

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NMOC
Artesia
CONSERVATION
ARTEZIA DISTRICT
DEC 02 2016

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.

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		5. Lease Serial No. NMLC029435B
2. Name of Operator APACHE CORPORATION		6. If Indian, Allottee or Tribe Name
Contact: SORINA FLORES E-Mail: sorina.flores@apachecorp.com		7. If Unit or CA/Agreement, Name and or No.
3a. Address 303 VETERANS AIRPARK LANE SUITE 3000 MIDLAND, TX 79705	3b. Phone No. (include area code) Ph: 432-818-1167	8. Well Name and No. CEDAR LAKE FEDERAL CA 549H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 5 T17S R31E Mer NMP SWNW 2510FNL 715FWL 32.863778 N Lat, 103.897677 W Lon		9. API Well No. 30-015-43508
		10. Field and Pool, or Exploratory CEDAR LAKE;GLORIETA-YESO
		11. County or Parish, and State EDDY COUNTY, NM

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

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ 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.)

BLM-CO-1463 NATIONWIDE; NMB000736

APACHE REQUESTS TO CHANGE DRILLING PLAN FOR THE CEDAR LAKE FEDERAL CA 549H:

TVD: 5381' MD: 9456'

Quaternary Aeolian Surf Water
Rustler 351' Water
Top of Salt 563' Salt
Base of Salt 1176' Barren
Yates 1573' Oil, Gas, Water
Seven Rivers 1856' Oil, Gas, Water
Queen 2466' Oil, Gas, Water

Original COAs still stand

14. I hereby certify that the foregoing is true and correct. Electronic Submission #353842 verified by the BLM Well Information System For APACHE CORPORATION, sent to the Carlsbad Committed to AFMSS for processing by DEBORAH MCKINNEY on 10/07/2016 (1)	
Name (Printed/Typed) SORINA FLORES	Title SUBMITTING CONTACT
Signature (Electronic Submission)	Date 10/06/2016
THIS SPACE FOR FEDERAL OR STATE OFFICE USE	
Approved By	Title
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
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	

**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****

Additional data for EC transaction #353842 that would not fit on the form

32. Additional remarks, continued

Grayburg 2886' Oil, Gas, Water
San Andres 3210' Oil, Gas, Water
Glorieta 4656' Oil, Gas, Water
Yeso 4741' Oil, Gas, Water

NEW CSG INTERVAL (csg size, wt, grade will remain same as on approved APD:

Hole Size Casing Interval

From To

17-1/2" 0' 460'

12-1/4" 0' 3500'

8-1/2" 0' 4847'

4847' 5590'

5590' 9456'

*All csg strings will be tested in accordance w/Onshore Oil & Gas Order #2 III.B.1.h

*Prod csg will be tapered string w/7" csg f/surf to KOP (cmt'd thru a stage tool f/KOP to 3000'), uncemented 5-1/2" csg f/KOP to LP & uncemented 5-1/2" csg w/packers & sleeves f/LP to TD. (2 additional packers isolating Glorieta formation will be used in uncemented prod csg)

NEW CMT PROGRAM

(only changing sks of cmt for Interm, slurry will remain as on approved APD)

Interm: Lead - 895sx CI C Tail - 300sx CI C

*If water flow is encountered, Apache may 2-stage Interm csg. A DVT may be used in the 9-5/8" csg & ECP may be placed below DVT. Csg slips may be set before cmtg. TD of 12-1/4" @ +/- 3500'

STAGE 1 DVT: ~1800'

Csg #Sks Wt Yld H2O 500# Comp Strength

Interm: Lead: 360 12.9 1.92 9.92 15

CI C + 6% Gel + 5% Salt (12hr-820psi; 24hr-1189psi)

Tail: 300 14.8 1.33 6.31 11

CI C (12hr-820psi; 24hr-2106psi)

STAGE 2

Csg #Sks Wt Yld H2O 500# Comp Strength

Interm: Lead: 400 12.9 1.92 9.92 15

CI C + 6% Gel + 5% Salt (12hr-820psi; 24hr-1189psi)

