



PHOENIX
TECHNOLOGY SERVICES

July 13, 2015

Oil Conservation Division
State of New Mexico
811 S. First St.
Artesia, New Mexico 88210

NM OIL CONSERVATION
ARTESIA DISTRICT

JUL 27 2015

Dear District 2 - Artesia

Attention: Regulatory Department

RECEIVED

Re: Apache Corporation
NFE Federal #55H
Eddy County, NM
API #30-015-42910
Job No. 1513745

Enclosed please find the Survey Data Certification, and the original Plat and one copy of the Survey Report performed on the above referenced Well by Phoenix Technology Services, Inc. (P-5 No. 664171). Other information required by your office is as follows:

Name & Title of Surveyor	Drain Hole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Burton P. Fowles	55H	4,711	10,923	06/17/15	06/22/15	MWD

A certified plat on which the bottom hole location is oriented both to the surface location and to the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Best Regards,

Claudia Carreon

Claudia Carreon
Operations Administrator
Certified mail receipt number: _____

7015 0640 0000 9907 5036

Phoenix Technology Services SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER 1513745

OPERATOR Apache

WELL NAME NFE Federal #55H

COUNTY & STATE Eddy County, NM

API WELL NUMBER 30-015-42910

PROPOSED DIRECTION 89.61

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
4,700ft	4,699.87ft	0.22	88.0	0.16 S	6.03 E	Gyro Data

FIRST SURVEY	FIRST SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
17-Jun-15	4,711ft	0.1	34.5

SURVEY INSTRUMENT
TYPE
Phoenix MWD

LAST SURVEY	LAST SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
22-Jun-15	10,923ft	88.8	84.9

TO THE BEST OF MY KNOWLEDGE I
CERTIFY THIS SURVEY DATA TO BE
TRUE AND CORRECT.

PROJECTED TD SURVEY	PROJECTED TD SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
22-Jun-15	10,992ft	88.8	84.9

Burton P. Fowles

PRINT YOUR NAME ABOVE

Burton P. Fowles

SIGN YOUR NAME ABOVE

6/22/2015

TODAY'S DATE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	
	7.43
DECLINATION OR GRID	GRID

MWD SUPERVISOR 1

Burton Fowles

DIRECTIONAL DRILLER 1

Ian Hobbs

MWD SUPERVISOR 2

Joe Owens

DIRECTIONAL DRILLER 2

Tim Owens

12329 Cutten Rd.

Houston, Texas 77066

(713)337-0600 (Voice), (713)337-0599 (Fax)



Apache Corporation

Eddy County, NM (NAD27 NME)

NFE Federal

#55H

OH / Job #1513745

Survey: Phoenix MWD Survey

Standard Survey Report

23 June, 2015



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #55H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3781.00usft (Capstar 114)
Site:	NFE Federal	MD Reference:	KB @ 3781.00usft (Capstar 114)
Well:	#55H	North Reference:	Grid
Wellbore:	OH / Job #1513745	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR

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

Well	#55H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 52' 10.47591 N
		Longitude:	103° 54' 12.07184 W
		Ground Level:	3,770.00 usft

Wellbore	OH / Job #1513745		
Magnetics	Model Name	Sample Date	Declination
			(°)
	HDGM	6/10/2015	7.67
			Dip Angle
			(°)
			Field Strength
			(nT)
			60.82
			48,563

Design	Surveys (Capstar 114)		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			89.61

Survey Program	Date 6/23/2015		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		Description
121.00	4,700.00	Phoenix Gyro Survey (OH / Job #1513745)	PHX_SPT_GTD
4,711.00	10,992.00	Phoenix MWD Survey (OH / Job #1513745)	PHX+MWD+HDGM
			PHX Continuous north-seeking gyro
			PHX+MWD+HDGM

Survey	Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
	Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate
	(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)
	4,700.00	0.22	88.00	4,699.87	-0.16	6.03	6.03	0.00	0.00	0.00
	Tie-on to Phoenix Gyro Survey									
	4,711.00	0.10	34.50	4,710.87	-0.15	6.06	6.06	1.63	-1.09	-486.36
	First Phoenix MWD Survey									
	4,754.00	1.50	82.60	4,753.87	-0.04	6.64	6.64	3.34	3.26	111.86
	4,797.00	6.50	87.10	4,796.75	0.15	9.63	9.63	11.64	11.63	10.47
	4,840.00	12.50	85.70	4,839.14	0.62	16.71	16.71	13.96	13.95	-3.26
	4,883.00	17.90	85.80	4,880.62	1.46	27.94	27.95	12.56	12.56	0.23
	4,928.00	22.50	85.90	4,922.84	2.58	43.44	43.45	10.22	10.22	0.22

