646 29,116 23,293 \$800,575
7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012210 7012400 7012500	Contract Engineering Metering and Instrumentation  I&E Materials  Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Hare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  YOTAL SURFACE EQUIPMENT - YANGIBLE	235,914  85,919  85,919  144,894  17,330  11,646  29,116  23,293  \$800,575
7001190 7012290 7012290 7012290 7012200 7012200 7012200 7012250 7012410 701250 7012410 701250 7012400 7012500 7012400 7012500 7012400 7012400 7012480 7012480 7012350  RTIFICIAL LIFT 7006640 7012180	Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Hare & Accessories Electrical Labor Mechanical Labor And Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - YANGIBLE	235,914 85,919 144,894 17,330 11,646 29,116 23,293 \$800,575
7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012210 701240 701240 701240 701240 701240 701250 701250 701250 701250 701250 701250 701250 701250 701250 701250 701250 701250 701250 701250 701250 701260 701260 701260 701260	Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Hare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  TOTAL SURFACE EQUIPMENT COST	235,914  85,919  85,919  144,894  17,330  11,646  29,116  23,293  \$800,575
7001190 7012290 7012290 7012290 7012200 7012200 7012200 7012200 7012250 7012610 7012450 7012450 7012450 7012450 7012450 7012450 7012480 7012350  RTIFICIAL LIFT 7006640 7012480 7012480	Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Rare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping Unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  Company Labor Gas Uff Equipment Rod Pumping, Sucher Rods & Rod Pump	235,914  85,919  144,894  17,330  11,646  29,116  23,293  \$800,575  \$ 800,575
7001190 7012290 7012290 7012290 7012200 7012200 7012200 7012200 7012350 7012410 7012400 7012500 7012400 7012400 7012500 7012400 7012480 7012480 7012350  RTIFICIAL LIFT 7006640 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180	Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Hare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - YANGIBLE  TOTAL SURFACE EQUIPMENT COST  Company Labor Gas Uft Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Well/Welthead Services	235,914  85,919  144,894  17,330  11,646  29,116  23,293  \$800,575  \$ 800,575
700190 7012290 7012290 7012200 7012200 7012200 7012200 7012210 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012480 7012180 7012350	Contract Engineering Metering and Instrumentation  I&E Materials  Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Hare & Accessories Electrical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  Company Labor Gas Uft Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumping, Sucker Rods & Rod Pump	235,914  85,919  144,894  17,330  11,646  29,116  23,293  \$800,575  \$ 800,575  2,500  38,000
7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012200 7012210 7012250 7012210 7012500 7012500 701240 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012500 7012100 700010 7000010 7000010 7000010 7000010 7000010 7000010 7012480 7012350  RTIFICIAL LIFT 7006640 7012180 7012480 7012350 7012240 7012350	Contract Engineering Metering and Instrumentation  I&E Materials  Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - YANGIBLE  Company Labor Gas Uff Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Well/Welthead Services Materials & Supplies-Tengible Surface Wellhadd Equipment	235,914  85,919  144,894  17,330  11,646  29,116  23,293  \$800,575  \$ 800,575  2,500  38,000
7001190 7012290 7012290 7012290 7012200 7012200 7012200 7012200 7012350 701240 7012350 701240 7012500 701240 7012500 701240 7012500 7012100 7012500 7012100 7012250 7012250 7012250	Contract Engineering Metering and Instrumentation  IdE Materials  Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Hare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  TOTAL SURFACE EQUIPMENT COST  Company Labor Gas Uff Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Well/Welthead Services Materials & Supplies-Tangible Surface Wellhead Equipment Pig Launchers/Receivers & Rel Equip	235,914  85,919  144,894  17,330  11,646  29,116  23,293  \$800,575  \$ 800,575  2,500  38,000
7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012010 7012350 7012610 7012500 7012100 7012500 7012180 7000010 7012480 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012180 7012270 7012550	Contract Engineering Metering and Instrumentation  I&E Materials  Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Flare & Accessories Electrical Labor Mechanical Labor Mechanical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - YANGIBLE  Company Labor Gas Uff Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Well/Welthead Services Materials & Supplies-Tengible Surface Wellhadd Equipment	235,914 85,919 144,894 17,330 11,646 29,116 23,293 \$800,575 \$ 800,575
7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012200 7012350 701240 7012500 701240 7012500 7012180 7012180 7012180 7012350  RTIFICIAL LIFT 7006640 7012480 7012480 7012480 7012480 7012180 7012250 7012240 7012350	Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Rare & Accessories Electrical Labor Mechanical Labor Rod Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  TOTAL SURFACE EQUIPMENT COST  Company Labor Gas Uff Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Well/Welthead Services Materials & Supplies-Tangible Surface Wellhead Equipment Pig Launchers/Receivers & Rei Equip B& Contingency & Taxes  TOTAL ARTIFICIAL UFT	\$ 85,919  144,894  17,330  11,646  29,116  23,293  \$800,575  \$ 800,575  2,500  38,000
7001190 7012290 7012290 7012290 7012200 7012200 7012200 7012200 7012350 701240 701250 701240 701250 701240 701250 701240 701250 701240 701250 7012180	Contract Engineering Metering and Instrumentation  I&E Materials  Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Rare & Accessories Electrical Labor Rod Pumping unit & Pad Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  TOTAL SURFACE EQUIPMENT COST  Company Labor Gas Uff Equipment Rod Pumping, Sucher Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Well/Welthead Services Materials & Supplies-Tangible Surface Wellhead Equipment Pig Launchers/Receivers & Rei Equip B% Contingency & Texes  TOTAL ARTIFICIAL LIFT COST	\$5,914 85,919 144,694 17,330 11,646 29,116 23,293 \$800,575 \$ 800,575 2,500 38,000 
7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012200 7012350 701240 7012500 701240 7012500 7012180 7012180 7012180 7012350  RTIFICIAL LIFT 7006640 7012480 7012480 7012480 7012480 7012180 7012250 7012240 7012350	Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Rare & Accessories Electrical Labor Mechanical Labor Rod Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  TOTAL SURFACE EQUIPMENT COST  Company Labor Gas Uff Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Well/Welthead Services Materials & Supplies-Tangible Surface Wellhead Equipment Pig Launchers/Receivers & Rei Equip B& Contingency & Taxes  TOTAL ARTIFICIAL UFT	\$ 85,919  144,894  17,330  11,646  29,116  23,293  \$800,575  \$ 800,575  2,500  38,000
7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012200 7012350 701240 7012500 701240 7012500 7012180 7012180 7012180 7012350  RTIFICIAL LIFT 7006640 7012480 7012480 7012480 7012480 7012180 7012250 7012240 7012350	Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Rare & Accessories Electrical Labor Mechanical Labor Rod Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  TOTAL SURFACE EQUIPMENT COST  Company Labor Gas Uff Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Well/Welthead Services Materials & Supplies-Tangible Surface Welfihead Equipment Pig Launchers/Receivers & Rel Equip Bis Contingency & Tares  TOTAL ARTIFICIAL LIFT COST  SUMMARY OF ESTIMATED DRILLING WELL COSTS	235,914  85,919  144,894  17,330  11,646  29,116  23,293  \$800,575  \$ 800,575  2,500  38,000
7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012200 7012350 701240 7012500 701240 7012500 7012180 7012180 7012180 7012350  RTIFICIAL LIFT 7006640 7012480 7012480 7012480 7012480 7012180 7012250 7012240 7012350	Contract Engineering Metering and Instrumentation  I&E Materials  Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Rare & Accessories Electrical Labor Rod Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - YANGIBLE  TOTAL SURFACE EQUIPMENT COST  Company Labor Gas Uff Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Well/Welthead Services Materials & Supplies-Tangible Surface Wellhead Equipment Pig Launchers/Receivers & Rel Equip Bit Contingency & Taxes  TOTAL ARTIFICIAL LIFT COST  SUMMARY OF ESTIMATED DRILLING WELL COSTS  TOTAL LOCATION COST	\$ 235,914  85,919  144,894  17,330  11,646  29,116  23,293  \$800,575  \$ 800,575  \$ 2,500  38,000
7001190 7012290 7012290 7012200 7012200 7012200 7012200 7012200 7012350 701240 7012500 701240 7012500 7012180	Contract Engineering Metering and Instrumentation  I&E Materials Gas Treating Dehydration Compressor Power Vapor Recovery Unit Separator & other pressure vessels Tanks Heater Treater Rare & Accessories Electrical Labor Mechanical Labor Rod Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  TOTAL SURFACE EQUIPMENT COST  Company Labor Gas Uff Equipment Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP) Well Services-Well/Welthead Services Materials & Supplies-Tangible Surface Welfihead Equipment Pig Launchers/Receivers & Rel Equip Bis Contingency & Tares  TOTAL ARTIFICIAL LIFT COST  SUMMARY OF ESTIMATED DRILLING WELL COSTS	\$ 800,575 \$ 800,575 \$ 2,500 38,000

