

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

API NUMBER: 005 20463 B

Approval Date: 08/22/2017
Expiration Date: 02/22/2018

Horizontal Hole
Multi Unit

Oil & Gas

Amend reason: DELETE FORMATIONS; CHANGE BOTTOM-HOLE
LOCATION & TOTAL DEPTH; UPDATE ORDERS

AMEND PERMIT TO DRILL

WELL LOCATION: Sec: 31 Twp: 2N Rge: 12E County: ATOKA
SPOT LOCATION: NE SE SE SW FEET FROM QUARTER: FROM SOUTH FROM WEST
SECTION LINES: 387 2395

Lease Name: CAIRO Well No: 4-31/30H Well will be 387 feet from nearest unit or lease boundary.
Operator BRAVO ARKOMA LLC Telephone: 9188944440; 9188944 OTC/OCC Number: 23562 0
Name:

BRAVO ARKOMA LLC
1323 E 71ST ST STE 400
TULSA, OK 74136-5067

BRAVO ARKOMA LLC
1323 E. 71ST STREET, SUITE 400
TULSA OK 74136

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

	Name	Depth	Name	Depth
1	MISSISSIPPIAN	11073	6	
2	WOODFORD	11364	7	
3			8	
4			9	
5			10	

Spacing Orders: 532198
688921

Location Exception Orders:

Increased Density Orders:

Pending CD Numbers: 201809566
201809565

Special Orders:

Total Depth: 20232 Ground Elevation: 679 Surface Casing: 1000 Depth to base of Treatable Water-Bearing FM: 100

Under Federal Jurisdiction: No Fresh Water Supply Well Drilled: No Surface Water used to Drill: Yes

PIT 1 INFORMATION

Type of Pit System: ON SITE
Type of Mud System: AIR

Approved Method for disposal of Drilling Fluids:

A. Evaporation/dewater and backfilling of reserve pit.

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 located in a Hydrologically Sensitive Area.

F. Haul to Commercial soil farming facility: Sec. 14 Twn. 7N Rng. 9E Cnty. 63 Order No: 551649

H. SEE MEMO

Category of Pit: 4

Liner not required for Category: 4

Pit Location is BED AQUIFER

Pit Location Formation: SAVANNA

Mud System Change to Water-Based or Oil-Based Mud Requires an Amended Intent (Form 1000).

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: CLOSED Closed System Means Steel Pits

Type of Mud System: WATER BASED

Chlorides Max: 8000 Average: 5000

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 located in a Hydrologically Sensitive Area.

Category of Pit: C

Liner not required for Category: C

Pit Location is BED AQUIFER

Pit Location Formation: SAVANNA

PIT 3 INFORMATION

Type of Pit System: CLOSED Closed System Means Steel Pits

Type of Mud System: OIL BASED

Chlorides Max: 300000 Average: 200000

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 located in a Hydrologically Sensitive Area.

Category of Pit: C

Liner not required for Category: C

Pit Location is BED AQUIFER

Pit Location Formation: SAVANNA

HORIZONTAL HOLE 1

Sec 30 Twp 2N Rge 12E County ATOKA

Spot Location of End Point: NE NW NW NE

Feet From: NORTH 1/4 Section Line: 165

Feet From: EAST 1/4 Section Line: 2000

Depth of Deviation: 10524

Radius of Turn: 900

Direction: 5

Total Length: 8294

Measured Total Depth: 20232

True Vertical Depth: 11761

End Point Location from Lease,

Unit, or Property Line: 165

Notes:

Category

Description

DEEP SURFACE CASING

8/8/2017 - G58 - APPROVED; NOTIFY OCC FIELD INSPECTOR IMMEDIATELY FOR ANY LOSS OF CIRCULATION OR FAILURE TO CIRCULATE CEMENT TO SURFACE ON CONDUCTOR OR SURFACE CASING

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.

