RTS-16-177

Form 3160-3
(March 2012)

OCD Hobbs

HOBBS OCD
MAY 16 2016
RECEIVED

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SECRETARY'S POTASH

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NM-84652, NM-129733 NMO40406

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone

8. Lease Name and Well No. 302795
HAMON FED COM A 7H

2. Name of Operator LEGACY RESERVES OPERATING, L. P. 240974

9. API Well No.
30-025-43348

3a. Address
P. O. BOX 10848
MIDLAND, TX. 79702

3b. Phone No. *(include area code)*
432-689-5200 (Steve Owen)

10. Field and Pool, or Exploratory (96637)
TEAS; BONE SPRING, EAST

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface 552 FSL & 1914 FEL Section 6 (First Take: 330 FNL & 1060 FEL, Section 7)
At proposed prod. zone 330 FSL & 1060 FEL Section 7 (Last take)

11. Sec., T. R. M. or Blk. and Survey or Area
SHL: SECTION 6, T. 20 S., R. 34 E.
BHL: SECTION 7, T. 20 S., R. 34 E.

14. Distance in miles and direction from nearest town or post office*
29 MILES SOUTHWEST OF HOBBS, NM

12. County or Parish
LEA

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
SHL: 552'
BHL: 330'

16. No. of acres in lease
1671.51

17. Spacing Unit dedicated to this well
160

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
400' #4H

19. Proposed Depth
TVD: 9,435'
MD: 14,493'

20. BLM/BIA Bond No. on file
NMB001014 & NMB001015

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3610' GL

22. Approximate date work will start*
ASAP

23. Estimated duration
45 DAYS

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature
Barry W. Hunt

Name *(Printed/Typed)*
BARRY W. HUNT

Date
9/29/15

Title
PERMIT AGENT FOR LEGACY RESERVES OPERATING, L. P.

Approved by *(Signature)*
/s/George MacDonell

Name *(Printed/Typed)*

Date
MAY - 4 2016

Title
FIELD MANAGER

Office
CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or represe

(Continued on page 2)

See attached NMOCD
Conditions of Approval

*(Instructions on page 2)

Capitan Controlled Water Basin

K 05/18/16

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Approval Subject to General Requirements
& Special Stipulations Attached

SURFACE USE AGREEMENT

The Hamon Fed Com A 5H, 6H, 7H, 8H, 9H, 10H, 11H, 12H wells are all on private surface with the same land owner. The land owner has been contacted and an agreement has been negotiated for all 8 wells.

Land Owner:
Kenneth Smith, Inc.
Attn: Wayne Smith
267 Smith Ranch Road
Hobbs, NM 88240
Phone (575) 942-8421

APPLICATION TO DRILL

HAMON FED COM A 7H

LEGACY RESERVES OPERATING LP

SHL: Unit O, Section 6

BHL: Unit P, Section 7

T20S-R34E, Lea County, New Mexico

To satisfy requirements of Onshore Oil and Gas Order No. 1, Legacy Reserves Operating LP submits the following for your consideration:

1. ***Location:*** SHL: 552' FSL & 1914' FEL, Sec. 6, T20S-R34E (First Take: 330 FNL & 1060 FEL Sec. 7)
   BHL: 330' FSL & 1060' FEL, Sec. 7, T20S-R34E (Last Take)

2. ***Elevations:*** 3,610' GL

3. ***Geological Name of Surface Formation:*** Quaternary alluvium deposits

4. ***Drilling Tools and Associated Equipment:*** Rotary drilling rig using fluid as a means for removal of solid cuttings from the well.

5. ***Proposed Drilling Depth:*** 14,493' MD 9,435' TVD

6. ***Estimated Tops of Geological Markers:***

Rustler	1,499'	Queen	4,750'
Top Salt	1,860'	Delaware/Base of Capitan Reef	5,400'
Bottom Salt	3,500'	1 st. Bone Spring	8,368'
Yates	3,350'		
Top of Capitan Reef	3,793'	TVD	9,435'
Seven Rivers	3,875'		

7. ***Possible mineral bearing formations:***
   Primary: Bone Spring (oil); Secondary: Delaware (oil), Queen (oil), Seven Rivers (oil), Yates (oil or gas); fresh water (~125')

