

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

**APPLICATION FOR PERMIT TO DRILL OR REENTER**

FORM APPROVED  
OMB No. 1004-0137  
Expires October 31, 2014

1a. Type of work: DRILL REENTER		5. Lease Serial No.	
1b. Type of Well: Oil Well Gas Well Other Single Zone Multiple Zone		6. If Indian, Allottee or Tribe Name	
2. Name of Operator [372098] MARATHON OIL PERMIAN LLC		7. If Unit or CA Agreement, Name and No.	
3a. Address		8. Lease Name and Well No. [319729]	
3b. Phone No. (include area code)		9. API Well No. 30-025-44102	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		10. Field and Pool, or Exploratory [98117] XXXXXXXXXX	
14. Distance in miles and direction from nearest town or post office*		11. Sec., T. R. M. or Blk. and Survey or Area	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)		12. County or Parish	
16. No. of acres in lease		13. State	
17. Spacing Unit dedicated to this well			
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.			
19. Proposed Depth		20. BLM/BIA Bond No. on file	
21. Elevations (Show whether DF, KDB, RT, GL, etc.)		22. Approximate date work will start*	
		23. Estimated duration	

**24. Attachments**

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature	Name (Printed/Typed)	Date
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Title

Approved by (Signature)	Name (Printed/Typed)	Date
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Title	Office
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Application approval 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.  
Conditions of approval, if any, are attached.

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.

(Continued on page 2)

\*(Instructions on page 2)



KZ  
10/10/2017



U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

# Operator Certification Data Report

10/05/2017

## Operator Certification

*I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.*

**NAME:** Sarah Presley

**Signed on:** 01/26/2017

**Title:** Regulatory Analyst

**Street Address:** 4000 N Big Spring Street, Suite 310

**City:** Midland

**State:** TX

**Zip:** 79705

**Phone:** (432)684-9696

**Email address:** spresley@bcooperating.com

## Field Representative

**Representative Name:** JASON GOSS

**Street Address:** 4000 N. BIG SPRING, SUITE 310

**City:** MIDLAND

**State:** TX

**Zip:** 79705

**Phone:** (432)684-9696

**Email address:** JGOSS@BCOPERATING.COM



APD ID: 10400008462

Submission Date: 01/27/2017

Highlighted data  
reflects the most  
recent changes

Operator Name: BC OPERATING INCORPORATED

Well Name: CAVE LION 5 FEDERAL WC

Well Number: 5H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

## Section 1 - General

APD ID: 10400008462

Tie to previous NOS? 10400007789

Submission Date: 01/27/2017

BLM Office: HOBBS

User: Sarah Presley

Title: Regulatory Analyst

Federal/Indian APD: FED

Is the first lease penetrated for production Federal or Indian? FED

Lease number: NMNM 13647

Lease Acres: 1281.31

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? NO

Permitting Agent? NO

APD Operator: BC OPERATING INCORPORATED

Operator letter of designation: Cave Lion 5 Federal WC 5H\_Acceptance of Responsibility Signed\_01-25-2017.pdf

## Operator Info

Operator Organization Name: BC OPERATING INCORPORATED

Operator Address: 4000 N Big Spring Street, Suite 310

Zip: 79705

Operator PO Box:

Operator City: Midland

State: TX

Operator Phone: (432)684-9696

Operator Internet Address:

## Section 2 - Well Information

Well in Master Development Plan? NO

Mater Development Plan name:

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: CAVE LION 5 FEDERAL WC

Well Number: 5H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: HARDIN TANK

Pool Name: WOLFCAMP

Is the proposed well in an area containing other mineral resources? USEABLE WATER

**Operator Name:** BC OPERATING INCORPORATED

**Well Name:** CAVE LION 5 FEDERAL WC

**Well Number:** 5H

**Describe other minerals:**

**Is the proposed well in a Helium production area?** N **Use Existing Well Pad?** NO **New surface disturbance?**

**Type of Well Pad:** SINGLE WELL

**Multiple Well Pad Name:**

**Number:**

**Well Class:** HORIZONTAL

**Number of Legs:** 1

**Well Work Type:** Drill

**Well Type:** OIL WELL

**Describe Well Type:**

**Well sub-Type:** EXPLORATORY (WILDCAT)

**Describe sub-type:**

**Distance to town:** 12.38 Miles

**Distance to nearest well:** 149 FT

**Distance to lease line:** 185 FT

**Reservoir well spacing assigned acres Measurement:** 320 Acres

**Well plat:** Cave Lion 5 Federal WC 5H\_C102\_01-27-2017.pdf

**Well work start Date:** 04/17/2017

**Duration:** 40 DAYS

### Section 3 - Well Location Table

**Survey Type:** RECTANGULAR

**Describe Survey Type:**

**Datum:** NAD83

**Vertical Datum:** NAVD88

**Survey number:**

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	185	FSL	480	FWL	26S	35E	5	Aliquot SWS W	32.06560 31	- 103.3964 701	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 13647	327 1	0	0
KOP Leg #1	185	FSL	480	FWL	26S	35E	5	Aliquot SWS W	32.06560 31	- 103.3964 701	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 13647	- 897 9	122 50	122 50
PPP Leg #1	330	FSL	330	FWL	26S	35E	5	Aliquot SWS W	32.06600 23	- 103.3969 548	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 13647	- 947 9	130 50	127 50

