	UNITED STATES PARTMENT OF THE INTE		OMB	M APPROVED NO. 1004-0137 : January 31, 2018			
	UREAU OF LAND MANAGEN NOTICES AND REPORTS		5. Lease Serial No.	5. Lease Serial No. NMNM13647			
Do not use thi abandoned wei	6. If Indian, Allotte	e or Tribe Name					
	· · ·		7. If Unit or CA/As	reement, Name and/or No.			
	TRIPLICATE - Other instruc	tions on page 2		· · · · · · · · · · · · · · · · · · ·			
1. Type of Well Oil Well <b>B</b> Gas Well Oth				No. RPHY 6 WXY FC 18H			
2. Name of Operator MARATHON OIL PERMIAN L	Contact: AD	RIAN COVARRUBIAS	9. API Well No. 30-025-46487	7-00-X1			
3a. Address 5555 SAN FELIPE STREET HOUSTON, TX 77056	3b Pl	Phone No. (include area code) h: 713-296-3368	10. Field and Pool WC025G09S	or Exploratory Area 263504N-WOLFCAMP			
4. Location of Well (Footage, Sec., T	., R., M., or Survey Description)		11. County or Paris	h, State			
Sec 6 T26S R35E NENE 272I 32.078880 N Lat, 103.401627				Y, NM			
12. CHECK THE AF	PPROPRIATE BOX(ES) TO	INDICATE NATURE O	F NOTICE, REPORT, OR O	THER DATA			
TYPE OF SUBMISSION		TYPE OF	ACTION				
Notice of Intent	Acidize	Deepen	Production (Start/Resume)	U Water Shut-Off			
_	Alter Casing	Hydraulic Fracturing	Reclamation	Well Integrity			
Subsequent Report	Casing Repair	New Construction	Recomplete	Other Change to Original A			
Final Abandonment Notice	Change Plans Convert to Injection	Plug and Abandon Plug Back	Temporarily Abandon Water Disposal	PD			
			HOBB JAN RE	S OCD 21 2020 CEIVED			
14. I hereby certify that the foregoing is	Electronic Submission #4991 For MARATHON (	DIL PERMIAN LLC, sent to 1	l Information System the Hobbs				
	nmitted to AFMSS for processi COVARRUBIAS		ECHNICIAN HES				
Signature (Electronic S	Submission)	Date 01/14/20	020				
	THIS SPACE FOR	FEDERAL OR STATE	OFFICE USE				
Approved By_DYLAN_ROSSMANG onditions of approval, if any, are attache rtify that the applicant holds legal or equ hich would entitle the applicant to condu	d. Approval of this notice does not uitable title to those rights in the sub	warrant or	UM ENGINEER	Date 01/16/202			
tle 18 U.S.C. Section 1001 and Title 43 States any false, fictitious or fraudulent s			willfully to make to any department	or agency of the United			
Instructions on page 2) ** BLM REV	ISED ** BLM REVISED **	BLM REVISED ** BLN	I REVISED ** BLM REVIS	ED **			

# PECOS DISTRICT DRILLING OPERATIONS CONDITIONS OF APPROVAL for EC499176

<b>OPERATOR'S NAME:</b>	Marathon Oil Permian LLC
LEASE NO.:	NMNM13647
WELL NAME & NO.:	Charlie Murphy 6 WXY FC 18H
SURFACE HOLE FOOTAGE:	272' FNL & 1201' FEL
<b>BOTTOM HOLE FOOTAGE</b>	100' FSL & 330' FEL
LOCATION:	Section 6, T 26S, R 35E, NMPM
COUNTY:	Lea County, New Mexico

H2S	C Yes	🖸 No	
Potash	🖸 None	<b>C</b> Secretary	<b>C</b> R-111-P
Cave/Karst Potential	C Low	C Medium	🕻 High
Variance	C None	🖸 Flex Hose	C Other
Wellhead	Conventional	G Multibowl	C Both
Other	4 String Area	Capitan Reef	<b>□</b> WIPP
Other	Fluid Filled	Cement Squeeze	🗖 Pilot Hole
Special Requirements	☐ Water Disposal	COM	🗖 Unit

