

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

API NUMBER: 063 24721

Approval Date: 11/08/2017  
Expiration Date: 05/08/2018

Horizontal Hole Oil & Gas

PERMIT TO DRILL

WELL LOCATION: Sec: 36 Twp: 8N Rge: 10E County: HUGHES  
SPOT LOCATION: ☐ SE ☐ SW ☐ SW ☐ SW FEET FROM QUARTER: FROM SOUTH FROM WEST  
SECTION LINES: 295 373

Lease Name: KELLER Well No: 3625-1HX Well will be 295 feet from nearest unit or lease boundary.  
Operator Name: ANTIOCH OPERATING LLC Telephone: 4052360080 OTC/OCC Number: 23947 0

ANTIOCH OPERATING LLC  
PO BOX 1557  
OKLAHOMA CITY, OK 73101-1557

KIMBERLY CROSSLEY  
605 EAGLE TRAIL  
KELLER TX 76248

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

	Name	Depth	Name	Depth
1	MISSISSIPPIAN	4350	6	
2	WOODFORD	4475	7	
3	HUNTON	4555	8	
4	SYLVAN	4575	9	
5			10	

Spacing Orders: 667089  
667745

Location Exception Orders: 667746

Increased Density Orders:

Pending CD Numbers:

Special Orders:

Total Depth: 14500

Ground Elevation: 873

**Surface Casing: 320**

Depth to base of Treatable Water-Bearing FM: 270

Under Federal Jurisdiction: No

Fresh Water Supply Well Drilled: No

Surface Water used to Drill: Yes

PIT 1 INFORMATION

Approved Method for disposal of Drilling Fluids:

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: CALVIN

D. One time land application -- (REQUIRES PERMIT)  
H. SEE MEMO

PERMIT NO: 17-33230

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: 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: CALVIN

## HORIZONTAL HOLE 1

Sec 25 Twp 8N Rge 10E County HUGHES

Spot Location of End Point: NE NW NW NW

Feet From: NORTH 1/4 Section Line: 165

Feet From: WEST 1/4 Section Line: 440

Depth of Deviation: 3951

Radius of Turn: 573

Direction: 2

Total Length: 9649

Measured Total Depth: 14500

True Vertical Depth: 4575

End Point Location from Lease,  
Unit, or Property Line: 165

### Notes:

#### Category

#### Description

#### GAS STORAGE UNIT

10/9/2017 - G71 - DRILLING IN GREASY CREEK SPRINGS GAS STORAGE FOR CHANNEL BOOCH (ORDER # 95952/96291); MUST NOTIFY GAS STORAGE OPERATOR PER OCC 165:10-3-5

#### HYDRAULIC FRACTURING

10/9/2017 - G71 - OCC 165:10-3-10 REQUIRES:

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;

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](http://OCCEWEB.COM/OG/OGFORMS.HTML); AND,

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](http://FRACFOCUS.ORG)

#### LOCATION EXCEPTION - 667746

11/8/2017 - G75 - (I.O.) 36 & 25-8N-10E  
X667089 MSSP, WDFD, HNTN, SLVN  
SHL (36-8N-10E) SW4  
COMPL. INT. (36-8N-10E) NCT 165' FSL, NCT 0' FNL, NCT 330' FWL  
COMPL. INT. (25-8N-10E) NCT 0' FSL, NCT 165' FNL, NCT 330' FWL  
ANTIOCH ENERGY, LLC \*\*  
9-1-2017