GRAND TOTAL COST

\$ 800,575 \$ 79,000

\$9,762,456

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

APPLICATION OF MARATHON OIL PERMIAN LLC FOR A HORIZONTAL SPACING AND PRORATION UNIT AND COMPULSORY POOLING, EDDY COUNTY, NEW MEXICO.

STATE OF NEW MEXICO

**CASE NO. 16381** 

COUNTY OF BERNALILLO	)
Deana M. Bennett, attorne	y in fact and authorized representative of Marathon Oil
Permian LLC, the Applicant herein	n, being first duly sworn, upon oath, states that the above-

referenced Application was sent under a notice letter and that proof of receipt is attached hereto.

1/1000 /1/2

Deana M. Bennett

SUBSCRIBED AND SWORN to before me this 18th day of September, 2019 by Deana M. Bennett.

Notary Pub

My commission expires: 02 - 27 - 11

OFFICIAL SEAL

Karlens Schuman

NOTARY PUBLIC STATE OF NEW MEXICO My Commission Expires: 02-27-2



#### Transaction Report Details - CertifiedPro.net Firm Mail Book ID= 149204 Generated: 9/17/2019 17:35:58 PM

USPS Article Number	Date Created	Name 1	Name 2	Address	City	State	Zip	Mai i Status	Service Options	Batch ID Mail Delivery Date
9314869904300049702372	2018-08-17 10:57 AM Wells F	argo Central Pacific Holdings, Inc.		600 California Street, 20th FL	San Francisco	CA	94108	Delivered	Return Receip   fectronic	142474 08-30-2018
9314869904300049702365	2018-08-17 10:57 AM Warwic	ck-Ares, LLC		6608 N. Western Ave, Box 417	Oklahoma City	OK	73116	Delivered	Return Receipt - Electronic	142474 08-20-2018
9314869904300049702358	2018-08-17 10:57 AM Wallace	e H. Scott Unified Credit Trust		10205 River Plantation Dr	Austin	TX	78747	Delivered	Return Receipt - Electronic	142474 09-07-2018
9314869904300049702341	2018-08-17 10:57 AM Texas I	ndependent Exploration Limited		6760 Portwest Dr	Houston	TX	77024	Delivered	Return Receipt - Electronic	142474 08-20-2018
9314869904300049702334	2018-08-17 10:57 AM Rolla R.	Hinkle, III		P.O. Box 2292	Roswell	NM	88202	Delivered	Return Receipt - Electronic	142474 08-21-2018
9314869904300049702327	2018-08-17 10:57 AM Robert	St. John Family Trust	C/O David Madden	11922 Castle Ridge Dr.	Houston	TX	77077	Delivered	Return Receipt - Electronic	142474 08-24-2018
9314869904300049702310	2018-08-17 10:57 AM Post Oa	ik Crown IV, LLC		5200 San Felipe	Houston	TX	77056	To be Returned	Return Receipt - Electronic	142474
9314869904300049702303	2018-08-17 10.57 AM Morris	E. Schertz		P.O. Box 2588	Roswell	NM	88202	Delivered	Return Receipt - Electronic	142474 08-21-2018
9314869904300049702297	2018-08-17 10:57 AM Mike M	loylett		P.O. Box 50820	Midland	TX	79710	Delivered	Return Receipt - Electronic	142474 08-22-2018
9314869904300049702280	2018-08-17 10:57 AM Merit P	artners, LP (Tap Rock)		13727 Noel Road, Suite 1200	Dallas	TX	75240	Delivered	Return Receipt - Electronic	142474 08-20-2018
9314869904300049702273	2018-08-17 10:57 AM Merit P	artners, LP (Tap Rock)		602 Park Point Drive, Suite 200	Golden	co	80401	Delivered	Return Receipt - Electronic	142474 08-20-2018
9314869904300049702266	2018-08-17 10:57 AM Merit P	artners, LP		13727 Noel Road #500	Dallas	TX	75240	Delivered	Return Receipt - Electronic	142474 08-20-2018
9314869904300049702259	2018-08-17 10:57 AM McVay	Drilling, Inc.		401 E. Bender Blvd.,	Hobbs	NM	88240	Delivered	Return Receipt - Electronic	142474 08-21-2018
9314869904300049702242	2018-08-17 10:57 AM McCom	nbs Energy, LLC		5599 San Felipe St. #1200	Houston	TX	77056	Lost	Return Receipt - Electronic	142474
9314869904300049702235	2018-08-17 10:57 AM Mary K	. Hughes		1000 Warren Ave.,	Gillette	WY	82716	Delivered	Return Receipt - Electronic	142474 08-22-2018
9314869904300049702228	2018-08-17 10:57 AM Madiso	on M. Hinkle et ux, Susan M. Hinkle		P.O. Box 2292	Roswell	NM	88202	Delivered	Return Receipt - Electronic	142474 08-21-2018
9314869904300049702211	2018-08-17 10:57 AM Lowell			850 Azalea St	Houston	TX	77018	Delivered	Return Receipt - Electronic	142474 08-21-2018
9314869904300049702204	2018-08-17 10:57 AM LMC En	•		550 W, Texas Ave , Suite 945	Midland	TX	79701	Delivered	Return Receipt - Electronic	142474 08-21-2018
9314869904300049702198	2018-08-17 10:57 AM LDM H			4616 Owendle Dr.	Benbrook	TX	76116	Delivered	Return Receipt - Electronic	142474 08-21-2018
9314869904300049702181	2018-08-17 10:57 AM Kaleb S			P.O. Box 50820	Midland	TX	79710	To be Returned	Return Receipt - Electronic	142474 08-22-2018