8. ***Proposed Mud System:***

Depth	Mud Wt.	Visc	Fluid Loss	Type Mud
0' to 1600'	8.4-8.6	30-32	May lose circ.	Fresh water gel spud mud
1600' to 5400'	10.0-10.1	28-29	May lose circ.	Brine water
5400' to 9435'	8.7-8.8	28-29	No control	Fresh water/brine, use hi-viscosity sweeps to clean hole
9435' to 14,493'	8.7-8.8	28-29	10-12	Fresh water/brine

Sufficient mud materials will be kept on location at all times in order to combat lost circulation or unexpected kicks. Visual mud monitoring equipment will be in place to detect pit volume changes indicating loss or gain of

circulating mud fluids. In order to effectively run open hole logs and casing, the mud viscosity and fluid loss properties may be adjusted.

9. ***Proposed Drilling Plan:***

Set surface and intermediate casing and cement to surface. Drill 8-3/4" hole to 9,435', kick off and drill 8-3/4" hole to TD of ~14,493'. Set 5-1/2" casing from surface to TD (~ 14,493'). Cement 5-1/2" production casing back to surface.

10. ***Casing Information:***

String	Hole size	Depth	Casing OD	Collar	Weight	Grade
Surface	17-1/2"	1600' MD	New 13-3/8"	STC	54.5#	J-55
Intermediate	12-1/4"	4000' MD	New 9-5/8"	LTC	40#	J-55
Intermediate	12-1/4"	5400' MD	New 9-5/8"	LTC	40#	HCK-55
Production	8-3/4"	14,493' MD	New 5-1/2"	BTC	20#	P-110

5-1/2", P-110:		9-5/8", HCK-55	
Collapse Factor:	1.55	Collapse Factor:	1.28
Burst Factor:	1.29	Burst Factor:	2.03
Tension Factor:	3.06	Tension Factor:	3.33

9-5/8, J-55		13-3/8, J-55	
Collapse Factor:	1.24	Collapse Factor:	3.08
Burst Factor:	1.82	Burst Factor:	3.54
Tension Factor:	3.12	Tension Factor:	5.66

11. ***Cementing Information:***

Surface Casing (100% excess on lead & 100% excess on tail to design for cement top at surface):

Lead: 1100 sxs class C cement + 4% bentonite + 0.25 pps celloflakes + 0.005 gps FP-6L + 2% calcium chloride (13.50 ppg, 1.75 cfps, 9.16 gps wtr).

Tail: 400 sxs class C cement + 0.005 gps FP-6L + 0.5% calcium chloride (14.80 ppg, 1.33 cfps, 6.33 gps wtr).

Intermediate Casing (50% excess on lead & 50% excess on tail to design for cement top at surface):

Lead: 900 sxs (50:50) poz (fly ash) class C cement + 10% bentonite + 5% sodium chloride + 0.25 pps cello flakes + 0.1% FL-52A + 0.005 gps FP-6L (11.90 ppg, 2.37 cf/sx, 13.52 gps wtr).

Tail: 325 sxs class C cement + 0.2% R-3 + 0.005 gps FP-6L (14.80 ppg, 1.33 cfps, 6.31 gps wtr).

Production Casing (25% excess on lead & 25% excess on tail to design for cement top at surface):

Lead: 1000 sxs (50:50) poz (fly ash) class H cement + 6% bentonite + 5% sodium chloride + 5 pps LCM-1 + 0.7% sodium metasilicate + 0.5% R-21 + 0.45% FL-52A + 0.005 gps FP-6L (11.90 ppg, 2.31 cf/sx, 12.60 gps wtr).

Tail: 1300 sxs (15:61:11) poz (fly ash) class C cement CSE-2 + 4% sodium chloride + 3 pps LCM-1 + 0.6% FL-25 + 0.6 FL-52A + 0.2% sodium metasilicate + 0.15% R-21 + 0.005 gps FP-6L (13.20 ppg, 1.63 cf/sx, 7.98 gps wtr).