\*\* S/B ANTIOCH OP., LLC; TO BE CORRECTED AT HEARING FOR FINAL ORDER LOCATION EXCEPTION PER OPERATOR

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

063 24721 KELLER 3625-1HX

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
MEMO	10/9/2017 - G71 - PIT 1 & 2 - CLOSED SYSTEM=STEEL PITS PER OPERATOR REQUEST; PIT 2 - OBM TO VENDOR, OBM CUTTINGS PER DISTRICT
SPACING - 667089	11/8/2017 - G75 - (640)(HOR) 36 & 25-8N-10E VAC 175552 WDFD, HNTN VAC 185892/189993 WDFD, HNTN VAC 251496 HNTN EXT 630417 MSSP, WDFD, HNTN, SLVN POE TO BHL (MSSP, HNTN) NCT 660' FB POE TO BHL (SLVN) NCT 330' FB POE TO BHL (WDFD) NCT 165' FNL & FSL, NCT 330' FEL & FWL
SPACING - 667745	11/8/2017 - G75 - (I.O.) 36 & 25-8N-10E EST MULTIUNIT HORIZONTAL WELL X667089 MSSP, WDFD, HNTN, SLVN (MSSP, HNTN, SLVN ASSOCIATED COMMON SOURCES OF SUPPLY TO WDFD) 50% 36-8N-10E 50% 25-8N-10E ANTIOCH OP., LLC 9-1-2017
SURFACE LOCATION & WELL NUMBER	11/8/2017 - G75 - 295' FSL, 373' FWL SW4 36-8N-10E, GROUND ELEVATION 873', WELL NUMBER 3625-1HX PER STAKING PLAT

## APPLICATION TO DRILL, RECOMPLETE OR REENTER

FILE ORIGINAL ONLY

PLEASE TYPE OR USE BLACK INK

1. OTC/OCC OPERATOR NUMBER

23947

2. API NUMBER

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

BATCH NUMBER (OCC USE ONLY)

3. NOTICE OF INTENT TO:

(CHECK ONLY ONE)

☒ DRILL ☐ RECOMPLETE ☐ REENTER ☐ DEEPEN ☐ AMEND - REASON

NOTE: ATTACH COPY OF 1002-A IF RECOMPLETION OR REENTRY.

4. TYPE OF DRILLING OPERATION &gt;&gt;&gt;&gt;&gt;&gt;&gt; (NOTE: If directional or horizontal, see reverse side for bottom hole location)

A. ☐ STRAIGHT HOLE ☐ DIRECTIONAL HOLE ☒ HORIZONTAL HOLEB. ☒ OIL/GAS ☐ INJECTION ☐ DISPOSAL ☐ WATER SUPPLY ☐ STRAT TEST ☐ SERVICE WELL

5. WELL LOCATION:

SECTION 36 TOWNSHIP 08N RANGE 10E COUNTY Hughes

SPOT LOCATION: SE 1/4 SW 1/4 SW 1/4 SW 1/4 FEET FROM QUARTER from SOUTH LINE from WEST LINE  
SECTION LINES: 295 373

7. Well will be 295 feet from nearest unit or property boundary.

8. LEASE NAME: Keller 3625 WELL NUMBER: 1HX

9. NAME OF OPERATOR: Antioch Operating, LLC. EMAIL ADDRESS: runderwood@antioch.energy  
ADDRESS: 12 E. California AVE PHONE (AC/NUMBER) (405)236-0080  
CITY Oklahoma City STATE OK ZIP CODE 73103

10. SURFACE OWNER (ONE ONLY, ATTACH SHEET FOR ADDITIONAL OWNERS)

KIMBERLY CROSSLEY

ADDRESS 605 Eagle Trail  
CITY Keller STATE TX ZIP CODE 7624811. Is well located on lands under federal jurisdiction?  
Y N12. Will a water well be drilled? Y N  
Will surface water be used? Y N

14. LIST TARGET FORMATIONS AND DEPTHS OF EACH BELOW (LIMITED TO TEN)

- |                        |     |
|------------------------|-----|
| 1) MISSISSIPPIAN 4350' | 6)  |
| 2) WOODFORD 4475'      | 7)  |
| 3) HUNTON 4555'        | 8)  |
| 4) SYLVAN 4575'        | 9)  |
| 5)                     | 10) |