9314869904300049702174	2018-08-17 10:57 AM Jim Bra			2610 Gaye Drive	Roswell	NM	88201	Returned to Sender	Return Receipt - Electronic	142474 08-30-2018
9314869904300049702167	2018-08-17 10:57 AM Jesse A	T		P.O. Box 52603	Midland	TX	79710	Delivered	Return Receipt - Electronic	142474 08-22-2018
9314869904300049702150	2018-08-17 10:57 AM Jeremi			501 E Jemez St	Hobbs	NM	88240	Delivered	Return Receipt - Electronic	142474 08-24-2018
9314869904300049702143	2018-08-17 10:57 AM Island	Resources		1600 Smith Street, Suite 3800	Houston	TX	77002	Delivered	Return Receipt - Electronic	142474 09-04-2018
9314869904300049702136	2018-08-17 10:57 AM Island			6760 Portwest Dr	Houston	TX	77024	Delivered	Return Receipt - Electronic	142474 08-20-2018
9314869904300049702129	2018-08-17 10:57 AM H. Jaso	n Wacker		5601 Hillcrest	Midland	TX	79707	Delivered	Return Receipt - Electronic	142474 08-23-2018
9314869904300049702112	2018-08-17 10:57 AM Grinch			6760 Portwest Dr	Houston	TX	77024	Delivered	Return Receipt - Electronic	142474 08-20-2018
9314869904300049702105	2018-08-17 10:57 AM Good F	News Minerals, LLC		P.O. Box 50820	Midland	TX	79710	Delivered	Return Receipt - Electronic	142474 08-22-2018
9314869904300049702099	2018-08-17 10:57 AM Gerard	G. Vavrek		P.O. Box 50820	Midland	TX	79710	Delivered	Return Receipt - Electronic	142474 08-22-2018
9314869904300049702082	2018-08-17 10:57 AM Gene H			5605 Drexel Court	Midland	TX	79707	To be Returned	Return Receipt - Electronic	142474
9314869904300049702075	2018-08-17 10:57 AM Fortis I			1111 Bagby St., Suite 2150	Houston	TX	77002	Delivered	Return Receipt - Electronic	142474 08-20-2018
9314869904300049702068	2018-08-17 10:57 AM Doug L			3407 Jefferson Ave. Suite 100	Austin	TX	78703	Returned to Sender	Return Receipt - Electronic	142474 09-04-2018
9314869904300049702051	2018-08-17 10:57 AM DeAnn			27 Splitrock Ct.	The Woodlands		77381	Delivered	Return Receipt - Electronic	142474 08-28-2018
9314869904300049702044	2018-08-17 10:57 AM Deane	·		P.O. Box 50820	Midland	TX	79710	Delivered	Return Receipt - Electronic	142474 08-22-2018
9314869904300049702037	2018-08-17 10:57 AM David			P.O. Box 50820	Midland	TX	79710	Delivered	Return Receipt - Electronic	142474 08-22-2018
9314869904300049702020	2018-08-17 10:57 AM Crown			P.O. Box 50820	Midland	TX	79710	Delivered	Return Receipt - Electronic	142474 08-22-2018
9314869904300049702013	2018-08-17 10:57 AM Crown			P.O. Box 50820	Midland	TX	79710	Delivered	Return Receipt - Electronic	142474 08-22-2018
9314869904300049702006	2018-08-17 10:57 AM Crown			4000 N. Big Spring, Suite 300	Midland	TX	79705	To be Returned	Return Receipt - Electronic	142474
9314869904300049701993	2018-08-17 10:57 AM Collins			508 W. Wall Street, Suite 1200	Midland	TX	79701	Delivered	Return Receipt - Electronic	142474 08-20-2018
9314869904300049701986	2018-08-17 10:57 AM Cimare			600 N. Marienfeld St. Suite 600	Midland	TX	79701	Delivered	Return Receipt - Electronic	142474 08-20-2018
9314869904300049701979	2018-08-17 10:57 AM Chi Pai			212 North Main St., Suite 200	Midland	TX	79701	Delivered	Return Receipt - Electronic	142474 08-20-2018
9314869904300049701962	2018-08-17 10:57 AM Chi En			212 North Main St , Suite 200	Midland	TX	79701	Delivered	Return Receipt - Electronic	142474 08-20-2018
9314869904300049701955	2018-08-17 10:57 AM Chevro			6301 Deauville Blvd.	Midland, Texas	TX	79706	Delivered	Return Receipt - Electronic	142474 08-20-2018
9314869904300049701948	2018-08-17 10:57 AM CEP M			P.O. Box 50820	Midland	TX	79710	Delivered	Return Receipt - Electronic	142474 08-22-2018
9314869904300049701931	2018-08-17 10:57 AM Brazos			300 N. Breckenridge Ave	Breckenridge	TX	76424	Delivered	Return Receipt - Electronic	142474 08-21-2018
9314869904300049701924		sh, LLC, Atten: Steve Dyer RHINO		4601 Hondo Pass, Suite K	El Paso	TX	79904	Delivered	Return Receipt - Electronic	142474 08-20-2018
9314869904300049701917	2018-08-17 10:57 AM Blue Ri			122 West John Carpenter Freeway, Suite 300	Irving	TX	75039	Delivered	Return Receipt - Electronic	142474 08-20-2018
9314869904300049701900	2018-08-17 10:57 AM Beth H	•		230 West 6th Avc.,	Denver	co	80204	To be Returned	Return Receipt - Electronic	142474
9314869904300049701894	2018-08-17 10:57 AM Andre			1015 Beecave Woods Dr.	Austin	TX	78746	Delivered	Return Receipt - Electronic	142474 09-05-2018
3314003204300042101034	2070-00-11 TO'D' WAL WHOLE						.0, 40		metern necespt - creettonic	*45414 03-03-70TO