005 20463 CAIRO 4-31/30H

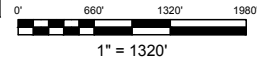
Category	Description
HYDRAULIC FRACTURING	<p>11/21/2017 - G71 - OCC 165:10-3-10 REQUIRES:</p> <p>1) PRIOR TO COMMENCEMENT OF HYDRAULIC FRACTURING OPERATIONS FOR HORIZONTAL WELLS, NOTICE GIVEN FIVE BUSINESS DAYS IN ADVANCE TO OFFSET OPERATORS WITH WELLS COMPLETED IN THE SAME COMMON SOURCE OF SUPPLY WITHIN 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>
MEMO	<p>8/8/2017 - G58 - PIT 2 & 3 - CLOSED SYSTEM=STEEL PITS PER OPERATOR REQUEST; PIT 3 - OBM TO VENDOR, OBM CUTTINGS PER DISTRICT</p>
PENDING CD - 201809565	<p>1/25/2019 - G75 - (I.O.) 31 & 30-2N-12E EST MULTIUNIT HORIZONTAL WELL X688921 MSSP, WDFD 31-2N-12E X532198 MSSP, WDFD 30-2N-12E (WDFD ADJACENT COMMON SOURCE OF SUPPLY TO MSSP) 50% 31-2N-12E 50% 30-2N-12E NO OP. NAMED REC 1-22-2019 (JOHNSON)</p>
PENDING CD - 201809566	<p>1/25/2019 - G75 - (I.O.) 31 & 30-2N-12E X688921 MSSP, WDFD 31-2N-12E X532198 MSSP, WDFD 30-2N-12E SHL (31-2N-12E) 387' FSL, 2395' FWL COMPL. INT. (31-2N-12E) NCT 165' FSL, NCT 0' FNL, NCT 1350' FEL COMPL. INT. (30-2N-12E) NCT 0' FSL, NCT 165' FNL, NCT 1350' FEL NO OP. NAMED REC 1-22-2019 (JOHNSON)</p>
SPACING - 532198	<p>12/4/2017 - G75 - (640) 30-2N-12E EXT 527089 MSSP, WDFD, OTHERS</p>
SPACING - 688921	<p>1/25/2019 - G75 - (640)(HOR) 31-2N-12E EST MSSP, WDFD, OTHERS POE TO BHL (MSSP) NLT 660' FB POE TO BHL (WDFD) NLT 165' FNL & FSL, NLT 330' FEL & FWL (COEXIST SP. ORDER # 554390 CNEY, WDFD)</p>

Operator: BRAVO NATURAL RESOURCES, LLC
Lease Name and No.: CAIRO #4-31/30H
Footage: 387' FSL - 2395' FWL Pad Elevation: 679'
Section: 31 Township: 2N Range: 12E I.M.
County: Atoka State of Oklahoma
Terrain at Loc.: Location fell on existing Bravo Pad. 15' South of existing Thoman #1-31 wellhead.