TEMPORARY AUTHORIZATION  
TO DRILL

Expiration Date: 11-1-2017

Signature: Virginia Hallen  
165:10-3-1-1

15. SPACING ORDER NUMBER(S) AND SIZE UNIT(S): 667089 &amp; Multiunit 667745

16. PENDING APPLICATION C.D. NO. 17. LOCATION EXCEPTION ORDER NO. 667746 18. INCREASED DENSITY ORDER NO.

19. TOTAL DEPTH 14,500 20. GROUND ELEV. 873 21. BASE OF TREATABLE WATER 270 22. SURFACE CASING 320' 23. ALT CASING PROG USED? Y N

24. ALTERNATIVE CASING PROCEDURE, check box and fill in blank (AFFIDAVIT REQUIRED, see reverse side, line 31.)

- A. Cement will be circulated from total depth to ground surface on the production casing string.
- B. Cement will be circulated from \_\_\_\_\_ depth to \_\_\_\_\_ depth by use of a two stage cementing tool.
- 25.1. PIT INFORMATION: Using more than one pit or mud system? Y N If yes, fill out line 25.2 on top reverse side.
- A. TYPE OF MUD SYSTEM: ☒ WATER BASED ☐ OIL BASED ☐ GAS BASED (AIR DRILL)
- B. EXPECTED MUD CHLORIDE CONTENT: maximum: 8000 ppm; average: 5000 ppm.
- PIT #1 C. TYPE OF PIT SYSTEM: ☐ on-site ☐ off-site ☒ closed If off-site, specify location: \_\_\_\_\_
- D. IS DEPTH TO TOP OF GROUND WATER GREATER THAN 10 FT BELOW BASE OF PIT? ☒ Y ☐ N
- E. WITHIN 1 MILE OF MUNICIPAL WATER WELL? ☐ Y ☒ N
- F. WELLHEAD PROTECTION AREA? ☐ Y ☒ N

Off-Site Pit No. \_\_\_\_\_

26.1 OCC USE ONLY A. CATEGORY 1A 1B 2 3 4 C B. PIT LOCATION: Alluvial Plain Terrace Deposit ☒ Bedrock Aquifer Other H.S.A. Non-H.S.A. Fm: Calvin  
C. Special area or field rule? 92952 96241 D. DEEP SCA? Y N E. CBL required? Y N  
F. SOIL COMPACTED LINER REQUIRED? Y N G. 20 mil GEOMEMBRANE LINER REQUIRED? Y N

27. PROPOSED METHOD FOR DISPOSAL OF DRILLING FLUIDS (MUST BE COMPLETED)

- A. Evaporation/dewater and backfilling of reserve pit.
- B. Public Landfill: Location \_\_\_\_\_
- C. Annular Injection (REQUIRES PERMIT and surface casing set 200 feet below base of treatable water-bearing formation.) PERMIT NO. \_\_\_\_\_
- X D. One time land application (REQUIRES PERMIT) PERMIT NO. 17-33230
- E. Haul to Commercial pit facility; Specify site: \_\_\_\_\_ Order No. \_\_\_\_\_
- F. Haul to Commercial soil farming facility; Specify site: \_\_\_\_\_ Order No. \_\_\_\_\_
- G. Haul to recycling/re-use facility; Specify site: \_\_\_\_\_ Order No. \_\_\_\_\_
- X H. Other, Specify: closed system = steel pits per operator request

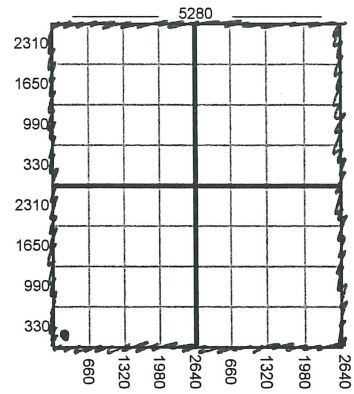
I hereby certify I am authorized to submit this two page application prepared by me or under my supervision.

The facts and proposals made herein are true, correct and complete to the best of my knowledge and belief.

