### **Before the Oil Conservation Commission August 13, 2020**

De Novo Hearing Order R-21251

Commission Case Numbers: 21273 and 21274 (Division Case Numbers 20865 and 20866)



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

### IN THE MATTER OF THE APPLICATIONS OF MARATHON OIL PERMIAN, LLC FOR COMPULSORY POOLING

**DE NOVO HEARING OF ORDER NO. R-21251** 

COMMISSION CASE NOS. 21273 AND 21274 DIVISION CASE NOS. 20865 AND 20866

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Exhibit 9: Proposal Letter

Exhibit 10: AFEs



Jennifer Wilding NOJV Asset Manager Mid-Continent Business Unit North American Exploration and Production Co., a division of Chevron U.S.A. Inc. 1400 Smith Street, Room 40084 Houston, Texas 77002 Tel 713-372-9950 Jennifer.Wilding@chevron.com

November 13, 2019

New Mexico Oil Conservation Division 1220 South St. Francis Santa Fe, NM 87505

Re:

N/2 of Section 12

Township 23 South, Range 28 East

**Eddy County, New Mexico** 

#### Ladies and Gentlemen:

Chevron U.S.A Inc. ("Chevron") and Marathon Oil Company ("Marathon") are in discussions regarding the assignment of Chevron's leasehold interest in the N/2 of Section 12, T23S, R28E to Marathon. Once final terms are agreed upon, Assignments reflecting this agreement will be filed in the respective county.

Accordingly, Chevron hereby grants Marathon the right to represent its interest and supports the designation of Marathon as operator and its planned development of wells drilled in the above captioned lands.

Should you have any questions regarding the above, please email me at Jennifer. Wilding@Chevron.com or call me at 713-375-9950.

Sincerely,

Jenniter Wilding NOJV Asset Manager

EXHIBIT Labbies



5 Greenway Plaza, Suite 110, Houston, Texas 77046-0521 P.O. Box 4294, Houston, Texas 77210-4294 Phone 713.366.5330 john\_schneider@oxy.com

November 13, 2019

New Mexico Oil Conservation Division 1220 South St. Francis Santa Fe, NM 87505

Re: N/2 of Section 7

Township 23 South, Range 29 East Eddy County, New Mexico

### Ladies and Gentlemen:

OXY Y-1 Company ("OXY") and Marathon Oil Company ("Marathon") are in discussions regarding the assignment of an undivided interest of OXY's leasehold interest in the N/2 of Section 7 to Marathon. Once final terms are agreed upon, Assignments reflecting this agreement will be filed in the respective county.

Accordingly, OXY hereby grants Marathon the right to represent its interest and supports the designation of Marathon as operator and its planned development of wells drilled in the above captioned lands.

Should you have any questions regarding the above, please email me at john\_schneider@oxy.com or call me at 713-366-5330.

Sincerely,

Name: John Schneider

OXY Y-1 COMPANY/

Title: Land Manager- New Mexico





Brandon Patrick
Land Manager
Novo Oil & Gas Northern Delaware, LLC
1001 W. Wilshire Blvd., Suite 206
Oklahoma City, Oklahoma 73116
Office: 405-286-4197
bpatrick@novoog.com

November 11, 2019

### VIA FED EX AND ELECTRONIC MAIL

New Mexico Oil Conservation Division 1220 South St. Francis Santa Fe, New Mexico, 87505

Re: Support for Marathon Oil Permian LLC's Valkyrie cases, Case Numbers 20866 and 20865, located in the N/2 of Section 12-23S-28E and the N/2 of Section 7-23S-29E, Eddy County, New Mexico

#### Ladies and Gentlemen:

Novo Oil & Gas Northern Delaware, LLC ("Novo") respectfully submits this letter in support of Marathon Oil Permian LLC's ("Marathon") "Valkyrie" cases, Case Numbers 20866 and 20865, which are set for hearing on November 14, 2019. Marathon has proposed a two-mile development plan that would traverse Sections 12-23S-28E and 7-23S-29E, Eddy County, New Mexico.

Novo has proposed a two-mile development plan ("Astrodog") being represented by Case Numbers 20916 and 20917, both of which would traverse the N/2 of Section 8-23S-29E and the N/2 of Section 9-23S-29E, Eddy County, New Mexico. Novo's cases are set for hearing on November 14, 2019.

It is Novo's opinion that the Marathon "Valkyrie" and Novo "Astrodog" development plans represent an efficient use of the surface and subsurface in and around the Designated Potash Area as set forth in Order No. 3324 issued by the Department of Interior. Further, Novo supports the designation of Marathon as operator of the spacing units that will be developed by Marathon's Valkyrie wells.

Novo understands that BTA Oil Producers, LLC ("BTA") has expressed concerns with Marathon's Valkyrie development plans. Specifically, BTA has stated that BTA has its own plans to develop the N/2 of Section 7-23S-29E and NW/4 of Section 8-23S-29E. Novo believes that the Valkyrie and Astrodog development plans together represent a more efficient development plan than BTA's plan.

If you have any questions, please contact me using the information at the top of this letter.

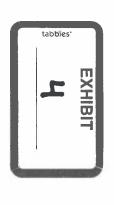
Sincerely,

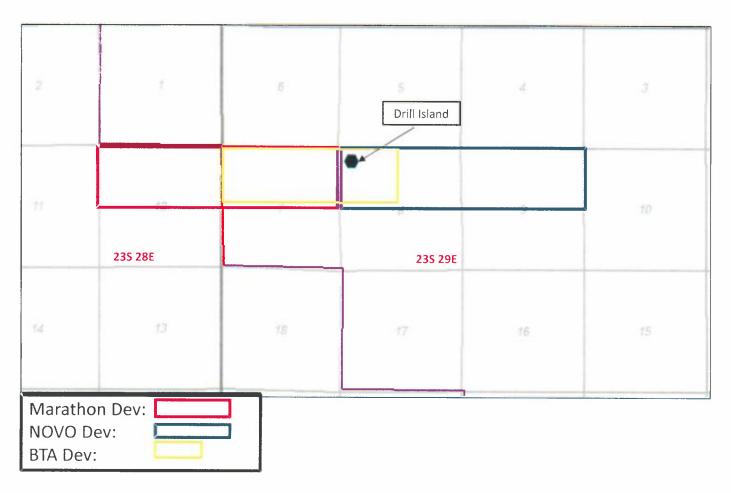
Brandon Patrick

EXHIBIT

Solve

### **Development Plans**





District.1
1625 N. French Dr., Hobbs, NM 88.240
Phone, (375) 393-6161 Fax. (575) 393-0720
District.1
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax. (575) 74S-9720
District.10
1000 Rio Brizzos Road, Azirec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District.17
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

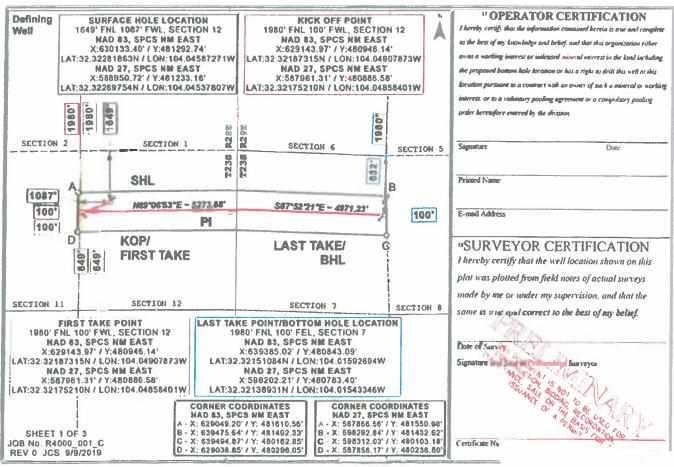
Form C-102 Revised August 1, 2011 Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

		W)	CLL L	JUATIO	N AND ACE	CAGE DEDIC	LA HON PLA	7.1		
1,	API Numbe	r		<sup>2</sup> Pool Code	e		<sup>1</sup> Pool Na	me		
					15011 CULEBRA BLUFF, SOUTH; BONE SPRING					RING
4 Property (	Code			<sup>5</sup> Property Name					Well Number	
				VALKYRIE 12 SB FEDERAL COM					13H	
OGRID :	No.				<sup>8</sup> Operator	Name			, E	levation
37209	372098			MARATHON OIL PERMIAN LLC					3007'	
					" Surface	Location				
Et, or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/We	ast/West line County	
E	12	23S	28E		1649	NORTH	1087	WEST		EDDY
			" Bo	ttom Hol	le Location If	Different From	n Surface			
UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/We	st line	Connty
Н	7	23S	29E		1980	NORTH	100	EAST		EDDY
12 Dedicated Acres	13 Joint or	lafti "C	onsolidation	Code 15 Or	der No.					
317.13										

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



Distances/areas relative to NAD 83 Combined Scale Factor. 0.99977431 Convergence: 00°08'50.61001"



District. J
1625 N. French Dr., Hobbs, NM 88240
Phone; (575) 393-6161 Fax (575) 393-0720
District. II
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Phone; (505) 334-6178 Fax; (505) 334-6170
District. IM
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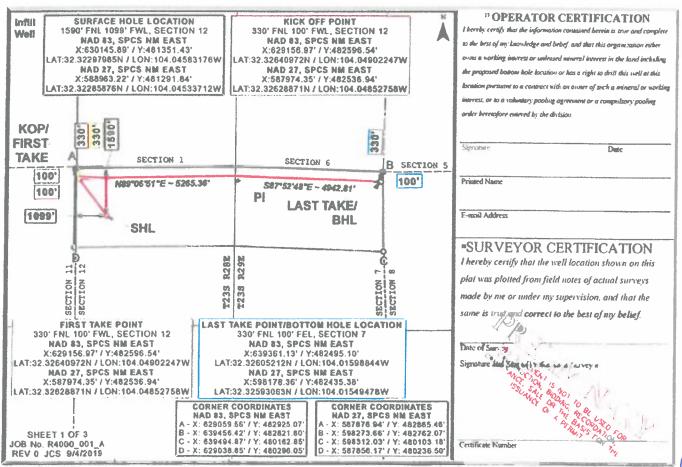
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### WELL LOCATION AND ACREAGE DEDICATION PLAT

			TY LLL L		IT MIND MOD	CLAGE DEDIC	MIIONILL	7.1		
1	API Numbe	er.		<sup>2</sup> Pool Cod	e		<sup>3</sup> Pool Na	ume		
		98220 PURPLE SAGE; WOLFCAMP (GAS)					AS)			
<sup>4</sup> Property	<sup>4</sup> Property Code				5 Property			61	Well Number	
				VALKY	RIE 12 WXY	FEDERAL C	OM		1H	
<sup>7</sup> OGRID	No.	Operator Name					Elevation			
37209	98			MARA		3008'				
					" Surface 1	Location				
UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County	
E	12	23S	28E		1590	NORTH	1099	WEST	EDDY	
			" Bo	ttom Ho	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	East/West line	County	
Α	7	23S	29E	İ	330	NORTH	100	EAST	EDDY	
12 Dedicated Acres	s <sup>13</sup> Joint or	infili i	Consolidation	Code LE Or	der No.					
634.11										



District.]
1625 N. French Dr., Hobbs, NM 88240
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District B
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District.BY
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Phone: (505) 476-3460 Fax: (505) 476-3462

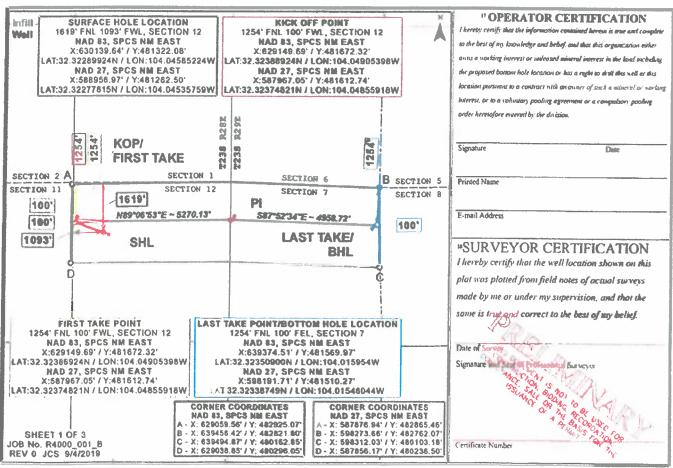
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### WELL LOCATION AND ACREAGE DEDICATION PLAT

	API Numb	er			Pool (	Code			<sup>3</sup> Pool Na	me		
					982	20		PURPLE	E SAGE; WC	LFCAMP (G	AS)	
4 Property	Code					5 Par	operty Name				Well Number	
					VALK	YRIE 12	WA	FEDERAL CO	OM	3H		
OGRID 'OGRID	OGRID No. Operator Name				* Elevation							
37209	98				MAF	NOHTAS	OIL I	PERMIAN LL	.C		3007'	
						* Surf	ace I	ocation				
UL or lot so.	Section	Tonnshi	Р	Range	Lot	da Feet fre	on the	North/South line	Feet from the	East/West line	County	
E	12	235	3 2	28E		1619		NORTH	1093	WEST	EDDY	
				" Bot	ttom F	lole Location	on If	Different Fron	n Surface			
UL or lot so.	Section	Townshi	Р	Range	Lot I	du Feet fre	un the	North/South line	Feet from the	East/West line	County	
Α	7	238	3   2	29E		1254		NORTH	100	EAST	EDDY	
12 Dedicated Acres	Joint o	r Infill	11 Conso	didation (	Code 15	Order No.						
634 11												



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Phone: (505) 334-6178 Fax: (505) 334-6170

1220 S. St. Francis Dr., Sante Fe. NM 67505 Phone: (505) 476-3460 Fax: (505) 476-3462

District IV

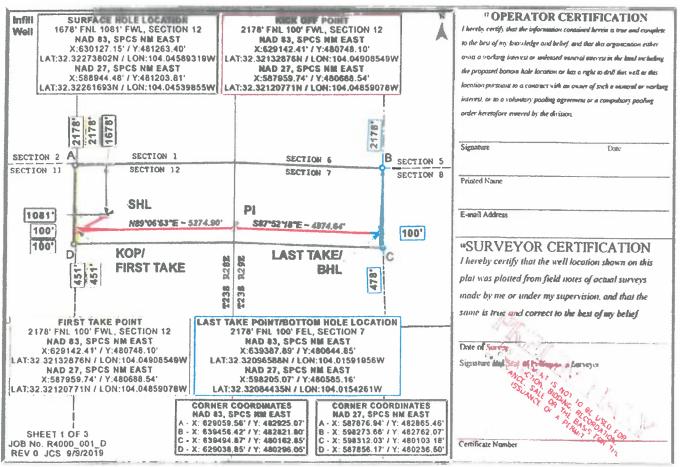
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### WELL LOCATION AND ACREAGE DEDICATION PLAT

			AA TITIT TY	JUAITO	N AND ACK	EAGE DEDIC	ATIONTLA	1		
ı	API Numbe	r		<sup>2</sup> Pool Code			<sup>3</sup> Pool Nas	ne		
				98220		PURPLE SAGE; WOLFCAMP (GAS)				
<sup>4</sup> Property	Code			ALKYI	Property I	- "1	Vell Number 5H			
'OGRID	OGRID No.				Operator l	Name	-		Elevation	
37209	8			MARA	THON OIL	PERMIAN LL	C	-	3007'	
					" Surface I	ocation				
UL or lot no.	Section	Township	Range	Let Idn	Feet from the	North/South line	Feet from the	East/West line	County	
Е	12	23S	28E		1678	NORTH	1081	WEST	EDDY	
			<b>"</b> Во	ttom Hol	e Location If	Different From	Surface			
UL or lot no.	Section	Township	Range	Lot fdu	Feet from the	North/South line	Feet from the	East/West line	County	
Н	7	23S	29E		2178	NORTH	100	EAST	<b>EDDY</b>	
Dedicated Acres	Joint or	noil 14	Consolidation (	Code L5 Or	der No.					
634.11		1								



District.1
1625 N. French Dr., Hobbs. NM 88240
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814 S. First St., Artesia. NM 88210
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District.11
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Phone: (505) 334-6178 Fax: (505) 334-6170
District.17
1220 S. Sr. Francis Dr., Sante Fe. NM 87505

Phone: (\$05) 476-3460 Fax: (\$05) 476-3462

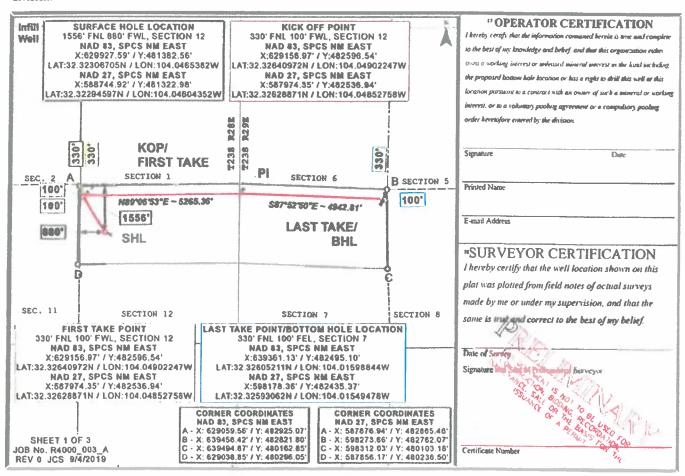
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District Office