11. *Cementing Information:*

Suface Casing *(100% excess on lead & 100% excess on tail to design for cement top at surface)*

Lead: 1200 sx class C cement + 4% bwoc bentonite II + 2% bwoc calcium chloride + 0.25 lbs/sack cello flake + 0.005 gps FP-6L (13.50 ppg, 1.75 cfps, 9.13 gps wtr)

Tail: 200 sx class C cement + 1.5% bwoc calcium chloride + 0.005 lbs/sack defoamer + 0.005 gps FP-6L (14.80 ppg, 1.33 cfps, 6.35 gps wtr)

Intermediate Casing

In the event that circulation is lost (> 50%) while drilling the 12-1/4" intermediate hole in the Capitan Reef at +/-4000', we will plan to install a DV tool and external casing packer within 200' of the top depth where lost circulation occurred and will pump a two-stage cement job. If there is no lost circulation a single stage cementing procedure will be followed. Legacy plans to cement to surface regardless of whether a single stage or 2-stage procedure.

No DV tool *(80% excess on lead & 80% excess on tail to design for cement top at surface)*

Lead: 1400 sx (35:65) poz (fly ash) class C cement+ 4% bwoc bentonite II + 5% bwoc MPA-5 + 0.25% bwoc FL- 52 + 5 lbs/sack LCM-1 + 0.125 lbs/sk cello flake+ 0.005 lbs/sk defoamer + 0.005 gps FP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride (12.5 ppg, 2.13 cfps, 8.81 gps wtr)

Tail: 200 sx class C cement (14.80 *ppg*, 1.33 cfps, 6.35 *gps* wtr)

With DV Tool *(100% excess on lead & 100% excess on tail to design for cement top at surface)*

DV Tool set @ approx. 3800'

Stage 1

Lead: 400 sx (35:65) paz (fly ash) class C cement+ 4% bwoc Bentonite II+ 5% bwoc MPA-5 + 0,25% bwoc FL-52 + 5 lbs/sack LCM-1 + 0.125 lbs/sk cello flake+ 0.005 lbs/sk defoamer + 0.005 gps FP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride (12.5 ppg, 2.13 cfps, 8.81 gps wtr)

Tail: 200 sx class C cement (14.80 ppg, 1.33 cfps, 6.35 gps wtr)

Stage 2

Lead: 1100 sx (35:65) paz {fly ash) class C cement+ 4% bwoc bentonite II + 5% bwoc MPA-5 + 0,25% bwoc FL-52 + 5 lbs/sack LCM-1 + 0.125 lbs/sk Cello Flake+ 0.005 lbs/sk Static Free+ 0.005 gps FP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride (12.5 ppg, 2.13 cfps, 8.81 gps wtr)

Tail: 200 sx class C cement (14.80 ppg, 1.33 cfps, 6.35 gps wtr)

Production Casing *(80% excess on lead & 20% excess on tail to design for cement top at surface)*

Lead: 1800 sx (50:50) paz (fly ash) class H cement + 10% bwoc bentonite II + 5% bwow sodium chloride + 5 pps LCM-1 + 0.005 lbs/sk Static Free+ 0.005 gps FP-6L (11.90 ppg, 2.38 cfps, 13.22 gps wtr)

Tail: 1200 sx Class H (15:61:11) poz (fly ash) class H cement: CSE-2 + 4% bwow sodium chloride+ 3 pps LCM-1 + 0.6% bwoc FL-25 + 0.005 gps FP-6L + 0.005% bwoc defoamer (13.20 ppg, 1.62 cfps, 9.45 gps wtr)

In the event that circulation is lost while drilling the 12-1/4" intermediate hole in the Capitan Reef at +/- 4000', we will plan to install a DV tool and external casing packer within 200' of the top depth where lost circulation occurred and will pump a two-stage cement job using the same lead and tail cement slurries as specified in the single stage cement job. The cement volumes for the two-stage job will be calculated using 100% excess above normal hole volume.

There will be lead and tail slurries for each of the two stages of the 2-stage cementing jobs on the 9 5/8" intermediate casing. Legacy only plans to pump a 2-stage cementing procedure on the 9 5/8" intermediate casing if we lose circulation in the Capitan Reef. If there is no lost circulation a single stage cementing procedure will be followed. Legacy plans to cement to surface regardless of whether a single stage or 2-stage procedure.

12. ***Pressure Control Eqpt/BOP:*** See COA

Legacy Reserves plans to use a 13-5/8" 5000-psi working pressure BOP system consisting of a double ram BOP with one ram being pipe and one ram being blind, a 5000-psi annular type preventer, a 5000-psi choke manifold and 80 gallon accumulator with floor, five remote operating stations and an auxiliary power system. A rotating head will be utilized as needed. A drill string safety valve in the open position will be available on the rig floor. A mud gas separator will be available for use if needed.