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #55H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3781.00usft (Capstar 114)
Site:	NFE Federal	MD Reference:	KB @ 3781.00usft (Capstar 114)
Well:	#55H	North Reference:	Grid
Wellbore:	OH / Job #1513745	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR

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)
4,971.00	27.30	87.60	4,961.83	3.58	61.51	61.53	11.29	11.16	3.95
5,014.00	31.60	89.90	4,999.27	4.01	82.64	82.66	10.34	10.00	5.35
5,060.00	36.60	91.40	5,037.35	3.70	108.41	108.44	11.02	10.87	3.26
5,105.00	41.80	91.30	5,072.21	3.03	136.84	136.85	11.56	11.56	-0.22
5,148.00	46.90	89.60	5,102.95	2.82	166.88	166.90	12.18	11.86	-3.95
5,190.00	52.00	88.30	5,130.25	3.41	198.78	198.80	12.37	12.14	-3.10
5,233.00	57.10	87.80	5,155.18	4.61	233.78	233.80	11.90	11.86	-1.16
5,279.00	61.80	87.90	5,178.55	6.10	273.35	273.39	10.22	10.22	0.22
5,321.00	66.80	89.50	5,196.76	6.94	311.17	311.21	12.39	11.90	3.81
5,364.00	72.30	91.10	5,211.78	6.72	351.45	351.48	13.26	12.79	3.72
5,407.00	77.60	91.60	5,222.94	5.74	392.94	392.97	12.38	12.33	1.16
5,450.00	82.50	92.10	5,230.37	4.37	435.26	435.28	11.45	11.40	1.16
5,493.00	85.40	91.50	5,234.90	3.03	478.00	478.01	6.89	6.74	-1.40
5,535.00	85.60	91.90	5,238.20	1.79	519.85	519.85	1.06	0.48	0.95
5,662.00	86.30	90.80	5,247.17	-1.20	646.49	646.47	1.02	0.55	-0.87
5,790.00	86.50	90.20	5,255.20	-2.31	774.24	774.20	0.49	0.16	-0.47
5,922.00	85.80	88.50	5,264.07	-0.82	905.92	905.90	1.39	-0.53	-1.29
6,050.00	86.60	88.00	5,272.55	3.08	1,033.58	1,033.58	0.74	0.63	-0.39
6,178.00	86.50	87.20	5,280.25	8.43	1,161.24	1,161.27	0.63	-0.08	-0.63
6,306.00	88.70	87.90	5,285.61	13.90	1,289.00	1,289.06	1.80	1.72	0.55
6,434.00	89.00	87.30	5,288.18	19.26	1,416.86	1,416.96	0.52	0.23	-0.47
6,562.00	89.20	88.70	5,290.19	23.73	1,544.76	1,544.89	1.10	0.16	1.09
6,694.00	89.70	89.30	5,291.46	26.03	1,676.74	1,676.87	0.59	0.38	0.45
6,822.00	89.60	88.90	5,292.24	28.04	1,804.72	1,804.87	0.32	-0.08	-0.31
6,950.00	90.30	88.70	5,292.35	30.72	1,932.69	1,932.85	0.57	0.55	-0.16
7,077.00	89.80	89.30	5,292.24	32.94	2,059.67	2,059.84	0.61	-0.39	0.47
7,209.00	89.50	88.40	5,293.05	35.59	2,191.64	2,191.83	0.72	-0.23	-0.68
7,337.00	88.90	89.30	5,294.84	38.15	2,319.60	2,319.80	0.84	-0.47	0.70
7,465.00	88.90	89.90	5,297.29	39.05	2,447.57	2,447.78	0.47	0.00	0.47
7,593.00	88.80	91.30	5,299.86	37.71	2,575.53	2,575.73	1.10	-0.08	1.09
7,722.00	88.40	90.40	5,303.01	35.79	2,704.48	2,704.66	0.76	-0.31	-0.70
7,850.00	88.80	90.40	5,306.14	34.90	2,832.44	2,832.61	0.31	0.31	0.00
7,981.00	89.90	89.60	5,307.63	34.90	2,963.43	2,963.60	1.04	0.84	-0.61
8,109.00	89.80	88.20	5,307.96	37.36	3,091.40	3,091.58	1.10	-0.08	-1.09
8,237.00	89.20	89.40	5,309.08	40.04	3,219.36	3,219.56	1.05	-0.47	0.94
8,366.00	88.70	90.80	5,311.44	39.81	3,348.34	3,348.53	1.15	-0.39	1.09
8,494.00	89.00	90.20	5,314.01	38.70	3,476.31	3,476.49	0.52	0.23	-0.47
8,622.00	89.10	89.70	5,316.13	38.81	3,604.29	3,604.47	0.40	0.08	-0.39
8,753.00	89.80	90.90	5,317.39	38.12	3,735.28	3,735.45	1.06	0.53	0.92
8,881.00	89.70	89.80	5,317.95	37.34	3,863.27	3,863.44	0.86	-0.08	-0.86
9,009.00	89.70	90.50	5,318.62	37.01	3,991.27	3,991.43	0.55	0.00	0.55
9,141.00	89.50	88.60	5,319.54	38.04	4,123.26	4,123.42	1.45	-0.15	-1.44
9,272.00	89.20	91.40	5,321.03	38.04	4,254.23	4,254.39	2.15	-0.23	2.14