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### WELL LOCATION AND ACREAGE DEDICATION PLAT

1	API Numbe	r		<sup>2</sup> Pool Cod	e		<sup>3</sup> Pool Na	FOR	
				98220	)	PURPLE	E SAGE; WO	LFCAMP (GA	AS)
4 Property	<sup>4</sup> Property Code				61	Well Number			
				VALKY		2H			
OGRID!	No.				* Operator	Name			P Elevation
37209	98			MARA	THON OIL	PERMIAN LL	C		3008'
					" Surface ]	Location			
UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
E	12	23S	28E		1556	NORTH	880	WEST	EDDY
			"Bo	ttom Hol	le Location If	Different Fron	1 Surface		
UL or lot so.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Α	7	23S	29E		330	NORTH	100	EAST	EDDY
12 Dedicated Acres	3 Joint or	r loSII	Consolidation (	Code   15 Or	der No.				
634.11									



District.1
1625 N. French Dr., Hobbs, NM 88240
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Patrict.III
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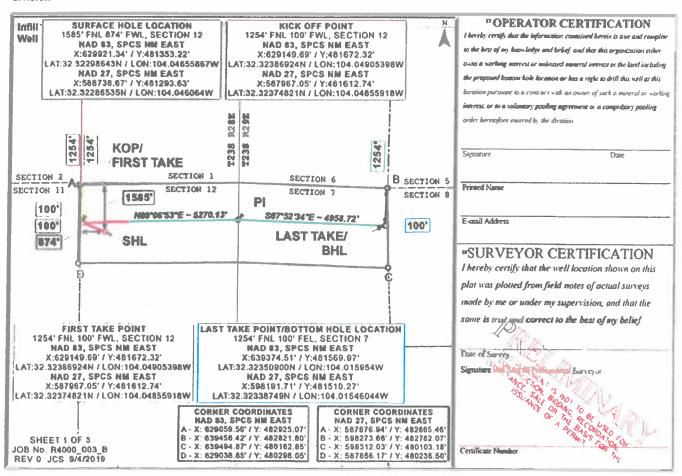
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### WELL LOCATION AND ACREAGE DEDICATION PLAT

			WELL IN	JCA 110	IN AND ACE	CEAGE DEDIC	AHONFLA	1	
-	API Numbe	tr		<sup>2</sup> Pool Cod	e		J Pool Nau	DC .	
				98220		PURPLE	SAGE; WO	LFCAMP (GA	AS)
4 Property	Code			VALKY	RIE 12 WD	100	6 Well Number		
'OGRID	No.				Operator Name				Elevation
3720	98			MARA	THON OIL	PERMIAN LL	C		3008'
					" Surface l	Location			
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	12	23S	28E		1585	NORTH	874	WEST	<b>EDDY</b>
			" Bo	ttom Ho	le Location If	Different From	Surface		
UL or lot no.	Section	Township	Range	Lot ida	Feet from the	North/South line	Feet from the	East/West line	County
Α	7	23S	29E		1254	NORTH	100	EAST	EDDY
12 Dedicated Acre	s <sup>13</sup> Joint o	r Infill 14 (	Consolidation	Code 15 Or	der No.	•			
634.11									



District. II
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District. III
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District. III
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District. IN
1220 S. St. Francis Dr., Santa Fe. NM 87505
Phone: (505) 476-3-460 Fax: (505) 476-3-462

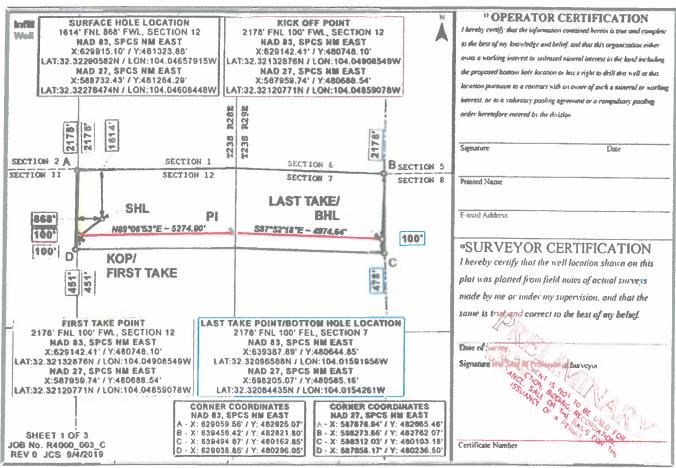
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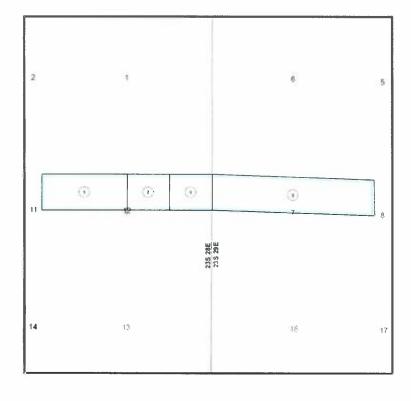
☐ AMENDED REPORT

### WELL LOCATION AND ACREAGE DEDICATION PLAT

			44 mmm m		IN WIND WOL	CAOL DEDIC	WITOMIFT	. A			
1	API Numbe	tr'		<sup>1</sup> Pool Cod	e		<sup>3</sup> Pool Na	ne			
				98220		PURPLE	SAGE; WO	LFCAMP (G/	CAMP (GAS)		
<sup>4</sup> Property	<sup>4</sup> Property Code				6 -	Well Number					
				VALKY	'RIE 12 WD		6Н				
<sup>7</sup> OGRID	OGRID No.					Elevation					
3720	98			MARA	THON OIL	PERMIAN LL	C		3009'		
			an annimalian a P data supply 1977 1999.		" Surface ]	Location		***************************************			
UL or lot no.	Section	Township	Range	Lot Ide	Feet from the	North/South line	Feet from the	East/West line	County		
E	12	23\$	28E		1614	NORTH	868	WEST	EDDY		
			"Во	ttom Hol	le Location If	Different Fron	Surface				
UL or let no.	Section	Township	Range	Lot Idn	Feet from the	North/South Eac	Feet from the	East/West line	County		
H	7	23S	29E		2178	NORTH	100	EAST	EDDY		
12 Dedicated Acre	s 3 Joint o	r tafiu   C	Consolidation	Code 15 Or	der No.	·					
634.11											







- Tract 1: Fed NMNM-032636
- Tract 2: Fed NMNM- 032636
- Tract 3: Fed NMNM-103879





### Summary of Interests: Bone Spring Valkyrie 12 SB Federal Com 13H S/2 of N/2 of Sections 12 T23S-R28E & 7, T23S-R29E – 317.13 acres

### Committed / Pooled Working Interest:

Marathon Oil Permian LLC (Operator)	37.839720%
**Chevron USA, Inc.**	6.306562%
**OXY Y-1 Company**	10.864000%
BTA Oil Producers LLC	38.683188%
Devon Energy Production Company	3.153250%
Westall Oil & Gas, LLC	1.576640%
Tap Rock Resources, LLC	1.576640%
Tap Rock Resources, LLC	1.576640%

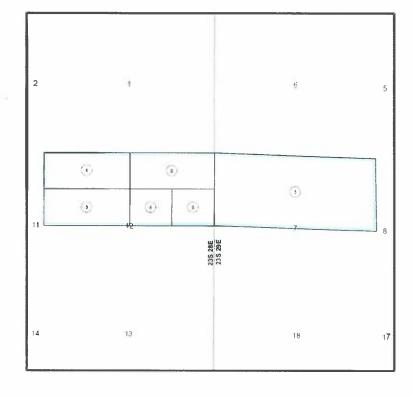
<u>TOTAL:</u> 100.00%



<sup>\*\*</sup>Submitted Letter of Support\*\*

Lease Tract Map

Valkyrie 12 WXY Federal Com 1H, Valkyrie 12 WA Federal Com 3H, Valkyrie 12 WXY Federal Com 5H, Valkyrie 12 WD Federal Com 2H, Valkyrie 12 WD Federal Com 6H N/2 of Sections 12 T23S-R28E & 7, T23S-R29E – 634.11 acres



- Tract 1: Fed NMNM-091078
- Tract 2: Fed NMNM-090527
- Tract 3: Fed NMNM-032636
- Tract 4: Fed NMNM-032636
- Tract 5: Fed NMNM-103879





#### **Summary of Interests: Wolfcamp**

Valkyrie 12 WXY Federal Com 1H, Valkyrie 12 WA Federal Com 3H, Valkyrie 12 WXY Federal Com 5H, Valkyrie 12 WD Federal Com 2H, Valkyrie 12 WD Federal Com 6H N/2 of Sections 12 T23S-R28E & 7, T23S-R29E – 634.11 acres

#### Committed / Pooled Working Interest:

 Marathon Oil Permian LLC (Operator)
 18.92416100%

 \*\*Chevron USA, Inc.\*\*
 28.38624210%

 \*\*OXY Y-1 Company\*\*
 10.86616978%

 BTA Oil Producers LLC
 38.67387180%

 Devon Energy Production Company
 1.57701350%

 Westall Oil & Gas, LLC
 0.78850670%

 Tap Rock Resources, LLC
 0.78850670%

<u>TOTAL:</u> <u>100.00%</u>



<sup>\*\*</sup>Submitted Letter of Support\*\*

### **Communications Log**

Date	Marathon Communications
2/6/2019	Marathon requests staking
	Marathon initiates brokers to research
2/20/2019	subject tracts
	Initial trade discussions commence
2/28/2019	between Oxy and Marathon
3/11/2019	Marathon counters
3/19/2019	Oxy counters
4/1/2019	Marathon counters
Various	Clarifying requests exchanged
4/17/2019	Oxy counters
	Meeting set up to discuss Chevron trade
6/26/2019	for Section 12
7/9/2019	Section 7 brought into trade discussions
	Meeting to discuss Chevron Trade
7/9/2019	(Section 12 included)
	66 emails regarding proposed trade
Various	exchanged between Marathon and Oxy
	beginning 7/9/2019
	Marathon receives notice of BTA's
7/29/2019	Ochoa wells
9/26/2019	Marathon proposes trade to BTA
10/10/2019	Marathon meets with BTA



Chase Rice Staff Land Professional



Marathon Oil Permian LLC 5555 San Felipe Street Houston, Texas 77056 Telephone: 713-296-3055 Fax: 713-513-4006 cfrice@marathonoil.com

July 12, 2019

VIA CERTIFIED MAIL RETURN RECEIPT REQUESTED 7019 0700 0000 8791 1589

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

Re: Valkyrie 12 Federal Com 1H, 2H, 3H, 4H, 5H, 6H, 7H, 8H, 9H, 10H, 11H, 12H, 13H, 14H & 15H

Well Proposals

Section 12, Township 23 South, Range 28 East and Section 7, Township 23 South, Range 29 East

Eddy County, New Mexico

### Dear Chevron USA, Inc.:

Marathon Oil Permian LLC ("Marathon") proposes the drilling of the following wells located in Section 12, 23S-28E and Section 7, 23S-29E, Eddy County, New Mexico, all to be drilled from four surface pad locations.

					Target	
Pad	Well Name	SHL	BHL	Proration Unit	TVD	Est. MD
		1067' FWL & 1237'	100' FEL & 330' FNL of			
1	Valkyrie 12 WXY Federal Com 1H	FNL of Sec. 12	Sec. 7	N2 of Secs. 7 & 12	9.676'	20,184'
		1062' FWL & 1271'	100' FEL & 1254' FNL			
1	Valkyrie 12 WA Federal Com 3H	FNL of Sec. 12	of Sec. 7	N2 of Secs. 7 & 12	9,866'	20,344'
		1056' FWL & 1296'	100' FEL & 1980' FNL		_	
1	Valkyrie 12 SB Federal Com 13H	FNL of Sec. 12	of Sec. 7	S2N2 of Secs. 7 & 12	8,255'	18,782'
		1051' FWL & 1324'	100' FEL & 2178' FNL			
1	Valkyrie 12 WXY Federal Com 5H	FNL of Sec. 12	of Sec. 7	N2 of Secs. 7 & 12	9,676'	20,206'
		541' FWL & 1745' FSL	100' FEL & 2178' FSL of			
2	Valkyrie 12 WA Federal Com 7H	of Sec. 12	Sec. 7	S2 of Secs. 7 & 12	9,866'	20,356'
		537' FWL & 1712' FSL	100' FEL & 1980' FSL of			
2	Valkyrie 12 SB Federal Com 14H	of Sec. 12	Sec. 7	N2S2 of Secs. 7 & 12	8,255'	18,750'
		533' FWL & 1704' FSL	100' FEL & 1254' FSL of			~
2	Valkyrie 12 WXY Federal Com 9H	of Sec. 12	Sec. 7	S2 of Secs. 7 & 12	9,676'	20,202
		529' FWL & 1650' FSL	100' FEL & 660' FSL of			
2	Valkyrie 12 SB Federal Com 15H	of Sec. 12	Sec. 7	S2S2 of Secs. 7 & 12	8,255'	18,858'
		526' FWL & 1623' FSL	100' FEL & 330' FSL of			
2	Valkyrie 12 WA Federal Com 11H	of Sec. 12	Sec. 7	S2 of Secs. 7 & 12	9,866'	20,502'
		963' FWL & 1233' FNL	100' FEL & 330' FNL of			
3	Valkyrie 12 WD Federal Com 2H	of Sec. 12	Sec. 7	N2 of Secs. 7 & 12	10,357'	20,849'
		957' FWL & 1263' FNL	100' FEL & 1254' FNL			
3	Valkyrie 12 WD Federal Com 4H	of Sec. 12	of Sec. 7	N2 of Secs. 7 & 12	10,547	21,013'
		953' FWL & 1293' FNL	100' FEL & 2178' FNL			
3	Valkyrie 12 WD Federal Com 6H	of Sec. 12	of Sec. 7	N2 of Secs. 7 & 12	10,357'	20,876
		471' FWL & 1720' FSL	100' FEL & 2178' FSL of			
4	Valkyrie 12 WD Federal Com 8H	of Sec. 20	Sec. 7	S2 of Secs. 7 & 12	10,547	21,034'
		463' FWL & 1685' FSL	100' FEL & 1254' FSL of			
4	Valkyrie 12 WD Federal Com 10H	of Sec. 20	Sec. 7	S2 of Secs. 7 & 12	10,357'	20,880'
		460' FWL & 1657' FSL	100' FEL & 330' FSL of			
4	Valkyrie 12 WD Federal Com 12H	of Sec. 20	Sec. 7	S2 of Secs. 7 & 12	10,547'	21,179'



These proposed locations and target depths are subject to change depending on any surface or subsurface concerns encountered. The AFEs 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 the wells under the terms of the 1989 AAPL JOA. Enclosed is a draft of the JOA covering the contract area. The JOA has the following general provisions:

- 100%/300%/300% non-consent penalty
- \$7,000/\$700 drilling and producing rates
- Contract area of All of Section 12, 23S-28E and All of Section 7, 23S-29E, covering all depths

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.

If you do not wish to participate, Marathon proposes to acquire your interest via term assignment at the following terms:

- 3-year term
- \$8,000 bonus consideration per net mineral acre
- Delivering an 80% NRI, proportionately reduced

This term assignment offer terminates on August 12, 2019 and is subject to due diligence and title verification satisfactory to Marathon.

Should you have any questions regarding this or other matters, please do not hesitate to contact me at the above listed phone number or email.

Sincerely,

Chase Rice

Marathon Oil Permian LLC

Charle Rice

### Valkyrie 12 Federal Com 1H, 2H, 3H, 4H, 5H, 6H, 7H, 8H, 9H, 10H, 11H, 12H, 13H, 14H & 15H

Chevron USA, Inc. elects to participate in the drilling, completing, and equipping of the Valkyrie 12 WXY Federal Com 1H.  Chevron USA, Inc. elects NOT to participate in the drilling, completing, and equipping of the Valkyrie 12 WXY Federal Com 1H.
Chevron USA, Inc. elects to participate in the drilling, completing, and equipping of the Valkyrie 12 WD Federal Com 2H.  Chevron USA, Inc. elects NOT to participate in the drilling, completing, and equipping of the Valkyrie 12 WD Federal Com 2H.
Chevron USA, Inc. elects to participate in the drilling, completing, and equipping of the Valkyrie 12 WA Federal Com 3H.  Chevron USA, Inc. elects NOT to participate in the drilling, completing, and equipping of the Valkyrie 12 WA Federal Com 3H.
Chevron USA, Inc. elects to participate in the drilling, completing, and equipping of the Valkyrie 12 WD Federal Com 4H.  Chevron USA, Inc. elects NOT to participate in the drilling, completing, and equipping of the Valkyrie 12 WD Federal Com 4H.
Chevron USA, Inc. elects to participate in the drilling, completing, and equipping of the Valkyrie 12 WXY Federal Com 5H.  Chevron USA, Inc. elects NOT to participate in the drilling, completing, and equipping of the Valkyrie 12 WXY Federal Com 5H.
Chevron USA, Inc. elects to participate in the drilling, completing, and equipping of the Valkyrie 12 WD Federal Com 6H.  Chevron USA, Inc. elects NOT to participate in the drilling, completing, and equipping of the Valkyrie 12 WD Federal Com 6H.
Chevron USA, Inc. elects to participate in the drilling, completing, and equipping of the Valkyrie 12 WA Federal Com 7H.  Chevron USA, Inc. elects NOT to participate in the drilling, completing, and equipping of the Valkyrie 12 WA Federal Com 7H.
Chevron USA, Inc. elects to participate in the drilling, completing, and equipping of the Valkyrie 12 WD Federal Com 8H.  Chevron USA, Inc. elects NOT to participate in the drilling, completing, and equipping of the Valkyrie 12 WD Federal Com 8H.
Chevron USA, Inc. elects to participate in the drilling, completing, and equipping of the Valkyrie 12 WXY Federal Com 9H.  Chevron USA, Inc. elects NOT to participate in the drilling, completing, and equipping of the Valkyrie 12 WXY Federal Com 9H.
Chevron USA, Inc. elects to participate in the drilling, completing, and equipping of the Valkyrie 12 WD Federal Com 10H.  Chevron USA, Inc. elects NOT to participate in the drilling, completing, and equipping of the Valkyrie 12 WD Federal Com 10H.

