

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

I & E CFO

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.***SUBMIT IN TRIPLICATE - Other instructions on reverse side.**5. Lease Serial No.
NMLC029435B

6. If Indian, Allottee or Tribe Name

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

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other8. Well Name and No.
NFE FEDERAL 59H COM2. Name of Operator
APACHE CORPORATIONContact: JORDAN R EVANS
E-Mail: jordan.evans@apachecorp.com9. API Well No.
30-D15-432483a. Address
303 VETERANS AIRPARK LANE SUITE 3000
MIDLAND, TX 797053b. Phone No. (include area code)
Ph: 432-818-1000 Ext. 1027
Fx: 432-818-119810. Field and Pool, or Exploratory
CEDAR LAKE

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 8 T17S R31E NESE 1755FSL 25FEL

AUG 11 2015

11. County or Parish, and State

EDDY COUNTY, NM

RECEIVED

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION

- ☒
- Notice of Intent
-
- ☐
- Subsequent Report
-
- ☐
- Final Abandonment Notice

TYPE OF ACTION

- | | | | |
|---|---|--|---|
| ☐ Acidize | ☐ Deepen | ☐ Production (Start/Resume) | ☐ Water Shut-Off |
| ☐ Alter Casing | ☐ Fracture Treat | ☐ Reclamation | ☐ Well Integrity |
| ☐ Casing Repair | ☐ New Construction | ☐ Recomplete | ☒ Other |
| ☐ Change Plans | ☐ Plug and Abandon | ☐ Temporarily Abandon | Change to Original A |
| ☐ Convert to Injection | ☐ Plug Back | ☐ Water Disposal | PD |

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Apache request to change hole size after drill out of intermediate from 8-3/4" hole thru the curve and 7-7/8" in the lateral to 8-1/2" hole from under intermediate to TD.

Apache also request to change the setting depth for the 7" casing from Old: 4568' to New: 4600'. Cement volumes will remain the same as approved on APD.

Apache request to add COM to the well name per COM #NM134086

Apache also request to change the measured depth from Old: 9766' to New: 10,114'

New directional Plan and C102 attached. No other changes from approved APD.

NM OIL CONSERVATION
ARTESIA DISTRICTAccepted for record AUG 13 2015
LED NMCD 8/14/15

RECEIVED

Original COAs Still Stand.

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #311250 verified by the BLM Well Information System
For APACHE CORPORATION, sent to the Carlsbad
Committed to AFMSS for processing by JENNIFER SANCHEZ on 08/06/2015 (15JAS0469SE)

Name (Printed/Typed) JORDAN R EVANS

Title DRILLING ENGINEER

Signature (Electronic Submission)

Date 08/03/2015

APPROVED

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By

Title

AUG 8 2015

Date

Conditions of approval, if any, are attached. Approval of this notice 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.

Office

BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

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 representations as to any matter within its jurisdiction.

** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED **

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (505) 393-6161 Fax: (505) 393-0720

DISTRICT II
911 S. First St., Artesia, NM 88210
Phone: (505) 748-1283 Fax: (505) 748-9720

DISTRICT III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1230 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-43248	Pool Code 96831	Pool Name Cedar Lake; Glorieta - Yeso
Property Code	Property Name NFE FEDERAL COM	Well Number 59H
OGRID No. 873	Operator Name APACHE CORPORATION	Elevation 3788'

Surface Location

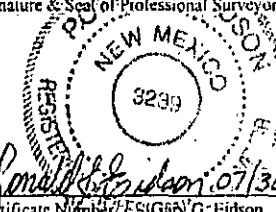
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	8	17-S	31-E		1755	SOUTH	25	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	8	17-S	31-E		795	SOUTH	331	WEST	EDDY

Dedicated Acres 160	Joint or Infill	Consolidation Code	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