A 3M BOP will be used to drill from the surface casing shoe (~1600') to the intermediate casing shoe (~5400'). The BOP will be a 5M system, however the "A" section wellhead will be a 3M wellhead (see attached BOP Diagram).

The BOP unit will be hydraulically operated. The BOP will be operated at least once per day while drilling and the blind rams will be operated when out of hole during trips. No abnormal pressure or temperature is expected while drilling.

The BOPs will be tested by an independent service company to 250 psi low and 5000 psi high.

13. ***Testing, Logging, and Coring Program:*** See COA

A. Mud logging program: 2 man unit from approximately after setting the intermediate casing.

B. No open hole logs, DST's or cores are planned.

14. ***Potential Hazards***

No abnormal pressures or temperatures are expected during the drilling of this well. If H2S is encountered the operator will comply with provisions of Onshore Order 6. Since there will be an H2S Safety package on location, attached is an "H2S Drilling Operations Plan". Adequate flare lines will be installed on the mud/gas separator so gas may be flared safely. All personnel will be familiar with all aspects of safe operations of equipment being used. Lost circulation may occur and a cement contingency plan is included in this plan along with mud materials to be kept on location at all times in order to combat lost circulation or unexpected kicks. Estimated BHP: 4151 psi, estimated BHT: 170˚F.

15. ***Road and Location***

Road and location construction will begin after BLM approval of the APD. Drilling is expected to take 30-35 days and an additional 10 days for the completion.

16. ***Additional Requirements of Project:***

Completion: The targeted Bone Spring pay zone will be perforated and stimulated in multiple stages using acid and hydraulic fracturing treatments. Fresh water used in the drilling and completion of this well will be transferred from off-site via temporary flowlines and stored in frac tanks on the location.

LEGACY RESERVES

Legacy Reserves
Project: Lea County, NM (NAD-27 2015)
Site: Hamon Fed Com A #7H
Well: Hamon Fed Com A #7H
Wellbore: Lateral #1
Plan: Design #1 (Hamon Fed Com A #7H/Lateral #1