Chevron USA, Inc. elects to participate in the drilling, completing, and equipping of the Valkyrie 12 WA Federal Com 11H.  Chevron USA, Inc. elects NOT to participate in the drilling, completing, and equipping of the Valkyrie 12 WA Federal Com 11H.
Chevron USA, Inc. elects to participate in the drilling, completing, and equipping of the Valkyrie 12 WD Federal Com 12H.  Chevron USA, Inc. elects NOT to participate in the drilling, completing, and equipping of the Valkyrie 12 WD Federal Com 12H.
Chevron USA, Inc. elects to participate in the drilling, completing, and equipping of the Valkyrie 12 SB Federal Com 13H.  Chevron USA, Inc. elects NOT to participate in the drilling, completing, and equipping of the Valkyrie 12 SB Federal Com 13H.
Chevron USA, Inc. elects to participate in the drilling, completing, and equipping of the Valkyrie 12 SB Federal Com 14H.  Chevron USA, Inc. elects NOT to participate in the drilling, completing, and equipping of the Valkyrie 12 SB Federal Com 14H.
Chevron USA, Inc. elects to participate in the drilling, completing, and equipping of the Valkyrie 12 SB Federal Com 15H.  Chevron USA, Inc. elects NOT to participate in the drilling, completing, and equipping of the Valkyrie 12 SB Federal Com 15H.
Chevron USA, Inc.
By:
Print Name:
Title:
Date:

MARATHON OIL PERMIAN LLC AUTHORITY FOR EXPENDITURE DETAIL OF ESTIMATED WELL COSTS DATE 7/11/2019

ORILLING & LOCATION PREPARED BY MATTHEW RUGAARD

COMPLETION PREPARED BY JOSH SHAMNOM

FACILITIES PREPARED BY BRIAN LIPSCOMB

ARTIFICIAL LIFT PREPARED BY BRIAN LIPSCOMB

	ARTIFICIAL LIFT PREPARED	BY BRIAN LIPSCOMB
Asset Team	PERMIAN	
Field	CULEBRA BLUFF, SC FORMATION: 2ND BONE SPRINGS WILDCAT	EXPLORATION
Lease/Facility	VALKYRIE 12 SB FEDERAL COM 13H DEVELOPMENT	RECOMPLETION
Location	EDDY COUNTY X EXPLOITATION	WORKOVER
Prospect	MALAGA	
Est Total Depth	18 782 Est Drilling Days Est Completion Da	ays
LOCATION COST -	ATTANCIDIE	
LOCATION COST -	NIANGIBLE	
GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access	50,250
7001250	Land Broker Fees and Services	33,750
	TOTAL LOCATION COST - INTANGIBLE	84,000
DRILLING COST - TA	ANGIRI F	
	The state of the s	
7017050	Conductor Man	****
7012050 7012050	Conductor Pipe	28,000
	Surface Casing	19,000
7012050	Intermediate Casing 1	66,000
7012050	Intermediate Casing 2	208,000
7012050	Production Casing	141,000
7012050	Drig Liner Hanger, Tleback Eq & Csg Accessories	55,000
7012550	Drilling Wellhead Equipment	\$0,000
7012040	Casing & Tubing Access	24,000
7012270	Miscellaneous MRO Materials	5,000
	TOTAL DRILLING - TANGIBLE	596,000
DRILLING COST - IN	TANGIBLE	
7019200	Drilling Rig Mob/Demob	32,500
7019220	Drilling Rig - day work/footage	489,375
7019040	Directional Drilling Services	155,000
7019020	Cement and Cementing Service Surface	15,000
7019020	Cement and Cementing Service Intermediate 1	25,000
7019020	Cement and Cementing Service Intermediate 2	35,000
7019020	Cement and Cementing Service Production	60,000
7019140	Mud Fluids & Services	62,000
7012310	Solids Control equipment	32,000
7012020	Bits	72,000
7019010	Casing Crew and Services	30,000
7016350	Fuet (Rig)	56,000
7019140	Fuel (Mud)	30,000
7001460	Water (non potable)	25,000
7012350	Water (potable)	5,000
7019000	Well Logging Services	
7019150	Mud Logging+geosteering	14,000
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	
7010100	Water hauling and disposal (includes soil farming)	25,000
7001160	Contract Services - Disposal/Non-Hazardous Waste	80,000
7001440	Vacuum Trucks	
7000030		10,000
	Contract Labor - general	30,000
7000030	Contract Labor - Operations	3,000
7001200	Contract Services - Facilities	10,000
7019300	Well Services - Well Control Services	19,063
7019350	Well Services · Well/Wellhead Services	10,000
7018150	Rental Tools and Equipment (surface rentals)	72,500
7018150	Rig Equipment and Misc.	9,063
7001110	Telecommunications Services	5,000
7001120	Consulting Services	85,188
7001400	Safety and Environmental	29,000
7018120	Rental Buildings (trailers)	14,500
7019310	Coring (sidewalls & analysis)	
7011010	7% Contingency & Taxes	156,533
	TOTAL DRILLING - INTANGIBLE	£1 307 301
	TOTAL PARENTS - INTERNOISE	\$1,796,721
		44
	TOTAL DRILLING COST	\$2,392,721
COLOR FROM THE	CINIC CONTRACTOR OF THE CONTRA	
COMPLETION - TAN	GIOTE	
7012580	Tubing	
7012040	Tubing Accessories (nipple, wireline entry)	
7012550	Wellhead Equip	15,000
7012560	Packers - Completion Equipment	
	***************************************	
	TOTAL COMPLETION - TANGIBLE	\$15,000



MARATHON OIL PERMIAN LLC 7/11/2019 **AUTHORITY FOR EXPENDITURE** DETAIL OF ESTIMATED WELL COSTS Asset Team PERMIAN CULEBRA BLUFF, SC VALKYRIE 12 SB FEDERAL COM 13H FORMATION: 2ND BONE SPRINGS Lease/Facility COMPLETION - INTANGIBLE GL CODE DESCRIPTION **ESTIMATED COST** Location and Access (dress location after rig move, set anchors) 7001270 10,000 Drilling Rig During Completion Mud Fluids & Services 7019220 7019140 350,000 7019030 Coiled Tubing Services (3 runs) 7019240 Snubbing Services Pulling/Swab Units 7019270 Fuel (from drig)
Casing Crew and Services
Cement and Cementing Services 7016350 7019010 7019020 Well Testing Services (flow hand & equip) Fracturing Services 7019080 470,000 7019320 3,174,815 7019330 Perforating 300,000 Wireline Services
Water Hauling & Disposal (frac fluids) 15,000 355,000 7016180 Freight - Truck (haul pipe; drig & compl) 20,000 BOP Rental & Testing
Rental Tools and Equipment ( incl drig; lightplant, hydra-walk) 7018150 7018150 CT Downhole Rental Equipment (ie. Bit, BHA)
Contract Labor - general 7018150 60,000 7000030 **Telecommunications Services** 7001110 100,000 Safety and Environmental Consulting Services 7001400 100,000 7018150 Zipper Manifold 220,000 Frack Stack Rentals
Freight (Transportation Services) 85,000 Equipment Rental ( w/o operator, frac tanks, lightplants) 100,000 7018150 Rental Buildings (trailers)
Contract Labor - Pumping (pump-down pumps) 7000030 60,000 7011010 8% Contingency & Taxe: 385,185 TOTAL COMPLETION - INTANGIBLE \$5,840,000 TOTAL COMPLETION COST \$5,855,000 SURFACE EQUIPMENT - TANGIBLE 7012350 Misc. Piping, Fittings & Valves 17,120 7006640 Company Labor & Burden Contract Labor - General Telecommunication equip (Tele 7000030 62,878 7001110 7012410 Line Pipe & Accessories Miscellaneous Materials (containment system)
SCADA 35,847 Freight - truck
Contract Engineering
Metering and Instrumentation 7016180 7,264 5,823 7001190 7012290 7012290 I&E Materials 105,326 7012200 **Gas Treating** 7012200 Dehydration Compressor 7012350 Power 7012610 Vapor Recovery Unit 7012440 Separator & other pressure vessels 336,771 7012500 Tanks 235,346 Heater Treater
Flare & Accessories 7012100 7012640 23,293 7000010 Electrical Labor 10,482 7000010 7012480 Mechanical Labor Rod Pumping unit & Pac 7012180 **Pumping Unit Engine** 7012350 Electrical Power (electrical cooperative construction costs) TOTAL SURFACE EQUIPMENT - TANGIBLE \$840,149 **TOTAL SURFACE EQUIPMENT COST** 840,149 ARTIFICIAL LIFT 7006640 Company Labor 45,000 7012180 7012480 Gas Lift Equipment 15,000 6,250 Rod Pumping, Sucker Rods & Rod Pump Elect Sub Pumps (ESP)
Well Services-Well/Wellhead Services
Materials & Supplies-Tangible 7012140 7012270 6,000 Surface Wellhead Equipment Pig Launchers/Receivers & Rel Equipment 5,000 6,250 7012550 7012390 7011010 8% Contingency & Taxes 3,000 TOTAL ARTIFICIAL LIFT 110,000 TOTAL ARTIFICIAL LIFT COST \$ 110,000 SUMMARY OF ESTIMATED DRILLING WELL COSTS TOTAL COST TOTAL LOCATION COST 84,000 TOTAL DRILLING COST 2,392,721 TOTAL COMPLETIONS COST 5,855,000

	Participant's Approval		
Name of Company:			
Signature:			
Title:		Date:	

GRAND TOTAL COST

TOTAL SURFACE EQUIPMENT COST

TOTAL ARTIFICIAL LIFT COST

840.149

110,000

\$9,281,870

MARATHON OIL PERMIAN LLC AUTHORITY FOR EXPENDITURE DETAIL OF ESTIMATED WELL COSTS DATE 7/11/2019
ORILLING & LOCATION PREPARED BY MATTHEW RUGAARD
COMPLETION PREPARED BY JOSH SHANNON
FACILITIES PREPARED BY BRIAN LIPSCOMB
ARTIFICIAL LIFT PREPARED BY BRIAN LIPSCOMB

Asset Team Field	PERMIAN	
	PURPLE SAGE; WOI FORMATION: WOLFCAMP XY WILDCAT	EXPLORATION
Lease/Facility Location	VALKYRIE 12 WXY FEDERAL COM 1H  DEVELOPMENT  EDDY COUNTY  X EXPLOITATION	RECOMPLETION WORKOVER
	EDDY COUNTY X EXPLOITATION MALAGA	WORKOVER
Prospect	MACAGA	
Est Total Depth	20,184 Est Drilling Days Est Comple	etion Days 11
LOCATION COST -	INTANGIRI F	
	1711741646	
GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access	50,250
7001250	Land Broker Fees and Services	33,750
	TOTAL LOCATION COST - INTANGIBLE	84,000
DRILLING COST - T.	ANGIBLE	•
7012050		
	Conductor Pipe	28,000
7012050	Surface Casing	19,000
7012050	Intermediate Casing 1	66,000
7012050	Intermediate Casing 2	253,000
7012050	Production Casing	141,000
7012050	Drig 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	641,000
DRILLING COST - IN	VTANGIBLE	
7019200	Orilling Rig Mob/Demob	32,500
7019220	Orilling Rig - day work/footage	602,213
7019040	Directional Drilling Services	
7019020	Cement and Cementing Service Surface	201,000
7019020		15,000
		25,000
7019020	Cement and Cementing Service Intermediate 2	35,000
7019020	Cement and Cementing Service Production	60,000
7019140	Mud Fluids & Services	66,600
7012310	Solids Control equipment	41,000
7012020	Bits	72,000
7019010	Casing Crew and Services	30,000
7016350	Fuel (Rig)	70,000
7019140	Fuel (Mud)	30,000
7001460	Water (non potable)	25,000
7012350	Water (potable)	5,000
7019000	Well Logging Services	<u>·</u>
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
7001160	Contract Services - Disposal/Non-Hazardous Waste	80,000
7001440	Vacuum Trucks	10,000
7000030	Contract Labor - general	30,000
7000030	Contract Labor - Operations	3,000
7001200	Contract Services - Facilities	10,000
7019300	Well Services - Well Control Services	21,363
7019350	Well Services - Well/Wellhead Services	10,000
7018150	Rental Tools and Equipment (surface rentals)	90,900
7018150	Rig Equipment and Misc.	11,363
7001110	Telecommunications Services	5,000
7001120	Consulting Services	106,808
7001400	Safety and Environmental	36,360
7018120	Rental Buildings (trailers)	18,180
7019310	Coring (sidewalls & analysis)	
7011010	7% Contingency & Taxes	176,980
7011010	7.8 Contingency or Igaes	176,980
	YOTAL DOLLLING INTANCING	******
	TOTAL DRILLING - INTANGIBLE	52,064,265
	<del> </del>	
	TOTAL DRILLING COST	\$2,705,265
		72,703,203
***********		
COMPLETION - TAN	KOIRE	
2012500	Tukina	
7012580	Tubing	
7012040 7012550	Tubing Accessories (nipple, wireline entry)	
7012550	Wellhead Equip Packers - Completion Equipment	15,000
7012580	rouners - completion equipment	<del> </del>
	TOTAL COMPLETION TANCIBLE	***
	TOTAL COMPLETION - TANGIBLE	\$15,000