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Zina Crum Modrall Sperling 500 4th Street NW Suite 1000 Albuquerque NM 87102

**PS Form 3877** 

## Type of Mailing: CERTIFIED 08/17/2018



Firm Mailing Book ID: 149204

ine	Article Number	Name, Street & P.O. Address	Postage	Fee	R.R.Fee	Reference	Rest.Del.Fee Contents
1	9314 8699 0430 0049 7018 94	Andrews Oil, LP 1015 Beccave Woods Dr Austin TX 78746	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
2	9314 8699 0430 0049 7019 00	Beth Hackathorn Gallegos 230 West 6th Avc Denver CO 80204	\$1.21	\$3.45	\$1,50	81363-0154	\$0.00 Notice
3	9314 8699 0430 0049 7019 17	Blue Ridge Mountain Resources 122 West John Carpenter Freeway, Suite 300 Irving TX 75039	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
4	9314 8699 0430 0049 7019 24	Bonefish, LLC, Atten: Steve Dyer RHINO 4601 Hondo Pass, Suite K El Paso TX 79904	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
5	9314 8699 0430 0049 7019 31	Brazos Limited Partnership 300 N. Breekenridge Ave Breekenridge TX 76424	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
6	9314 8699 0430 0049 7019 48	CEP Minerals. LLC P.O. Box 50820 Midland TX 79710	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
7	9314 8699 0430 0049 7019 55	Chevron USA, Inc. 6301 Deauville Blvd. Midland, Texas TX 79706	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
8	9314 8699 0430 0049 7019 62		\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
9	9314 8699 0430 0049 7019 79	Chi Partners, LLC 212 North Main St., Suite 200 Midland TX 79701	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
10	9314 8699 0430 0049 7019 86	Cimarex Energy Company 600 N. Marienfeld St. Suite 600 Midland TX 79701	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
11	9314 8699 0430 0049 7019 93	Collins & Jones Investments, LLC 508 W. Wall Street, Suite 1200 Midland TX 79701	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
12	9314 8699 0430 0049 7020 06	Crown Oil Partners V, L.P. 4000 N. Big Spring, Suite 300 Midland TX 79705	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
13	9314 8699 0430 0049 7020 13	Crown Oil Partners. LP P.O. Box 50820	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
14	9314 8699 0430 0049 7020 20	Crown Ventures III, LLC P.O. Box 50820 Midland TX 79710	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
15	9314 8699 0430 0049 7020 37	David W. Cromwell P.O. Box 50820 Midland TX 79710	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice

Zina Crum Modrall Sperling 500 4th Street NW Suite 1000 Albuquerque NM 87102

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Line	Article Number	Name, Street & P.O. Address	Postage	Fee	R.R.Fee	Reference	Rest.Del.Fee Contents
16	9314 8699 0430 0049 7020 44	Deane Durham P.O. Box 50820 Midland TX 79710	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
17	9314 8699 0430 0049 7020 51	DcAnne Shepard 27 Splitrock Ct. The Woodlands TX 77381	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
18	9314 8699 0430 0049 7020 68	Doug Laufer 3407 Jefferson Ave. Suite 100 Austin TX 78703	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
19	9314 8699 0430 0049 7020 75	Fortis Minerals II. LLC 1111 Bagby St., Suite 2150 Houston TX 77002	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
20	9314 8699 0430 0049 7020 82	Gene H. Davis 5605 Drexel Court Midland TX 79707	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
21	9314 8699 0430 0049 7020 99	Gerard G. Vavrek P.O. Box 50820 Midland TX 79710	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
22	9314 8699 0430 0049 7021 05	Good News Minerals, LLC P.O. Box 50820 Midland TX 79710	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
23	9314 8699 0430 0049 7021 12	Grinch, LLC 6760 Portwest Dr Houston TX 77024	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
24	9314 8699 0430 0049 7021 29	H. Jason Wacker 5601 Hillcrest Midland TX 79707	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
25	9314 8699 0430 0049 7021 36	Island Resources 6760 Portwest Dr Houston TX 77024	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
26	9314 8699 0430 0049 7021 43	Island Resources 1600 Smith Street, Suite 3800 Houston TX 77002	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
27	9314 8699 0430 0049 7021 50	Jeremiah, LLC 501 E Jemez St Hobbs NM 88240	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
28	9314 8699 0430 0049 7021 67	Jesse A. Faught, Jr. P.O. Box 52603 Midland TX 79710	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
29	9314 8699 0430 0049 7021 74	The state of the s	\$1.21	\$3.45	\$1_50	81363-0154	\$0.00 Notice
30	9314 8699 0430 0049 7021 81	Kaleb Smith P.O. Box 50820 Midland TX 79710	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice

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Line	Article Number	Name, Street & P.O. Address	Postage	Fee	R.R.Fee	Reference	Rest.Del.Fee Contents
31	9314 8699 0430 0049 7021 98	LDM Holdings, LLC. 4616 Owendle Dr., Benbrook TX 76116	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
32	9314 8699 0430 0049 7022 04	LMC Energy 550 W. Texas Ave., Suite 945 Midland TX 79701	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
33	9314 8699 0430 0049 7022 11	Lowell Todd Armstrong 850 Azalca St. Houston TX 77018	\$1.21	\$3.45	\$1.50	81363-0154	S0.00 Notice
34	9314 8699 0430 0049 7022 28	Madison M. Hinkle et ux, Susan M. Hinkle P.O. Box 2292 Roswell NM 88202	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
35	9314 8699 0430 0049 7022 35	Mary K. Hughes 1000 Warren Ave Gillette WY 82716	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
36	9314 8699 0430 0049 7022 42	McCombs Energy, LLC 5599 San Felipe St. #1200 Houston TX 77056	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
37	9314 8699 0430 0049 7022 59	McVay Drilling, Inc. 401 E. Bender Blvd., Hobbs NM 88240	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
38	9314 8699 0430 0049 7022 66	Merit Partners, LP 13727 Noel Road #500 Dallas TX 75240	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
39	9314 8699 0430 0049 7022 73	Merit Partners, LP (Tap Rock) 602 Park Point Drive, Suite 200 Golden CO 80401	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
40	9314 8699 0430 0049 7022 80	Merit Partners, LP (Tap Rock) 13727 Noel Road, Suite 1200	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
41	9314 8699 0430 0049 7022 97		\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
42	9314 8699 0430 0049 7023 03	Morris E. Schertz P.O. Box 2588 Roswell NM 88202	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
43	9314 8699 0430 0049 7023 10	Post Oak Crown IV. LLC 5200 San Felipe Houston TX 77056	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
44	9314 8699 0430 0049 7023 27	Robert St. John Family Trust  C/O David Madden	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
45	9314 8699 0430 0049 7023 34	11922 Castle Ridge Dr. Rolla'R'. Hinkle', III. P.O. Box 2292 Roswell NM 88202	\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice

Zina Crum Modrall Sperling 500 4th Street NW Suite 1000 Albuquerque NM 87102

#### **PS Form 3877**

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Firm Mailing Book ID: 149204

Line	Article Number	Name, Street & P.O. Address		Postage	Fee	R.R.Fce	Reference	Rest.Del.Fee Contents
46	93   4 8699 0430 0049 7023 41	Texas Independent Exploration Limited 6760 Portwest Dr Houston TX 77024		\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
47	9314 8699 0430 0049 7023 58	Wallace II. Scott Unified Credit Trust 10205 River Plantation Dr Austin TX 78747		\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
48	9314 8699 0430 0049 7023 65	Warwick-Ares, LLC 6608 N. Western Ave, Box 417 Oklahoma City OK 73116		\$1.21	\$3.45	\$1.50	81363-0154	\$0.00 Notice
49	9314 8699 0430 0049 7023 72	Wells Fargo Central Pacific Holdings, Inc. 600 California Street, 20th FL San Francisco CA 94108		\$1.21	\$3,45	\$1.50	81363-0154	\$0.00 Notice
			Totals:	\$59.29	\$169.05	\$73.50		\$0.00
							Grand Total:	\$301.84

List Number of Pieces Listed by Sender

Total Number of Pieces Received at Post Office Postmaster: Name of receiving employee Dated:

49



# CURRENT-ARGUS

#### AFFIDAVIT OF PUBLICATION

Ad No. 0001259253

MODRALL SPERLING PO BOX 2168

ALBUQUERQUE NM 87103

I, a legal clerk of the Carlsbad Current-Argus, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the State wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

08/24/18

Legal Clerk

Subscribed and sworn before me this 24th of August 2018.

State of WI, County of Brown

My Commission Expires

1. 1. 11.

Case No. 16381: Notice to all affected parties, as v devisees of Texas Independent Exploration Limit sources & Grinch, LLC); Lowell Todd Armstrong Grinch, LLC; DeAnne Shepard; Robert St. John Fan Madden, Trustee; Merit Partners, LP; Tap Rock; E Resources; Warwick-Ares, LLC; Chevron USA, I Bonefish, LLC, Atten: Steve Dyer RHINO; Blue Ridc ces; Crown Oil Partners V, L.P.; Crown Oil Partners ergy Company; Wallace H. Scott Unified Credit Plantation Dr., Austin, TX 78747; McCombs Energy ed Partnership; Chi Partners, LLC; Gene H. Davis; Cit Partners, LP; Doug Laufer; Andrews Oil, LP; McVa it Partners, LP; Doug Lauter; Andrews OII, LP; Mcva R. Hinkle, Ill.; Madison M. Hinkle et ux, Susan M. Minerals, LLC; CEP Minerals, LLC; Mike Moylett; D. Smith; Post Oak Crown IV, LLC; Post Oak Crown IV Central Pacific Holdings, Inc.; Crown Oil Partners, Investments, LLC; LMC Energy; Gerard G. Vavrek; H. Jason Wacker; David W. Cromwell; Crown Ve Brannigan; Island Resources; LDM Holdings, LLC Gallegos; Mary K. Hughes; Fortis Minerals II, LLC; the application of Marathon Oil Permian LLC for a the application of Marathon Oil Permian LLC for a and proration unit and compulsory pooling, Eddy C The State of New Mexico, through its Oil Conserval gives notice that the Division will conduct a public on September 6, 2018, to consider this application. order from the Division: (1) creating a 1280-acre, nunit in covering Sections 7 and 8, Township 23 Sc NMPM, Eddy County, New Mexico; and, (2) pooling in the Wolfcamp formation underlying this pro proration unit. This proposed spacing unit will be th bow 23 27 8 WXY 2H, Crossbow 23 27 8 WA 4H, ( 27 8 WXY 9H, Crossbow Federal 23 27 8 WA 10H, ( 27 8 WXY 8H Crossbow Federal 23 27 8 WXY 14H, ( 27 8 WA 15H and Crossbow Federal 23 27 8 WA 16 zontally drilled. The producing area for these wells w to be considered will be the cost of drilling and co the allocation of these costs as well as the actual charges for supervision, designation of Marathon wells, and a 200% charge for risk involved in drilling s Said area is located approximately 8 miles southwest New Mexico.

