

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 A

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

Horizontal Hole Oil & Gas

Amend reason: CHANGE TO HORIZONTAL OIL/GAS WELL;
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 Name: BRAVO ARKOMA LLC

Telephone: 9188944440; 9188944

OTC/OCC Number: 23562 0

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	CANEY	11093	7	
3	WOODFORD	11364	8	
4	HUNTON	11527	9	
5			10	

Spacing Orders: 246342
532198
148624
554390
670502

Location Exception Orders: 670255

Increased Density Orders: 670315
669593

Pending CD Numbers:

Special Orders:

Total Depth: 22605

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

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: 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).

Approved Method for disposal of Drilling Fluids:

A. Evaporation/dewater and backfilling of reserve pit.

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

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: 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: N2 N2 N2 NE

Feet From: NORTH 1/4 Section Line: 165

Feet From: EAST 1/4 Section Line: 1320

Depth of Deviation: 10958

Radius of Turn: 900

Direction: 10

Total Length: 10233

Measured Total Depth: 22605

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

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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: OCCEWEB.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>
INCREASED DENSITY - 669593	<p>12/4/2017 - G75 - 31-2N-12E X554390 WDFD 1 WELL BRAVO ARKOMA LLC 10-31-2017</p>
INCREASED DENSITY - 670315	<p>12/4/2017 - G75 - 30-2N-12E X532198 WDFD 1 WELL BRAVO ARKOMA LLC 11-21-2017</p>
LOCATION EXCEPTION - 670255	<p>12/4/2017 - G75 - (I.O.) 31 & 30-2N-12E X148624 HNTN 31-2N-12E X554390 CNEY, WDFD 31-2N-12E X246342 HNTN 30-2N-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 ** BRAVO ARKOMA LLC 11-20-2017</p> <p>** ITD HAS BHL AS 1320' FEL; TO BE CORRECTED AT HEARING FOR FINAL ORDER LOCATION EXCEPTION PER OPERATOR</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>
SPACING - 148624	<p>12/4/2017 - G75 - (640) 31-2N-12E EXT 132149 HNTN, OTHERS</p>
SPACING - 246342	<p>12/4/2017 - G75 - (640) 30-2N-12E EXT OTHERS EXT 148624 HNTN, OTHERS</p>
SPACING - 532198	<p>12/4/2017 - G75 - (640) 30-2N-12E EXT 527089 MSSP, WDFD, OTHERS</p>
SPACING - 554390	<p>12/4/2017 - G75 - (640) 31-2N-12E EXT 552331 WDFD EST CNEY</p>
SPACING - 670502	<p>12/4/2017 - G75 - (I.O.) 31 & 30-2N-12E EST MULTIUNIT HORIZONTAL WELL X148624 HNTN 31-2N-12E X554390 CNEY, WDFD 31-2N-12E X246342 HNTN 30-2N-12E X532198 MSSP, WDFD 30-2N-12E (MSSP, CNEY, HNTN ASSOCIATED COMMON SOURCES OF SUPPLY TO WDFD) 50% 31-2N-12E 50% 30-2N-12E BRAVO ARKOMA LLC 11-28-2017</p>

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.



Well Location Plat

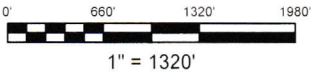
S.H.L. Sec. 31-2N-12E I.M.
B.H.L. Sec. 30-2N-12E I.M.

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.

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All bearings shown
are grid bearings.

