Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Carlsbad Field Office
OCD Artesia

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.
NMNM86024

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.
BLUE STEEL 21 FB FEE 25H

2. Name of Operator
MARATHON OIL PERMIAN LLC
Contact: MELISSA SZUDERA
E-Mail: mszudera@marathonoil.com

9. API Well No.
30-015-45892-00-X1

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

3b. Phone No. (include area code)
Ph: 713-296-3179

10. Field and Pool or Exploratory Area
LAGUNA SALADO-BONE SPRING

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 28 T23S R29E NWNW 270FNL 1135FWL
32.282478 N Lat, 103.994804 W Lon

11. County or Parish, State
EDDY 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 to Original APD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ 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 respectfully requests to update the proposed casing plan for the above listed well.
Attached is the updated drilling and operations plan which includes the change in production casing weight from 20# to 17#.

Besides casing set depths, all previous COAs still apply. DR
Surface casing must be set at least 25' above top of salt.

NM OIL CONSERVATION
ARTESIA DISTRICT
AUG 21 2019

14. I hereby certify that the foregoing is true and correct.
Electronic Submission #475736 verified by the BLM Well Information System
For MARATHON OIL PERMIAN LLC, sent to the Carlsbad
Committed to AFMSS for processing by PRISCILLA PEREZ on 07/31/2019 (19PP2887SE)

Name *(Printed/Typed)* MELISSA SZUDERA — Title REGULATORY COMPLIANCE REP

Signature (Electronic Submission) — Date 07/30/2019

RECEIVED

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By DYLAN ROSSMANGO — Title PETROLEUM ENGINEER — Date 08/01/2019

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 Carlsbad

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 ****

RJP 10-28-19

MARATHON OIL PERMIAN LLC

DRILLING AND OPERATIONS PLAN

WELL NAME / NUMBER: BLUE STEEL 21 FB FEE 21H

API: 30-015-45901 **STATE:** NEW MEXICO **COUNTY:** EDDY

	NS-Foot	NS-Indicator	EW-Foot	EW-Indicator	TWSP	Range	Section	Aliquot/Lot/Tract	Latitude (NAD 83)	Longitude (NAD 83)	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL	270	FNL	1165	FWL	23S	29E	28	NWNW	32.28247844	-103.9947105	EDDY	NM	NMP	F	NMNM086024	3001	0	0
EXIT	0	FNL	743	FWL	23S	29E	28	NWNW	32.28322363	-103.996079	EDDY	NM	NMP	F	NMNM086024	-1901	4945	4902
KOP	50	FSL	665	FWL	23S	29E	21	SWSW	32.28336183	-103.9963327	EDDY	NM	NMP	Fee		-4149	7245	7150
PPP1	100	FSL	665	FWL	23S	29E	21	SWSW	32.28349927	-103.996332	EDDY	NM	NMP	Fee		-4687	7837	7688
BHL	100	FNL	664	FWL	23S	29E	21	NWNW	32.29757237	-103.9962583	EDDY	NM	NMP	Fee		-4687	12741	7768

1. **GEOLOGIC NAME OF SURFACE FORMATION**
   a. Permian

2. **ESTIMATED TOPS OF GEOLOGICAL MARKERS & DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS**

Formation	True Vertical Depth (ft)	Measured Depth (ft)	Lithologies	Mineral Resources	Producing Formation
Salado	374.0	374.0	Salt/Anhydrite	BRINE	N
Base of Salt	2964.0	2976.8	Base Salt	BRINE	N
Lamar	3010.0	3023.5	Sand/Shale	OIL	Y
Bell Canyon	3045.0	3059.1	Sand/Shale	OIL	Y
Cherry Canyon	3918.0	3945.5	Sand/Carbonate	OIL	Y
Brushy Canyon	5075.0	5120.4	Sand/Carbonate	OIL	Y
Bone Spring	6704.0	6753.6	Sand/Carbonate/Shale	OIL	Y