Tail: 200 14.8 1.33 6.31 11

CI C (12hr-820psi; 24hr-2106psi)

BOP:

Hole: 12-1/4" Sz: 13-5/8" 3M Annular Tested to 2M

Hole: 8-1/2" Sz: 11" 3M Annular, Blind Ram, Pipe Ram Tested to 2M

MUD PROGRAM:

0-Surf shoe Type: FW Wt: 8.3-8.8 Visc: 34-38 WaterLoss: N/C

surf-int shoe Type: Brine Wt: 9.5-10.0 Visc: 28-29 WaterLoss: N/C

Int shoe-TD Type: Brine Wt: 8.7-9.3 Visc: 28-29 WaterLoss: N/C

LOGS PLANNED: Mud Log - Interval: 4847'-TD

DRILLING CONDITIONS: BHP at deepest TVD: 2367psi



EXPLORING WHAT'S POSSIBLE

Project: Eddy County, NM (NAD27 NME)
Site: NFE Federal COM
Well: #49H
Wellbore: OH
Design: Plan 4 10-06-16
Rig: Capstar 119

Phoenix
TECHNOLOGY SERVICES



Azimuth to Grid North
True North 42.5°
Magnetic North 1.3°
Magnetic Field
Strength 46463.8 nT
Dip Angle 60.5°
Declination 10.5°
MAGNETIC NORTH
MAGNETIC NORTH

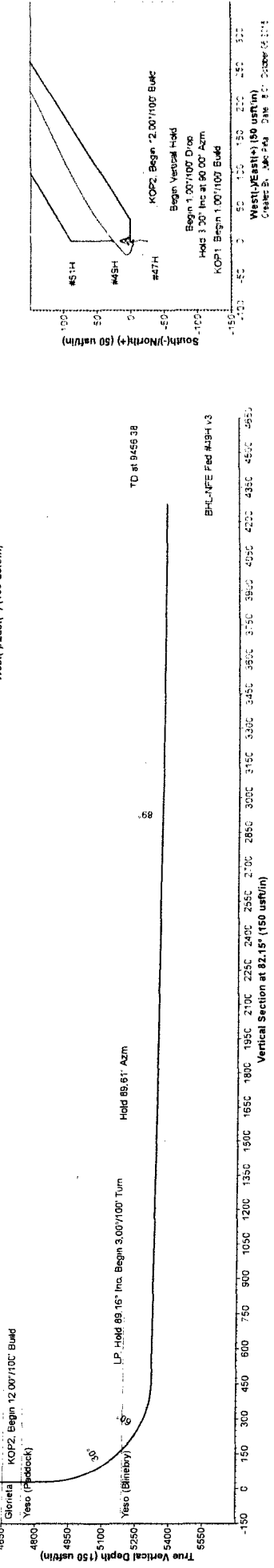
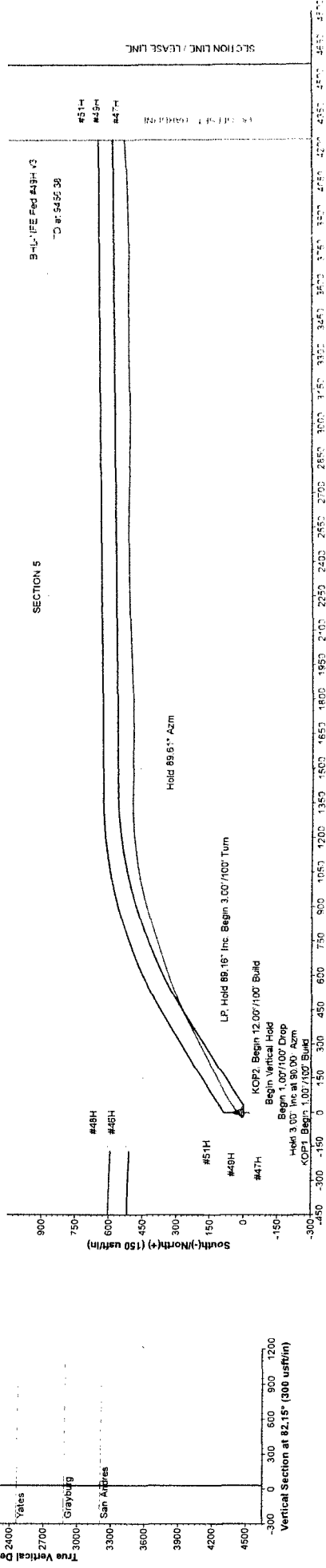
WELL DETAILS			
Well Name	Ground Level	3755.00	
Well ID	Eastings	633776.20	37 51 48 60048 11
Well Depth	Northings	618228.70	103 53 51 63861 17
Well Type	Well Type		
Well Status	Well Status		
Well Completion	Well Completion		
Well Production	Well Production		
Well Test	Well Test		
Well Log	Well Log		
Well Diagram	Well Diagram		
Well Data	Well Data		
Well Notes	Well Notes		