Pub: August 24, 2018 Legal # 1259253



Case No. 16381: Notice to all affected parties, as well as the heirs and devisees of Texas Independent Exploration Limited (incl. Island Resources & Grinch, LLC); Lowell Todd Armstrong; Island Resources; Grinch, LLC; DeAnne Shepard; Robert St. John Family Trust C/O David Madden, Trustee; Merit Partners, LP; Tap Rock; Blue Ridge Mountain Resources; Warwick-Ares, LLC; Chevron USA, Inc.; Jeremiah, LLC; Bonefish, LLC, Atten: Steve Dyer RHINO; Blue Ridge Mountain Resources; Crown Oil Partners V, L.P.; Crown Oil Partners V, L.P.; Cimarex Energy Company; Wallace H. Scott Unified Credit Trust; 10205 River Plantation Dr., Austin, TX 78747; McCombs Energy, LLC; Brazos Llmited Partnership; Chi Partners, LLC; Gene H. Davis; Chi Energy, Inc.; Merit Partners, LP; Doug Laufer; Andrews Oil, LP; McVay Drilling, Inc.; Molla R. Hinkle, Ill.; Madison M. Hinkle et ux, Susan M. Hinkle; Good News Minerals, LLC; CEP Minerals, LLC; Mike Moylett; Deane Durham; Kaleb Smith; Post Oak Crown IV, LLC; Post Oak Crown IV-B, LLC; Wells Fargo Central Pacific Holdings, Inc.; Crown Oil Partners, LP; Collins & Jones Investments, LLC; LMC Energy; Gerard G. Vavrek; Jesse A. Faught, Jr.; H. Jason Wacker; David W. Cromwell; Crown Ventures Ill, LLC; Jim Brannigan; Island Resources; LDM Holdings, LLC; Beth Hackathorn Gallegos; Mary K. Hughes; Fortis Minerals II, LLC; Morris E. Schertz of the application of Marathon Oil Permian LLC for a horizontal spacing and proration unit and compulsory pooling, Eddy County, New Mexico. The State of New Mexico, through its Oil Conservation Division, hereby gives notice that the Division will conduct a public hearing at 8:15 a.m. on September 6, 2018, to consider this application. Applicant seeks an order from the Division: (1) creating a 1280-acre, more or less, spacing unit in covering Sections 7 and 8, Township 23 South, Range 27 East, NMPM, Eddy County, New Mexico; and, (2) pooling all mineral interests in the Wolfcamp formation underlying this proposed spacing and proration unit. This proposed spacing unit will be

Pub: August 24, 2018 Legal # 1259253

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

APPLICATION OF MARATHON OIL PERMIAN LLC FOR COMPUSLORY POOLING, EDDY COUNTY, NEW MEXICO.

CASE NO. 16391

#### **AFFIDAVIT**

STATE OF TEXAS	)
	) ss
COUNTY OF MIDLAND	)

Thomas Lockwood, being duly sworn, deposes and states:

- 1. I am over the age of 18, I am a geologist for Marathon Oil Permian LLC, and have personal knowledge of the matters stated herein. I have been qualified by the Oil Conservation Division ("Division") as an expert petroleum geologist.
- 2. **Exhibit 9** is a locator map showing the approximate location of the proposed wells in relation to the Capitan Reef.
  - 3. **Exhibit 10** is a wellbore schematic showing the proposed laterals within the unit.
- 4. **Exhibit 11** is structure map of the top of the Wolfcamp. The proposed project area is identified by a black-dashed box, and the proposed wells are identified by red and purple lines. Red indicates WA wells (Wolfcamp A) and purple indicates the WXY wells (Wolfcamp Y-Sand).
  - 5. The contour interval used for Exhibit 11 is 25 feet.
  - 6. Exhibit 11 shows that the structure dips east.
- 7. **Exhibit 12** identifies three wells in the vicinity of the proposed wells, shown by a line of cross-section running from A to A'.

- 8. **Exhibit 13** is a stratigraphic cross section hung on the top of the Wolfcamp. The well logs on the cross-section give a representative sample of the Wolfcamp formation in the area. The target zone is identified by the words "Producing Zone" and the shaded area across the cross section, along with a red arrow.
- 9. In my opinion, the Wolfcamp Y-Sand thickness is relatively consistent from west to east.
  - 10. The Wolfcamp A thickness increases by approximately 50 feet from west to east.
- 11. **Exhibit 14** is a Gross Interval Wolfcamp to Wolfcamp B. The formation is relatively uniform across the proposed well unit.
  - 12. I conclude from the maps that:
    - a. The horizontal spacing unit is justified from a geologic standpoint.
    - b. There are no structural impediments or faulting that will interfere with horizontal development.
    - c. Each quarter quarter section in the unit will contribute more or less equally to production.
- 13. Exhibit 15 provides an overview of the stress orientation in the area based on the Snee-Zoback paper.
- 14. The preferred well orientation for this unit is East/West, as it allows Marathon to operate 2 mile laterals. Since SHmax is at approximately 45 degrees in mid Eddy County, production is expected to be the same regardless of wellbore orientation.
- 15. Exhibits 9-15 were prepared by my or under my supervision or compiled from company business records.

In my opinion, the granting of Marathon's application is in the interests of 16. conservation and the prevention of waste.

