Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on page 2

5. Lease Serial No.
NMNM13647

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
CHARLIE MURPHY 6 TB FC 14H

2. Name of Operator
MARATHON OIL PERMIAN LLC
Contact: ADRIAN COVARRUBIAS
E-Mail: jvancuren@marathonoil.com

9. API Well No.
30-025-46484-00-X1

3a. Address
5555 SAN FELIPE STREET
HOUSTON, TX 77056

3b. Phone No. (include area code)
Ph: 713-296-3368

10. Field and Pool or Exploratory Area
WC-025 G08 S253534O

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*

Sec 6 T26S R35E NENE 272FNL 1171FEL
32.078880 N Lat, 103.401825 W Lon

11. County or Parish, State
LEA COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A PD
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Marathon Oil Permian LLC request to make changes to the Casing and Cementing plan for this well.
Please see attachment for details.

HOBBS OCD
JAN 21 2020
RECEIVED

14. I hereby certify that the foregoing is true and correct.
Electronic Submission #499185 verified by the BLM Well Information System
For MARATHON OIL PERMIAN LLC, sent to the Hobbs
Committed to AFMSS for processing by PRISCILLA PEREZ on 01/15/2020 (20PP0977SE)

Name *(Printed/Typed)* ADRIAN COVARRUBIAS — Title CTR - TECHNICIAN HES

Signature (Electronic Submission) — Date 01/14/2020

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By DYLAN ROSSMANGO — Title PETROLEUM ENGINEER — Date 01/15/2020

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

Office Hobbs

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

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

MARATHON OIL PERMIAN
CHARLIE MURPHY 6 TB FC 14H
API#: 30-025-46484
SUNDRY: CASING & CEMENT CHANGE – 3 String

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		2.21	1.18	1.9
Production	6 3/4	5 1/2	0	22826	0	12767	23	P110	Wedge	1.73	1.2	2.09

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	13.8	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	22826	1319	1.09	14.5	1438	30	Class H	Extender, Fluid Loss, Dispersant

TV Tool Intermediate String Cementing Program

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
Intermediate	Stage 2 Lead	5165	0	4665	400	5.54	10.2	2216	70	Class C	Extender, Suspension Agent
Intermediate	Stage 2 Tail	5165	4665	5165	120	1.32	14.8	158.4	30	Class C	Neat
Intermediate	Stage 1 Lead	5165	5165	11000	460	5.54	10.2	2548.4	100	Class C	Extender, Suspension Agent
Intermediate	Stage 1 Tail	5165	12000	12000	215	1.38	13.8	296.7	30	Class C	Extender, Retarder

SPINNAKER
OILFIELD SERVICES

Marathon Oil

RIG: PD 601

Charlie Murphy 6 TB Fed Com #14H

API#: 30-025-46484

Sec: 6-T26S-R35E

Lea County, New Mexico

Proposal #18060002

Service point Hobbs, New Mexico

1/14/2020

Prepared for:	Prepared by:
J. Kim	Himanshu Maheshwari
Drilling Engineer	Petroleum Engineer
jkim1@marathonoil.com	hm@spinnakeroil.com
832-948-3683	405-808-6250

Contact:

Miles Hagee
Service Supervisor
miles.hagee@spinnakeroil.com
(405) 464-9932

Contact:

Alex Ford
Service Supervisor
alexander.ford@spinnakeroil.com
(405) 831-0833

Contact:

Michael Rallo
Service Supervisor
michael.rallo@spinnakeroil.com
(405) 808-5364

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SPINNAKER
OILFIELD SERVICES

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.

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Marathon Oil
Charlie Murphy 6 TB Fed Com #14H
Lea County, New Mexico