FORMATION TOP DETAILS			
Top Depth	MD Path	Formation	Depth
351.00	351.00	Drill	351.00
591.00	591.00	Drill	591.00
1176.33	1176.33	Drill	1176.33
1573.48	1573.48	Drill	1573.48
2065.48	2065.48	Drill	2065.48
2865.48	2865.48	Drill	2865.48
3210.48	3210.48	Drill	3210.48
4059.48	4059.48	Drill	4059.48
4741.48	4741.48	Drill	4741.48
5193.35	5193.35	Drill	5193.35

SECTION DETAILS			
Sec	MD	Inc	Ann
1	0.00	0.00	0.00
2	800.00	0.00	0.00
3	1600.00	0.00	0.00
4	2400.00	0.00	0.00
5	3200.00	0.00	0.00
6	4000.00	0.00	0.00
7	4800.00	0.00	0.00
8	5600.00	0.00	0.00
9	6400.00	0.00	0.00

DESIGN TARGET DETAILS			
Name	TVD	Eastings	Northings
BH-4FE Fed #49H V3	5370	633776.20	618228.70
BH-4FE Fed #49H V3	5370	633776.20	618228.70
BH-4FE Fed #49H V3	5370	633776.20	618228.70
BH-4FE Fed #49H V3	5370	633776.20	618228.70
BH-4FE Fed #49H V3	5370	633776.20	618228.70
BH-4FE Fed #49H V3	5370	633776.20	618228.70
BH-4FE Fed #49H V3	5370	633776.20	618228.70
BH-4FE Fed #49H V3	5370	633776.20	618228.70
BH-4FE Fed #49H V3	5370	633776.20	618228.70
BH-4FE Fed #49H V3	5370	633776.20	618228.70

LEGEND			
---	#42H	OH / Job #151284	Survey's Capstar 119 V3
---	#48H	OH / Job #1514802	Survey's Capstar 119 V3
---	#51H	OH / Job #151428	Survey's Capstar 119 V3
---	#47H	OH / Job #1510026	Survey's Capstar 119 V3
---	#3H	OH / Job #1510026	Survey's Capstar 119 V3
---	#1H	OH / Job #1510026	Survey's Capstar 119 V3
---	#5H	OH / Job #1510026	Survey's Capstar 119 V3
---	---	OH / Job #1510026	Survey's Capstar 119 V3
---	---	OH / Job #1510026	Survey's Capstar 119 V3
---	---	OH / Job #1510026	Survey's Capstar 119 V3





NM OIL CONSERVATION
ARTESIA DISTRICT
DEC 02 2016

RECEIVED

Apache Corporation

Eddy County, NM (NAD27 NME)

NFE Federal COM

#49H

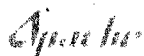
OH

Plan: Plan 4 10-06-16

Standard Planning Report

06 October, 2016





Phoenix Technology Services LP

Planning Report



Database: Compass 5000 GCR
Company: Apache Corporation
Project: Eddy County, NM (NAD27 NME)
Site: NFE Federal COM
Well: #49H
Wellbore: OH
Design: Plan 4 10-06-16

Local Co-ordinate Reference: Well #49H
TVD Reference: KB @ 3806.00usft (Capstar 119)
MD Reference: KB @ 3806.00usft (Capstar 119)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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 COM