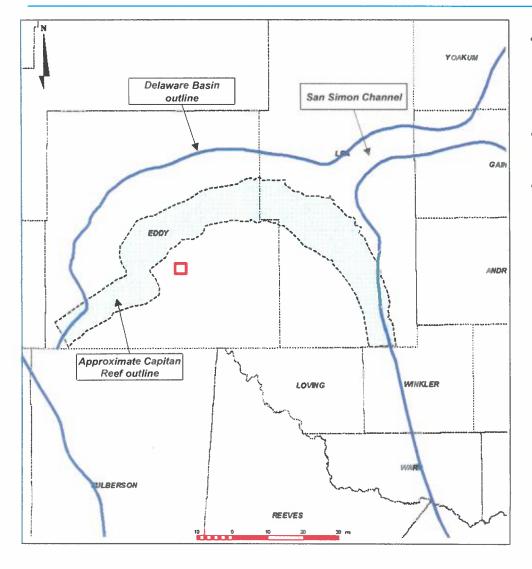
Thomas Lockwood

SUBSCRIBED AND SWORN to before me this / 7 day of Lockwood, on behalf of Marathon Oil Permian LLC.

My commission expires: 1/25/2029

JESSICA GORMAN Notary Public, State of Texas Commission Expires 01-23-2023 Notary ID 13008780-4

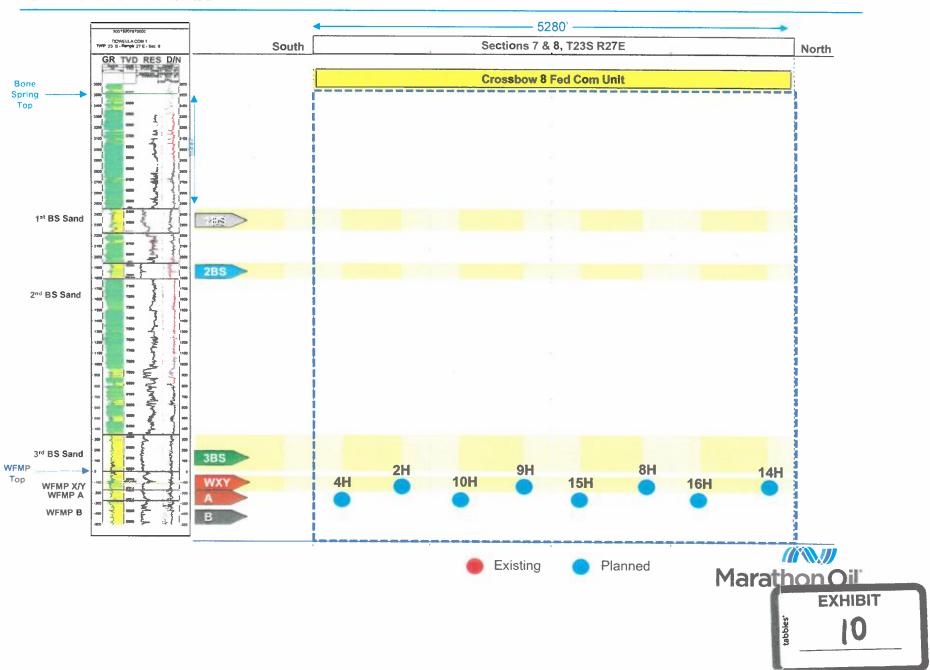
## **Locator Map**



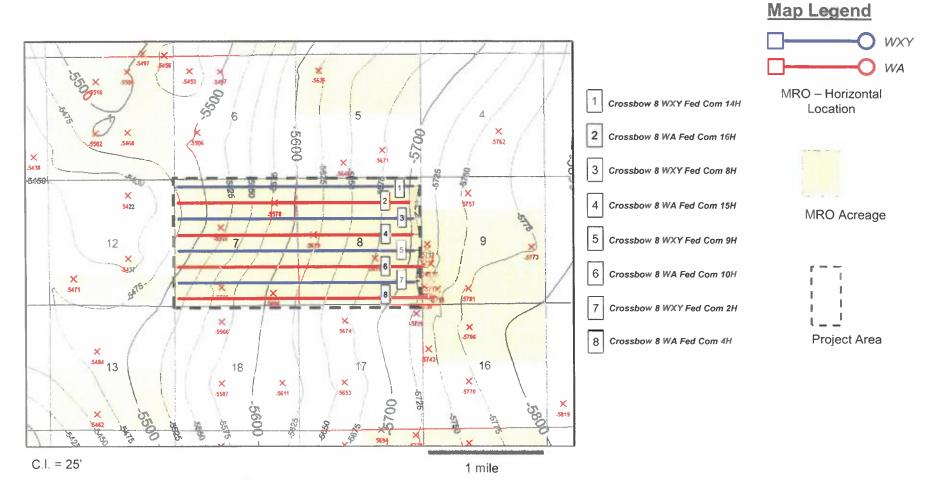
- Approximate location of proposed Crossbow 8 Fed Com well locations shown with red box
- Located basinward of the Capitan Reef
- Mid Eddy county



## Wellbore Schematic

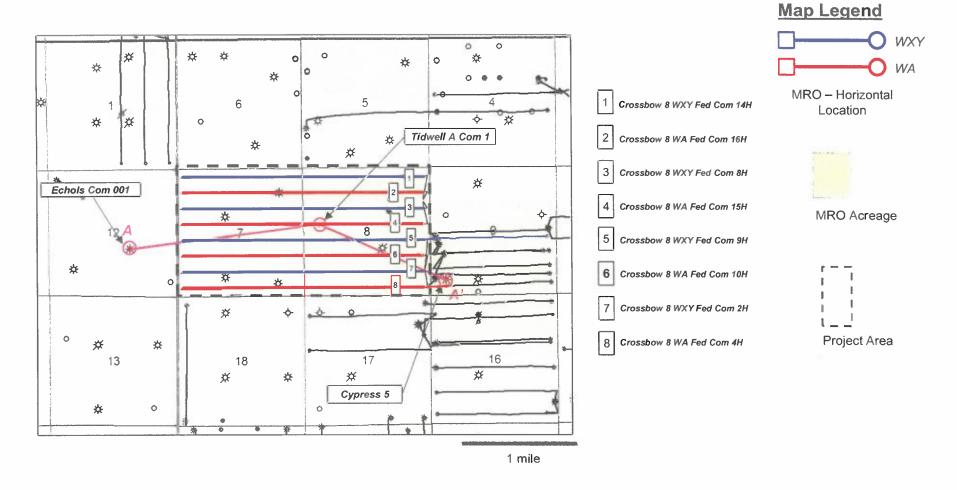


Structure Map - Top of Wolfcamp (TVDSS)