SIGNATURE: Rob Underwood	NAME (Print or Type) Rob Underwood	PHONE (AC/NO.) 405-236-0080	FAX (AC/NO.)	DATE
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NOTICE: Approval is void if operations have not commenced within six months of the date of approval. An approved permit must be posted at the location during drilling and completion operations.

File the Form 1001A, Spud Report, within fourteen days of commencement of operations.



N

36  
08N  
10E  
Keller 3625  
1HX

SCANNED

**NOTIFY DISTRICT OFFICE 24 HOURS PRIOR TO CEMENTING SURFACE CASING.**

**25.2. PIT INFORMATION:**

A. TYPE OF MUD SYSTEM: WATER BASED    OIL BASED    GAS BASED (AIR DRILL)  
 B. EXPECTED MUD CHLORIDE CONTENT: maximum:    ppm; average:    ppm.  
 C. TYPE OF PIT SYSTEM: on-site    off-site    closed If off-site, specify location:     
 D. IS DEPTH TO TOP OF GROUND WATER GREATER THAN 10 FT BELOW BASE OF PIT?    Y    N  
 E. WITHIN 1 MILE OF MUNICIPAL WATER WELL?    Y    N  
 F. WELLHEAD PROTECTION AREA?    Y    N Off-Site Pit No.   

**26.2 OCC USE ONLY** A. CATEGORY 1A 1B 2 3 4 C Fm:     
 B. PIT LOCATION: Alluvial Plain    Terrace Deposit    Bedrock Aquifer    Other H.S.A.    Non-H.S.A.     
 C. Special area or field rule?    D. DEEP SCA?    Y    N E. CBL?    Y    N  
 F. SOIL COMPACTED LINER REQUIRED?    Y    N G. 20 mil GEOMEMBRANE LINER REQUIRED    Y    N

29 Bottom Hole Location SEC    TWP    RGE    COUNTY     
 for Directional Hole:

SPOT LOCATION: 1/4 1/4 1/4 1/4 FEET FROM QUARTER from SOUTH LINE from WEST LINE  
 SECTION LINES:

Measured Total True Vertical BHL from nearest Lease, Unit, Or Property Line:  
 Depth Depth

30. Bottom Hole Location for Horizontal Hole: (LATERALS)

LATERAL #1: SEC 25 TWP 08N RGE 10E COUNTY HUGHES  
 SPOT LOCATION: NE 1/4 NW 1/4 NW 1/4 FEET FROM QUARTER from from  
 SECTION LINES: 165 FNL 440 FNL

Depth of Deviation 3151 Radius of Turn 573 Direction 2 Total Length 9649

Measured Total True Vertical End Point location from nearest lease, unit  
 Depth 14,500' Depth 4575 or property line: 165

LATERAL #2: SEC    TWP    RGE    COUNTY     
 SPOT LOCATION: 1/4 1/4 1/4 1/4 FEET FROM QUARTER from from  
 SECTION LINES:

Depth of Deviation Radius of Turn Direction Total Length

Measured Total True Vertical End Point location from nearest lease, unit  
 Depth Depth or property line:

LATERAL #3: SEC    TWP    RGE    COUNTY     
 SPOT LOCATION: 1/4 1/4 1/4 1/4 FEET FROM QUARTER from SOUTH LINE from WEST LINE  
 SECTION LINES:

Depth of Deviation Radius of Turn Direction Total Length

Measured Total True Vertical End Point location from nearest lease, unit  
 Depth Depth or property line:

**31. AFFIDAVIT FOR ALTERNATIVE CASING PROGRAM** (Signature on front of this form attests to this affidavit)

1. This well    WILL    WILL NOT    penetrate any known lost circulation zones.  
 2. During the drilling of this well, withdrawals from any water well within 1/4 mile    WILL    WILL NOT    exceed 50 gallons per minute.  
 3. The projected depth of the well    IS    IS NOT    less than 100 feet from the top of any enhanced recovery project or gas storage facility.  
 4. List the following for all water wells within 1/4 mile of this well. (Information concerning some water wells may be obtained from the OKLAHOMA WATER RESOURCES BOARD, 3800 N. Classen Blvd., Oklahoma City, OK 73118). IF NO WATER WELLS FOUND, SO STATE. (ATTACH ADDITIONAL SHEET IF NECESSARY)