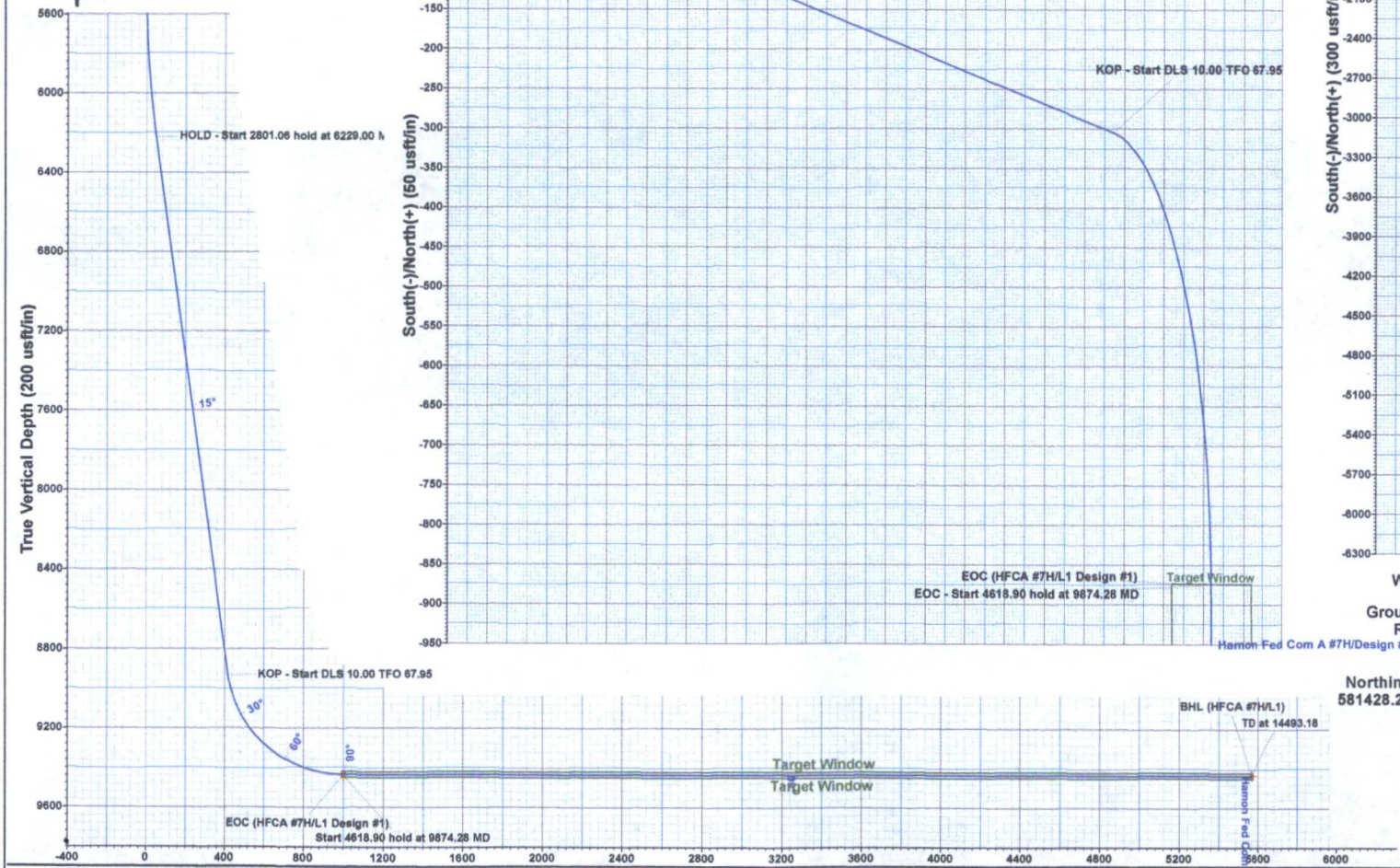
G
T M

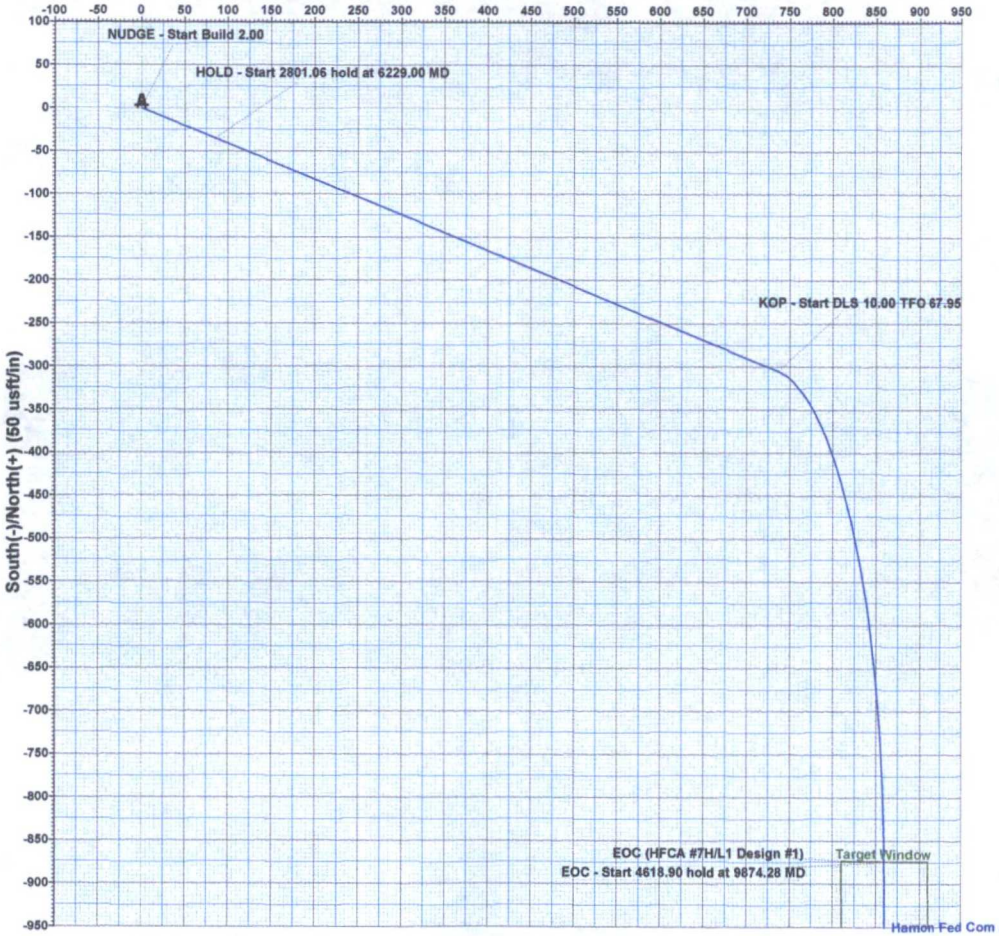
Azimuths to Grid North
True North: -0.40°
Magnetic North: 6.80°