NAD 83 NME BOTTOM HOLE LOCATION Y= 671036.4 N X= 674606.5 E LAT.=32.843951° N LONG.=103.899397° W LAT.=32°50'38" N LONG.=103°53'58" W	CORNER COORDINATES TABLE NAD 83 NME A - Y= 672878.9 N, X= 674265.0 E B - Y= 672916.6 N, X= 679544.3 E C - Y= 671596.5 N, X= 679551.8 E D - Y= 671559.1 N, X= 674272.6 E E - Y= 670239.3 N, X= 674280.2 E F - Y= 670276.4 N, X= 679559.3 E	GEODETIC COORDINATES NAD 83 NME SURFACE LOCATION Y= 672030.8 N X= 679524.4 E LAT.=32.846628° N LONG.=103.883370° W LAT.=32°50'48" N LONG.=103°53'00" W	OPERATOR CERTIFICATION I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Sorina L. Flores</i> 7/31/15 Signature Date Sorina L. Flores Printed Name sorina.flores@apachecorp.com E-mail Address
NAD 27 NME BOTTOM HOLE LOCATION Y= 670972.4 N X= 633427.9 E LAT.=32.843834° N LONG.=103.898890° W LAT.=32°50'38" N LONG.=103°53'56" W	CORNER COORDINATES TABLE NAD 27 NME A - Y= 672814.9 N, X= 633086.4 E B - Y= 672852.6 N, X= 638365.7 E C - Y= 671532.5 N, X= 638373.2 E D - Y= 671495.1 N, X= 633093.9 E E - Y= 670175.3 N, X= 633101.5 E F - Y= 670212.4 N, X= 638380.7 E	GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y= 671966.8 N X= 638345.7 E LAT.=32.846511° N LONG.=103.882863° W LAT.=32°50'47" N LONG.=103°52'58" W	SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. OCTOBER 27, 2014 Date of Survey <i>Ronald J. Eidson</i> Signature & Seal of Professional Surveyor  Certificate Number: ES/GN/G: Eidson 12641 Ronald J. Eidson 3239 LSL REL W.O.: 15.13.0733 JWSC W.O.: 15.13.0766

GRID AZ.=258°35'04"
HORIZ. DIST.=5014.9'

WELL PATH PLAN

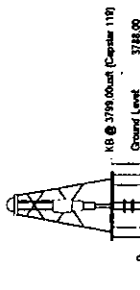
NOTE: WELL PATH AND BOTTOM HOLE
PLOTED FROM PHOENIX TECHNOLOGY SERVICES
STANDARD PLANNING REPORT, DATED JULY 29, 2015



Project: Eddy County, NM (NAD27 NME)
Site: NFE Federal
Well: #59H
Wellbore: OH
Design: Plan #3 07-29-15
Rtg: CapStar 119



Assume to Grid North
True North: 3.3°
Magnetic North: 7.3°
Magnetic Field
Strength: 4853.3nT
Dip Angle: 60.8°
Date: 7/20/2015
Model: HOGM



WELL DETAILS

	North	East	Latitude	Longitude
Ground Level	3718.00		32° 50' 41.6882" N	107° 52' 53.3086" W
KB @ 3798.00m	3718.00			

SECTION DETAILS

Sec	MD	Inc	As	TVD	+NLS	-E/W	Dlog IF	Y/Sect	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		KOP Start 127100 Build
2	4985.61	0.00	0.00	4985.61	0.00	0.00	0.00	0.00		LP Begin 37100 Turn
3	5358.19	0.00	0.00	5358.19	0.00	0.00	0.00	0.00		LP Begin 37100 Turn
4	5721.13	0.00	0.00	5721.13	0.00	0.00	0.00	0.00		LP Begin 37100 Turn
5	10114.15	0.00	0.00	10114.15	0.00	0.00	0.00	0.00		TD at 10114.15 MD

DESIGN TARGET DETAILS

Name	True Vertical Depth (TVD)	+NLS	-E/W	North	East	Latitude	Longitude	Shape
BREKNEFE Fed #59H/2	4985.61	0.00	0.00	4985.61	0.00	32° 50' 41.6882" N	107° 52' 53.3086" W	Point
APNFE Fed #59H/2	5627.00	0.00	0.00	5627.00	0.00	32° 50' 41.6882" N	107° 52' 53.3086" W	Point

Point masses target center by 0.44m at 5258.86m MD (5027.47 TVD, 471.131 N, 2831.97 E)