#### All other previous Conditions of Approval still apply.

#### A. CASING

- 1. The 13-3/8" surface casing shall be set at approximately 1140' (a minimum of 25' into the Rustler Anhydrite and above the salt) and cemented to surface.
  - a. If cement does not circulate to surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of 6 hours after pumping cement, ideally between 8-10 hours after completing the cement job.
  - b. WOC time for a primary cement job will be a minimum of <u>8 hours</u> or <u>500 psi</u> compressive strength, whichever is greater. This is to include the lead cement.
  - c. If cement falls back, remedial cementing will be done prior to drilling out that string.
  - d. WOC time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 psi compressive strength, whichever is greater.
- 2. The 7-5/8" intermediate casing shall be cemented to surface.
  - a. If cement does not circulate to surface, see B.1.a, c & d.
  - b. This casing must be kept at least 1/3 full at all times in order to meet BLM collapse requirements.

3. The **5-1/2**" production casing shall be cemented with at least 500' tie-back into the previous casing.

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1/16/2020 DR

# **MARATHON OIL PERMIAN LLC**

#### **DRILLING AND OPERATIONS PLAN**

# WELL NAME / NUMBER: CHARLIE MURPHY 6 WXY FC 18HSTATE: NEW MEXICOCOUNTY: LEA

#### 1. CASING PROGRAM

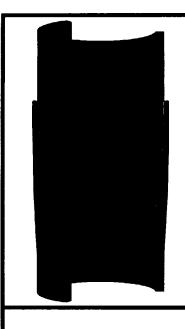
String Type	Hole Size	Casing Size	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Weight (lbs/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
Surface	17 1/2	13 3/8	0	1040	0	1040	54.5	J55	STC	3.37	1.71	2.93
Intermediate	9 7/8	7 5/8	0	11800	0	11800	29.7	P110	BTC	2.21	1.18	1.9
Production	6 3/4	5 1/2	0	22757	0	12574	23	P110	Wedge	1.73	1.2	2.09

#### 2. <u>CEMENT PROGRAM:</u>

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity (sx)	Yield (ft3/sx)	Density (ppg)	Slurry Volume (ft3)	Excess (%)	Cement Type	Additives
Surface	Lead	N/A	0	832	835	1.73	13.5	1445	150	Class C	LCM
Surface	Tail	N/A	832	1040	217	1.33	14.8	289	100	Class C	Accelerator
Intermediate	Lead	N/A	0	10800	1863	2.49	11	4639	100	Class C	Extender, Accelerator, 50/50 Poz C
Intermediate	Tail	N/A	10800	11800	218	1.28	13. <b>8</b>	279	30	Class H	Retarder, 35/65 Poz H
Production	Lead	N/A	9300	9800	47	1.29	14.5	60	30	Class H	Viscosifier, Retarder
Production	Tail	N/A	9800	22757	1312	1.09	14.5	1431	30	Class H	Extender, Fluid Loss, Dispersant

String Type	Lead/Tail	Stage Tool	Top MD	Bottom MD	Quantity (sx)	Yield (ft3/sx)	Density (ppg)	Slurry Volume (ft3)	Excess (%)	Cement Type	Additives
Intermediate	Stage 2 Lead	5180	0	4680	400	5.54	10.2	2216	70	Class C	Extender, Suspension Agent
Intermediate	Stage 2 Tail	5180	4680	5180	120	1.32	14.8	158.4	30	Class C	Neat
Intermediate	Stage 1 Lead	5180	5180	11000	460	5.54	10.2	2548.4	100	Class C	Extender, Suspension Agent
Intermediate	Stage 1 Tail	5180	12000	12000	215	1.38	13.8	296.7	30	Class C	Extender, Retarder

# DV Tool Intermediate String Cement Program:



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# **TEC-LOCK WEDGE**

5.500" 23 LB/FT (.415"Wall)