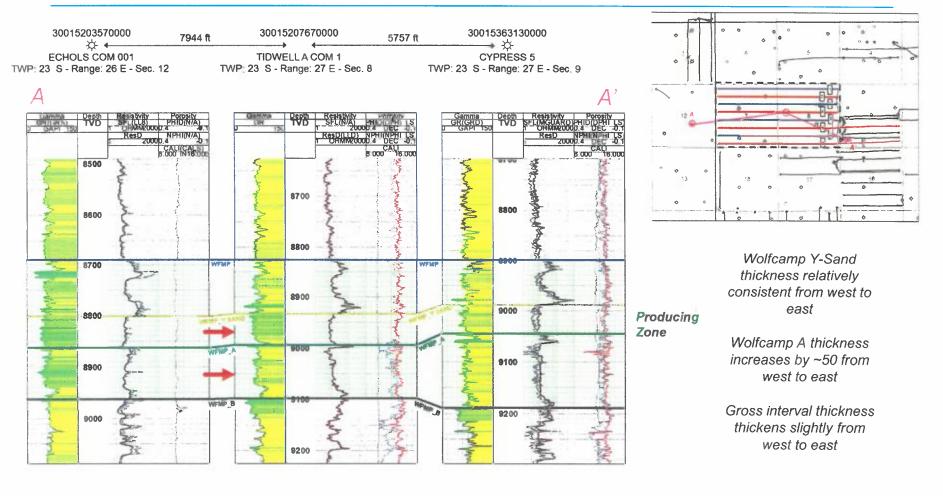


Reference Map for Cross Section - Upper Wolfcamp Wells



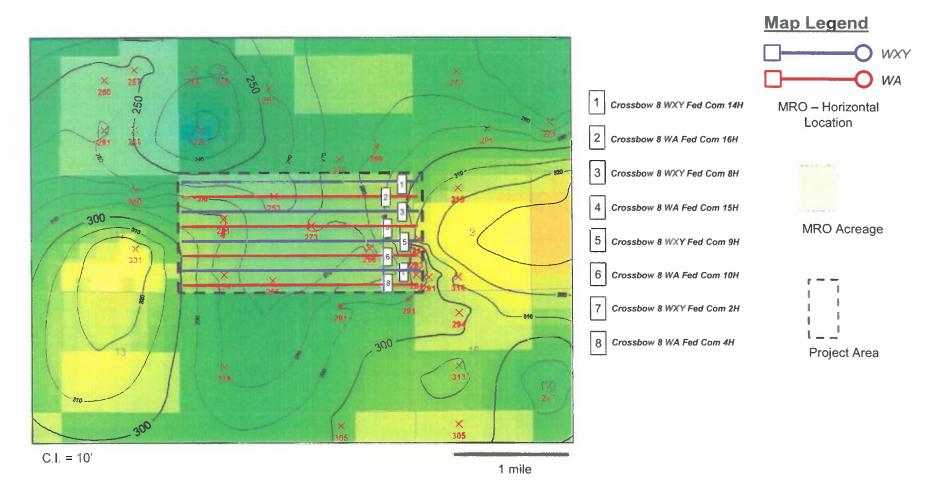


Stratigraphic Cross Section (Top Wolfcamp Datum)





Gross Interval Isochore – Wolfcamp to Wolfcamp B





### Preferred Well Orientation - SHmax

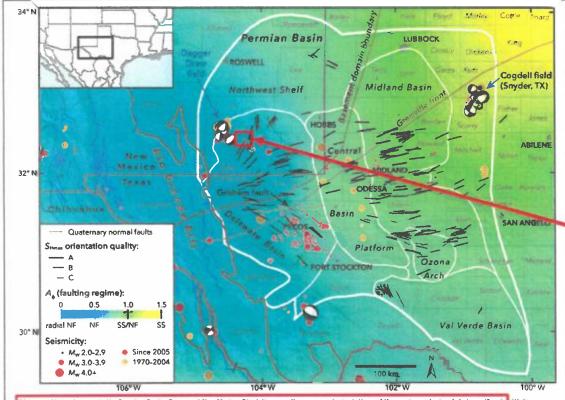


Figure 1. State of stress in the Permian Basin, Texas and New Mexico. Black lines are the measured orientations of the maximum horizontal stress (S<sub>20</sub>), with line and in state of stress in the Permian Basin, Texas and New Mexico. Black lines are the measured orientations of the maximum horizontal stress (S<sub>20</sub>), with line and stress (S<sub>20</sub>), and the parameter (see text for details) of Simpson (1997). Blue lines are fault traces known to have experienced normal-sense offset within the past 1.6 Ma, from the USGS Quaternary Faults and Folds Database (Crone and Wheeler, 2000). The boundary between the Shawnee and Mazatzal basement domains is from Lund et al. (2015), and the Precambrian Grenville Front is from Thomas (2006). The Permian Basin boundary is from the U.S. Energy Information Administration, and the subbasin boundaries are from the Texas Bureau of Economic Geology Permian Basin Geological Synthesis Project. Carthquakes are from the USGS National Carthquake Information Center, the Textlet Seismic Monitoring Program, and Gan and Frohlich (2013). Focal mechanisms are from Saint Louis University (Herrmann et al., 2011).

#### Source:

Snee, J.L. & M.D. Zoback, 2018, State of stress in the Permian Basin, Texas and New Mexico: Implications for induced seismicity: The Leading Edge, 810-819, https://doi.org/10.1190/tle37020810.1.

## Preferred well orientation is E/W.

This orientation maximizes lateral length with respect to Marathon's acreage.

As outlined in Snee & Zoback (2018),
SHmax is at approximately 45
degrees in mid Eddy county.
Therefore, hydraulic fractures will
propagate out at ~45 degrees.
Production is expected to be the
same for wells oriented either N/S or
E/W.