SPINNAKER
OILFIELD SERVICES

	Job Data
JOB TYPE	Intermediate
CASING SIZE	7.625 in., 29.7 lbs, P-110 BTC
HOLE SIZE	9.875 in.
TVD	12000 ft
MD	12000 ft
MUD	**8.9 ppg OBM**
EXCESS	**Stage I- 30% Tail/100% Lead; Stage II- 30% Tail/70% Lead**
DV TOOL DEPTH	**5165 ft**
BHST	180 Degrees
BHCT	145 Degrees
	1st STAGE
SPACER I	20 bbls Mud Flush w/Dye
SPACER II	40 bbls of Fresh Water
LEAD I CEMENT SLURRY	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
WEIGHT	10.2 ppg
YIELD	5.54 cu.ft./sk
WATER	36.13 gals/sk
TOC	**5165 ft (DV Tool Depth)**
BBLS OF SLURRY	**453.88 bbls**
TAIL I CEMENT SLURRY	215 Sacks 50/50 Class C Premium Plus Cement/Poz, 2% Gypsum, 2% GEL, 0.5% SFL-2, 0.1% SR-4
WEIGHT	13.8 ppg
YIELD	1.38 cu.ft./sk
WATER	6.5 gals/sk
TOC	**11000 ft**
BBLS OF SLURRY	**52.85 bbls**
DISPLACEMENT	548.93 bbls Fresh Water
	2nd STAGE
SPACER I	20 bbls Mud Flush w/Dye
SPACER II	40 bbls of Fresh Water
LEAD II CEMENT SLURRY	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
WEIGHT	10.2 ppg
YIELD	5.54 cu.ft./sk
WATER	36.13 gals/sk
TOC	**Surface**
BBLS OF SLURRY	**393.96 bbls**
TAIL II CEMENT SLURRY	120 Sacks Class C Premium Plus Cement
WEIGHT	14.8 ppg
YIELD	1.32 cu.ft./sk
WATER	6.32 gals/sk
TOC	**4665 ft (500' of fill)**
BBLS OF SLURRY	**28.22 bbls**
DISPLACEMENT	237.15 bbls Fresh Water

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Marathon Oil
Charlie Murphy 6 TB Fed Com #14H
Lea County, New Mexico

SPINNAKER
OILFIELD SERVICES

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	$2,847.60
MLTN	Bulk Cement Delivery/Return (per Ton-Mile)	3,361	$2.73	$9,175.53	$2,752.66
MXBK	Bulk Material Mixing Service Charge (Per cu.ft.)	1,195	$3.03	$3,620.85	$1,086.26
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	$4,350.00	$1,305.00
MSCMT	Multiple Stage Cementing	1	$2,994.75	$2,994.75	$898.43
PC12K	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	$4,325.75	$1,297.73
DAQ	Data Acquisition System	2	$1,331.00	$2,662.00	$798.60
FLSCG	Fuel Surcharge (per unit/per job)	14	$605.00	$8,470.00	$0.00
ENVFEE	Environmental Fee	1	$211.75	$211.75	$0.00
DAMSS	Data Monitoring System/Supervisor	2	$800.00	$1,600.00	$480.00
CIRON	Circulation Equipment (40' of equipment per job)	2	$1,512.50	$3,025.00	$907.50
	********** Cementing Materials **********				
CPRMP	Class C Cement (per sack)	787	$37.35	$29,394.45	$8,818.34
CPOZF	POZ (per sack)	409	$27.96	$11,435.64	$3,430.69
CEXTGEL	GEL (per lb)	7,900	$0.78	$6,162.00	$1,848.60
CEXTGYP	Gypsum (per lb)	7,844	$0.87	$6,824.28	$2,047.28
CEXTSFA	SFA (per lb)	13,468	$1.45	$19,528.60	$5,858.58
CASADIA	SADIA-4 (per lb)	379	$37.60	$14,250.40	$4,275.12
CFL6	SFL-2 (per lb)	91	$15.19	$1,382.29	$414.69
CRETDIA	SR-4 (per lb)	18	$4.10	$73.80	$22.14
CLCMPF	Poly Flake (per lb)	430	$3.86	$1,659.80	$497.94
CLCMFBR	Fine Super Fiber (per lb)	172	$26.03	$4,477.16	$1,343.15
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	$0.00	$0.00
STBYPU	Standby Pump Unit	0	$4,025.00	$0.00	$0.00
PCADD	Pump/Standby Charge Additional Hours	0	$381.15	$0.00	$0.00
DERKC	Derrick Charge (Cement Head Stabbing Above 8 ft)	0	$726.00	$0.00	$0.00
CSPDYE	Spinnaker Spacer/Cement Dye (per pint)	0	$75.25	$0.00	$0.00
CDFDIAL	ATF Cement Defoamer (per gal)	0	$28.50	$0.00	$0.00
FTRP758	7 5/8" Top Rubber Plug	0	$120.00	$0.00	$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 of Sales Tax)				**$44,741.34**

1/14/2020

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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	in^2
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*lbf
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

HUNTING

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 [1]	7,000*	psi
Internal Yield [2]	9,470	psi
Ductile Rupture (Burst) [3]	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-flush		Non-flush	
Make-up Loss	4.125	in	4.688	in
API Compatible	Yes		Yes	

Connection Performance

		LC		BC	
Threaded and Coupled Joint Strength		769	1,000 lbf	960	1,000 lbf
Efficiency		72	%	90	%
Internal Presssure		9,470	psi	9,470	psi
Make-up Torque [4][5]	optimum	7,690	lb·ft	12350	lb·ft
	minimum	5,770	lb·ft	8750	lb·ft
	maximum	9,610	lb·ft	15950	lb·ft

Notes

[1]*Based on 8 x OD collapse testing in accordance with API 5C3 Annex I.

[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.