API 005-20463 B

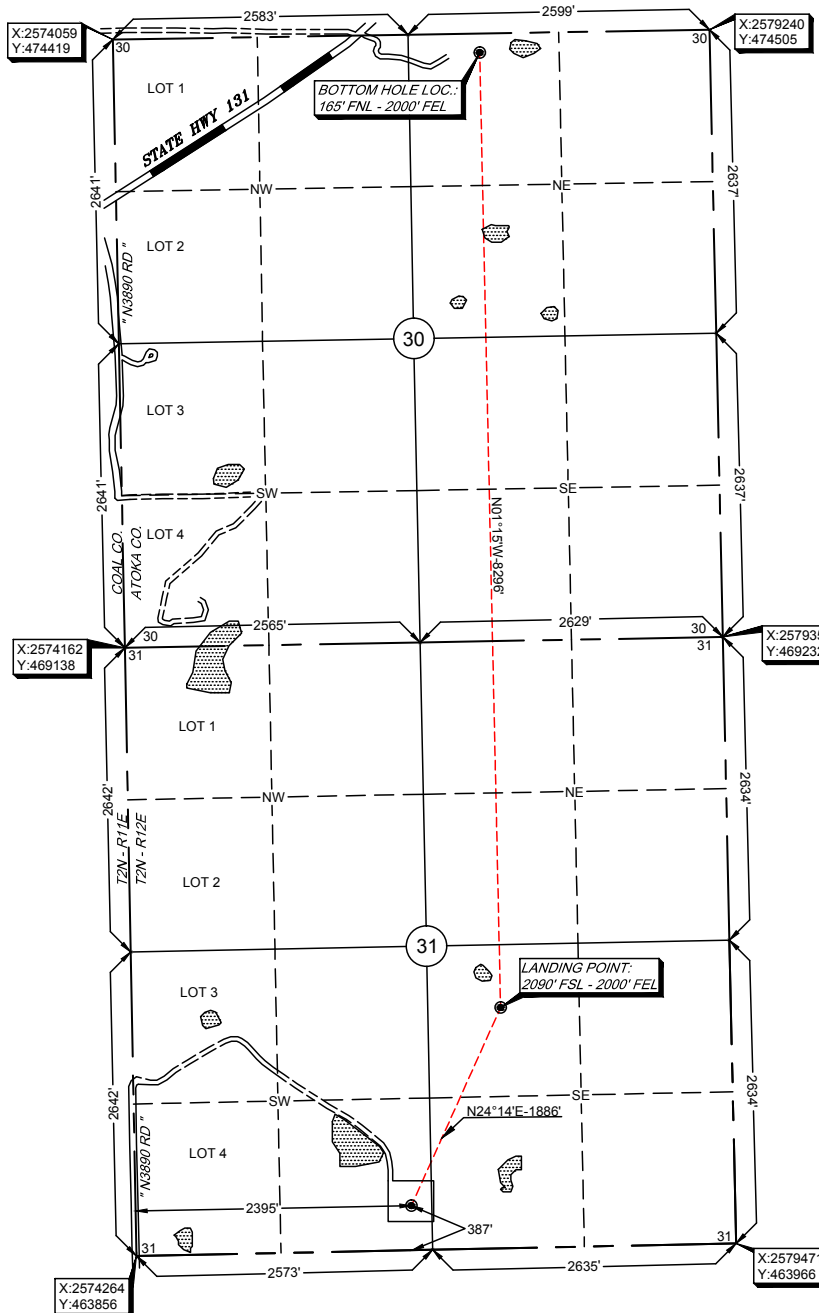


All bearings shown
are grid bearings.



GPS DATUM
NAD 27
OK SOUTH ZONE

Surface Hole Loc.:
Lat: 34°35'38.90"N
Lon: 96°05'01.85"W
Lat: 34.59413809
Lon: -96.08384751
X: 2576651
Y: 464293
Landing Point:
Lat: 34°35'55.76"N
Lon: 96°04'52.20"W
Lat: 34.59882305
Lon: -96.08116548
X: 2577426
Y: 466013
Bottom Hole Loc.:
Lat: 34°37'17.83"N
Lon: 96°04'52.48"W
Lat: 34.62161930
Lon: -96.08124549
X: 2577244
Y: 474307



Please note that this location was staked on the ground under the supervision of a Licensed Professional Land Surveyor, but the accuracy of the survey is not guaranteed. Please contact the Surveyor for more information and mapping promptly if any inaccuracy is determined. GPS data is obtained from RTK - GPS.

NOTE: X and Y data shown herein for Section Corners may NOT have been surveyed on the ground, and further, does NOT represent a true Boundary Survey. Quarter Section distances may be assumed from a Government Survey Plat or assumed at a proportionate distance from opposing section corners, or occupation thereof, and may not have been measured on the ground, and further, does not represent a true boundary survey.

Survey and plat by:
Arkoma Surveying and Mapping, PLLC
P.O. Box 238 Wilburton, OK 74578
Ph. 918-465-5711 Fax 918-465-5030
Certificate of Authorization No. 5348
Expires June 30, 2020

Invoice #7284
Date Staked: 08/07/17 By: B.M.
Date Drawn: 08/09/17 By: K.B.
Add LP & BHL: 11/14/17 By: P.B.
Moved LP & BHL: 11/16/18 By: E.W.

Certification:

This is to certify that this Well Location Plat represents the results of a survey made on the ground performed under the supervision of the undersigned.

Lance G. Mathis
LANCE G. MATHIS

11/19/18

OK LPLS 1664