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 #49H

Well Position +N/-S 4,965.00 usft Northing: 678,229.70 usft Latitude: 32° 51' 49.60046 N
 +E/-W 466.70 usft Easting: 633,770.20 usft Longitude: 103° 53' 51.63881 W
Position Uncertainty 0.00 usft Wellhead Elevation: Ground Level: 3,795.00 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	10/5/2016	7.53	60.80	48,464

Design Plan 4 10-06-16

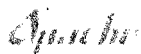
Audit Notes:

Version: Phase: PLAN Tie On Depth: 0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	82.15

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	3.00	90.00	899.86	0.00	7.85	1.00	1.00	0.00	90.00	
1,200.00	3.00	90.00	1,199.45	0.00	23.55	0.00	0.00	0.00	0.00	
1,500.00	0.00	0.00	1,499.31	0.00	31.41	1.00	-1.00	0.00	180.00	
4,847.27	0.00	0.00	4,846.58	0.00	31.41	0.00	0.00	0.00	0.00	
5,590.27	89.16	56.98	5,324.00	256.37	425.88	12.00	12.00	0.00	56.98	
6,677.78	89.16	89.61	5,340.37	564.74	1,453.36	3.00	0.00	3.00	90.24	
9,456.38	89.16	89.61	5,381.00	583.70	4,231.60	0.00	0.00	0.00	0.00	BHL-NFE Fed #49H



Phoenix Technology Services LP

Planning Report



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MD Reference: KB @ 3806.00usft (Capstar 119)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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
351.00	0.00	0.00	351.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
563.00	0.00	0.00	563.00	0.00	0.00	0.00	0.00	0.00	0.00
T/Salt									
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP1, Begin 1.00°/100' Build									
700.00	1.00	90.00	699.99	0.00	0.87	0.86	1.00	1.00	0.00
800.00	2.00	90.00	799.96	0.00	3.49	3.46	1.00	1.00	0.00
900.00	3.00	90.00	899.86	0.00	7.85	7.78	1.00	1.00	0.00
Hold 3.00° Inc at 90.00° Azm									
1,000.00	3.00	90.00	999.73	0.00	13.09	12.96	0.00	0.00	0.00
1,100.00	3.00	90.00	1,099.59	0.00	18.32	18.15	0.00	0.00	0.00
1,176.84	3.00	90.00	1,176.33	0.00	22.34	22.13	0.00	0.00	0.00
B/Salt									