DEEPEST EXPECTED FRESH WATER: 275' TVD

ANTICIPATED BOTTOM HOLE PRESSURE: 3,958 psi

ANTICIPATED BOTTOM HOLE TEMPERATURE: 144 °F

ANTICIPATED ABNORMAL PRESSURE: N

ANTICIPATED ABNORMAL TEMPERATURE: N

3. **CASING PROGRAM**

String Type	Hole Size	Csg 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	400	0	400	54.5	J55	STC	5.22	1.81	3.42
Intermediate	12 1/4	9 5/8	0	3020	0	3000	36	J55	LTC	2.26	2.01	2.51
Production csg	8 3/4	5 1/2	0	12741	0	7768	17	P110	BTC	2.48	1.23	2.58

Minimum safety factors: Burst 1.125 Collapse 1.125 Tension 1.8 Wet/1.6 Dry

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

4. CEMENT 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
Surface	Lead	--	0	0	0	1.747	13.5	0	100	Class C	
Surface	Tail	--	0	400	407	1.364	14.8	556	100	Class C	0.02 Gal/Sk Defoamer + 0.5% Extender + 1% Accelerator
Intermediate I	Lead	--	0	2000	634	1.73	12.8	1096	75	Class C	0.02 Gal/Sx Defoamer + 0.5% Extender + 1% Accelerator
Intermediate I	Tail	--	2000	3020	360	1.33	14.8	479	50	Class C	0.07 % Retarder
Production	Lead	--	2720	7240	719	2.807	11	1941	70	Class H	0.1% viscofier + 0.25 lb/sx defoamer + 5% retarder
Production	Tail	--	7240	12741	1657	1.223	14.5	1806	30	Class H	2% extender + 0.25% defoamer + 0.5% fluid loss + 0.2% dispersant

Stage tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. Stage tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Pilot hole depth: N/A TVD/MD
KOP: N/A TVD/MD

Plug top	Plug Bottom	Excess (%)	Quantity (sx)	Density (ppg)	Yield (ft3/sx)	Water gal/sk	Slurry Description and Cement Type

Attach plugging procedure for pilot hole.

5. PRESSURE CONTROL EQUIPMENT

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12 ¼"	13 5/8	5000	Annular	x	70% of working pressure
			Blind Ram	x	5000
			Pipe Ram	x	
			Double Ram	x	
			Other*		
8 ¾"	13 5/8	5000	5M Annular	x	70% of working pressure
			Blind Ram	x	5000
			Pipe Ram	x	
			Double Ram	x	
			Other *		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock, full opening safety valve / inside BOP and choke lines and choke manifold. See attached schematics.

Y	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
	N Are anchors required by manufacturer?
Y	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. See attached schematic.

6. MUD PROGRAM:

Top Depth	Bottom Depth	Mud Type	Min. Weight (ppg)	Max. Weight (ppg)	Additional Characteristics
0	400	Water Based Mud	8.4	8.8	
400	3020	Brine	9.9	10.2	
3020	12741	Cut Brine / Oil Based Mud	9.0	9.8	

Losses or gains in the mud system will be monitored visually/manually as well as with an electronic PVT. The necessary mud products for additional weight and fluid loss control will be on location at all times.

7. AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT

a. A Kelly cock will be in the drill string at all times.

b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor unobstructed and readily accessible at all times.

c. Hydrogen Sulfide detection equipment will be in operation after drilling out the surface casing shoe until the production casing is cemented. Breathing equipment will be on location upon drilling the surface casing shoe until total depth is reached. **If Hydrogen Sulfide is encountered , measured amounts and formations will be reported to the BLM**

8. LOGGING / CORING AND TESTING PROGRAM:

A. Mud Logger: None.

B. DST's: None.

C. Open Hole Logs: GR while drilling from 9 5/8" Intermediate casing shoe to TD.

9. POTENTIAL HAZARDS:

A. H2S detection equipment will be in operation after drilling out the surface casing shoe until the production casing has been cemented. Breathing equipment will be on location from drilling out the surface shoe until production casing is cemented. If H2S is encountered the operator will comply with Onshore Order #6.

B. No abnormal temperatures or pressures are anticipated. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely.

C. No losses are anticipated at this time.

D. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well.

E. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely.

10. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS

Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon as possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 30 days.