BENTELER P110 CY

### **Pipe Body Data**

Nominal OD:	5.500	in
Nominal Wall:	.415	in
Nominal Weight:	23.00	lb/ft
Plain End Weight:	22.56	lb/ft
Material Grade:	P110 CY	
Mill/Specification:	BENTELER	
Yield Strength:	125,000	psi
Tensile Strength:	130,000	psi
Nominal ID:	4.670	in
API Drift Diameter:	4.545	in
Special Drift Diameter:	None	in
RBW:	87.5 %	
Body Yield:	829,000	lbf
Burst:	16,510	psi
Collapse:	16,910	psi

### **Connection Data**

Standard OD:	5.950	in	
Pin Bored ID:	4.670	in	
Critical Section Area:	6.457	in²	
Tensile Efficiency:	97.4 %		
Compressive Efficiency:	100 %		
Longitudinal Yield Strength:	807,000	lbf	
Compressive Limit:	829,000	lbf	
Internal Pressure Rating:	16,510	psi	
External Pressure Rating:	16,910	psi	
Maximum Bend:	101.5	°/100ft	

#### **Operational Data**

Minimum Makeup Torque:	16,400	ft*lb1
Optimum Makeup Torque:	20,500	ft*lbf
Maximum Makeup Torque:	44,300	ft*lbf
Minimum Yield:	49,200	ft*lbf
Makeup Loss:	5.97	in

Notes Operational Torque is equivalent to the Maximum Make-Up Torque



Generated on Mar 12, 2019



# **EVRAZ** 7-5/8" 29.7# HC-P110

High Collapse P110; Seamless

Pipe Body Geometry				
Outside Diameter	7.625	in		
Wall Thickness	0.375	in		
Nominal Linear Mass (T&C)	29.70	lb/ft		
Plain End	29.06	lb/ft		
Inside Diameter	6.875	in		
Drift Diameter	6.750	in		
Alternate Drift Diameter	N/A	in		
Pipe Body Performance				
Grade	HC-P110			
Yield Strength Minimum	110,000	psi		
Tensile Strength Minimum	125,000	psi		
Plain End Pipe Body Yield	940	1,000 lbf		
Collapse Resistance <sup>[1]</sup>	7,000*	psi		
Internal Yield <sup>[2]</sup>	9,470	psi		
Ductile Rupture (Burst) <sup>[3]</sup>	10,840	psi		
Connection Geometry				
	LC		BC	
Coupling Outside Diameter	8.500	in	8.500	in
Coupling Minimum Length	9.250	in	10.375	in
Connection ID Type	Non-flu	sh	Non-flu:	sh
		:	4.688	in
Make-up Loss	4.125	in	4.000	
Make-up Loss API Compatible	4.125 Yes		4.088 Yes	
API Compatible				
API Compatible	Yes LC	1,000 lbf	Yes BC	1,000 lbf
API Compatible Connection Performance	Yes LC	1,000 lbf	Yes BC	1,000 lbf
API Compatible Connection Performance Threaded and Coupled Joint Strength Efficiency Internal Presssure	Yes LC 769	1,000 lbf %	Yes BC 960	1,000 lbf %
API Compatible Connection Performance Threaded and Coupled Joint Strength Efficiency	Yes LC 769 72 9,470 7,690	1,000 lbf % psi lb <sup>.</sup> ft	Yes BC 960 90	1,000 lbf % psi
API Compatible Connection Performance Threaded and Coupled Joint Strength Efficiency Internal Presssure	Yes LC 769 72 9,470 7,690 5,770	1,000 lbf % psi lb <sup>.</sup> ft lb <sup>.</sup> ft	Yes BC 960 90 9,470 12350 8750	1,000 lbf % psi lb <sup>.</sup> ft lb <sup>.</sup> ft
API Compatible Connection Performance Threaded and Coupled Joint Strength Efficiency Internal Presssure Make-up Torque <sup>[4][5]</sup> optimum	Yes LC 769 72 9,470 7,690	1,000 lbf % psi lb <sup>.</sup> ft lb <sup>.</sup> ft	Yes BC 960 90 9,470 12350	1,000 lbf % psi lb <sup>-</sup> ft lb <sup>-</sup> ft
API Compatible Connection Performance Threaded and Coupled Joint Strength Efficiency Internal Presssure Make-up Torque [4][5] optimum minimum	Yes LC 769 72 9,470 7,690 5,770	1,000 lbf % psi lb <sup>.</sup> ft lb <sup>.</sup> ft	Yes BC 960 90 9,470 12350 8750	1,000 lbf % psi lb <sup>.</sup> ft lb <sup>.</sup> ft