MARATHON OIL PERMIAN LLC AUTHORITY FOR EXPENDITURE DETAIL OF ESTIMATED WELL COSTS Asset Team PERMIAN

Signature: \_

Title: \_\_\_\_

Final
COMPLETION - INTANGIBLE  GL COOP  JO01270  JO012
COOPE   Contract table   Contract tabl
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Total   Tota
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Total
7019190 Collet Tubbig Services (P. most) 7019190 Subbig Services (P. most) 7019191 Publish Services (P. most) 7019191 Collet Services (Services (P. most) 7019190 Well Testing Services (Stow hand & equip) 7019190 Wester Services (Stow hand & equip) 7019190 Wester Services (Stow hand & equip) 7019190 Wester Services (P. most) 7019191 Publish Services (P. most) 7019190 Publish Services (P. most) 7019191 P
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7019010 Cassing Crew and Services 7019020 Cement and Generaling Services (Work Texture Services) 7019020 Profession Cements and Generaling Services (Work Texture Services) 7019020 Profession Cements and Generaling Services (Work Texture Services) 7019020 Profession Cements and Generaling Services (Work Texture Services) 7019020 Profession Cements and Generaling Services (Work Services) 7019020 Services (Work Services) 7019020 Services (Work Services) 7019020 Cements and Texture Cements (Work Services) 7019020 Cements (Work Services) 7019020 Cements (Work Services) 7020020 Cements (Work Services) 702020 Cements (Work
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Total Comparison
Total Company Labor
DOTAL COMPLETION - INTAKENDER   Value   Valu
Total Comparison   Total Compa
70113150 CI Downhole Rental Squipment (le. Bit, Bits) 7001100 Contract Labor: general 7001110 Telecommunications Services 7001120 Consulting Services 7001120 Consulting Services 7001120 Consulting Services 7011120 Consulting Services 7011120 Track Stack Rentals 7011120 Frack Stack Rentals 7011120 Frack Stack Rentals 701120 Track Stack Rentals 7012120 Track Stack Rentals 7012120 Misc. Piping, fittings & Valves 7012170 Miscellaneous Rental Stack Stack 7012170 Miscellaneous Materials (containment system) 7001100 Track Stack Stack 7012170 Miscellaneous Materials (containment system) 7001100 Scanteast Experiency 7011210 Gos Treating 7011210 Gos Treating 7011210 Debyteralis 7011210 Debyteralis 7011210 Debyteralis 7011210 Sacroscopics 7011210 Sacroscopics 7011210 Meeting and Instrumentalion 701120 Sacroscopics 701120 Debyteralis 7011210 Debyteralis 7011210 Meeting And Instrumentalis 7011210 Meeting Stack Stack 701120 Meeting Stack Stack 701120 Meeting Stack Stack 701120 Meeting Stack 701120 Mee
Tools
Total
7001400 Safety and Environmental 7001130 Consulting Services 3018150 Supper Manifold 7019100 Frack Stack Rentals 7018150 Freight (Transportation Services) 7018150 Supper Manifold 7018150 Freight (Transportation Services) 7018150 Supper Manifold 7
TOOLION   Consutting Services
7018150
7018150
7019300 Frack Stack Rentals 7018190 Freight (Inn sportstoin Services) 7018190 Freight (Inn sportstoin Services) 7018190 Rental buildings (Irales) 7018190 Rental buildings (Irales) 7000310 Contract Labor - Pumping (pump-down pumps) 70101010 Six Contingency & Taxes 7010100 Contract Labor - Ceneral 7010100 Contract Labor - General 7010110 Telecommunication equig (Inferentry) 7010110 Union Pine & Accessories 7010120 Miscellaneous Materials (containment system) 7010180 Freight - truck 7010180 Freight - truck 7010190 Contract Expensering 701120 Metering and instrumentation 7011200 Six Treating 7011200 Debyteation 7011200 Debyteation 7011200 Debyteation 7011201 Compressor 7011201 Six Treating 7011201 Six Treating 7011201 Contract Represering 7011201 Six Treating 7011201 Contract Represering 7011201 Contract Represering 7011202 Six Treating 7011203 Debyteation 7011204 Six Treating 7011205 Six Treating 7011206 Six Treating 7011207 Six Treating 7011208 Six Treating 7011209 Debyteation 7011209 Debyteation 7011209 Treating 7011209 Treating 7011200 Treating 7011200 Treating 7011200 Six Treating 7011200
Total
Total 20   Revision Fernance   Total Company   Total 20   Revision   Total 20   Revisi
7011101 Rental Buildings (Iraliers) 7010101 St Contingency & Taxes  TOTAL COMPLETION - INTANGIBLE  TOTAL COMPLETION COST  SURFACE EQUIPMENT - TANGIBLE  7012350 Misc. Piping, Fittings & Valves 7006440 Company Labor & Burden 7010110 Telecommunication equip (Telemetry) 7012170 Miscellaneous Materials (containment system) 7012170 Miscellaneous Materials (containment system) 7012180 Freight - truck 7012190 Metering and instrumentation 7012190 Metering and instrumentation 8.6 Metering and instrumentation 8.7 Metering and instrumentation 1012100 Gest Texabing 7012100 Debydration 7012100 Debydration 7012101 Vapor Recovery Unit 7012140 Separator & other pressure vessels 7012140 Files & Accessories 7012100 Metering labor 7012100 Metering labor 7012100 Metering labor 7012100 Debydration 7012100 Debydration 7012100 Debydration 7012100 Metering labor
TOTAL COMPLETION - Pumping (pump-down pumps)
TOTAL COMPLETION - INTANGIBLE
TOTAL COMPLETION - INTANGIBLE  TOTAL COMPLETION COST  SURFACE EQUIPMENT - TANGIBLE  7012350 Misc. Piping. Fittings & Valves 7000030 Contract Labor - General 7000030 Contract Labor - General 700110 Telecommunication equip (Telemetry) 7012140 Use Pipe & Accessories 701220 Misc. Blaineous Materials (containment system) 701220 Misc. Blaineous Materials (containment system) 701230 Contract Engineering 701220 Metering and instrumentation 701220 Metering and instrumentation 701220 Gas Treating 7012200 Compressor 7012100 Compressor 7012101 Vapor Recovery Unit 7012410 Vapor Recovery Unit 7012410 Vapor Recovery Unit 7012410 Separator & other pressure vessels 701250 Tanks 701250 Tanks 701250 Heater Tester 701250 Heater Tester 701250 Tanks 701250 T
TOTAL COMPLETION COST  SURFACE EQUIPMENT - TANGIBLE  7012350 Misc. Piping, firtings & Valves 7000030 Contract Labor - General 7000030 Contract Labor - General 7001310 Telecommunication equig (Telenetry) 7012110 Miscellaneous Materials (containment system) 7012200 Miscellaneous Materials (containment system) 7012300 Contract Expineering 7012200 Contract Expineering 7012200 Gas Treating 7012200 Gas Treating 7012200 Compressor 7012100 Compressor 7012101 Vapor Recovery Unit 7012410 Vapor Recovery Unit 7012410 Separator & other pressure vessels 7012500 Tanks 7012500 Tanks 7012500 Meater Treater 7012600 Meater Treater 7012600 Meater Treater 7012600 Meater Treater 7012600 Tanks 7012500 Tanks 7012500 Tanks 7012500 Tanks 7012500 Meater Treater 7012600 Meater Treater 7012600 Meater Treater 7012600 Tanks 7012800 Meater Treater 7012600 Tanks 7012800 Meater Treater 7012600 Tanks 7012800 Tanks 7012800 Tanks 7012800 Rod Pumping unit & Pad 7012800 Rod Pumping unit & Bad 7012800 Meater Treater 7012800 Rod Pumping unit & Bad 7012800 Rod Pumping unit & Bad 7012800 Total SURFACE EQUIPMENT COST  \$  ARTIFICIAL LIFT 7006640 Company Labor 701280 Gas Lit Equipment 701280 Rod Furning, Sucker Rods & Rod Pump 701280 Total SURFACE EQUIPMENT COST  \$  ARTIFICIAL LIFT 7006640 Separator Sucker Rods & Rod Pump 701280 Gas Lit Equipment 701280 Meater Supplies Tangible 701290 Meaterial & Supplies Tangible 701290 Pip Launchers/Receivers & Rel Equipment 701290 Pip Launchers/Receivers & Rel Equipment 701290 Fip Launchers/Receivers & Rel Equipment 701290 Total Artificial Lift 70014 Total Artificial Lift 70014 Artificial Lift 70014 Total Artificial Lift 70014 Total Artificial Lift
TOTAL COMPLETION COST  SURFACE EQUIPMENT - TANGIBLE  7012350 Misc. Piping, firtings & Valves 7000030 Contract Labor - General 7000030 Contract Labor - General 7001310 Telecommunication equig (Telenetry) 7012110 Miscellaneous Materials (containment system) 7012200 Miscellaneous Materials (containment system) 7012300 Contract Expineering 7012200 Contract Expineering 7012200 Gas Treating 7012200 Gas Treating 7012200 Compressor 7012100 Compressor 7012101 Vapor Recovery Unit 7012410 Vapor Recovery Unit 7012410 Separator & other pressure vessels 7012500 Tanks 7012500 Tanks 7012500 Meater Treater 7012600 Meater Treater 7012600 Meater Treater 7012600 Meater Treater 7012600 Tanks 7012500 Tanks 7012500 Tanks 7012500 Tanks 7012500 Meater Treater 7012600 Meater Treater 7012600 Meater Treater 7012600 Tanks 7012800 Meater Treater 7012600 Tanks 7012800 Meater Treater 7012600 Tanks 7012800 Tanks 7012800 Tanks 7012800 Rod Pumping unit & Pad 7012800 Rod Pumping unit & Bad 7012800 Meater Treater 7012800 Rod Pumping unit & Bad 7012800 Rod Pumping unit & Bad 7012800 Total SURFACE EQUIPMENT COST  \$  ARTIFICIAL LIFT 7006640 Company Labor 701280 Gas Lit Equipment 701280 Rod Furning, Sucker Rods & Rod Pump 701280 Total SURFACE EQUIPMENT COST  \$  ARTIFICIAL LIFT 7006640 Separator Sucker Rods & Rod Pump 701280 Gas Lit Equipment 701280 Meater Supplies Tangible 701290 Meaterial & Supplies Tangible 701290 Pip Launchers/Receivers & Rel Equipment 701290 Pip Launchers/Receivers & Rel Equipment 701290 Fip Launchers/Receivers & Rel Equipment 701290 Total Artificial Lift 70014 Total Artificial Lift 70014 Artificial Lift 70014 Total Artificial Lift 70014 Total Artificial Lift
SURFACE EQUIPMENT - TANGIBLE  7012350  Misc. Piping, Fittings & Valves 7000030  Contract Labor - General 7000110  Telecommunication equip (Telemetry) 2011217  Miscallaneous Materials (containment system) 7000050  SCADA 7001190  Contract Engineering 7011290  Metering and Instrumentation 7011290  Metering and Instrumentation 7011290  Gas Treating 7011200  Compressor 7012200  Polyfattion 7012200  Polyfattion 7012200  Polyfattion 7012200  Tompressor 7012200  Metering and Instrumentation 7012200  Polyfattion 7012200  Polyfattion 7012200  Polyfattion 7012200  Tompressor 7012010  Metering and Instrumentation 7012400  Tompressor 7012400  Tompressor 7012400  Metering and Instrumentation 7012400  Tompressor 7012400  Metering and Instrumentation 7012400  Tompressor 7012400  Metering and Instrumentation 7012400  Tompressor 7012400  Metering and Instrumentation 7012400  Rod Pumping Unit & Pad 7012400  Tompressor 7012100  Metering and Instrumentation 7012400  Tompressor 7012500  Set Care Rod & Rod Pump 7012400  Tompressor 7012500  Set Care Rod & Rod Pump 7012400  Tompressor 7012500  Set Care Rod & Rod Pump 7012400  Tompressor 7012500  Set Care Rod & Rod Pump 7012400  Tompressor 7012500  Set Care Rod & Rod Pump 7012500  Set Care Rod Rod Rod Pump 7012500  Set Care Rod Rod Rod Rod Rod Rod Rod Rod Rod P
SURFACE EQUIPMENT - TANGIBLE  7012350  Misc. Piping, Fittings & Valves 7000030  Contract Labor - General 7000110  Telecommunication equip (Telemetry) 2011217  Miscallaneous Materials (containment system) 7000050  SCADA 7001190  Contract Engineering 7011290  Metering and Instrumentation 7011290  Metering and Instrumentation 7011290  Gas Treating 7011200  Compressor 7012200  Polyfattion 7012200  Polyfattion 7012200  Polyfattion 7012200  Tompressor 7012200  Metering and Instrumentation 7012200  Polyfattion 7012200  Polyfattion 7012200  Polyfattion 7012200  Tompressor 7012010  Metering and Instrumentation 7012400  Tompressor 7012400  Tompressor 7012400  Metering and Instrumentation 7012400  Tompressor 7012400  Metering and Instrumentation 7012400  Tompressor 7012400  Metering and Instrumentation 7012400  Tompressor 7012400  Metering and Instrumentation 7012400  Rod Pumping Unit & Pad 7012400  Tompressor 7012100  Metering and Instrumentation 7012400  Tompressor 7012500  Set Care Rod & Rod Pump 7012400  Tompressor 7012500  Set Care Rod & Rod Pump 7012400  Tompressor 7012500  Set Care Rod & Rod Pump 7012400  Tompressor 7012500  Set Care Rod & Rod Pump 7012400  Tompressor 7012500  Set Care Rod & Rod Pump 7012500  Set Care Rod Rod Rod Pump 7012500  Set Care Rod Rod Rod Rod Rod Rod Rod Rod Rod P
SURFACE EQUIPMENT - TANGIBLE  7012350  Misc. Piping, Fittings & Valves 7000030  Contract Labor - General 7000110  Telecommunication equip (Telemetry) 2011217  Miscallaneous Materials (containment system) 7000050  SCADA 7001190  Contract Engineering 7011290  Metering and Instrumentation 7011290  Metering and Instrumentation 7011290  Gas Treating 7011200  Compressor 7012200  Polyfattion 7012200  Polyfattion 7012200  Polyfattion 7012200  Tompressor 7012200  Metering and Instrumentation 7012200  Polyfattion 7012200  Polyfattion 7012200  Polyfattion 7012200  Tompressor 7012010  Metering and Instrumentation 7012400  Tompressor 7012400  Tompressor 7012400  Metering and Instrumentation 7012400  Tompressor 7012400  Metering and Instrumentation 7012400  Tompressor 7012400  Metering and Instrumentation 7012400  Tompressor 7012400  Metering and Instrumentation 7012400  Rod Pumping Unit & Pad 7012400  Tompressor 7012100  Metering and Instrumentation 7012400  Tompressor 7012500  Set Care Rod & Rod Pump 7012400  Tompressor 7012500  Set Care Rod & Rod Pump 7012400  Tompressor 7012500  Set Care Rod & Rod Pump 7012400  Tompressor 7012500  Set Care Rod & Rod Pump 7012400  Tompressor 7012500  Set Care Rod & Rod Pump 7012500  Set Care Rod Rod Rod Pump 7012500  Set Care Rod Rod Rod Rod Rod Rod Rod Rod Rod P
7012350
7012350
Tools   Company Labor & Burden
Tools440
Total Surface Labor - General
Telecommunication equip (Telemetry)   Telecommunication equip (Telemetry)   Telecommunication equip (Telemetry)   Telecommunication   Telecommun
Total
70080560   SCADA   Freight - truck
20080960   SCADA   Preight - truck
Total Surface Equipment   Total Surface Eq
Total   Contract Engineering
Total   Tota
Total   Tota
Total Surface Equipment
Total   Dehydration
Total   Company   Compan
Total   Company   Compan
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7000010 7012480 Rod Pumping unit & Pad 7012180 Pumping Unit Engine Flettrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  TOTAL SURFACE EQUIPMENT COST  ARTIFICIAL LIFT 7006540 Company Labor 7012180 Gas Unit Equipment 7012480 Rod Pumping, Sucker Rods & Rod Pump 7012140 Elect Sub Pumps (ESP) 7013250 Materials & Supplies-Tangible 7012250 Surface Wellhead Equipment 7012350 Pig Launchers/Receivers & Rel Equip 7012190 8% Contingency & Taxes  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT  S  S  Rod Pumping Sucker Rods & Rod Pump Rod Rod Pumping Sucker Rods & Rod Pump Rod Rod Pumping Sucker Rods & Rod Pump Rod Rod Pumping Sucker Rod Rod Pump Rod Rod Rod Pumping Sucker Rod Rod Pump Rod Rod Rod Pumping Sucker Rod Rod Pump Rod Rod Rod Rod Pumping Sucker Rod Rod Pump Rod Rod Rod Rod Rod Rod Rod Rod Rod Pump Rod
7000010 7012480 Rod Pumping Unit & Pad 7012180 Pumping Unit Engine Fictifical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  TOTAL SURFACE EQUIPMENT COST  ARTIFICIAL LIFT 7006540 Company Labor 7012180 Gas Unit Equipment 7012480 Rod Pumping, Sucker Rods & Rod Pump 7012140 Elect Sub Pumps (\$59) 7013270 Materials & Supplies-Tangible 7012250 Surface Wellhead Equipment 7012390 Pig Launchers/Receivers & Rel Equip 7011010 8% Contingency & Taxes  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT  S
7012480 Rod Pumping unit & Pad Pounping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  TOTAL SURFACE EQUIPMENT COST  ARTIFICIAL LIFT 7006640 Company Labor 7012180 Gas LIN Equipment 7012480 Rod Pumping, Sucker Rods & Rod Pump 7012140 Elect Sub Pumps (ESP) 7013250 Well Services Materials & Supplies-Tangible 7012270 Materials & Supplies-Tangible 7012390 Pig Launchers/Receivers & Rel Equip 7012190 Pig Launchers/Receivers & Rel Equip 701301 & Contingency & Taxes  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT COST  \$
7012180 Pumping Unit Engine Electrical Power (electrical cooperative construction costs)  TOTAL SURFACE EQUIPMENT - TANGIBLE  TOTAL SURFACE EQUIPMENT COST \$  ARTIFICIAL LIFT  7006640 Company Labor 7012180 Gas LIft Equipment 7012180 Rod Pumping, Sucker Rods & Rod Pump 7012140 Elect Sub Pumps (ESP) 7013950 Well Services-Well/Wellhead Services 7012270 Materials & Supplies-Tangible 7012390 Pig Launchers/Receivers & Rel Equip 701010 & Contingency & Taxes  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT COST \$
TOTAL SURFACE EQUIPMENT - TANGIBLE  TOTAL SURFACE EQUIPMENT COST  ARTIFICIAL LIFT  7006640 Company Labor 7012180 Gas Lift Equipment 7012480 Rod Pumping, Sucker Rods & Rod Pump 7012140 Elect Sub Pumps (ESP) 7012170 Materials & Supplies-Tangible 7012250 Surface Wellhead Equipment 7012350 Pig Launchers/Receivers & Rel Equip 7012190 Pig Launchers/Receivers & Rel Equip 7012101 8% Contingency & Taxes  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT  S
TOTAL SURFACE EQUIPMENT - TANGIBLE  TOTAL SURFACE EQUIPMENT COST \$  ARTIFICIAL LIFT  7006640
TOTAL SURFACE EQUIPMENT COST  \$ ARTIFICIAL LIFT  7006640 Company Labor 7012180 Gas LIft Equipment 7012480 Rod Pumping, Sucker Rods & Rod Pump 7012140 Elect Sub Pumps (ESP) 7012350 Well Services-Well/Wellhead Services 7012270 Materials & Supplies-Tangible 7012350 Surface Wellhead Equipment 7012390 Pig Launchers/Receivers & Rel Equip 7011010 & Contingency & Taxes  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT  S  S  **Contingency & Taxes**  **TOTAL ARTIFICIAL LIFT COST  \$  \$  **Contingency & Taxes**  **TOTAL ARTIFICIAL LIFT COST  **TOTAL ARTIFICIAL LI
TOTAL SURFACE EQUIPMENT COST  \$ ARTIFICIAL LIFT  7006640 Company Labor 7012180 Gas LIft Equipment 7012480 Rod Pumping, Sucker Rods & Rod Pump 7012140 Elect Sub Pumps (ESP) 7012350 Well Services-Well/Wellhead Services 7012270 Materials & Supplies-Tangible 7012350 Surface Wellhead Equipment 7012390 Pig Launchers/Receivers & Rel Equip 7011010 & Contingency & Taxes  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT  S  S  **Contingency & Taxes**  **TOTAL ARTIFICIAL LIFT COST  \$  \$  **Contingency & Taxes**  **TOTAL ARTIFICIAL LIFT COST  **TOTAL ARTIFICIAL LI
ARTIFICIAL LIFT  7005640
ARTIFICIAL LIFT  7005640
ARTIFICIAL LIFT  7006640
7006640   Company Labor   Gas Uh Equipment   Gas Uh Equipment   7012180   Rod Pumping, Sucker Rods & Rod Pump   7012140   Elect Sub Pumps (ESP)   7019350   Well Services-Well/Wellhead Services   7012270   Materials & Supplies-Tanglible   7012550   Surface Wellhead Requipment   7012390   Pig Launchers/Receivers & Rel Equip   7011010   8% Contingency & Taxes   TOTAL ARTIFICIAL LIFT   TOTAL ARTIFICIAL LIFT   S
7006640   Company Labor   Gas Uft Equipment   Gas Uft Equipment   Tol2480   Rod Pumping, Sucker Rods & Rod Pump   Tol2440   Elect Sub Pumps ([597]   Flore Tol3950   Well Services-Well/Wellhead Services   Tol3270   Materials & Supplies-Tangible   Tol3250   Marterials & Supplies-Tangible   Tol3250   Surface Wellhead Requipment   Tol3990   Pig Launchers/Receivers & Rel Equip   Tol401010   & Contingency & Taxes   Total Artificial Lift   Total Artificial Lift   Total Artificial Lift   Total Artificial Lift   Sucket   Supplies
7012180   Gas Lift Equipment
7012180   Gas Lift Equipment
7012480   Rod Pumping, Sucker Rods & Rod Pump   7012140   Elect Sub Pumps (\$59")   7013950   Well Services Well/Wellhead Services   7012270   Materials & Supplies-Tanglöle     7012350   Surface Wellhead Equipment     7012390   Pig Launchers/Receivers & Rel Equip   7011010   8% Contingency & Taxes     TOTAL ARTIFICIAL LIFT     TOTAL ARTIFICIAL LIFT   Supplies
TO12140   Elect Sub Pumps (ESP)
7019350
7012270
7012550 Surface Wellhead Equipment 7012390 Pig Launchers/Receivers & Rel Equip 7011010 8% Contingency & Yaves  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT COST \$
7012550 Surface Wellhead Equipment 7012390 Pig Launchers/Receivers & Rel Equip 7011010 8% Contingency & Yaves  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT COST \$
7012390 Pig Launchers/Receivers & Rel Equip 7011010 8% Contingency & Taxes  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT COST \$
7011010 8% Contingency & Yaxes  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT COST \$
TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT COST \$
TOTAL ARTIFICIAL LIFT COST \$
TOTAL ARTIFICIAL LIFT COST \$
STANDARY OF ESTIMATED DRILLING WELL COSTS
SUMMARY OF ESTIMATED DRILLING WELL COSTS
SOUTHWART OF ESTIMATED DRIEGHTO WELL COSTS
TOTAL LOCATION COST \$
TOTAL DRILLING COST \$
TOTAL SURFACE EQUIPMENT COST \$
TOTAL ARTIFICIAL LIFT COST \$
TOTAL ARTIFICIAL LITT COST
GRAND TOTAL COST
Providing and a American
Participant's Approval
Name of Company:

Date: \_\_\_\_\_

MARATHON OIL PERMIAN LLC AUTHORITY FOR EXPENDITURE DETAIL OF ESTIMATED WELL COSTS DATE 7/11/2019
DRILLING & LOCATION PREPARED BY MATTHEW RUGAARD
COMPLETION PREPARED BY JOSH SHANNON
FACILITIES PREPARED BY BRIAN LIPSCOMB
ARTIFICIAL LIFT PREPARED BY BRIAN LIPSCOMB

Asset Team	PERMIAN	5 Y D D D D D D D D D D D D D D D D D D
Field	PURPLE SAGE WOI FORMATION: WOLFCAMP A WILDCAT  VALKYRIE 12 WA FEDERAL COM 3H DEVELOPMENT	EXPLORATION RECOMPLETION
Lease/Facility Location	VALKYRIE 12 WA FEDERAL COM 3H  EDDY COUNTY  X EXPLOITATION	WORKOVER
Prospect	MALAGA	TORROVER
Est Total Depth	20,344 Est Drilling Days Est Completion Days	11
LOCATION COST - I	NTANGIBLE	
GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access	50,250
7001250	Land Broker Fees and Services	33,750
	TOTAL LOCATION COST - INTANGIBLE	84,000
DRILLING COST - TA	ANGIBLE	
7012050	Conductor Pipe	28,000
7012050	Surface Cosing	19,000
7012050	Intermediate Casing 1	66,000
7012050	Intermediate Casing 2	253,000
7012050	Production Casing	141,000
7012050	Orig Liner Hanger, Tieback Eq & Csg Accessories	\$5,000
7012550	Orlilling Wellhead Equipment	50,000
7012040	Casing & Tubing Access	24,000
7012270	Miscellaneous MRO Materials	5,000
	TOTAL DRILLING - TANGIBLE	641,000
DRILLING COST - IN	ITANG BIE	
DAILERING COST III	TANGET .	
7019200	Drilling Rig Mob/Demob	32,500
7019220	Drilling Rig - day work/footage	602,213
7019040	Directional Orilling Services	201,000
7019020	Cement and Cementing Service Surface	15,000
7019020	Cement and Cementing Service Intermediate 1	25,000
7019020	Cement and Cementing Service Intermediate 2	35,000
7019020	Cement and Cementing Service Production	60,000
7019140	Mud Fluids & Services	66,600
7012310	Solids Control equipment	41,000
7012020	Bits	72,000
7019010	Casing Crew and Services	30,000
7016350	Fuel (Rig)	70,000
7019140	Fuel (Mud)	30,000
7001460	Water (non potable)	25,000
7012350	Water (potable)	5,000
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
7001160	Contract Services - Disposal/Non-Hazardous Waste	80,000
7001440	Vacuum Trucks	10,000
7000030	Contract Labor - general	30,000
7000030	Contract Labor - Operations	3,000
7001200	Contract Services - Facilities	10,000
7019300	Well Services - Well Control Services	21,363
7019350	Well Services - Well/Wellhead Services	10,000
7018150	Rental Tools and Equipment (surface rentals)	90,900
7018150	Rig Equipment and Misc.	11,363
7001110	Telecommunications Services	5,000
7001120	Consulting Services	106,808
7001400	Safety and Environmental	36,360
7018120	Rental Buildings (trailers)	18,180
7019310	Coring (sidewalls & analysis)	
7011010	7% Contingency & Taxes	176,980
	TOTAL DRILLING - INTANGIBLE	\$2,064,265
	TOTAL SOURCE COST	43
	TOTAL DRILLING COST	\$2,705,265
COMPLETION - TAN	IGIBLE	
7012580	Tubing	100
7012040	Tubing Accessories (nipple, wireline entry)	10
7012550	Wellhead Equip	15,000
7012560	Packers - Completion Equipment	
	TOTAL COMPLETION - TANGIBLE	\$15,000

AARATHON OIL PE	RMIAN LLC		DATE	7/11/2019
UTHORITY FOR EX	PENDITURE			
ETAIL OF ESTIMA	TED WELL COSTS			
sset Team	PERMIAN			
ield	PURPLE SAGE; WOI	FORMATION: WOLFCAMP A		
ease/facility	VALKYRIE 12 WA FEDERAL COM 3H			

Asset Team	PERMIAN	
Field	PURPLE SAGE; WOI FORMATION: WOLFCAMP A	
Lease/Facility	VALKYRIE 12 WA FEDERAL COM 3H	
COMPLETION - IN	PANGIBLE	
GL CODE	DESCRIPTION	ESTIMATED COST
7001270 7019220	Location and Access (dress location after rig move, set anchors)  Drilling Rig During Completion	10,000
7019140	Mud Fluids & Services	<del></del>
7019030	Colled Tubing Services (3 runs)	350,000
7019240	Snubbing Services Pulling/Swab Units	
7016350	Fuel (from drig)	
7019010	Casing Crew and Services	-
7019020	Cement and Cementing Services	
7019080 7019320	Well Testing Services (flow hand & equip) Fracturing Services	470,000 3,174,815
7019330	Perforating	300,000
7019360	Wireline Services	15,000
7001460	Water Haufing & Disposal (frac fluids)	354,000
7018150	Freight - Truck (haul pipe; drig & compl) BOP Rental & Testing	20,000
7018150	Rental Tools and Equipment ( incl drig: lightplant, hydra-walk)	
7018150	CT Downhole Rental Equipment (ie. Bit, BHA)	
7000030	Contract Labor - general	60,000
7001110	Telecommunications Services Safety and Environmental	100,000
7001120	Consulting Services	100,000
7018150	Zipper Manifold	220,000
7019300	Frack Stack Rentals Freight (Transportation Services)	85,000
7018150	Equipment Rental ( w/o operator, frac tanks, lightplants)	100,000
7018120	Rental Buildings (trailers)	35,000
7000030	Contract Labor - Pumping (pump-down pumps)	60,000
7011010	8% Contingency & Taxes	385,185
	TOTAL COMPLETION - INTANGIBLE	\$5,839,000
	TOTAL COMPLETION COST	\$5,854,000
SURFACE EQUIPM	NT - TANGIBLE	
7012350	Adlan Dinion Flation & Makes	
7006640	Misc. Piping, Fittings & Valves Company Labor & Burden	17,120
7000030	Contract Labor - General	62,878
7001110	Telecommunication equip (Telemetry)	,
7012410	Line Pipe & Accessories	35,847
7008060	Miscellaneous Materials (containment system)  SCADA	35,847
7016180	Freight - truck	1.0
7001190	Contract Engineering	7,264
7012290	Metering and instrumentation I&E Materials	5,823
7012200	Gas Treating	105,526
7012200	Dehydration	
7012010	Compressor	
7012350 7012610	Vapor Recovery Unit	<u>·</u>
7012440	Separator & other pressure vessels	336,771
7012500	Tanks	235,346
7012100	Heater Treater	
7012640	Flare & Accessories Electrical Labor	23,293
7000010	Mechanical Labor	10,462
7012480	Rod Pumping unit & Pad	
7012180	Pumping Unit Engine	1.9
7012350	Electrical Power (electrical cooperative construction costs)	
	TOTAL SURFACE EQUIPMENT - TANGIBLE	\$840,149
	TOTAL SURFACE EQUIPMENT COST	\$ 840.149
		\$ 840,149
ARTIFICIAL LIFT		
7006640	Company Labor	45,000
7012180	Gas Lift Equipment	15,000
7012480	Rod Pumping, Sucker Rods & Rod Pump	6,250
7012140	Elect Sub Pumps (ESP)	17,500
	Well Services · Well / Well head Services	6.000
7019350 7012270	Well Services Well/Wellhead Services Materials & Supplies-Tangible	6,000
7019350 7012270 7012550	Materials & Supplies-Tangible Surface Wellhead Equipment	6,000 5,000
7019350 7012270 7012550 7012390	Materials & Supplies-Tangible Surface Wellhead Equipment Pig Launchers/Receivers & Ret Equip	6,000 5,000 6,250
7019350 7012270 7012550	Materials & Supplies Tangible Surface Wellhead Equipment Plg Launchent/Receivers & Ret Equip 8% Contingency & Taxes	6,000 5,000 6,250 3,000
7019350 7012270 7012550 7012390	Materials & Supplies-Tangible Surface Wellhead Equipment Pig Launchers/Receivers & Ret Equip	6,000 5,000 6,250
7019350 7012270 7012550 7012390	Materials & Supplies Tangible Surface Wellhead Equipment Plg Launchent/Receivers & Ret Equip 8% Contingency & Taxes	6,000 5,000 6,250 3,000
7019350 7012270 7012550 7012390	Materials & Supplier-Tangible Surface Wellhead Equipment Pig Launchery/Receivers & Ret Equip 8% Contingency & Taxes TOTAL ARTIFICIAL LIFT TOTAL ARTIFICIAL LIFT COST	6,000 5,000 6,250 3,000 110,000 \$ 110,000
7019350 7012270 7012550 7012390	Materials & Supplier-Tangible Surface Weilhead Equipment Dig Launchers/Receivers & Reit Equip 8% Contingency & Taxes TOTAL ARTIFICIAL LIFT TOTAL ARTIFICIAL LIFT COST SUMMARY OF ESTIMATED DRILLING WELL COSTS	6,000 5,000 6,250 3,000
7019350 7012270 7012550 7012390	Materials & Supplies Tangible Surface Wellhead Equipment Pig Launchery/Receivers & Ret Equip 8% Contingency & Taxes  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT COST  SUMMARY OF ESTIMATED DRILLING WELL COSTS  TOTAL LOCATION COST	\$,000 5,000 6,250 3,000 110,000 \$ 110,000 TOTAL COST \$ 84,000
7019350 7012270 7012550 7012390	Materials & Supplies-Tangible Surface Wellhead Equipment Pig Launcher/Receivers & Ret Equip 8% Contingency & Taxes  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT COST  SUMMARY OF ESTIMATED DRILLING WELL COSTS  TOTAL LOCATION COST TOTAL DRILLING COST	\$ 110,000 \$ 110,000 \$ 170,000 \$ 170,000 \$ 2,705,265
7019350 7012270 7012550 7012390	Materials & Supplies-Tangible Surface Wellhead Equipment Pig Launcher/Receivers & Rel Equip 8% Contingency & Taxes  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT COST  SUMMARY OF ESTIMATED DRILLING WELL COSTS  TOTAL LOCATION COST TOTAL DRILLING COST TOTAL ORILLING COST TOTAL COMPLETIONS COST	\$,000 5,000 6,230 3,000 110,000 \$ 110,000 TOTAL COST \$ 84,000 \$ 2,705,265 \$ 5,854,000
7019350 7012270 7012550 7012390	Materials & Supplier-Tangible Surface Wellhead Equipment Pig Launchery/Receivers & Ret Equip 8% Contingency & Taxes  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT COST  SUMMARY OF ESTIMATED DRILLING WELL COSTS  TOTAL LOCATION COST TOTAL DRILLING COST TOTAL COMPLETIONS COST TOTAL COMPLETIONS COST TOTAL SURFACE EQUIPMENT COST	\$,000 5,000 6,250 3,000 110,000 \$ 110,000 TOTAL COST \$ 84,000 \$ 2,705,000 \$ 2,705,000 \$ 5,854,000 \$ 840,149
7019350 7012270 7012550 7012390	Materials & Supplier-Tangible Surface Wellhead Equipment Pig Launchery/Receivers & Ret Equip 8% Contingency & Taxes  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT COST  SUMMARY OF ESTIMATED DRILLING WELL COSTS  TOTAL LOCATION COST TOTAL DRILLING COST TOTAL COMPLETIONS COST TOTAL COMPLETIONS COST TOTAL SURFACE EQUIPMENT COST TOTAL ARTIFICIAL LIFT COST	\$,000 6,250 3,000 110,000 \$ 110,000 \$ 2,705,265 \$ 5,854,000 \$ 840,149 \$ 110,000
7019350 7012270 7012550 7012390	Materials & Supplier-Tangible Surface Wellhead Equipment Pig Launchery/Receivers & Ret Equip 8% Contingency & Taxes  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT COST  SUMMARY OF ESTIMATED DRILLING WELL COSTS  TOTAL LOCATION COST TOTAL DRILLING COST TOTAL COMPLETIONS COST TOTAL COMPLETIONS COST TOTAL SURFACE EQUIPMENT COST	\$,000 5,000 6,250 3,000 110,000 \$ 110,000 TOTAL COST \$ 84,000 \$ 2,705,265 \$ 5,854,000 \$ 840,149
7019350 7012270 7012550 7012390 7011010	Materials & Supplier-Tangible Surface Wellhead Equipment Pig Launchery/Receivers & Ret Equip 8% Contingency & Taxes  TOTAL ARTIFICIAL LIFT  TOTAL ARTIFICIAL LIFT COST  SUMMARY OF ESTIMATED DRILLING WELL COSTS  TOTAL LOCATION COST TOTAL DRILLING COST TOTAL COMPLETIONS COST TOTAL COMPLETIONS COST TOTAL SURFACE EQUIPMENT COST TOTAL ARTIFICIAL LIFT COST	\$,000 6,250 3,000 110,000 \$ 110,000 \$ 2,705,265 \$ 5,854,000 \$ 840,149 \$ 110,000

Name of Company:

Title:

Date:

MARATHON OIL PERMIAN LLC AUTHORITY FOR EXPENDITURE DETAIL OF ESTIMATED WELL COSTS DATE 7/11/2019
DRILLING & LOCATION PREPARED BY MATTHEW RUGAARD
COMPLETION PREPARED BY JOSH SHANNON
FACILITIES PREPARED BY BRIAN LIPSCOMB
ARTIFICIAL LIFT PREPARED BY BRIAN LIPSCOMB

Asset Team	PERMIAN	
Field	PURPLE SAGE; WOI FORMATION: WOLFCAMP XY WILDCAT	EXPLORATION
Lease/Facility	VALKYRIE 12 WXY FEDERAL COM SH DEVELOPMENT	RECOMPLETION
Location	EDDY COUNTY X EXPLOITATION	WORKOVER
Prospect	MALAGA	
Est Total Depth	20,206 Est Drilling Days Est Completion Day	rs11
LOCATION COST	INTANCIOLE	
LOCATION COST	- INTANGIBLE	
GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access	50,250
7001250	Land Broker Fees and Services	33,750
	TOTAL LOCATION COST - INTANGIBLE	84,000
DRILLING COST -	TABICIOI C	
DRILLING COST -	TANGIBLE	
7012050	Conductor Dina	28,000
	Conductor Pipe	
7012050	Surface Casing	19,000
7012050	Intermediate Casing 1	66,000
7012050	Intermediate Casing 2	253,000
7012050	Production Casing	142,000
7012050	Drig Liner Hanger, Tieback Eq & Csg Accessories	\$5,000
7012550	Drilling Welthead Equipment	\$0,000
7012040	Casing & Tubing Access	24,000
7012270	Miscellaneous MRO Materials	5,000
	TOTAL DRILLING - TANGIBLE	642,000
DRILLING COST -	INTANGIBLE	
	······	
7019200	Orilling Rig Mob/Demob	32,500
7019220	Orilling Rig - day work/footage	602,213
7019040	Directional Drifting Services	201,000
7019020	Cement and Cementing Service Surface	15,000
7019020	Cement and Cementing Service Intermediate 1	25,000
7019020	Cement and Cementing Service Intermediate 2	35,000
7019020	Cernent and Cementing Service Production	60,000
7019140	Mud Fluids & Services	66,600
7012310	Solids Control equipment	41,000
7012020	Bits	72,000
7019010	Casing Crew and Services	30,000
7016350	Fuel (Rig)	70,000
7019140	Fuel (Mud)	30,000
7001460	Water (non potable)	25,000
7012350	Water (potable)	S,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
7001160	Contract Services - Disposal/Non-Hazardous Waste	80,000
7001140	Vacuum Trucks	10,000
7000030		30,000
7000030	Contract Labor - general	
	Contract Labor - Operations	3,000
7001200	Contract Services - Facilities	10,000
7019300	Well Services - Well Control Services	21,363
7019350	Well Services - Well/Wellhead Services	10,000
7018150	Rental Tools and Equipment (surface rentals)	90,900
7018150	Rig Equipment and Misc.	11,363
7001110	Telecommunications Services	5,000
7001120	Consulting Services	106,808
7001400	Safety and Environmental	36,360
7018120	Rental Buildings (trailers)	18,180
7019310	Coring (sidewalts & analysis)	
7011010	7% Contingency & Taxes	177,050
	TOTAL DRILLING - INTANGIBLE	\$2,064,33
<del> </del>	TOTAL DRILLING COST	\$2 70¢ 22°
	TOTAL DRILLING COST	\$2,706,335
COMPLETION - TA	ANGIBLE	
7012580	Tubing	
7012040	Tubing Accessories (nipple, wireline entry)	
7012550	Wellhead Equip	15,000
7012560	Packers - Completion Equipment	-
	TOTAL COMPLETION - TANGIBLE	\$15,000

0.475	7/11/1000
DATE	7/11/2019

MARATHON OIL PERMIAN LLC
AUTHORITY FOR EXPENDITURE

DETAIL OF ESTIMATED WELL COSTS

ASSet Team PERMIAN
Field PURPLE SAGE; WOI FORMATION: WOLFCAMP XY

Lease/Facility VALKYRIE 12 WXY FEDERAL COM SH

Asset Team	PERMIAN	
Field	PURPLE SAGE; WOI FORMATION: WOLFCAMP XY	
Lease/Facility	VALKYRIE 12 WXY FEDERAL COM SH	
COMPLETION - II	NTANGIRIF	
GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access (dress location after rig move, set anchors)	10,000
7019220	Drilling Rig During Completion	
7019140	Mud Fluids & Services	
7019030	Colled Tubing Services (3 runs)	350,000
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)	470,000
7019320	Fracturing Services	3,174,815
7019330	Perforating	300,000
7019360	Wireline Services	15,000
7001460	Water Hauling & Disposal (frac fluids)	354,000
7016180	Freight - Truck (hauf pipe; drig & compl)	20,000
7018150	BOP Rental & Testing	
7018150	Rental Tools and Equipment (Incl drig: lightplant, hydra-walk)	
7018150	CT Downhole Rental Equipment (ie. Bit, BHA)	
7000030	Contract Labor - general	60,000
7001110	Telecommunications Services	100,000
7001400	Safety and Environmental	
7001120	Consulting Services	100,000
7018150	Zipper Manifold	220,000
7019300	Frack Stack Rentals	85,000
7016190	Freight (Transportation Services)	
7018150	Equipment Rental ( w/o operator, frac tanks, lightplants)	100,000
7018130	Rental Buildings (trailers)	
		35,000
7000030	Contract Labor - Pumping (pump-down pumps)	60,000
7011010	8% Contingency & Taxes	385,185
	TOTAL COMPLETION - INTANGIBLE	££ 830 AA
	TOTAL COMPLETION - INTANOIBLE	\$5,839,00
	TOTAL COMPLETION COST	\$5,854,000
SURFACE EQUIP	MENT - TANGIBLE	
7012350	Misc. Piping, Fittings & Valves	17,120
7006640	Company Labor & Burden	
7000030	Contract Labor - General	62,878
7001110	Telecommunication equip (Telemetry)	
7012410	Une Pipe & Accessories	
7012270	Miscellaneous Materials (containment system)	35,847
7008060	SCADA	
7016180	Freight - truck	0.00
7001190	Contract Engineering	7,264
7012290	Metering and Instrumentation	5,823
7012290	I&E Materials	105,326
7012200	Gas Treating	
7012200	Dehydration	
7012010	Compressor	
7012350	Power	
7012610	Vapor Recovery Unit	
7012440	Separator & other pressure vessels	336,771
7012500	Tanks	235,346
7012100	Heater Treater	-
7012640	Flare & Accessories	23,293
7000010	Electrical Labor	10,482
7000010	Mechanical Labor	
7012480	Rod Pumping unit & Pad	
7012180	Pumping Unit Engine	
7012350	Electrical Power (electrical cooperative construction costs)	
	TOTAL SURFACE EQUIPMENT - TANGIBLE	\$840,149
	TOTAL CHAPACE FOLLOWING COCT	
	TOTAL SURFACE EQUIPMENT COST	\$ 840,149
ARTIFICIAL LIFT		
	A	
7006640	Company Labor	45,000
7012180	Gas Lift Equipment	15,000
7012480	Rod Pumping, Sucker Rods & Rod Pump	6,250
7012140	Elect Sub Pumps (ESP)	17,500
7019350	Well Services-Well/Wellhead Services	6,000
7012270	Materials & Supplies-Tangible	6,000
7012550	Surface Wellhead Equipment	5,000
7012390	Pig Launchers/Receivers & Rel Equip	6,250
7011010	8% Contingency & Taxes	3,000
,041040		
	TOTAL ARTIFICIAL LIFT	110,000
	TOTAL ARTIFICIAL LIFT COST	\$ 110,000
	SUMMARY OF ESTIMATED DRILLING WELL COSTS	TOTAL COST
	TOTAL LOCATION COST	\$ 84,000
	TOTAL DRILLING COST	\$ 2,706,335
	TOTAL COMPLETIONS COST	\$ 5,854,000
	TOTAL SURFACE EQUIPMENT COST	\$ 840,149
	TOTAL ARTIFICIAL LIFT COST	\$ 110,000
	GRAND TOTAL COST	\$9,594,484
	Be distantile Assess	
	Participant's Approval	
	Name of ompany:	
~		
Si	gnature:	
- Ji	g ·	

Title: \_\_\_\_\_ Date: \_\_\_\_\_

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MARATHON OIL PERMIAN LLC AUTHORITY FOR EXPENDITURE DETAIL OF ESTIMATED WELL COSTS DATE 7/11/2019

DRILLING & LOCATION PREPARED BY MATTHEW RUGAARD
COMPLETION PREPARED BY JOSH SHANNON
FACILITIES PREPARED BY BRIAN LIPSCOMB
ARTIFICIAL LIFT PREPARED BY BRIAN LIPSCOMB

Asset Team	PERMIAN	
Field	PURPLE SAGE; WOI FORMATION: WOLFCAMP D WILDCAT	EXPLORATION
Lease/Facility Location	VALKYRIE 12 WD FEDERAL COM 2H  EDDY COUNTY  X EXPLOITATION	RECOMPLETION
Prospect	EDDY COUNTY X EXPLOITATION	_WORKOVER
Est Total Depth	20,849 Est Orilling Days Est Completion Days	11
LOCATION COST	INTANGIBLE	
LOCATION COST	MIANGIBLE	
GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access	67,000
7001250	tand Broker Fees and Services	45,000
	TOTAL LOCATION COST - INTANGIBLE	112,000
	(and souther cost intringues	112,000
DRILLING COST -	TANGIBLE	
7012050	Conductor Pipe	28,000
7012050	Surface Casing	19,000
7012050	Intermediate Casing 1	66,000
7012050	Intermediate Casing 2	253,000
7012050	Production Casing	191,840
7012050	Drig Liner Hanger, Tieback Eq & Csg Accessories	\$5,000
7012550	Drilling Wellhead Equipment	50,000
7012040	Casing & Tubing Access	24,000
7012270	Miscellaneous MRO Materials	5,000
	TOTAL DRILLING - TANGIBLE	691,840
DRILLING COST	TANGED F	
DRILLING COST -	MIANGIBLE	
7019200	Orilling Rig Mob/Demob	43,333
7019220	Drilling Rig - day work/footage	746,100
7019040	Directional Drilling Services	248,000
7019020	Cement and Cementing Service Surface	15,000
7019020	Cement and Cementing Service Intermediate 1	25,000
7019020	Cement and Cementing Service Intermediate 2	
	Cement and Cementing Service Production	35,000
7019020		60,000
	Mud Fluids & Services	71,300
7012310	Solids Control equipment	49,000
7012020	Bits	72,000
7019010	Casing Crew and Services	30,000
7016350	Fuel (Rig)	85,000
7019140	Fuel (Mud)	30,000
7001460	Water (non potable)	25,000
7012350	Water (potable)	5,000
7019000	Well Logging Services	-
7019150	Mud Logging+geosteering	23,000
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
7001160	Contract Services - Disposal/Non-Hazardous Waste	80,000
7001440	Vacuum Trucks	
7000030	Contract Labor - general	10,000
7000030	Contract Labor - Operations	30,000
7001200	Contract Services - Facilities	3,000
7019300		10,000
	Well Services - Well Control Services	23,817
7019350	Well Services - Well/Wellhead Services	10,000
7018150	Rental Tools and Equipment (surface rentals)	110,533
7018150	Rig Equipment and Misc.	13,817
7001110	Telecommunications Services	5,000
7001120	Consulting Services	129,877
7001400	Safety and Environmental	44,213
7018120	Rental Buildings (trailers)	22,107
7019310	Coring (sidewalls & analysis)	
7011010	7% Contingency & Taxes	201,036
	TOTAL DRILLING - INTANGIBLE	\$2,381,132
	TOTAL DRILLING COST	\$3,072,972
COMPLETION - TA	NGIBLE	
7012580	Tubing	4
7012040	Tubing Accessories (nipple, wireline entry)	2.4
7012550	Wellhead Equip	15,000
7012560	Packers - Completion Equipment	
	TOTAL COMPLETION - TANGIBLE	\$15,000

MARATHON OIL PER	MANUE	DATE 7/11/2019
AUTHORITY FOR EXP	ENDITURE	DATE 7/11/2019
Asset Team	PERMIAN	
Field Lease/Facility	PURPLE SAGE; WOI FORMATION: WOLFCAMP D VALKYRIE 12 WD FEDERAL COM 2H	
COMPLETION - IN		
GL CODE	DESCRIPTION	ECTIMATED COCY
7001270	Location and Access (dress location after rig move, set anchors)	ESTIMATED COST 10,000
7019220 7019140	Drilling Rig During Completion	-
7019030	Mud Fluids & Services Colled Tubing Services (3 runs)	350,000
7019240 7019270	Snubbing Services Pulling/Swab Units	- 1
7016350	Fuel (from drig)	
7019010 7019020	Casing Crew and Services Cement and Cementing Services	-
7019080	Well Testing Services (flow hand & equip)	470,000
7019320 7019330	Perforating Pervices	3,684,100
7019360	Wireline Services	15,000
7001460	Water Hauling & Disposal (frac fluids) Freight - Truck (haul pipe; drig & compl)	271,000
7018150	BOP Rental & Testing	20,000
7018150 7018150	Rental Tools and Equipment (Incl drig; lightplant, hydra-walk) CT Downhole Rental Equipment (ie. Bit, BHA)	
7000030	Contract Labor - general	60,000
7001110	Telecommunications Services Safety and Environmental	100,000
7001120	Consulting Services	100,000
7018150 7019300	Zipper Manifold Frack Stack Rentals	220,000 85,000
7016190	Freight (Transportation Services)	
7018150 7018120	Equipment Rental ( w/o operator, frac tanks, lightplants) Rental Buildings (trailers)	100,000 35,000
7000030	Contract Labor - Pumping (pump-down pumps)	60,000
7011010	8% Contingency & Taxes  TOTAL COMPLETION - INTANGIBLE	425,900
		\$6,306,000
	TOTAL COMPLETION COST	\$6,321,000
SURFACE EQUIPM	ENT - TANGIBLE	
7012350 7006640	Misc, Piping, Fittings & Valves Company Labor & Burden	18,576
7000030	Contract Labor - General	70,817
7001110 7012410	Telecommunication equip (Telemetry) Line Pipe & Accessories	
7012270	Miscellaneous Materials (containment system)	43,281
7008060 7016180	SCADA Freight - truck	<u> </u>
7001190	Contract Engineering	9,375
7012290 7012290	Metering and Instrumentation I&E Materials	7,764 114,060
7012200	Gas Treating	
7012200 7012010	Dehydration Compressor	+
7012350	Power	-
7012610 7012440	Vapor Recovery Unit Separator & Other pressure vessels	323,837
7012500 7012100	Tanks Heater Treater	235,346
7012640	Flare & Accessories	31,057
7000010 7000010	Electrical Labor Mechanical Labor	11,937
7012480	Rod Pumping unit & Pad	- 1
7012180 7012350	Pumping Unit Engine  Electrical Power (electrical cooperative construction costs)	
	TOTAL SURFACE EQUIPMENT - TANGIBLE	\$866,051
	TOTAL SURFACE EQUIPMENT COST	\$ 866,051
ARTIFICIAL LIFT		
7006640	Company Labor	45,000
7012180	Gas Lift Equipment	15,000
7012480 7012140	Rod Pumping, Sucker Rods & Rod Pump  Elect Sub Pumps (ESP)	6,250 17,500
7019350 7012270	Well Services-Well/Wellhead Services	6,000
7012550	Materials & Supplies-Tangible Surface Wellhead Equipment	5,000 5,000
7012390	Pig Launchers/Receivers & Rel Equip	6,250
7011010	8% Contingency & Taxes	3,000
	TOTAL ARYIFICIAL UFT	110,000
	TOTAL ARTIFICIAL LIFT COST	\$ 110,000
	SUMMARY OF ESTIMATED DRILLING WELL COSTS	TOTAL COST
	TOTAL LOCATION COST TOTAL DRILLING COST	\$ 112,000
	TOTAL DRILLING COST TOTAL COMPLETIONS COST	\$ 3,072,972 \$ 6,321,000
	TOTAL SURFACE EQUIPMENT COST	\$ 866,051
	TOTAL ARTIFICIAL LIFT COST	\$ 110,000
	GRAND TOTAL COST	\$10,482,024

	Participant's Approval		
Name of Company:			
Signature:			
Title:_		Date:	

MARATHON OIL PERMIAN LLC AUTHORITY FOR EXPENDITURE DETAIL OF ESTIMATED WELL COSTS DATE 7/11/2019
DRILLING & LOCATION PREPARED BY MATTHEW RUGARD
COMPLETION PREPARED BY JOSH SHANNON
FACILITIES PREPARED BY BRIAN LIPSCOMB
ARTIFICIAL LIFT PREPARED BY SRIAN LIPSCOMB