FORMATION TOP DETAILS

TVD (m)	MD (m)	Formation	Dip Angle	Dip
4985.61	0.00	Shale	-1.02	289.36
5358.19	0.00	Shale	-1.02	289.36
5721.13	0.00	Shale	-1.02	289.36
6084.00	0.00	Shale	-1.02	289.36
6446.88	0.00	Shale	-1.02	289.36
6809.76	0.00	Shale	-1.02	289.36
7172.64	0.00	Shale	-1.02	289.36
7535.52	0.00	Shale	-1.02	289.36
7898.40	0.00	Shale	-1.02	289.36
8261.28	0.00	Shale	-1.02	289.36
8624.16	0.00	Shale	-1.02	289.36
8987.04	0.00	Shale	-1.02	289.36
9349.92	0.00	Shale	-1.02	289.36
9712.80	0.00	Shale	-1.02	289.36
10075.68	0.00	Shale	-1.02	289.36
10438.56	0.00	Shale	-1.02	289.36
10801.44	0.00	Shale	-1.02	289.36
11164.32	0.00	Shale	-1.02	289.36
11527.20	0.00	Shale	-1.02	289.36
11890.08	0.00	Shale	-1.02	289.36
12252.96	0.00	Shale	-1.02	289.36
12615.84	0.00	Shale	-1.02	289.36
12978.72	0.00	Shale	-1.02	289.36
13341.60	0.00	Shale	-1.02	289.36
13704.48	0.00	Shale	-1.02	289.36
14067.36	0.00	Shale	-1.02	289.36
14430.24	0.00	Shale	-1.02	289.36
14793.12	0.00	Shale	-1.02	289.36
15156.00	0.00	Shale	-1.02	289.36
15518.88	0.00	Shale	-1.02	289.36
15881.76	0.00	Shale	-1.02	289.36
16244.64	0.00	Shale	-1.02	289.36
16607.52	0.00	Shale	-1.02	289.36
16970.40	0.00	Shale	-1.02	289.36
17333.28	0.00	Shale	-1.02	289.36
17696.16	0.00	Shale	-1.02	289.36
18059.04	0.00	Shale	-1.02	289.36
18421.92	0.00	Shale	-1.02	289.36
18784.80	0.00	Shale	-1.02	289.36
19147.68	0.00	Shale	-1.02	289.36
19510.56	0.00	Shale	-1.02	289.36
19873.44	0.00	Shale	-1.02	289.36
20236.32	0.00	Shale	-1.02	289.36
20599.20	0.00	Shale	-1.02	289.36
20962.08	0.00	Shale	-1.02	289.36
21324.96	0.00	Shale	-1.02	289.36
21687.84	0.00	Shale	-1.02	289.36
22050.72	0.00	Shale	-1.02	289.36
22413.60	0.00	Shale	-1.02	289.36
22776.48	0.00	Shale	-1.02	289.36
23139.36	0.00	Shale	-1.02	289.36
23502.24	0.00	Shale	-1.02	289.36
23865.12	0.00	Shale	-1.02	289.36
24228.00	0.00	Shale	-1.02	289.36
24590.88	0.00	Shale	-1.02	289.36
24953.76	0.00	Shale	-1.02	289.36