1,200.00	3.00	90.00	1,199.45	0.00	23.55	23.33	0.00	0.00	0.00
Begin 1.00°/100' Drop									
1,300.00	2.00	90.00	1,299.36	0.00	27.91	27.65	1.00	-1.00	0.00
1,400.00	1.00	90.00	1,399.32	0.00	30.53	30.25	1.00	-1.00	0.00
1,500.00	0.00	0.00	1,499.31	0.00	31.41	31.11	1.00	-1.00	-90.00
Begin Vertical Hold									
1,574.15	0.00	0.00	1,573.46	0.00	31.41	31.11	0.00	0.00	0.00
Yates									
1,600.00	0.00	0.00	1,599.31	0.00	31.41	31.11	0.00	0.00	0.00
1,700.00	0.00	0.00	1,699.31	0.00	31.41	31.11	0.00	0.00	0.00
1,800.00	0.00	0.00	1,799.31	0.00	31.41	31.11	0.00	0.00	0.00
1,857.15	0.00	0.00	1,856.46	0.00	31.41	31.11	0.00	0.00	0.00
Yates									
1,900.00	0.00	0.00	1,899.31	0.00	31.41	31.11	0.00	0.00	0.00
2,000.00	0.00	0.00	1,999.31	0.00	31.41	31.11	0.00	0.00	0.00
2,100.00	0.00	0.00	2,099.31	0.00	31.41	31.11	0.00	0.00	0.00
2,200.00	0.00	0.00	2,199.31	0.00	31.41	31.11	0.00	0.00	0.00
2,300.00	0.00	0.00	2,299.31	0.00	31.41	31.11	0.00	0.00	0.00
2,400.00	0.00	0.00	2,399.31	0.00	31.41	31.11	0.00	0.00	0.00
2,467.15	0.00	0.00	2,466.46	0.00	31.41	31.11	0.00	0.00	0.00
Yates									
2,500.00	0.00	0.00	2,499.31	0.00	31.41	31.11	0.00	0.00	0.00
2,600.00	0.00	0.00	2,599.31	0.00	31.41	31.11	0.00	0.00	0.00
2,700.00	0.00	0.00	2,699.31	0.00	31.41	31.11	0.00	0.00	0.00
2,800.00	0.00	0.00	2,799.31	0.00	31.41	31.11	0.00	0.00	0.00
2,887.15	0.00	0.00	2,886.46	0.00	31.41	31.11	0.00	0.00	0.00
Grayburg									
2,900.00	0.00	0.00	2,899.31	0.00	31.41	31.11	0.00	0.00	0.00
3,000.00	0.00	0.00	2,999.31	0.00	31.41	31.11	0.00	0.00	0.00
3,100.00	0.00	0.00	3,099.31	0.00	31.41	31.11	0.00	0.00	0.00
3,200.00	0.00	0.00	3,199.31	0.00	31.41	31.11	0.00	0.00	0.00
3,211.15	0.00	0.00	3,210.46	0.00	31.41	31.11	0.00	0.00	0.00
San Andres									
3,300.00	0.00	0.00	3,299.31	0.00	31.41	31.11	0.00	0.00	0.00
3,400.00	0.00	0.00	3,399.31	0.00	31.41	31.11	0.00	0.00	0.00
3,500.00	0.00	0.00	3,499.31	0.00	31.41	31.11	0.00	0.00	0.00
3,600.00	0.00	0.00	3,599.31	0.00	31.41	31.11	0.00	0.00	0.00