Asset Team	PERMIAN	
Field	PURPLE SAGE; WOI FORMATION: WOLFCAMP D WILDCAT	EXPLORATION
Lease/Facility	VALKYRIE 12 WD FEDERAL COM 4H DEVELOPMENT	RECOMPLETION
Location	EDDY COUNTY X EXPLOITATION	WORKOVER
Prospect	MALAGA	-
Est Total Depth	21_13 Est Drilling Days Est Completion Day	s11
LOCATION COST -	INTANGIBLE	
LOCATION COST -		
GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access	67,000
7001250	Land Broker Fees and Services	45,000
	TOTAL LOCATION COST - INTANGIBLE	112,000
DRILLING COST -	TANGIBLE	
7012050	Conductor Pipe	28,000
7012050	Surface Casing	19,000
7012050	Intermediate Casing 1	66,000
7012050	Intermediate Casing 2	253,000
7012050	Production Casing	191,905
7012050	Drig Liner Hanger, Tieback Eq & Csg Accessories	55,000
7012550	Drilling Welfhead Equipment	50,000
7012040	Casing & Tubing Access	24,000
7012270	Miscellaneous MRO Materials	5,000
	TOTAL DRILLING - TANGIBLE	691,905
DRILLING COST - I	NTANGIBLE	
7019200	Drilling Rig Mob/Demob	43,333
7019220	Drilling Rig - day work/footage	746,100
7019040	Directional Drilling Services	248,000
7019020	Cement and Cementing Service Surface	15,000
7019020	Cement and Cementing Service Intermediate 1	25,000
7019020	Cement and Cementing Service Intermediate 2	35,000
7019020	Cement and Cementing Service Production	60,000
7019140	Mud Fluids & Services	71,300
7012310	Solids Control equipment	49,000
7012020	Bits	72,000
7019010	Casing Crew and Services	30,000
7016350	Fuel (Rig)	85,000
7019140 7001460	Fuel (Mud)	30,000
	Water (non potable)	
7012350	Water (potable)	S,000
7019000	Well Logging Services	
7019150	Mud Logging+geosteering	23,000
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
7001160	Contract Services - Disposal/Non-Hazardous Waste	80,000
7001440	Vacuum Trucks	10,000
7000030	Contract Labor - general	30,000
7000030	Contract Labor - Operations	3,000
7001200	Contract Services - Facilities	10,000
7019300	Well Services - Well Control Services	23,817
7019350	Well Services - Well/Wellhead Services	10,000
7018150	Rental Tools and Equipment (surface rentals)	110,533
7018150		13.817
7001110	Rig Equipment and Misc.	,
	Telecommunications Services	5,000
7001120	Consulting Services	129,877
7001400	Safety and Environmental	44,213
7018120	Rental Buildings (trailers)	22,107
7019310	Coring (sidewalls & analysis)	
7011010	7% Contingency & Taxes	201,040
	TOTAL DRILLING - INTANGIBLE	\$2,381,137
	TOTAL DRILLING COST	\$3,073,042
COMPLETION - TA	NGIBLE	
7012580	Tubing	+
7012040	Tubing Accessories (nipple, wireline entry)	-
7012550	Wellhead Equip	15,000
7012560	Packers - Completion Equipment	
	TOTAL COMPLETION: TANCING	

MARATHON OIL PI AUTHORITY FOR EI DETAIL OF ESTIMA	PENDITURE	DATE 7/11/2019
Asset Team Field Lease/Facility	PERMIAN  PURPLE SAGE; WOI FORMATION: WOLFCAMP D  VALKYRIE 12 WD FEDERAL COM 4H	
COMPLETION - I	VTANGIBLE	
GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access (dress location after rig move, set anchors)	10,000
7019220	Drilling Rig During Completion	
7019140	Mud Fluids & Services	- 1
7019030 7019240	Colled Tubing Services (3 runs) Snubbing Services	350,000
7019270	Pulling/Swab Units	
7016350	Fuel (from drlg)	1
7019010	Casing Crew and Services	10
7019020 7019080	Cement and Cementing Services	
7019320	Well Testing Services (flow hand & equip)  Fracturing Services	470,000 3,684,100
7019330	Perforating	300,000
7019360	Wireline Services	15,000
7001460	Water Hauling & Disposal (frac fluids)	271,000
7016180 7018150	Freight - Truck (haul pipe; drig & compl) BOP Rental & Testing	20,000
7018150	Rental Tools and Equipment ( Incl drig; lightplant,hydra-walk)	
7018150	CT Downhole Rental Equipment (ie. Bit, BHA)	
7000030	Contract Labor - general	60,000
7001110 7001400	Telecommunications Services	100,000
7001120	Safety and Environmental Consulting Services	100,000
7018150	Zipper Manifold	100,000
7019300	Frack Stack Rentals	85,000
7016190	Freight (Transportation Services)	<u> </u>
7018150 7018120	Equipment Rental ( w/o operator, frac tanks, lightplants)  Rental Buildings (trailers)	
7000030	Contract Labor - Pumping (pump-down pumps)	60,000
7011010	8% Contingency & Taxes	425,900
	TOTAL COMPLETION - INTANGIBLE	\$6,306,000
	TOTAL COMPLETION COST	\$6,321,000
	MENT - TANGIBLE	
7012350 7006640	Misc. Piping, Fittings & Valves	18,576
7000030	Company Labor & Burden Contract Labor - General	70,817
7001110	Telecommunication equip (Telemetry)	1000
7012410	Line Pipe & Accessories	0.60
7012270 7008060	Miscellaneous Materials (containment system) SCADA	43,281
7016180	Freight - truck	-
7001190	Contract Engineering	9,375
7012290	Metering and Instrumentation	7,764
7012290	I&E Materials	114,060
7012200	Gas Treating	
7012200	Dehydration Compressor	
7012350	Franci	1000
7012610	Vapor Recovery Unit	(34)
7012440	Separator & other pressure vessels	323,837
7012100	Tanks Heater Treater	235,346
7012640	Flare & Accessories	31,057
7000010	Electrical Labor	11,937
7000010	Mechanical Labor	
7012480	Rod Pumping unit & Pad	
7012150	Electrical Power (electrical cooperative construction costs)	- 1
		******
	TOTAL SURFACE EQUIPMENT - TANGIBLE	\$866,051
ARTIFICIAL LIFT	TOTAL SURFACE EQUIPMENT COST	\$ 866,051
7006640	Company Labor	45,000
7012180 7012480	Gas Lift Equipment Rod Pumping, Sucker Rods & Rod Pump	15,000
7012140	Elect Sub Pumps (ESP)	6,250 17,500
7019350	Well Services-Well/Wellhead Services	6,000
7012270	Materials & Supplies-Tangible	6,000
7012550 7012390	Surface Weilhead Equipment Pig Launchers/Receivers & Rel Equip	5,000
7011010	8% Contingency & Taxes	6,250
	TOTAL ARTIFICIAL LIFT	110,000
	TOTAL ARTIFICIAL LIFT COST	\$ 110,000
	SUMMARY OF ESTIMATED DRILLING WELL COSTS	TOTAL COST
	TOTAL LOCATION COST	\$ 112,000
	TOTAL DRILLING COST	\$ 3,073,042
	TOTAL COMPLETIONS COST	\$ 6,321,000
	TOTAL SURFACE EQUIPMENT COST	\$ 866,051
	TOTAL ARTIFICIAL LIFT COST	\$ 110,000
	GRAND TOTAL COST	\$10,482,093

Participant's Approval

Date: \_

Name of Company:

Title:\_

MARATHON OIL PERMIAN LLC AUTHORITY FOR EXPENDITURE DETAIL OF ESTIMATED WELL COSTS DATE 7:11/2019
DRILLING & LOCATION PREPARED BY MATTHEW RUGAARD
COMPLETION PREPARED BY JOSH SHANNON
FACILITIES PREPARED BY BRIAN LIPSCOMB
ARTIFICIAL LIFT PREPARED BY BRIAN LIPSCOMB

Asset Team	PERMIAN	
Field	PURPLE SAGE; WOL FORMATION: WOLFCAMP D WILDCAY	EXPLORATION
Lease/Facility	VALKYRIE 12 WD FEDERAL COM 6H DEVELOPMENT	RECOMPLETION
Location	EDDY COUNTY X EXPLOITATION	WORKOVER
Prospect	MALAGA	
Est Total Depth	20,876 Est Drilling Days Est Completion Day	ys11
LOCATION COST -	NTANGIBLE	
GL CODE	DESCRIPTION	ESTIMATED COST
7001270	Location and Access	67,000
7001250	Land Broker Fees and Services	45,000
	TOTAL LOCATION COST - INTANGIBLE	112.000
	TOTAL COCATION COST - INTARGIBLE	112,000
DRILLING COST - T	ANGIBLE	
7012050	Conductor Pipe	28,000
7012050	Surface Casing	19,000
7012050	Intermediate Cosing 1	66,000
7012050	Intermediate Casing 2	253,000
7012050		192,975
	Production Casing	
7012050	Drig 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	
	TOTAL DRIEDING - PANGIBLE	692,975
DRILLING COST - II	TANGIRI E	
DRILLING COST - II	TANGISE	
7019200	Drilling Rig Mob/Demob	43,333
7019220	Drilling Rig - day work/footage	746,100
7019040	Directional Drilling Services	248,000
7019020	Cement and Cementing Service Surface	15,000
7019020	Cement and Cementing Service Intermediate 1	25,000
7019020	Cement and Cementing Service Intermediate 2	35,000
7019020	Cement and Cementing Service Production	60,000
7019140	Mud Fluids & Services	71,300
7012310	Solids Control equipment	49,000
7012020	Bits	72,000
7019010	Casing Crew and Services	30,000
7016350	Fuel (Rig)	85,000
7019140	Fuel (Mud)	30,000
7001460	Water (non potable)	25,000
7012350	Water (potable)	5,000
7019000	Well Logging Services	3,000
7019150	Mud Logging+geosteering	23,000
7019250		15,000
7019230	Stabilizers, Hole Openers, Underreamers (DH rentals)	15,000
	Casing inspection/cleaning	
7019110	Drill pipe/collar inspection services	10,000
7016180	Freight · truck	25,000
7001460	Water hauling and disposal (includes soil farming)	60,000
7001160	Contract Services - Disposal/Non-Hazardous Waste	80,000
7001440	Vacuum Trucks	10,000
7000030	Contract Labor - general	30,000
7000030	Contract Labor - Operations	3,000
7001200	Contract Services - Facilities	10,000
7019300	Well Services - Well Control Services	23,817
7019350	Well Services - Well/Wellhead Services	10,000
7018150	Rental Tools and Equipment (surface rentals)	110,533
7018150	Rig Equipment and Misc.	13,817
7001110	Telecommunications Services	5,000
7001120	Consulting Services	129,877
7001400	Safety and Environmental	44,213
7018120	Rental Buildings (trailers)	22,107
7019310	Coring (sidewalls & analysis)	
7011010	7% Contingency & Taxes	201,115
	TOTAL DRILLING - INTANGIBLE	\$2,381,212
	TOTAL DRILLING COST	\$3,074,187
************	NAME .	
COMPLETION - TAI	ACIRE	
7012580	Tubing	1
7012040	Tubing Accessories (nipple, wireline entry)	-
7012550	Wellhead Equip	15,000
7012560	Packers - Completion Equipment	
	TOTAL COMPLETION - TANGISIS	\$15,000

MARATHON OIL PE		DATE		7/11/2019
DETAIL OF ESTIMA				
Asset Team	PERMIAN			
Field	PURPLE SAGE; WOI FORMATION: WOLFCAMP D			
Lease/Facility	VALKYRIE 12 WD FEDERAL COM 6H			
COMPLETION - I	NTANGIBLE			
GL CODE	DESCRIPTION		ESTIN	ATED COST
7001270 7019220	Location and Access (dress location after rig move, set anchors)  Drilling Rig During Completion	-	_	10,000
7019140	Mud Fluids & Services	_	_	
7019030	Coiled Tubing Services (3 runs)	_		350,000
7019240	Snubbing Services	-		-
7019270 7016350	Pulling/Swab Units Fuel (from drig)	_		
7019010	Casing Crew and Services	_		
7019020	Cement and Cementing Services	-		
7019080 7019320	Well Testing Services (flow hand & equip) Fracturing Services	-		470,000 3,684,100
7019330	Perforating	_		300,000
7019360	Wireline Services	_		15,000
7001460 7016180	Water Hauling & Disposal (frac fluids) Freight - Truck (haul pipe; drig & compl)	-		271,000
7018150	BOP Rental & Testing	_		20,000
7018150	Rental Tools and Equipment ( incl drig; lightplant, hydra-walk)	_		-
7018150	CT Downhole Rental Equipment (ie. Bit, BHA)	-		60.000
7000030 7001110	Contract Labor - general Telecommunications Services	_		100,000
7001400	Safety and Environmental			
7001120	Consulting Services	_		100,000
7018150 7019300	Zipper Manifold	-		220,000
7019300	Frack Stack Rentals Freight (Transportation Services)	_		85,000
7018150	Equipment Rental ( w/o operator, frac tanks, lightplants)	_		100,000
7018120	Rental Buildings (trailers)	_		35,000
7000030 7011010	Contract Labor - Pumping (pump-down pumps)  8% Contingency & Taxes	_		60,000 425,900
7011010	on contrigency or raves	_		423,300
	TOTAL COMPLETION - INTANGIBLE	_		\$6,306,000
	TOTAL COMPLETION COST	_		\$6,321,000
HIDEACE EQUID	MENT - TANGIBLE			
7012350	Misc. Piping, Fittings & Valves	_		18,576
7006640 7000030	Company Labor & Burden Contract Labor - General	_		70,817
7001110	Telecommunication equip (Telemetry)	_		
7012410	Line Pipe & Accessories	_		- 1
7012270 7008060	Miscellaneous Materials (containment system)  SCADA	_		43,281
7016180	Freight - truck	_		+
7001190	Contract Engineering	_		9,375
7012290	Metering and Instrumentation	_		7,764
7012290 7012200	I&E Materials Gas Treating	_		114,060
7012200	Dehydration	_		-
7012010	Compressor	_		- 4
7012350	Power	_		-
7012610 7012440	Vapor Recovery Unit Separator & other pressure vessels	_		323,837
7012500	Tanks			235,346
7012100	Heater Treater	_		-
7012640 7000010	Flare & Accessories	_	_	31,057
7000010	Electrical Labor  Mechanical Labor	_		11,937
7012480	Rod Pumping unit & Pad	_		- 10
7012180	Pumping Unit Engine	_		
7012350	Electrical Power (electrical cooperative construction costs)	_		
	TOTAL SURFACE EQUIPMENT - TANGIBLE	_		\$866,051
	TOTAL SURFACE EQUIPMENT COST	\$_		866,051
ARTIFICIAL LIFT				
7006640	Company Labor	_		45,000
7012180 7012480	Gas Lift Equipment  Rod Pumping, Sucker Rods & Rod Pump	_	_	15,000
7012140	Elect Sub Pumps (ESP)	_		6,250 17,500
7019350	Well Services-Well/Wellhead Services	_		6,000
7012270	Materials & Supplies-Tangible	_		6,000
7012550 7012390	Surface Wellhead Equipment Pig Launchers/Receivers & Rel Equip	_		5,000 6,250
7011010	8% Contingency & Taxes	_		3,000
	TOTAL ARTIFICIAL LIFT			110,000
	IOTAL ANTIFICIAL LIFT			110,000
	TOTAL ARTIFICIAL LIFT COST	\$		110,000
	CHAMADY OF ESTIMATED DRILLING WELL COSTS	_	TOT	AL COST
	SUMMARY OF ESTIMATED DRILLING WELL COSTS		101	AL COST
	TOTAL LOCATION COST	\$		112,000
	TOTAL DRILLING COST	\$		3,074,187
	TOTAL COMPLETIONS COST	\$		6,321,000
	TOTAL SURFACE EQUIPMENT COST	\$		866,051
	TOTAL ARTIFICIAL LIFT COST	\$	_	110,000
	GRAND TOTAL COST		\$1	10,483,238
	Participant's Approval			
	lame of			
C	ompany:			
Ci.	andlure.			

Date: \_

# Tab B: Geology Exhibits

Exhibit 11: Locator Map

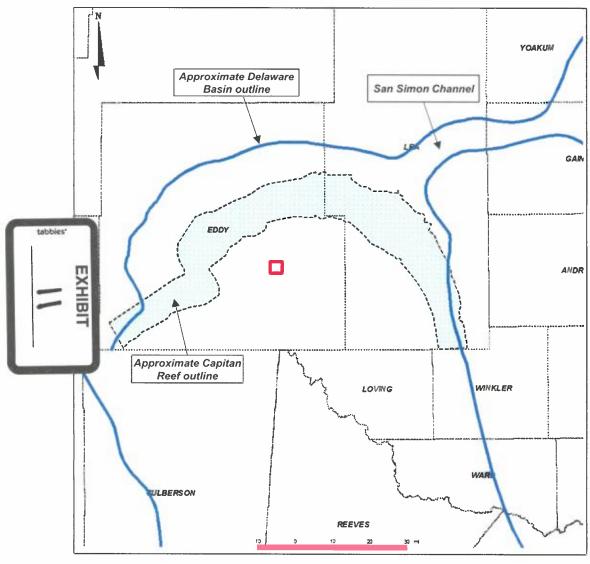
Exhibit 12: Preferred Well Orientation

Exhibit 13: Second Bone Spring Geology Study

Exhibit 14: Upper Wolfcamp Geology Study

Exhibit 15: Lower Wolfcamp Geology Study

#### **Locator Map**



- Approximate location of proposed
   Valkyrie 12 Federal Com well locations
   shown with red box
- Located basinward of the Capitan Reef
- Mid Eddy county





Preferred Well Orientation - SHmax

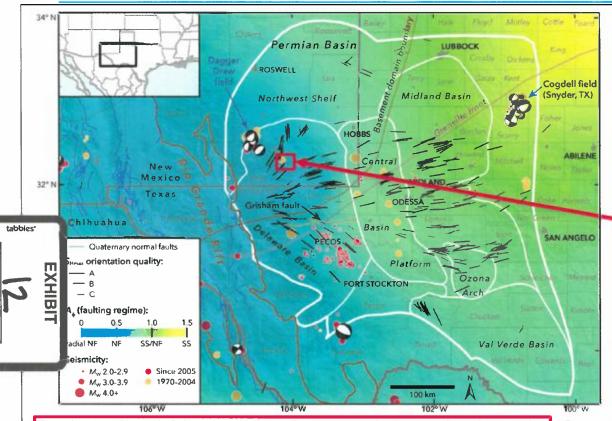


Figure 1. State of stress in the Permian Basin. Texas and New Mexico. Black lines are the measured orientations of the maximum horizontal stress (S,\_\_\_), with line length scaled by data quality. The colored background is an interpolation or measured relative principal stress magnitudes traulting regime, expressed using the A, parameter (see text for details) of Simpson (1997). Blue lines are fault traces known to have expended normal-sense offset within the past 1.6 Ma. from the USGS Quaternary Falls and Folds Database (Grone 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. Earthquakes are from the USGS National Earthquake Information Center, the TexNet 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 E/W to maximize lateral length with respect to Marathon's acreage.