25316.64	0.00	Shale	-1.02	289.36
25679.52	0.00	Shale	-1.02	289.36
26042.40	0.00	Shale	-1.02	289.36
26405.28	0.00	Shale	-1.02	289.36
26768.16	0.00	Shale	-1.02	289.36
27131.04	0.00	Shale	-1.02	289.36
27493.92	0.00	Shale	-1.02	289.36
27856.80	0.00	Shale	-1.02	289.36
28219.68	0.00	Shale	-1.02	289.36
28582.56	0.00	Shale	-1.02	289.36
28945.44	0.00	Shale	-1.02	289.36
29308.32	0.00	Shale	-1.02	289.36
29671.20	0.00	Shale	-1.02	289.36
30034.08	0.00	Shale	-1.02	289.36
30396.96	0.00	Shale	-1.02	289.36
30759.84	0.00	Shale	-1.02	289.36
31122.72	0.00	Shale	-1.02	289.36
31485.60	0.00	Shale	-1.02	289.36
31848.48	0.00	Shale	-1.02	289.36
32211.36	0.00	Shale	-1.02	289.36
32574.24	0.00	Shale	-1.02	289.36
32937.12	0.00	Shale	-1.02	289.36
33299.00	0.00	Shale	-1.02	289.36
33661.88	0.00	Shale	-1.02	289.36
34024.76	0.00	Shale	-1.02	289.36
34387.64	0.00	Shale	-1.02	289.36
34750.52	0.00	Shale	-1.02	289.36
35113.40	0.00	Shale	-1.02	289.36
35476.28	0.00	Shale	-1.02	289.36
35839.16	0.00	Shale	-1.02	289.36
36202.04	0.00	Shale	-1.02	289.36
36564.92	0.00	Shale	-1.02	289.36
36927.80	0.00	Shale	-1.02	289.36
37290.68	0.00	Shale	-1.02	289.36
37653.56	0.00	Shale	-1.02	289.36
38016.44	0.00	Shale	-1.02	289.36
38379.32	0.00	Shale	-1.02	289.36
38742.20	0.00	Shale	-1.02	289.36
39105.08	0.00	Shale	-1.02	289.36
39467.96	0.00	Shale	-1.02	289.36
39830.84	0.00	Shale	-1.02	289.36
40193.72	0.00	Shale	-1.02	289.36
40556.60	0.00	Shale	-1.02	289.36
40919.48	0.00	Shale	-1.02	289.36
41282.36	0.00	Shale	-1.02	289.36
41645.24	0.00	Shale	-1.02	289.36
42008.12	0.00	Shale	-1.02	289.36
42371.00	0.00	Shale	-1.02	289.36
42733.88	0.00	Shale	-1.02	289.36
43096.76	0.00	Shale	-1.02	289.36
43459.64	0.00	Shale	-1.02	289.36
43822.52	0.00	Shale	-1.02	289.36
44185.40	0.00	Shale	-1.02	289.36
44548.28	0.00	Shale	-1.02	289.36
44911.16	0.00	Shale	-1.02	289.36
45274.04	0.00	Shale	-1.02	289.36
45636.92	0.00	Shale	-1.02	289.36
46000.00	0.00	Shale	-1.02	289.36