[2] The internal yield is calculated using API 5C3 Equation (10).

[3] This is an absolute limit and not safe work limit. Calculated based on API 5C3 Equation (14).

[4]For LC or SC, The values of optimum make-up torque was calculated as 1 % of the calculated joint pull-out strength as determined from API 5C3 Equation (55).

[5]For BC, data is taken from API 5TP, based on utilizing API Modified Thread Compounds assuming phosphate couplings. If other thread compounds are utilized, the torque correction factor noted by the compound manufacturer shall be considered. Torque must be verified by triangle position.



Marathon Oil
RIG: PD 601
Charlie Murphy 6 WXY Fed Com #18H
API#: 30-025-46487
Sec: 6-T26S-R35E
Lea County, New Mexico
Proposal #18070002
Service point Hobbs, New Mexico
1/14/2020

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# **Spinnaker - Primary Cementing Best Practices**

Primary cement job failures are predominately due to a breakdown in the "displacement process." This results in poor zonal isolation manifested by channeling or non-uniform displacement of the annular fluid(s) by the cementing fluid(s). These guidelines will enhance the displacement process and improve the probability of successful primary cementing.

1) Flow Rate: Regardless of the flow regime, high-energy displacement rates are most effective for ensuring good displacement. Turbulent flow conditions are usually more desirable, but frequently cannot be achieved or are not always required. When turbulent flow is not a viable option for a situation, use the highest pump rate that is feasible for the wellbore conditions. The best results are obtained when (1) the spacer and/or cement is pumped in such a way as to deliver maximum energy to the annulus, (2) the spacer or flush is appropriately designed to remove the drilling fluid, (3) and a competent cement is used.

2) Conditioning the Drilling Fluid: The condition of the drilling fluid is one of the most important variables in achieving good displacement during a cement job. A fluid that has excellent properties for drilling may be inappropriate for cementing purposes. Regaining and maintaining good mobility is the key. An easily displaced drilling fluid will have low, non-progressive gel strengths and low fluid loss. Pockets of gelled fluid, which commonly exist following the drilling of a wellbore, make displacement difficult. These volumes of gelled fluid must be broken up and mobilized.

Industry experience has indicated that it may be necessary to circulate up to ten complete hole volumes prior to the cement job in order to ensure that the hole is well conditioned and clean. A minimum of two bottoms-up is recommended in all scenarios prior to pumping.

3) Spacers and Flushes: Spacers and flushes are effective displacement aids because they separate unlike fluids such as cement and drilling fluid, and enhance the removal of gelled mud allowing a better cement bond. Spacers can be designed to serve various needs. For example, weighted spacers can help with well control, and reactive spacers can provide increased mud-removal benefits. Flushes are used for thinning and dispersing drilling fluid particles. Typically, 8 to 10 minutes contact time or 1000 feet of annular space with spacers or flushes, whichever is greater, are adequate.

**4. Pipe Centralization**: Centralizing the casing with mechanical centralizers across the intervals to be isolated helps optimize drilling fluid displacement. Good pipe standoff insures a uniform flow pattern around the casing and helps equalize the force that the flowing cement exerts around the casing, increasing drilling fluid removal. In a deviated wellbore, standoff is even more critical to prevent a solids bed from accumulating on the low-side of the annulus. Generally, the industry strives for about 70% standoff.