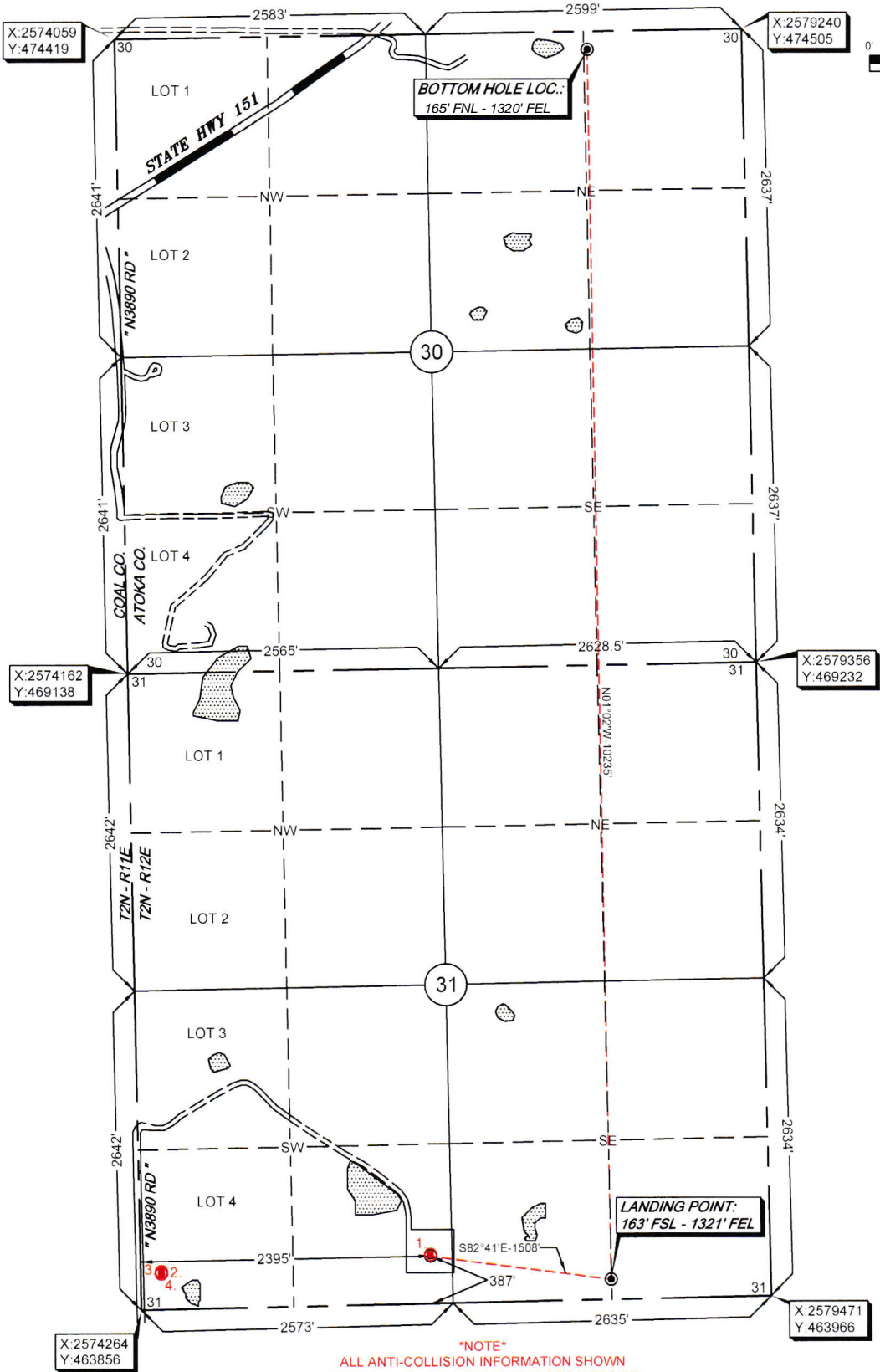


GPS DATUM
NAD 27
OK SOUTH ZONE

Surface Hole Loc.:
Lat: 34°35'38.90"N
Lon: 96°05'01.85"W
X: 2576651
Y: 464293

Landing Point:
Lat: 34°35'36.72"N
Lon: 96°04'44.00"W
X: 2578147
Y: 464101

Bottom Hole Loc.:
Lat: 34°37'17.96"N
Lon: 96°04'43.87"W
X: 2577964
Y: 474334



Please note that this location was staked on the ground under the supervision of a Licensed Professional Land Surveyor, but the accuracy of this survey is not guaranteed. Please contact Arkoma Surveying and Mapping promptly if any inconsistency is determined. GPS data is observed from RTK - GPS.

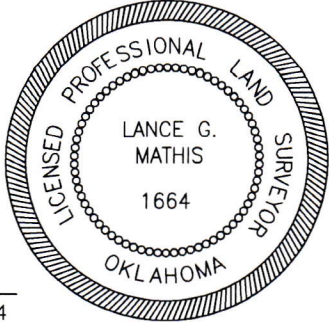
NOTE: X and Y data shown hereon for Section Corners may NOT have been surveyed on-the-ground, and further, does NOT represent a true boundary survey. Quarter Section distances may be assumed from a Government Survey Plat or assumed at a proportionate distance from opposing section corners, or occupation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

1. BRAVO ARKOMA LLC THOMAN 1-31 402' FSL - 2395' FWL (SW/4) OCC STATUS: AC	2. BRAVO ARKOMA LLC CAIRO 2-36H 295' FSL - 172' FWL (SW/4) OCC STATUS: N/A
3. BRAVO ARKOMA LLC CAIRO 3-36H 309' FSL - 172' FWL (SW/4) OCC STATUS: N/A	4. BRAVO ARKOMA LLC CAIRO 2-31/30H 294' FSL - 172' FWL (SW/4) OCC STATUS: N/A

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, 2018

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
11/14/17
OK LPLS 1664



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.