To convert a Magnetic Direction to a Grid Direction, Add 7.3°
To convert a True Direction to a Grid Direction, Add 7.3° East
To convert a True Direction to a Grid Direction, Subtract 0.24°

LEGEND

- #22H, W81, Plan #2 02-17-15 VO
- #31H, W81, Plan #2 04-30-14 VO
- #20H, W81/Job #1410582, Surveys (Capstar 114) VO
- #19H, W81/Job #1411705, Surveys (Capstar 114) VO
- #21H, W81/Job #1410583, Surveys (Capstar 114) VO
- #13H, W81, Plan #2 04-30-14 VO
- #16H, W81/Job #1310958, Surveys (Capstar 114) VO
- #18H, W81/Job #1311163, Surveys (Capstar 114) VO
- #17H, W81/Job #1311090, Surveys (Capstar 114) VO
- #61H, OH, Plan #2 02-17-15 VO
- #60H, OH, Plan #1 01-28-15 VO
- Plan #3 07-29-15

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001
Local Origin: Well #59H, Grid North
Latitude: 32° 50' 41.6882" N
Longitude: 107° 52' 53.3086" W
Grid East: 63345.70
Grid North: 671066.80
Scale Factor: 1.000

Geographic Model: HOGM
Sample Date: 28-04-15
Magnetic Declination: 7.3°
Dip Angle from Horizontal: 60.8°
Magnetic Field Strength: 4853.3

