

OKLAHOMA CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION
P.O. BOX 52000
OKLAHOMA CITY, OK 73152-2000
(Rule 165:10-3-1)

API NUMBER: 093 25077

Approval Date: 06/29/2017

Expiration Date: 06/29/2018

Horizontal Hole Oil & Gas

PERMIT TO DRILL

WELL LOCATION: Sec: 21 Twp: 20N Rge: 12W

County: MAJOR

SPOT LOCATION: ☐ SW ☐ SW ☐ SW ☐ SE

FEET FROM QUARTER: FROM SOUTH FROM EAST

SECTION LINES: 304 2618

Lease Name: CASCADE 21-20-12

Well No: 2HC

Well will be 304 feet from nearest unit or lease boundary.

Operator Name: CHESAPEAKE OPERATING LLC

Telephone: 4059353425; 4059358

OTC/OCC Number: 17441 0

CHESAPEAKE OPERATING LLC
PO BOX 18496
OKLAHOMA CITY, OK 73154-0496

KLM FARMS, L.L.C. C/O KELLY WAHL
220 E. WINONA RD.
FAIRVIEW OK 73737

Formation(s) (Permit Valid for Listed Formations Only):

Name	Depth	Name	Depth
1 MISSISSIPPI SOLID	8400	6	
2		7	
3		8	
4		9	
5		10	

Spacing Orders: 108819
228797

Location Exception Orders:

Increased Density Orders:

Pending CD Numbers: 201703503
201703504
201703505
201703508
201703510

Special Orders:

Total Depth: 18700

Ground Elevation: 1469

Surface Casing: 1500

Depth to base of Treatable Water-Bearing FM: 590

Under Federal Jurisdiction: No

Fresh Water Supply Well Drilled: No

Surface Water used to Drill: No

PIT 1 INFORMATION

Type of Pit System: ON SITE

Type of Mud System: WATER BASED

Chlorides Max: 25000 Average: 8000

Is depth to top of ground water greater than 10ft below base of pit? Y

Within 1 mile of municipal water well? N

Wellhead Protection Area? N

Pit is not located in a Hydrologically Sensitive Area.

Category of Pit: 2

Liner not required for Category: 2

Pit Location is NON HSA

Pit Location Formation: BLAINE

Approved Method for disposal of Drilling Fluids:

A. Evaporation/dewater and backfilling of reserve pit.

D. One time land application -- (REQUIRES PERMIT)

PERMIT NO: 17-32709

H. SEE MEMO

This permit does not address the right of entry or settlement of surface damages.

The duration of this permit is SIX MONTHS, except as otherwise provided by Rule 165: 10-3-1.

Rule 165: 10-3-4 (c) (7) (e) - The Operator shall give 24 Hours notice by telephone to the appropriate District Office of the Conservation Division as to when Surface Casing will be run.

PIT 2 INFORMATION

Type of Pit System: ON SITE

Type of Mud System: OIL BASED

Chlorides Max: 300000 Average: 160000

Is depth to top of ground water greater than 10ft below base of pit? Y

Within 1 mile of municipal water well? N

Wellhead Protection Area? N

Pit is not located in a Hydrologically Sensitive Area.

Category of Pit: 3

Liner required for Category: 3

Pit Location is NON HSA

Pit Location Formation: BLAINE

HORIZONTAL HOLE 1

Sec 16 Twp 20N Rge 12W County MAJOR

Spot Location of End Point: NE NE NW NE

Feet From: NORTH 1/4 Section Line: 50

Feet From: EAST 1/4 Section Line: 1535

Depth of Deviation: 7947

Radius of Turn: 477

Direction: 11

Total Length: 10004

Measured Total Depth: 18700

True Vertical Depth: 8400

End Point Location from Lease,
Unit, or Property Line: 50

Notes:

Category

Description

DEEP SURFACE CASING

6/20/2017 - G71 - APPROVED; NOTIFY OCC FIELD INSPECTOR IMMEDIATELY FOR ANY LOSS OF CIRCULATION OR FAILURE TO CIRCULATE CEMENT TO SURFACE ON CONDUCTOR OR SURFACE CASING

HYDRAULIC FRACTURING

6/20/2017 - G71 - OCC 165:10-3-10 REQUIRES: 1) THE CHEMICAL DISCLOSURE OF HYDRAULIC FRACTURING INGREDIENTS FOR ALL WELLS BE REPORTED TO FRACFOCUS USING THE FOLLOWING LINK [HTTP://FRACFOCUS.ORG/](http://fracfocus.org/) WITH NOTICE GIVEN 48 HOURS IN ADVANCE OF FRACTURING TO THE LOCAL OCC DISTRICT OFFICE; AND, 2) PRIOR TO COMMENCEMENT OF FRACTURING OPERATIONS FOR HORIZONTAL WELLS, NOTICE ALSO GIVEN FIVE BUSINESS DAYS IN ADVANCE TO OFFSET OPERATORS WITH WELLS COMPLETED IN THE SAME COMMON SOURCE OF SUPPLY WITHIN 1/2 MILE

INTERMEDIATE CASING

6/20/2017 - G71 - DUE TO THE KNOWN POTENTIAL RISK OF ENCOUNTERING AN OVER-PRESSURED ZONE IN THE MORROW SERIES IN THIS AREA, THE TECHNICAL MANAGER RECOMMENDS SETTING AN INTERMEDIATE STRING OF CASING IMMEDIATELY ABOVE THE MORROW SERIES

MEMO

6/20/2017 - G71 - PIT 1 & 2 - CONCRETE-LINED PIT PER OPERATOR REQUEST; PIT 2 - OBM TO VENDOR, OBM CUTTINGS PER DISTRICT

PENDING CD - 201703503

6/27/2017 - G75 - (I.O.) 21 & 16-20N-12W
EST MULTIUNIT HORIZONTAL WELL
X228797 MSSSD 21-20N-12W
X108819 MSSSD 16-20N-12W
50% 21-20N-12W
50% 16-20N-12W
NO OP. NAMED
REC 6-27-2017 (THOMAS)

This permit does not address the right of entry or settlement of surface damages.

093 25077 CASCADE 21-20-12 2HC

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Rule 165: 10-3-4 (c) (7) (e) - The Operator shall give 24 Hours notice by telephone to the appropriate District Office of the Conservation Division as to when Surface Casing will be run.

Category	Description
PENDING CD - 201703504	6/27/2017 - G75 - (I.O.) 21-20N-12W X228797 MSSSD COMPL. INT. NCT 150' FSL, NCT 0' FNL, NCT 1320' FEL NO OP. NAMED REC 6-27-2017 (THOMAS)
PENDING CD - 201703505	6/27/2017 - G75 - (I.O.) 16-20N-12W X108819 MSSSD COMPL. INT. NCT 0' FSL, NCT 150' FNL, NCT 1320' FEL NO OP. NAMED REC 6-27-2017 (THOMAS)
PENDING CD - 201703508	6/27/2017 - G75 - 21-20N-12W X228797 MSSSD 4 WELLS NO OP. NAMED REC 6-27-2017 (THOMAS)
PENDING CD - 201703510	6/27/2017 - G75 - 16-20N-12W X108819 MSSSD 3 WELLS NO OP. NAMED REC 6-27-2017 (THOMAS)
SPACING - 108819	6/27/2017 - G75 - (640) 16-20N-12W EXT 83423/97877 MSSSD, OTHERS EXT OTHER EST OTHER
SPACING - 228797	6/27/2017 - G75 - (640) 21-20N-12W EXT OTHERS EXT 83423/162490 MSSSD

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