As outlined in Snee & Zoback (2018), SHmax is at approximately 45 degrees in mid Eddy county.

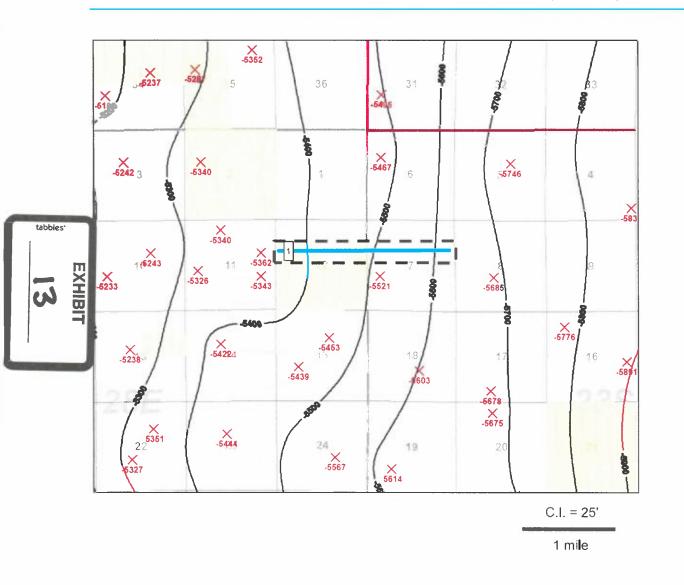
Therefore, hydraulic fractures will propagate out at ~45 degrees.

Production is expected to be the same for wells oriented either N/S or E/W.





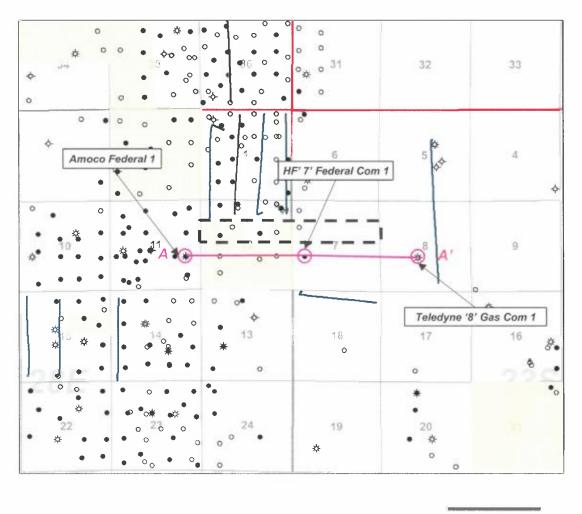
Structure Map - Base of Second Bone Spring Sand (TVDSS)







Reference Map for Cross Section – Bone Spring Wells



#### Map Legend



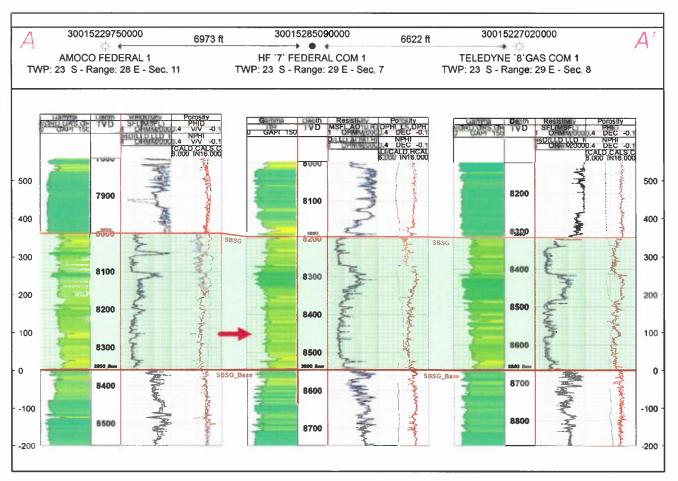
Producing SBSG Wells

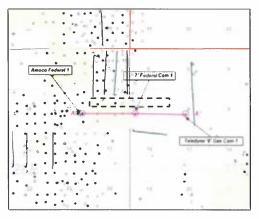






Stratigraphic Cross Section (Base Second Bone Spring Sand Datum)



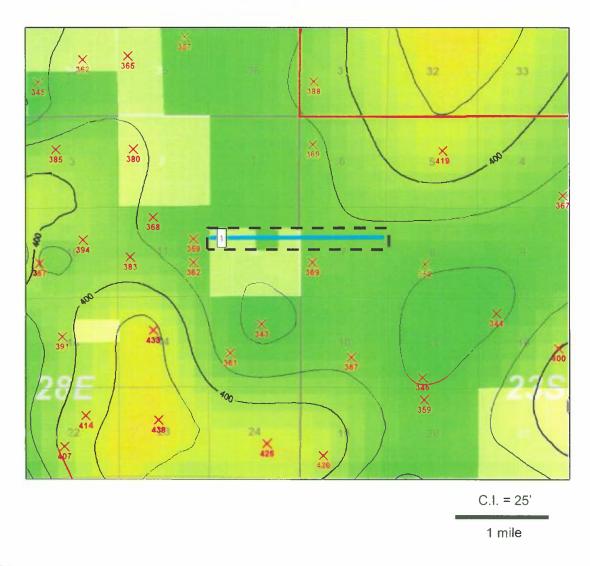


Gross interval thickness relatively consistent from west to east

Producing Zone – Second Bone Spring Sand



Gross Interval Isochore – Second Bone Spring Sand

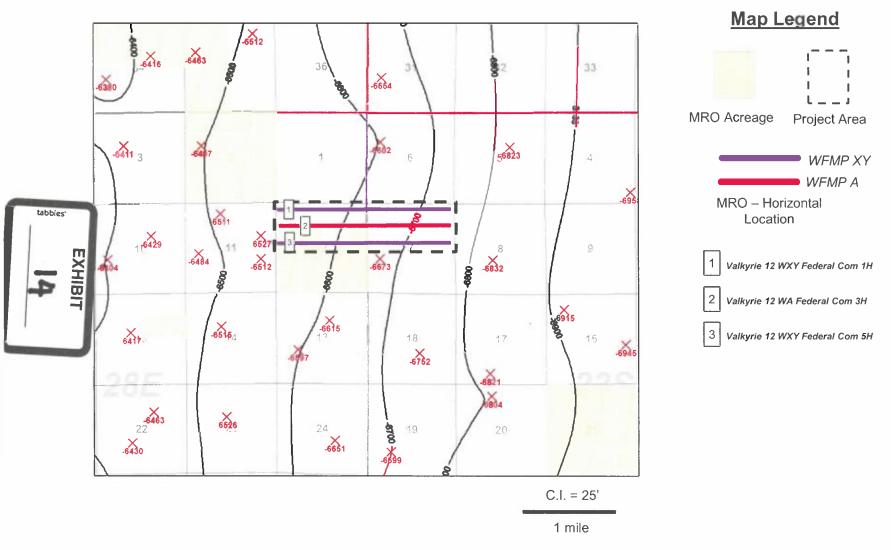




1 Valkyrie 12 SB Federal Com 13H

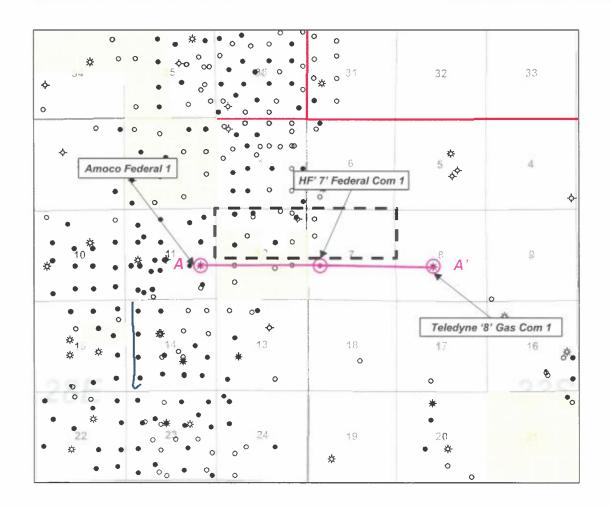


Structure Map for Upper Wolfcamp Wells - Top of Wolfcamp (TVDSS)





Reference Map for Cross Section - Upper Wolfcamp Wells



#### Map Legend



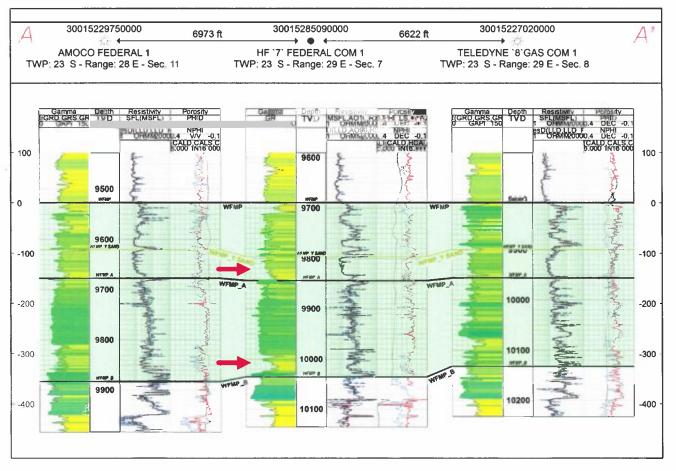
Producing WFMP XY & A Wells



1 mile



Stratigraphic Cross Section (Top Wolfcamp Datum)





Gross interval thickness decreases slightly from west to east

Producing Zone – Wolfcamp XY & WFMP A



Gross Interval Isochore – Wolfcamp to Wolfcamp B



Map Legend



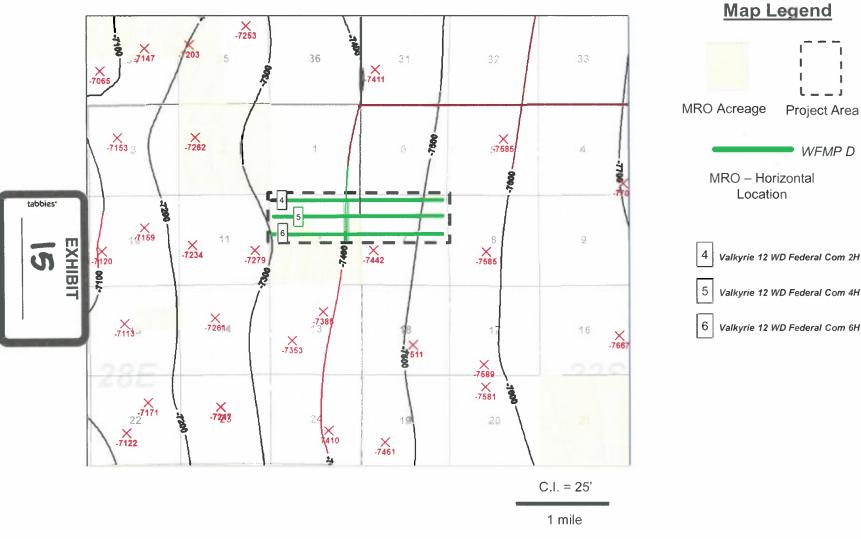


- Valkyrie 12 WXY Federal Com 1H
- Valkyrie 12 WA Federal Com 3H
- Valkyrie 12 WXY Federal Com 5H

1 mile



Structure Map for Lower Wolfcamp Wells - Top of Wolfcamp C2 (TVDSS)



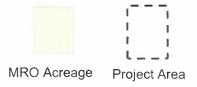




Reference Map for Cross Section - Lower Wolfcamp Wells



Map Legend



Producing WFMP D Wells

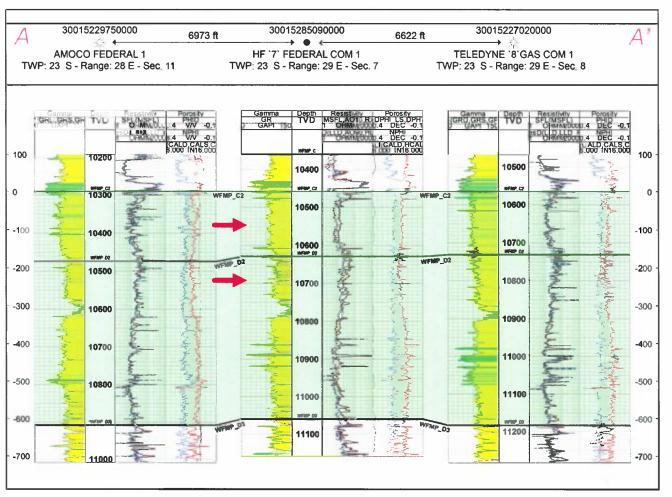


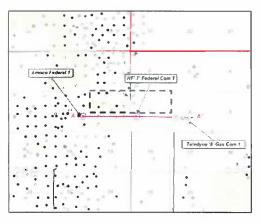
1 mile





Stratigraphic Cross Section (Top Wolfcamp C2 Datum)





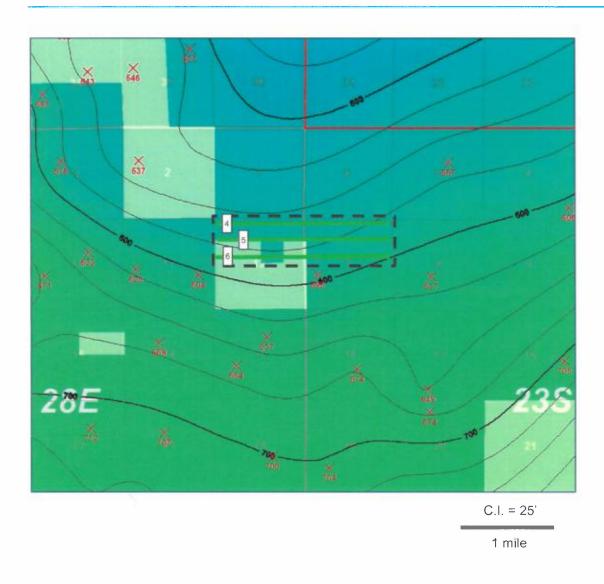
Gross interval thickness relatively consistent from west to east

Producing Zone – Wolfcamp C2 & D2





Gross Interval Isochore – Wolfcamp C2 to Wolfcamp D3









MRO – Horizontal Location

- 4 Valkyrie 12 WD Federal Com 2H
- 5 Valkyrie 12 WD Federal Com 4H
- 6 Valkyrie 12 WD Federal Com 6H





# Tab C: Engineer Exhibits

Exhibit 16: Effects of Lateral Length Slide

#### **Effects of Lateral Length on Well Performance**

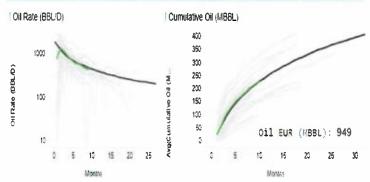
Arps EUR Equation Upper Wolfcamp

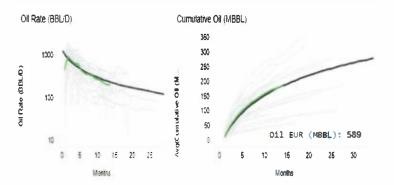
#### 2 Mile Lateral Length

Well Count	Avg proppant/ft	Avg WPS	Avg LL, ft	AVG EUR (BO)/ Avg LL ft
36	1992	5	9694	97.9

#### 1.5 Mile Lateral Length

Well Count	Avg proppant/ft	Avg WPS	Avg LL, ft	AVG EUR (BO)/ Avg LL ft
37	2203	5	6818	86.4





- Longer laterals EURs are higher than shorter laterals
- Avg EUR/ Avg LL in the 2 Mile laterals is 13% greater then 1.5 Mile Laterals



**EXHIBIT** 

<sup>\*</sup>Source Data: DrillingInfo and IHS