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MD Reference: KB @ 3806.00usft (Capstar 119)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
3,700.00	0.00	0.00	3,699.31	0.00	31.41	31.11	0.00	0.00	0.00
3,800.00	0.00	0.00	3,799.31	0.00	31.41	31.11	0.00	0.00	0.00
3,900.00	0.00	0.00	3,899.31	0.00	31.41	31.11	0.00	0.00	0.00
4,000.00	0.00	0.00	3,999.31	0.00	31.41	31.11	0.00	0.00	0.00
4,100.00	0.00	0.00	4,099.31	0.00	31.41	31.11	0.00	0.00	0.00
4,200.00	0.00	0.00	4,199.31	0.00	31.41	31.11	0.00	0.00	0.00
4,300.00	0.00	0.00	4,299.31	0.00	31.41	31.11	0.00	0.00	0.00
4,400.00	0.00	0.00	4,399.31	0.00	31.41	31.11	0.00	0.00	0.00
4,500.00	0.00	0.00	4,499.31	0.00	31.41	31.11	0.00	0.00	0.00
4,600.00	0.00	0.00	4,599.31	0.00	31.41	31.11	0.00	0.00	0.00
4,657.15	0.00	0.00	4,656.46	0.00	31.41	31.11	0.00	0.00	0.00
Glorieta									
4,700.00	0.00	0.00	4,699.31	0.00	31.41	31.11	0.00	0.00	0.00
4,742.15	0.00	0.00	4,741.46	0.00	31.41	31.11	0.00	0.00	0.00
Yeso (Paddock)									
4,800.00	0.00	0.00	4,799.31	0.00	31.41	31.11	0.00	0.00	0.00
4,847.27	0.00	0.00	4,846.58	0.00	31.41	31.11	0.00	0.00	0.00
KOP2, Begin 12.00°/100' Build									
4,900.00	6.33	56.98	4,899.21	1.59	33.84	33.74	12.00	12.00	0.00
5,000.00	18.33	56.98	4,996.72	13.20	51.71	53.03	12.00	12.00	0.00
5,100.00	30.33	56.98	5,087.68	35.61	86.19	90.25	12.00	12.00	0.00
5,200.00	42.33	56.98	5,168.09	67.83	135.77	143.77	12.00	12.00	0.00
5,235.32	46.57	56.98	5,193.30	81.30	156.50	166.15	12.00	12.00	0.00
Yeso (Bliebreby)									
5,300.00	54.33	56.98	5,234.46	108.46	198.29	211.25	12.00	12.00	0.00
5,400.00	66.33	56.98	5,283.87	155.72	271.01	289.74	12.00	12.00	0.00
5,500.00	78.33	56.98	5,314.18	207.55	350.75	375.82	12.00	12.00	0.00
5,590.27	89.16	56.98	5,324.00	256.37	425.88	456.92	12.00	12.00	0.00
LP, Hold 89.16° Inc, Begin 3.00°/100' Turn									
5,600.00	89.16	57.27	5,324.14	261.65	434.05	465.73	3.00	-0.01	3.00
5,700.00	89.15	60.27	5,325.62	313.48	519.54	557.50	3.00	-0.01	3.00
5,800.00	89.14	63.27	5,327.12	360.77	607.63	651.23	3.00	-0.01	3.00
5,900.00	89.13	66.27	5,328.63	403.38	698.07	746.64	3.00	-0.01	3.00
6,000.00	89.13	69.27	5,330.14	441.20	790.62	843.49	3.00	0.00	3.00
6,100.00	89.13	72.27	5,331.67	474.12	885.02	941.50	3.00	0.00	3.00
6,200.00	89.13	75.27	5,333.19	502.06	981.02	1,040.41	3.00	0.00	3.00
6,300.00	89.13	78.27	5,334.72	524.94	1,078.34	1,139.95	3.00	0.00	3.00
6,400.00	89.13	81.27	5,336.23	542.68	1,176.73	1,239.84	3.00	0.01	3.00
6,500.00	89.14	84.27	5,337.73	555.26	1,275.91	1,339.81	3.00	0.01	3.00
6,600.00	89.15	87.28	5,339.22	562.62	1,375.62	1,439.59	3.00	0.01	3.00
6,677.78	89.16	89.61	5,340.37	564.74	1,453.36	1,516.89	3.00	0.01	3.00
Hold 89.61° Azm									
6,700.00	89.16	89.61	5,340.69	564.89	1,475.57	1,538.92	0.00	0.00	0.00
6,800.00	89.16	89.61	5,342.15	565.57	1,575.56	1,638.06	0.00	0.00	0.00
6,900.00	89.16	89.61	5,343.62	566.25	1,675.55	1,737.20	0.00	0.00	0.00
7,000.00	89.16	89.61	5,345.08	566.94	1,775.54	1,836.35	0.00	0.00	0.00
7,100.00	89.16	89.61	5,346.54	567.62	1,875.52	1,935.49	0.00	0.00	0.00
7,200.00	89.16	89.61	5,348.00	568.30	1,975.51	2,034.63	0.00	0.00	0.00
7,300.00	89.16	89.61	5,349.47	568.98	2,075.50	2,133.77	0.00	0.00	0.00
7,400.00	89.16	89.61	5,350.93	569.67	2,175.48	2,232.92	0.00	0.00	0.00
7,500.00	89.16	89.61	5,352.39	570.35	2,275.47	2,332.06	0.00	0.00	0.00
7,600.00	89.16	89.61	5,353.85	571.03	2,375.46	2,431.20	0.00	0.00	0.00
7,700.00	89.16	89.61	5,355.32	571.71	2,475.44	2,530.34	0.00	0.00	0.00