**Operator Name:** BC OPERATING INCORPORATED

**Well Name:** CAVE LION 5 FEDERAL WC

**Well Number:** 5H

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
EXIT Leg #1	330	FNL	330	FWL	26S	35E	5	Aliquot NWN W	32.07871 35	- 103.3969 775	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 13647	- 947 9	172 86	127 50
BHL Leg #1	330	FNL	330	FWL	26S	35E	5	Aliquot NWN W	32.07871 35	- 103.3969 775	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 13647	- 947 9	172 86	127 50



APD ID: 10400008462

Submission Date: 01/27/2017

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Operator Name: BC OPERATING INCORPORATED

Well Name: CAVE LION 5 FEDERAL WC

Well Number: 5H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

## Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	RUSTLER ANHYDRITE	3270	1085	1085	ANHYDRITE	USEABLE WATER	No
2	LAMAR LS	-2078	5348	5348	LIMESTONE	POTASH	No
3	WOLFCAMP	-9480	12750	12750	LIMESTONE,SHALE	NATURAL GAS,OIL	Yes

## Section 2 - Blowout Prevention

Pressure Rating (PSI): 10M

Rating Depth: 15000

Equipment: CHOKE MANIFOLD, BOP, STABBING VALVE, FLARE &&& INSIDE BOP VALVE

Requesting Variance? NO

Variance request:

Testing Procedure: \*See attached Testing Procedure

### Choke Diagram Attachment:

Cave\_Lion\_5\_Federal\_WC\_5H\_10MCHOKE\_20170920123816.PDF

Cave\_Lion\_5\_Federal\_WC\_5H\_Contitech\_Hose\_SN\_663393\_20170920124511.pdf

Cave\_Lion\_5\_Federal\_WC\_5H\_Contitech\_Hose\_SN\_63393\_20170920124514.pdf

### BOP Diagram Attachment:

Cave\_Lion\_5\_Federal\_WC\_5H\_10M\_Manifold\_Diagram\_08-02-2017.pdf

Cave\_Lion\_5\_Federal\_WC\_5H\_Wellhead\_Diagram\_08-02-2017.pdf

Cave\_Lion\_5\_Federal\_WC\_5H\_10M\_Flex\_BOPE\_20170920123230.PDF

Cave\_Lion\_5\_Federal\_5H\_Testing\_Procedure\_20170920124909.pdf

Multibowl\_picture\_20170920124926.pdf

**Operator Name:** BC OPERATING INCORPORATED

**Well Name:** CAVE LION 5 FEDERAL WC

**Well Number:** 5H

**Pressure Rating (PSI):**

**Rating Depth:**

**Equipment:**

**Requesting Variance?**

**Variance request:**

**Testing Procedure:**

**Choke Diagram Attachment:**

**BOP Diagram Attachment:**

### Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	CONDUCTOR	26	20.0	NEW	API	N	0	40	0	40	-9479	-9519	40	H-40	94	OTHER - BTC						
2	SURFACE	17.5	13.375	NEW	API	N	0	1050	0	1050	-9479	-10529	1050	J-55	61	OTHER - BTC	1.125	1.125	BUOY	1.8	BUOY	1.8
3	INTERMEDIATE	12.25	9.625	NEW	API	N	0	5400	0	5400	-9479	-14879	5400	L-80	40	OTHER - BTC	1.125	1.125	BUOY	1.8	BUOY	1.8
4	PRODUCTION	8.75	7.0	NEW	API	N	3900	12080	3900	12080	-13379	-21559	8180	P-110	26	OTHER - BTC	1.125	1.125	BUOY	1.8	BUOY	1.8
5	LINER	6.125	4.5	NEW	API	N	11800	17286	11800	12750	-21279	-22229	5486	P-110	13.5	OTHER - BTC	1.125	1.125	BUOY	1.8	BUOY	1.8

**Casing Attachments**

**Operator Name:** BC OPERATING INCORPORATED

**Well Name:** CAVE LION 5 FEDERAL WC

**Well Number:** 5H

### Casing Attachments

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**Casing ID:** 1      **String Type:** CONDUCTOR

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

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**Casing ID:** 2      **String Type:** SURFACE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Cave Lion 5 Federal WC 5H\_Casing Calculations\_01-27-2017.pdf

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**Casing ID:** 3      **String Type:** INTERMEDIATE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Cave Lion 5 Federal WC 5H\_Casing Calculations\_01-27-2017.pdf

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**Operator Name:** BC OPERATING INCORPORATED

**Well Name:** CAVE LION 5 FEDERAL WC

**Well Number:** 5H

## Casing Attachments

**Casing ID:** 4      **String Type:** PRODUCTION

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Cave Lion 5 Federal WC 5H\_Casing Calculations\_01-27-2017.pdf