FORMATION TOP DETAILS

TVD (m)	MD (m)	Formation	Dip Angle	Dip
4985.61	0.00	Shale	-1.02	289.36
5358.19	0.00	Shale	-1.02	289.36
5721.13	0.00	Shale	-1.02	289.36
6084.00	0.00	Shale	-1.02	289.36
6446.88	0.00	Shale	-1.02	289.36
6809.76	0.00	Shale	-1.02	289.36
7172.64	0.00	Shale	-1.02	289.36
7535.52	0.00	Shale	-1.02	289.36
7898.40	0.00	Shale	-1.02	289.36
8261.28	0.00	Shale	-1.02	289.36
8624.16	0.00	Shale	-1.02	289.36
8987.04	0.00	Shale	-1.02	289.36
9349.92	0.00	Shale	-1.02	289.36
9712.80	0.00	Shale	-1.02	289.36
10075.68	0.00	Shale	-1.02	289.36
10438.56	0.00	Shale	-1.02	289.36
10801.44	0.00	Shale	-1.02	289.36
11164.32	0.00	Shale	-1.02	289.36
11527.20	0.00	Shale	-1.02	289.36
11890.08	0.00	Shale	-1.02	289.36
12252.96	0.00	Shale	-1.02	289.36
12615.84	0.00	Shale	-1.02	289.36
12978.72	0.00	Shale	-1.02	289.36
13341.60	0.00	Shale	-1.02	289.36
13704.48	0.00	Shale	-1.02	289.36
14067.36	0.00	Shale	-1.02	289.36
14430.24	0.00	Shale	-1.02	289.36
14793.12	0.00	Shale	-1.02	289.36
15156.00	0.00	Shale	-1.02	289.36
15518.88	0.00	Shale	-1.02	289.36
15881.76	0.00	Shale	-1.02	289.36
16244.64	0.00	Shale	-1.02	289.36
16607.52	0.00	Shale	-1.02	289.36
16970.40	0.00	Shale	-1.02	289.36
17333.28	0.00	Shale	-1.02	289.36
17696.16	0.00	Shale	-1.02	289.36
18059.04	0.00	Shale	-1.02	289.36
18421.92	0.00	Shale	-1.02	289.36
18784.80	0.00	Shale	-1.02	289.36
19147.68	0.00	Shale	-1.02	289.36
19510.56	0.00	Shale	-1.02	289.36
19873.44	0.00	Shale	-1.02	289.36
20236.32	0.00	Shale	-1.02	289.36
20599.20	0.00	Shale	-1.02	289.36
20962.08	0.00	Shale	-1.02	289.36
21324.96	0.00	Shale	-1.02	289.36
21687.84	0.00	Shale	-1.02	289.36
22050.72	0.00	Shale	-1.02	289.36
22413.60	0.00	Shale	-1.02	289.36
22776.48	0.00	Shale	-1.02	289.36
23139.36	0.00	Shale	-1.02	289.36
23502.24	0.00	Shale	-1.02	289.36
23865.12	0.00	Shale	-1.02	289.36
24228.00	0.00	Shale	-1.02	289.36
24590.88	0.00	Shale	-1.02	289.36
24953.76	0.00	Shale	-1.02	289.36
25316.64	0.00	Shale	-1.02	289.36
25679.52	0.00	Shale	-1.02	289.36
26042.40	0.00	Shale	-1.02	289.36
26405.28	0.00	Shale	-1.02	289.36
26768.16	0.00	Shale	-1.02	289.36
27131.04	0.00	Shale	-1.02	289.36
27493.92	0.00	Shale	-1.02	289.36
27856.80	0.00	Shale	-1.02	289.36
28219.68	0.00	Shale	-1.02	289.36
28582.56	0.00	Shale	-1.02	289.36
28945.44	0.00	Shale	-1.02	289.36
29308.32	0.00	Shale	-1.02	289.36



Apache Corporation

Eddy County, NM (NAD27 NME)

NFE Federal

#59H

OH

Plan: Plan #3 07-29-15

Standard Planning Report

29 July, 2015



Database:	Compass 5000 GCR	Local Co-ordinate Reference:	Well #59H
Company:	Apache Corporation	TVD Reference:	KB @ 3799.00usft (Capstar 119)
Project:	Eddy County, NM (NAD27 NME)	MD Reference:	KB @ 3799.00usft (Capstar 119)
Site:	NFE Federal	North Reference:	Grid
Well:	#59H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 07-29-15		