Name of Owner/Operator Address of Owner/Operator Location (Nearest 1/4 1/4 1/4 1/4) Depth of Well

5. A cement bond log is required to be run and submitted from not less than 100 feet below the base of the treatable water-bearing formation to the surface. **OCC USE ONLY**  
 6. If casing depth is more than 250 feet deeper than base of the treatable water-bearing formation, operator must submit a letter of request listing reasons and precautions to be taken.

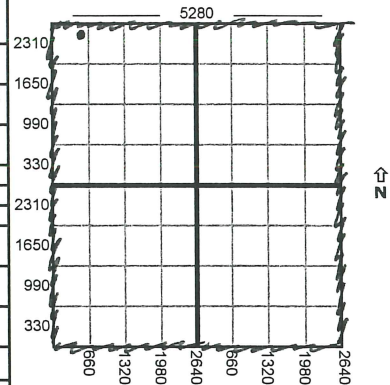
**INTENT TO DRILL CHECKLIST** **OCC USE ONLY** **OCC USE ONLY**  
 APPROVED SN REJECTED   

1. SURETY 11/4/17  
 A. NONE filed.  
 B. EXPIRED: Date     
 C. OUTSTANDING CONTEMPT ORDER.

4. GEOLOGY   

**DO NOT WRITE INSIDE THIS BOX**

**28. Locate Bottom Hole**



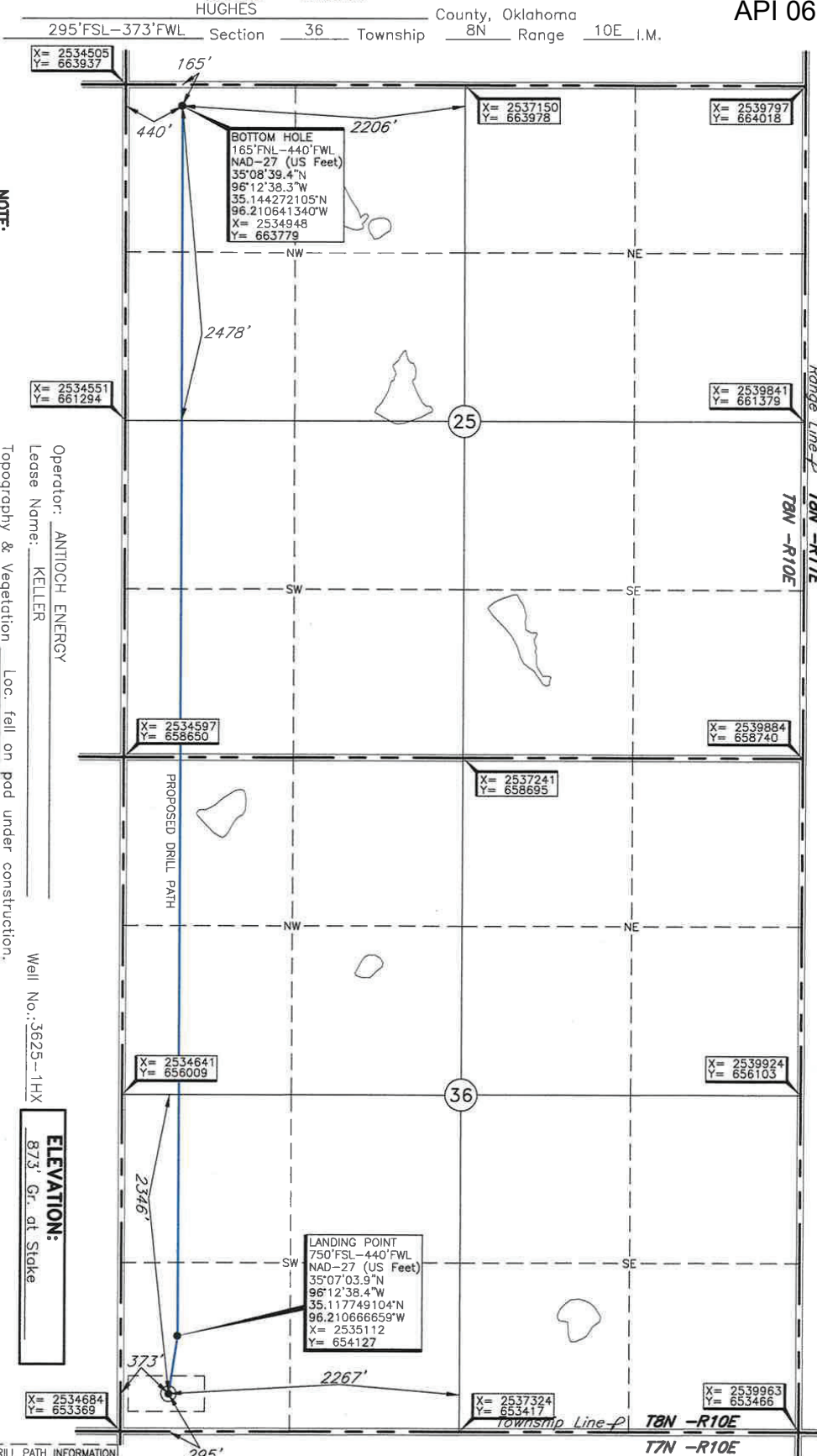
1. If more than two drainholes are proposed, attach separate sheet indicating the necessary information.
2. Direction must be stated in degrees azimuth.
3. Please note the horizontal drainhole and its end point must be located within the legal boundaries of the lease or spacing unit. Directional surveys are required for all drainholes and directional wells.