5) Pipe Movement: Pipe movement is one of the most effective methods of transferring energy downhole. Pipe rotation or reciprocation before and during cementing helps break up gelled, stationary pockets of drilling fluid and loosens cuttings trapped in the gelled drilling fluid. If the pipe is poorly centralized, pipe movement can compensate by changing the flow path through the annulus and allowing the slurry to circulate completely around the casing. The industry does not specify a minimum requirement for pipe movement, however it is acknowledged the even a small amount of pipe movement will enhance the displacement process.

6) Hole Size: Best mud displacement under optimum rates is achieved when annular tolerances are approximately 1.5 to 2 inches. Centralization of very small annuli is very difficult, and pipe movement and displacement rates may be severely restricted. Very large annuli may require extreme displacement rates to generate enough flow energy to remove the drilling fluid and cuttings.

7) Wiper Plugs: Top & bottom wiper plugs are recommended on every primary cementing job unless prohibited by mechanical or other special restrictions. The bottom plug serves to minimize contamination of the cement as it is pumped, in some cases it may be prudent to use multiple bottom plugs to separate mud/spacer and spacer/cement interfaces. The top plug is used to prevent any contamination of the cement slurry by the displacement fluid and minimize the chances of leaving a cement sheath inside the casing. Top plug also gives a positive indication that the cement has been displaced.

8) Rat Hole: When applicable, a weighted, viscous pill in the rat hole prevents cement from swapping with lighter weight mud during the cement job or when displacement stops.

**9)** Shoe Joint: A shoe joint is recommended on all primary casing/liner jobs. The length of the shoe joint will vary. The absolute minimum length is one joint of pipe. If conditions exist, such as not running a bottom plug, two joints of pipe is a minimum requirement.

1/14/2020

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Marathon Oil Charlie Murphy 6 WXY Fed Com #18H Lea County, New Mexico

JOB TYPE CASING SIZE HOLE SIZE TVD MD MUD EXCESS DV TOOL DEPTH BHST BHCT

SPACER I SPACER II

LEAD I CEMENT SLURRY

WEIGHT YIELD WATER TOC BBLS OF SLURRY

**TAIL I CEMENT SLURRY** 

WEIGHT YIELD WATER TOC BBLS OF SLURRY

DISPLACEMENT

SPACER I SPACER II

LEAD II CEMENT SLURRY

WEIGHT YIELD WATER TOC BBLS OF SLURRY

TAIL II CEMENT SLURRY

WEIGHT YIELD WATER TOC BBLS OF SLURRY

DISPLACEMENT 1/14/2020 Job Data Intermediate 7.625 in., 29.7 lbs, P-110 BTC 9.875 in. 12000 ft 12000 ft 8.9 ppg OBM Stage I- 30% Tail/100% Lead; Stage II- 30% Tail/70% Lead 5180 ft 180 Degrees 145 Degrees 145 Degrees 1st STAGE 20 bbls Mud Flush w/Dye 40 bbls of Fresh Water

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460 Sacks 65/35 Class C Premium Plus Cement/Poz, 10% Gypsum, 10% GEL, 18% SFA, 0.5% SADIA-4, 0.5 lbs Poly Flake, 0.2 lbs Fine Super Fiber

10.2 ppg 5.54 cu.ft./sk 36.13 gals/sk 5180 ft (DV Tool Depth) 453.88 bbls

215 Sacks 50/50 Class C Premium Plus Cement/Poz, 2% Gypsum, 2% GEL, 0.5% SFL-2, 0.1% SR-4

13.8 ppg 1.38 cu.ft./sk 6.5 gals/sk 11000 ft 52.85 bbls

548.93 bbls Fresh Water <u>2nd STAGE</u> 20 bbls Mud Flush w/Dye 40 bbls of Fresh Water

400 Sacks 65/35 Class C Premium Plus Cement/Poz, 10% Gypsum, 10% GEL, 18% SFA, 0.5% SADIA-4, 0.35 lbs Poly Flake, 0.2 lbs Fine Super Fiber