Project:	Eddy County, NM (NAD27 NME)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site		NFE Federal			
Site Position:		Northing:	673,264.70 usft	Latitude:	32° 51' 0.49036 N
From:	Map	Easting:	633,303.50 usft	Longitude:	103° 53' 57.34966 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.24

Well:	#59H					
Well Position	+N/-S	-1,297.90 usft	Northing:	671,966.80 usft	Latitude:	32° 50' 47.43862 N
	+E/-W	5,042.20 usft	Easting:	638,345.70 usft	Longitude:	103° 52' 58.30891 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	3,788.00 usft

Wellbore: OH					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	7/28/2015	7.63	60.80	48,593

Design:	Plan #3 07-29-15			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	258.57

Plan Sections										
Measured	Inclination	Azimuth	Vertical	N/-S	E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,599.61	0.00	0.00	4,599.61	0.00	0.00	0.00	0.00	0.00	0.00	
5,358.19	91.03	223.13	5,077.00	-354.72	-332.29	12.00	12.00	0.00	223.13	
6,898.97	91.03	269.36	5,047.71	-958.56	-1,704.34	3.00	0.00	3.00	89.56	
10,114.15	91.03	269.36	4,990.00	-994.40	-4,918.80	0.00	0.00	0.00	0.00	BHL(NFE Fed #59H)

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Site:	NFE Federal	North Reference:	Grid
Well:	#59H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 07-29-15		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
369.00	0.00	0.00	369.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
550.00	0.00	0.00	550.00	0.00	0.00	0.00	0.00	0.00	0.00
T/Salt									
1,486.00	0.00	0.00	1,486.00	0.00	0.00	0.00	0.00	0.00	0.00
B/Salt									
1,654.00	0.00	0.00	1,654.00	0.00	0.00	0.00	0.00	0.00	0.00
Yates									
1,939.00	0.00	0.00	1,939.00	0.00	0.00	0.00	0.00	0.00	0.00
Seven Rivers									
2,556.00	0.00	0.00	2,556.00	0.00	0.00	0.00	0.00	0.00	0.00
Queen									
2,964.00	0.00	0.00	2,964.00	0.00	0.00	0.00	0.00	0.00	0.00
Grayburg									
3,269.00	0.00	0.00	3,269.00	0.00	0.00	0.00	0.00	0.00	0.00
San Andres									
4,599.61	0.00	0.00	4,599.61	0.00	0.00	0.00	0.00	0.00	0.00
KOP: Start 12°/100' Build									
4,600.00	0.05	223.13	4,600.00	0.00	0.00	0.00	12.00	12.00	0.00
4,700.00	12.05	223.13	4,699.26	-7.67	-7.19	8.57	12.00	12.00	0.00
4,793.83	23.31	223.13	4,788.52	-28.43	-26.64	31.74	12.00	12.00	0.00
Glorieta									
4,800.00	24.05	223.13	4,794.17	-30.24	-28.33	33.76	12.00	12.00	0.00
4,866.84	32.07	223.13	4,853.10	-53.17	-49.80	59.35	12.00	12.00	0.00
Yeso (Paddock)									
4,900.00	36.05	223.13	4,880.57	-66.72	-62.50	74.48	12.00	12.00	0.00
5,000.00	48.05	223.13	4,954.70	-115.51	-108.20	128.94	12.00	12.00	0.00
5,100.00	60.05	223.13	5,013.30	-174.47	-163.44	194.77	12.00	12.00	0.00
5,200.00	72.05	223.13	5,053.83	-241.05	-225.81	269.09	12.00	12.00	0.00
5,300.00	84.05	223.13	5,074.50	-312.32	-292.57	348.65	12.00	12.00	0.00
5,358.19	91.03	223.13	5,077.00	-354.72	-332.29	395.99	12.00	12.00	0.00
LP, Begin 3°/100' Turn									
5,400.00	91.04	224.38	5,076.24	-384.91	-361.20	430.31	3.00	0.02	3.00
5,500.00	91.06	227.38	5,074.41	-454.50	-432.97	514.45	3.00	0.02	3.00
5,600.00	91.08	230.39	5,072.55	-520.24	-508.29	601.30	3.00	0.02	3.00
5,700.00	91.09	233.39	5,070.65	-581.94	-586.94	690.62	3.00	0.01	3.00
5,800.00	91.10	236.39	5,068.74	-639.45	-668.72	782.17	3.00	0.01	3.00
5,900.00	91.11	239.39	5,066.81	-692.59	-753.39	875.70	3.00	0.01	3.00
6,000.00	91.12	242.39	5,064.86	-741.23	-840.73	970.94	3.00	0.01	3.00
6,100.00	91.12	245.39	5,062.91	-785.23	-930.50	1,067.65	3.00	0.00	3.00
6,200.00	91.12	248.39	5,060.96	-824.47	-1,022.45	1,165.54	3.00	0.00	3.00
6,300.00	91.11	251.39	5,059.01	-858.84	-1,116.32	1,264.37	3.00	0.00	3.00
6,400.00	91.11	254.39	5,057.07	-888.26	-1,211.87	1,363.85	3.00	-0.01	3.00
6,500.00	91.10	257.39	5,055.14	-912.63	-1,308.82	1,463.71	3.00	-0.01	3.00
6,600.00	91.08	260.39	5,053.24	-931.89	-1,406.92	1,563.68	3.00	-0.01	3.00
6,700.00	91.07	263.39	5,051.36	-945.99	-1,505.89	1,663.48	3.00	-0.02	3.00
6,800.00	91.05	266.39	5,049.51	-954.89	-1,605.46	1,762.84	3.00	-0.02	3.00
6,898.97	91.03	269.36	5,047.71	-958.56	-1,704.34	1,860.48	3.00	-0.02	3.00
LP, Begin 91.03° Inc Hold, 269.36° Azm									
6,900.00	91.03	269.36	5,047.70	-958.57	-1,705.37	1,861.50	0.00	0.00	0.00
7,000.00	91.03	269.36	5,045.90	-959.69	-1,805.34	1,959.71	0.00	0.00	0.00
7,100.00	91.03	269.36	5,044.11	-960.80	-1,905.32	2,057.93	0.00	0.00	0.00