Phoenix Technology Services LP

Planning Report



Database: Compass 5000 GCR
Company: Apache Corporation
Project: Eddy County, NM (NAD27 NME)
Site: NFE Federal COM
Well: #49H
Wellbore: OH
Design: Plan 4 10-06-16

Local Co-ordinate Reference: Well #49H
TVD Reference: KB @ 3806.00usft (Capstar 119)
MD Reference: KB @ 3806.00usft (Capstar 119)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
7,800.00	89.16	89.61	5,356.78	572.40	2,575.43	2,629.49	0.00	0.00	0.00
7,900.00	89.16	89.61	5,358.24	573.08	2,675.42	2,728.63	0.00	0.00	0.00
8,000.00	89.16	89.61	5,359.70	573.76	2,775.41	2,827.77	0.00	0.00	0.00
8,100.00	89.16	89.61	5,361.16	574.44	2,875.39	2,926.91	0.00	0.00	0.00
8,200.00	89.16	89.61	5,362.63	575.13	2,975.38	3,026.06	0.00	0.00	0.00
8,300.00	89.16	89.61	5,364.09	575.81	3,075.37	3,125.20	0.00	0.00	0.00
8,400.00	89.16	89.61	5,365.55	576.49	3,175.35	3,224.34	0.00	0.00	0.00
8,500.00	89.16	89.61	5,367.01	577.17	3,275.34	3,323.48	0.00	0.00	0.00
8,600.00	89.16	89.61	5,368.48	577.86	3,375.33	3,422.63	0.00	0.00	0.00
8,700.00	89.16	89.61	5,369.94	578.54	3,475.31	3,521.77	0.00	0.00	0.00
8,800.00	89.16	89.61	5,371.40	579.22	3,575.30	3,620.91	0.00	0.00	0.00
8,900.00	89.16	89.61	5,372.86	579.90	3,675.29	3,720.05	0.00	0.00	0.00
9,000.00	89.16	89.61	5,374.33	580.59	3,775.28	3,819.20	0.00	0.00	0.00
9,100.00	89.16	89.61	5,375.79	581.27	3,875.26	3,918.34	0.00	0.00	0.00
9,200.00	89.16	89.61	5,377.25	581.95	3,975.25	4,017.48	0.00	0.00	0.00
9,300.00	89.16	89.61	5,378.71	582.63	4,075.24	4,116.62	0.00	0.00	0.00
9,400.00	89.16	89.61	5,380.18	583.32	4,175.22	4,215.77	0.00	0.00	0.00
9,456.38	89.16	89.61	5,381.00	583.70	4,231.60	4,271.66	0.00	0.00	0.00

TD at 9456.38

Design Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- Shape									
BHL-NFE Fed #49H v	0.00	0.00	5,381.00	583.70	4,231.60	678,813.40	638,001.80	32° 51' 55.20071 N	103° 53' 1.99845 W
- plan hits target center									
- Point									

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
351.00	351.00	Rustler		0.84	89.61
563.00	563.00	T/Salt		0.84	89.61
1,176.84	1,176.33	B/Salt		0.84	89.61
1,574.15	1,573.46	Yates		0.84	89.61
1,857.15	1,856.46	Yates		0.84	89.61
2,467.15	2,466.46	Yates		0.84	89.61
2,887.15	2,886.46	Grayburg		0.84	89.61
3,211.15	3,210.46	San Andres		0.84	89.61
4,657.15	4,656.46	Glorieta		0.84	89.61
4,742.15	4,741.46	Yeso (Paddock)		0.84	89.61
5,235.32	5,193.30	Yeso (Blaine)		0.84	89.61

Phoenix Technology Services LP

Planning Report



Database: Compass 5000 GCR
Company: Apache Corporation
Project: Eddy County, NM (NAD27 NME)
Site: NFE Federal COM
Well: #49H
Wellbore: OH
Design: Plan 4 10-06-16

Local Co-ordinate Reference: Well #49H
TVD Reference: KB @ 3806.00usft (Capstar 119)
MD Reference: KB @ 3806.00usft (Capstar 119)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
600.00	600.00	0.00	0.00	KOP1, Begin 1.00°/100' Build
900.00	899.86	0.00	7.85	Hold 3.00° Inc at 90.00° Azm
1,200.00	1,199.45	0.00	23.55	Begin 1.00°/100' Drop
1,500.00	1,499.31	0.00	31.41	Begin Vertical Hold
4,847.27	4,846.58	0.00	31.41	KOP2, Begin 12.00°/100' Build
5,590.27	5,324.00	256.37	425.88	LP, Hold 89.16° Inc, Begin 3.00°/100' Turn
6,677.78	5,340.37	564.74	1,453.36	Hold 89.61° Azm
9,456.38	5,381.00	583.70	4,231.60	TD at 9456.38