10.2 ppg 5.54 cu.ft./sk 36.13 gals/sk Surface 393.96 bbls

120 Sacks Class C Premium Plus Cement

14.8 ppg 1.32 cu.ft./sk 6.32 gals/sk 4680 ft (500' of fill) 28.22 bbls

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#### Marathon Oil Charlie Murphy 6 WXY Fed Com #18H Lea County, New Mexico

Ref. #	Description	Quantity	Unit Price	Sub Total	Total
	*********** Cementing Service **********				
MLPU2	Pickup Mileage 2 units (roundtrip miles)	100	\$7.88	\$788.00	\$236.40
MLHE14	Heavy Vehicle Mileage 14 units (roundtrip miles)	100	\$94.92	\$9,492.00	
MLTN	Bulk Cement Delivery/Return (per Ton-Mile)	3,361	\$2.73	\$9,175.53	
MXBK	Bulk Material Mixing Service Charge (Per cu.ft.)	1,195	\$3.03	\$3,620.85	
CMTHD	Cement Head with manifold (per Job)	1	\$1,895.00	\$1,895.00	\$568.50
CMTBIN	Portable Field Storage Bin (per unit, per 3 days)	2	\$2,175.00		\$1,305.00
	Multiple Stage Cementing	1	\$2,994.75	\$2,994.75	\$898.43
	Pump Charge 11,001-12,000' (Per 7 hrs)	1	\$12,223.00	\$12,223.00	\$3,666.90
PC6K	Pump Charge 5001-6000' (Per 5 hrs)	1	\$4,325.75		\$1,297.73
DAQ	Data Acquisition System	2	\$1,331.00		\$798.60
FLSCG	Fuel Surcharge (per unit/per job)	14	\$605.00		
ENVFEE	Environmental Fee	1	\$211.75		
DAMSS	Data Monitoring System/Supervisor	2	\$800.00		
CIRON	Circulation Equipment (40' of equipment per job) ************ Cementing Materials ************************************	2	\$1,512.50	\$3,025.00	\$907.50
CPRMP	Class C Cement (per sack)	787	\$37.35	\$29,394.45	\$8,818.34
	POZ (per sack)	409	\$27.96		
	GEL (per lb)	7,900	\$0.78		
	Gypsum (per lb)	7,844	\$0.87	\$6,824.28	
CEXTSFA	SFA (per lb)	13,468	\$1.45		\$5,858.58
	SADIA-4 (per lb)	379	\$37.60	\$14,250.40	\$4,275.12
	SFL-2 (per lb)	91	\$15.19	\$1,382.29	\$414.69
	SR-4 (per lb)	18	\$4.10		\$22.14
CLCMPF	Poly Flake (per lb)	430	\$3.86		
CLCMFBR	Fine Super Fiber (per lb)	172	\$26.03		
CMUDF	Mudflush (per bbl)	40	\$60.25	\$2,410.00	\$723.00
			·		
	Additional Items if used				
RESTK	Product Restocking Fee (per truck)	0	\$1,250.00		
STBYPU	Standby Pump Unit	0	\$4,025.00	\$0.00	
PCADD	Pump/Standby Charge Additional Hours	0	\$381.15	\$0.00	
DERKC	Derrick Charge (Cement Head Stabbing Above 8 ft )	0	\$726.00	\$0.00	\$0.00
	Spinnaker Spacer/Cement Dye (per pint)	0	\$75.25	\$0.00	\$0.00
	ATF Cement Defoamer (per gal)	0	\$28.50		
FTRP758	7 5/8" Top Rubber Plug	0	\$120.00	\$0.00	
CSUGAR	Sugar (per lb)	0	\$1.37	\$0.00	\$0.00
	Book Price			\$162,432.05	
	Estimated Job Cost				\$46,125.09
DISCR	Multi-Rig Discount	0%			\$0.00
	Estimated Job Cost after Multi-Rig Discount				\$46,125.09
DISCA	Multi-Asset Discount	3%			-\$1,383.75
	Estimated Job Cost after All Discounts (Exclusive	e of Sales Ta	x)		\$44,741.34

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