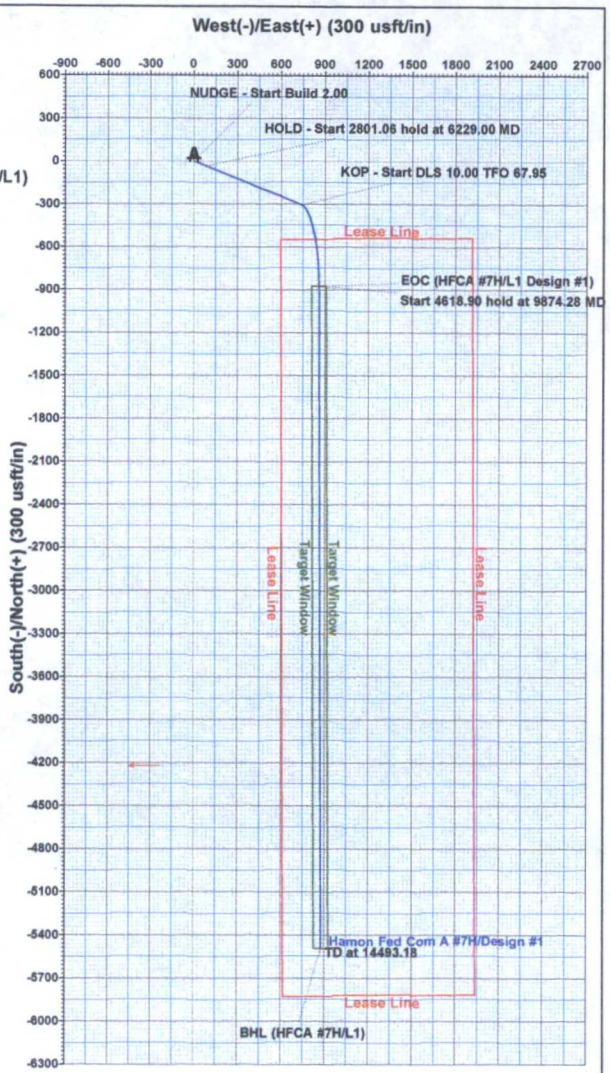
Magnetic Field
Strength: 48353.5snT
Dip Angle: 60.43°
Date: 7/18/2015
Model: IGRF2015

Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5500.00	0.00	0.00	5500.00	0.00	0.00	0.00	0.00	0.00	
3	6229.00	14.58	112.50	6221.16	-35.30	85.23	2.00	112.50	48.30	
4	9030.06	14.58	112.50	8932.02	-305.14	736.67	0.00	0.00	417.42	
5	9874.28	90.00	179.79	9435.00	-874.93	859.49	10.00	67.95	999.45	
6	14493.18	90.00	179.79	9435.00	-5493.80	876.80	0.00	0.00	5563.33	BHL (HFCA #7H/L1)







WELL DETAILS: Hamon Fed Com A #7H

Ground Elevation:: 3610.00
RKB Elevation: KB @ 3628.00usft (McVay 4)
Rig Name: McVay 4

Northing	Easting	Latittude	Longitude
581428.20	726860.70	32° 35' 46.650 N	103° 35' 48.169 W

PROJECT DETAILS: Lea County, NM (NAD-27 2015)
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level
Local North: Grid

TDS TERRA DIRECTIONAL SERVICES L.L.C.

Plan: Design #1 (Hamon Fed Com A #7H/Lateral #1)
ated By: Well Planner Date: 22:29, September 27 2015

Terra Directional Services
3705 South County Road 1210, Midland, TX 79706
Office: (432) 618-1210