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #55H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3781.00usft (Capstar 114)
Site:	NFE Federal	MD Reference:	KB @ 3781.00usft (Capstar 114)
Well:	#55H	North Reference:	Grid
Wellbore:	OH / Job #1513745	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR

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)
9,400.00	88.80	90.70	5,323.26	35.70	4,382.19	4,382.33	0.63	-0.31	-0.55
9,528.00	88.80	89.90	5,325.94	35.03	4,510.16	4,510.29	0.62	0.00	-0.63
9,657.00	88.80	90.60	5,328.64	34.46	4,639.13	4,639.26	0.54	0.00	0.54
9,784.00	89.10	90.80	5,330.97	32.91	4,766.10	4,766.21	0.28	0.24	0.16
9,912.00	89.60	90.90	5,332.42	31.01	4,894.08	4,894.17	0.40	0.39	0.08
10,041.00	90.30	91.40	5,332.54	28.43	5,023.05	5,023.13	0.67	0.54	0.39
10,169.00	89.70	90.40	5,332.54	26.42	5,151.03	5,151.09	0.91	-0.47	-0.78
10,300.00	89.90	90.00	5,332.99	25.96	5,282.03	5,282.08	0.34	0.15	-0.31
10,429.00	89.50	89.00	5,333.67	27.08	5,411.02	5,411.08	0.83	-0.31	-0.78
10,557.00	89.30	88.40	5,335.01	29.99	5,538.98	5,539.06	0.49	-0.16	-0.47
10,685.00	89.10	87.10	5,336.80	35.01	5,666.87	5,666.97	1.03	-0.16	-1.02
10,813.00	88.50	85.80	5,339.48	42.94	5,794.59	5,794.75	1.12	-0.47	-1.02
10,923.00	88.80	84.90	5,342.07	51.85	5,904.20	5,904.41	0.86	0.27	-0.82
Last Phoenix MWD Survey									
10,992.00	88.80	84.90	5,343.51	57.98	5,972.91	5,973.16	0.00	0.00	0.00
Projection to Bit									

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,700.00	4,699.87	-0.16	6.03	Tie-on to Phoenix Gyro Survey
4,711.00	4,710.87	-0.15	6.06	First Phoenix MWD Survey
10,923.00	5,342.07	51.85	5,904.20	Last Phoenix MWD Survey
10,992.00	5,343.51	57.98	5,972.91	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
DISTRICT IV
1220 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 30-015-42910	Pool Code 96831	Pool Name Cedar Lake; Glorieta - Yesso
Property Code 308924	Property Name NFE FEDERAL	Well Number 55H
OGRID No. 873	Operator Name APACHE CORPORATION	Elevation 3770'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	6	17-S	31-E		395	NORTH	1025	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
1	5	17-S	31-E		395	NORTH	330	EAST	EDDY

Dedicated Acres 199.76	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

4 3 2 395' 1025' SEE DETAIL 31.17 AC. 39.99 AC. 39.97 AC. 39.96 AC. 39.96 AC. 39.95 AC. 39.95 AC. 39.94 AC. 5 31.27 AC. 6 31.37 AC. 7 31.47 AC. SEC. 6 SEC. 5	GRID. AZ. = 89° 36' 30" HORIZ. DIST. = 5975.7' B.H. 330' DETAIL 3764.5' 3789.8' 600' 600' 3759.7' 3779.2' CORNER COORDINATES TABLE (A) - Y=680734.2 N, X=633041.3 E (B) - Y=680770.1 N, X=638320.6 E (C) - Y=679414.4 N, X=633048.7 E (D) - Y=679450.8 N, X=638328.1 E GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y=680332.2 N X=632018.8 E LAT.=32.869767° N LONG.=103.903353° W LAT.=32° 52' 10" N LONG.=103° 54' 12" W BOTTOM HOLE LOCATION Y=680373.0 N X=637992.9 E	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> 5/13/14 Signature Date Sorina L. Flores Printed Name Sorina Flores @ apache corp. co. E-mail Address 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. APRIL 18, 2012 Date of Survey Signature & Seal of Professional Surveyor RONALD J. EIDSON NEW MEXICO 3239 Certificate Number Gary G. Blason 12641 Ronald J. Eidson 3239 AF WSC W.O.: 12.11.0744
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