

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

API NUMBER: 083 24448

Approval Date: 03/20/2019

Expiration Date: 09/20/2020

Straight Hole Oil & Gas

PERMIT TO DRILL

WELL LOCATION: Sec: 16 Twp: 17N Rge: 4W

County: LOGAN

SPOT LOCATION:

FEET FROM QUARTER: FROM NORTH FROM WEST

SECTION LINES: 330 160

Lease Name: STATE

Well No: 3-16

Well will be 160 feet from nearest unit or lease boundary.

Operator Name: ARROWHEAD ENERGY INC

Telephone: 4058485777

OTC/OCC Number: 10239 0

ARROWHEAD ENERGY INC
2934 NW 156TH ST
EDMOND, OK 73013-2102

COMMISSIONER OF THE LAND OFFICE
204 NORTH ROBINSON, STE 900
OKLAHOMA CITY OK 73102

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

	Name	Depth	Name	Depth
1	MISSISSIPPI LIME	6300	6	
2	WOODFORD	6750	7	
3	HUNTON	6875	8	
4			9	
5			10	

Spacing Orders: 57766
62015
62761

Location Exception Orders:

Increased Density Orders:

Pending CD Numbers: 201900819
201900820

Special Orders:

Total Depth: 7100

Ground Elevation: 1115

Surface Casing: 500

Depth to base of Treatable Water-Bearing FM: 380

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: 5000 Average: 3000

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

Within 1 mile of municipal water well? Y

Wellhead Protection Area? Y

Pit is located in a Hydrologically Sensitive Area.

Category of Pit: 1A

Liner required for Category: 1A

Pit Location is AP/TE DEPOSIT

Pit Location Formation: TERRACE

Approved Method for disposal of Drilling Fluids:

A. Evaporation/dewater and backfilling of reserve pit.

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

PERMIT NO: 19-36311

H. MIN. 20-MIL PIT LINER REQUIRED

Notes:

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.

Category	Description
HYDRAULIC FRACTURING	<p>3/5/2019 - G71 - OCC 165:10-3-10 REQUIRES:</p> <p>1) PRIOR TO COMMENCEMENT OF HYDRAULIC FRACTURING OPERATIONS FOR HORIZONTAL WELLS, NOTICE GIVEN FIVE BUSINESS DAYS IN ADVANCE TO OFFSET OPERATORS WITH WELLS COMPLETED IN THE SAME COMMON SOURCE OF SUPPLY WITHIN 1/2 MILE;</p> <p>2) WITH NOTICE ALSO GIVEN 48 HOURS IN ADVANCE OF HYDRAULIC FRACTURING ALL WELLS TO BOTH THE OCC CENTRAL OFFICE AND LOCAL DISTRICT OFFICES, USING THE "FRAC NOTICE FORM" FOUND AT THE FOLLOWING LINK: OCCWEB.COM/OG/OGFORMS.HTML; AND,</p> <p>3) THE CHEMICAL DISCLOSURE OF HYDRAULIC FRACTURING INGREDIENTS FOR ALL WELLS TO BE REPORTED TO FRACFOCUS WITHIN 60 DAYS AFTER THE CONCLUSION THE HYDRAULIC FRACTURING OPERATIONS, USING THE FOLLOWING LINK: FRACFOCUS.ORG</p>
PENDING CD - 201900819	<p>3/20/2019 - GA8 - W2 SW & N2 SW & SW 16-17N-4W X57766/62761 MSSLM W2 SW X62015 HNTN N2 SW X165:10-1-21 WDFD SW 330 FNL, 160 FWL REC 2/26/2019 (DENTON)</p>
PENDING CD - 201900820	<p>3/20/2019 - GA8 - SW 16-17N-4W X57766/62761 MSSLM 1 WELL ARROWHEAD ENERGY INC. REC 2/26/2019 (DENTON)</p>
PUBLIC WATER SUPPLY WELL	<p>3/5/2019 - G71 - LOGAN CO RWS & SWMD #3 - 1 PWS/WPA, NE/4 20-17N-4W</p>
SPACING	<p>3/20/2019 - GA8 - WDFD UNSPACED; 160-ACRE LEASE (SW)</p>
SPACING - 57766	<p>3/19/2019 - GA8 - (80) 16-17N-4W SU SLOT (1965) NE/SW (1971) EXT 44223/56945 MPMC (AMD TO MSSLM BY 62761)</p>
SPACING - 62015	<p>3/19/2019 - GA8 - (80) 16-17N-4W LD SLOT (1966) NE/SW (1971) EST HNTN</p>
SPACING - 62761	<p>3/19/2019 - GA8 - (80) 16-17N-4W AMD 44223/VARS/57766/VARS CHANGING MPMC TO MSSLM</p>
SURFACE CASING	<p>3/5/2019 - G71 - MIN. 500' PER ORDERS 59052/66227</p>