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Site:	NFE Federal	North Reference:	Gnd
Well:	#59H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 07-29-15		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
7,200.00	91.03	269.36	5,042.31	-961.92	-2,005.30	2,156.14	0.00	0.00	0.00	
7,300.00	91.03	269.36	5,040.52	-963.03	-2,105.28	2,254.36	0.00	0.00	0.00	
7,400.00	91.03	269.36	5,038.72	-964.15	-2,205.26	2,352.58	0.00	0.00	0.00	
7,500.00	91.03	269.36	5,036.93	-965.26	-2,305.23	2,450.79	0.00	0.00	0.00	
7,600.00	91.03	269.36	5,035.13	-966.38	-2,405.21	2,549.01	0.00	0.00	0.00	
7,700.00	91.03	269.36	5,033.34	-967.49	-2,505.19	2,647.22	0.00	0.00	0.00	
7,800.00	91.03	269.36	5,031.54	-968.60	-2,605.17	2,745.44	0.00	0.00	0.00	
7,900.00	91.03	269.36	5,029.75	-969.72	-2,705.14	2,843.66	0.00	0.00	0.00	
8,000.00	91.03	269.36	5,027.95	-970.83	-2,805.12	2,941.87	0.00	0.00	0.00	
8,100.00	91.03	269.36	5,026.16	-971.95	-2,905.10	3,040.09	0.00	0.00	0.00	
8,200.00	91.03	269.36	5,024.36	-973.06	-3,005.08	3,138.31	0.00	0.00	0.00	
8,300.00	91.03	269.36	5,022.57	-974.18	-3,105.05	3,236.52	0.00	0.00	0.00	
8,400.00	91.03	269.36	5,020.77	-975.29	-3,205.03	3,334.74	0.00	0.00	0.00	
8,500.00	91.03	269.36	5,018.98	-976.41	-3,305.01	3,432.95	0.00	0.00	0.00	
8,600.00	91.03	269.36	5,017.18	-977.52	-3,404.99	3,531.17	0.00	0.00	0.00	
8,700.00	91.03	269.36	5,015.39	-978.64	-3,504.96	3,629.39	0.00	0.00	0.00	
8,800.00	91.03	269.36	5,013.59	-979.75	-3,604.94	3,727.60	0.00	0.00	0.00	
8,900.00	91.03	269.36	5,011.79	-980.87	-3,704.92	3,825.82	0.00	0.00	0.00	
9,000.00	91.03	269.36	5,010.00	-981.98	-3,804.90	3,924.03	0.00	0.00	0.00	
9,100.00	91.03	269.36	5,008.20	-983.10	-3,904.88	4,022.25	0.00	0.00	0.00	
9,200.00	91.03	269.36	5,006.41	-984.21	-4,004.85	4,120.47	0.00	0.00	0.00	
9,300.00	91.03	269.36	5,004.61	-985.32	-4,104.83	4,218.68	0.00	0.00	0.00	
9,400.00	91.03	269.36	5,002.82	-986.44	-4,204.81	4,316.90	0.00	0.00	0.00	
9,500.00	91.03	269.36	5,001.02	-987.55	-4,304.79	4,415.11	0.00	0.00	0.00	
9,600.00	91.03	269.36	4,999.23	-988.67	-4,404.76	4,513.33	0.00	0.00	0.00	
9,700.00	91.03	269.36	4,997.43	-989.78	-4,504.74	4,611.55	0.00	0.00	0.00	
9,800.00	91.03	269.36	4,995.64	-990.90	-4,604.72	4,709.76	0.00	0.00	0.00	
9,900.00	91.03	269.36	4,993.84	-992.01	-4,704.70	4,807.98	0.00	0.00	0.00	
10,000.00	91.03	269.36	4,992.05	-993.13	-4,804.67	4,906.19	0.00	0.00	0.00	
10,100.00	91.03	269.36	4,990.25	-994.24	-4,904.65	5,004.41	0.00	0.00	0.00	
10,114.15	91.03	269.36	4,990.00	-994.40	-4,918.80	5,018.31	0.00	0.00	0.00	
TD at 10114.15' MD										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir (°)	TVD (usft)	+N-S (usft)	+E-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
BHL(NFE Fed #59H)v2	0.00	0.00	4,990.00	-994.40	-4,918.80	670,972.40	633,426.90	32° 50' 37.80279 N	103° 53' 56.01366 W	
- plan hits target center										
- Point										
MP(NFE Fed #59H)v2	0.00	0.00	5,027.00	-971.01	-2,831.97	670,995.80	635,513.74	32° 50' 37.94868 N	103° 53' 31.55194 W	
- plan misses target center by 0.48usft at 8026.86usft MD (5027.47 TVD, -971.13 N, -2831.97 E)										
- Point										

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Site:	NFE Federal	North Reference:	Grid
Well:	#59H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 07-29-15		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction	
369.00	369.00	Rustler		-1.02	269.36	
550.00	550.00	T/Salt		-1.02	269.36	
1,486.00	1,486.00	B/Salt		-1.02	269.36	
1,654.00	1,654.00	Yates		-1.02	269.36	
1,939.00	1,939.00	Seven Rivers		-1.02	269.36	
2,556.00	2,556.00	Queen		-1.02	269.36	
2,964.00	2,964.00	Grayburg		-1.02	269.36	
3,269.00	3,269.00	San Andres		-1.02	269.36	
4,793.83	4,788.52	Glorieta		-1.02	269.36	
4,866.84	4,853.10	Yeso (Paddock)		-1.02	269.36	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
4,599.61	4,599.61	0.00	0.00	KOP, Start 12°/100' Build	
5,358.19	5,077.00	-354.72	-332.29	LP, Begin 3°/100' Turn	
6,898.97	5,047.71	-958.56	-1,704.34	LP, Begin 91.03° Inc Hold, 269.36° Azm	
10,114.15	4,990.00	-994.40	-4,918.80	TD at 10114.15' MD	