Case: 000000000 Cashier: NRS  
 Payer: ANTIOCH OPERATING, LLC  
 Check: 002596 \$175.00  
 Date: 10/04/2017 Time: 14:07  
 RECEIPT 1803620025  
 OKLA CNRP COMM  
 46 Intent to Drill





**NOTE:**  
The information shown herein is for construction purposes ONLY.



Operator: ANTIOCH ENERGY  
Lease Name: KELLER  
Topography & Vegetation: Loc. fell on pad under construction.  
Well No.: 3625-1HX  
ELEVATION: 873' Gr. at Stake

Good Drill Site? Yes  
Reference Stakes or Alternate Location  
Stakes Set None

Best Accessibility to Location From South off county road  
Distance & Direction From Hometown, OK, go North on US Hwy. 75 for ±2 miles, then East on 1310 RD for ± 2 miles to the SW Cor. of Sec. 36-T8N-R10E.

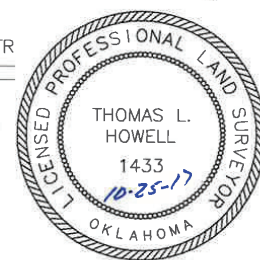
LANDING POINT, BOTTOM HOLE, AND DRILL PATH INFORMATION PROVIDED BY OPERATOR LISTED, NOT SURVEYED.

Revision ☒ B Date of Drawing: Oct. 24, 2017  
Invoice # 280875A Date Staked: Oct. 24, 2017

**CERTIFICATE:**

I, Thomas L. Howell an Oklahoma Licensed Land Surveyor and an authorized agent of Topographic Land Surveyors of Oklahoma, do hereby certify to the information shown herein

Thomas L. Howell  
Oklahoma Lic. No. 1433



DATUM: NAD-27  
LAT: 35°06'59.4"N  
LONG: 96°12'39.2"W  
STATE PLANE COORDINATES: (US Feet)  
ZONE: OK SOUTH  
X: 2535052  
Y: 653670