**Casing ID:** 5      **String Type:** LINER

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Cave Lion 5 Federal WC 5H\_Casing Calculations\_01-27-2017.pdf

## Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
CONDUCTOR	Lead		0	40	90	1.33	14.8	120	100	READY MIX CEMENT	NONE

SURFACE	Lead		0	1050	530	1.82	12.8	964	100	CLASS C	5% P-402, ¼ CELLO FLAKE
SURFACE	Tail				450	1.33	14.8	598	100	CLASS C	¼#/ SACK CELLO FLAKE, 2% CACL
INTERMEDIATE	Lead		0	5400	1030	2.61	11.6	2688	75	50/50 CLASS C	10% GEL, 5% P-402, .4% P-101, ¼ LB/SX

**Operator Name:** BC OPERATING INCORPORATED

**Well Name:** CAVE LION 5 FEDERAL WC

**Well Number:** 5H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
											CELLO FLAKE
INTERMEDIATE	Tail				230	1.6	13.8	368	50	CLASS C	.3% P-101 ¼#/ SACK CELLO FLAKE
PRODUCTION	Lead		3900	1208 0	600	2.37	11.8	1422	50	50/50 CLASS C	+10% BENTONITE +.15% C-20 RETARDER +3# GILSONITE +.3% C-12 FLUID LOSS+3% SALT+.25%
PRODUCTION	Tail				350	1.18	15.6	413	50	PRO-VALUE H	none
LINER	Lead		1180 0	1728 6	440	1.87	14.8	822	50	PRO-VALUE H	50% CaCO3

## Section 5 - Circulating Medium

**Mud System Type:** Closed

**Will an air or gas system be Used?** NO

**Description of the equipment for the circulating system in accordance with Onshore Order #2:**

**Diagram of the equipment for the circulating system in accordance with Onshore Order #2:**

**Describe what will be on location to control well or mitigate other conditions:** ALL MUD ADDITIVES NEEDED TO CONTROL WELL WILL BE ON LOCATION

**Describe the mud monitoring system utilized:** Mud monitoring system: Mud will be maintained and checked daily for mud weight, viscosity, API water loss, pH, etc. Additional electronic monitoring will include a pit volume totalizer to monitor mud volume in active system, pump rate, and mud return flow percentage. H2S monitors and alarms will be located on rig floor, shale shakers, and mud tanks (see rig plat). Gas chromatograph with monitor hydrocarbon gas content of mud from 5,400' to TD. Third party corrosion company will utilize H2S/oxygen scavengers to monitor for corrosion and limit damage to tubulars.

## Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
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**Operator Name:** BC OPERATING INCORPORATED

**Well Name:** CAVE LION 5 FEDERAL WC

**Well Number:** 5H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	1050	SPUD MUD	8.33	9.5							
1050	5400	SALT SATURATED	9.8	10.5							
5400	12080	WATER-BASED MUD	9	9.5							
12080	12750	OIL-BASED MUD	11.8	12.5							

## Section 6 - Test, Logging, Coring

**List of production tests including testing procedures, equipment and safety measures:**

- Testing: No DST's will be conducted.
- Cased hole Gamma and Cement bond log for 7" casing
- Mud logging will take place from 5,400ft to TD 10ft samples
- Gyro survey will be run at 1,150'
- MWD (directional surveys) and LWD (gamma) surveys will be taken from KOP (12,177') to TD 17,286ft

**List of open and cased hole logs run in the well:**

CBL,GR

**Coring operation description for the well:**

NO CORING

## Section 7 - Pressure

**Anticipated Bottom Hole Pressure:** 8287

**Anticipated Surface Pressure:** 5482

**Anticipated Bottom Hole Temperature(F):** 165

**Anticipated abnormal pressures, temperatures, or potential geologic hazards?** NO

**Describe:**

**Contingency Plans geohazards description:**

**Contingency Plans geohazards attachment:**

**Hydrogen Sulfide drilling operations plan required?** YES

**Hydrogen sulfide drilling operations plan:**

**Operator Name:** BC OPERATING INCORPORATED

**Well Name:** CAVE LION 5 FEDERAL WC

**Well Number:** 5H

Cave Lion 5 Federal WC 5H\_H2S Drilling Plans\_01-27-2017.pdf

## Section 8 - Other Information

**Proposed horizontal/directional/multi-lateral plan submission:**

Cave Lion 5 Federal WC 5H\_Drilling Plan\_01-27-2017.pdf

**Other proposed operations facets description:**

**Other proposed operations facets attachment:**

Cave Lion 5 Federal BC 5H\_Closed Loop System Plan\_01-27-2017.pdf

Cave Lion 5 Federal BC 5H\_Emergency Contacts\_01-27-2017.pdf

Cave\_Lion\_5\_Federal\_WC\_5H\_Gas\_Capture\_Plan\_05-30-2017.pdf

Cave\_Lion\_5\_Federal\_WC\_5H\_Drilling\_\_\_Operations\_Plan\_\_\_Application\_\_\_06-15-2017.pdf

**Other Variance attachment:**

