



PHOENIX
TECHNOLOGY SERVICES

March 11, 2015

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

JD 3/24/15
Accepted for record
MAR 24 2015

NM OIL CONSERVATION
ARTESIA DISTRICT

MAR 19 2015

RECEIVED

Dear District 2 - Artesia

Attention: Regulatory Department

Re: Apache Corporation
NFE Federal #28H
Eddy County, NM
API #30-015-42653
Job No. 1512833

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	
Mike Miller	28H	4,354	9,124	02/07/15	02/12/15	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: 7014 2120 0004 3423 7224

Phoenix Technology Services SURVEY DATA CERTIFICATION



PHOENIX
TECHNOLOGY SERVICES

PHOENIX JOB NUMBER

1512833

OPERATOR

Apache

WELL NAME

NFE Federal #28H

COUNTY & STATE

Eddy County, NM

API WELL NUMBER

30:015-42653

PROPOSED DIRECTION

269.62

TIE-IN DATA						
MEASURED DEPTH	VERTICAL DEPTH	INCLIN	AZIMUTH	N-S COORD	E-W COORD	DATA SOURCE
4,275. ft	4,274.56 ft	0.46	292.42	18.78 ft	12.77 ft	Gyro

FIRST SURVEY DATE	FIRST SURVEY DEPTH	INCLIN	AZIMUTH
7-Feb-15	4,354.00 ft	0.70	304.70

SURVEY INSTRUMENT
TYPE

Phoenix MWD

LAST SURVEY DATE	LAST SURVEY DEPTH	INCLIN	AZIMUTH
12-Feb-15	9,124.00 ft	92.10	266.50

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

PROJECTED TD SURVEY DATE	PROJECTED TD SURVEY DEPTH	INCLIN	AZIMUTH
12-Feb-15	9,200.00 ft	92.10	266.50

Mike Miller

PRINT YOUR NAME ABOVE

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	7.29
DECLINATION OR GRID	GRID

2-12-15

TODAY'S DATE

MWD SUPERVISOR 1

Mike Miller

DIRECTIONAL DRILLER 1

Steven Hawkins

MWD SUPERVISOR 2

Matt Frank

DIRECTIONAL DRILLER 2

Brant Duplechain

12329 Cutton Rd., Houston, Texas 777066

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



Apache Corporation

Eddy County, NM (NAD27 NME)

NFE Federal

#28H

WB1 / Job #1512833

Survey: Phoenix MWD Surveys

Standard Survey Report

12 March, 2015

NM OIL CONSERVATION
ARTESIA DISTRICT

MAR 19 2015

RECEIVED



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #28H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3763.00usft (Capstar 119)
Site:	NFE Federal	MD Reference:	KB @ 3763.00usft (Capstar 119)
Well:	#28H	North Reference:	Grid
Wellbore:	WB1 / Job #1512833	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 119)	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	#28H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 51' 31.27214 N
		Longitude:	103° 54' 1.80360 W
		Ground Level:	3,752.00 usft

Wellbore	WB1 / Job #1512833		
Magnetics	Model Name	Sample Date	Declination
	BGGM2014	1/30/2015	7.52
			Dip Angle
			60.62
			Field Strength
			48,545

Design	Surveys (Capstar 119)		
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
			(°)
			269.62

Survey Program	Date: 3/12/2015		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.00	4,275.00	Phoenix Gyro Surveys (WB1 / Job #15128	NS-GYRO-MS
4,354.00	9,200.00	Phoenix MWD Surveys (WB1 / Job #1512	PHX+MWD+BGGM
			Description
			North sensing gyrocompassing m/s
			PHX+MWD+BGGM v3:standard declination

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)
	4,275.00	0.46	292.42	4,274.56	18.78	12.77	-12.90	0.00	0.00	0.00
Tie In to Phoenix Gyro Surveys										
	4,354.00	0.70	304.70	4,353.56	19.18	12.08	-12.21	0.34	0.30	15.54
First Phoenix MWD Survey										
	4,386.00	1.80	288.10	4,385.55	19.44	11.45	-11.57	3.58	3.44	-51.88
	4,417.00	4.00	278.20	4,416.51	19.75	9.91	-10.04	7.25	7.10	-31.94
	4,449.00	6.80	273.90	4,448.36	20.04	6.92	-7.05	8.83	8.75	-13.44
	4,480.00	10.10	271.50	4,479.02	20.23	2.37	-2.50	10.70	10.65	-7.74
	4,512.00	13.60	269.40	4,510.34	20.27	-4.20	4.07	11.02	10.94	-6.56

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #28H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3763.00usft (Capstar 119)
Site:	NFE Federal	MD Reference:	KB @ 3763.00usft (Capstar 119)
Well:	#28H	North Reference:	Grid
Wellbore:	WB1 / Job #1512833	Survey Calculation Method:	Minimum Curvature,
Design:	Surveys (Capstar 119)	Database:	Compass 5000 GCR

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)
4,544.00	17.40	266.80	4,541.17	19.96	-12.74	12.61	12.07	11.88	-8.13
4,576.00	21.20	265.80	4,571.36	19.27	-23.30	23.17	11.92	11.88	-3.13
4,607.00	24.80	265.50	4,599.89	18.35	-35.37	35.25	11.62	11.61	-0.97
4,639.00	28.00	265.90	4,628.55	17.29	-49.56	49.44	10.02	10.00	1.25
4,670.00	31.70	265.50	4,655.44	16.13	-64.94	64.83	11.95	11.94	-1.29
4,701.00	35.60	265.90	4,681.24	14.84	-82.07	81.97	12.60	12.58	1.29
4,733.00	39.70	266.40	4,706.57	13.53	-101.57	101.47	12.85	12.81	1.56
4,764.00	43.60	268.10	4,729.73	12.56	-122.14	122.05	13.10	12.58	5.48
4,796.00	47.10	270.10	4,752.21	12.21	-144.90	144.81	11.81	10.94	6.25
4,828.00	50.70	271.40	4,773.25	12.53	-169.00	168.92	11.66	11.25	4.06
4,859.00	54.60	272.30	4,792.05	13.33	-193.63	193.53	12.79	12.58	2.90
4,891.00	58.10	271.80	4,809.78	14.29	-220.24	220.14	11.01	10.94	-1.56
4,922.00	61.70	271.30	4,825.32	15.01	-247.05	246.94	11.70	11.61	-1.61
4,954.00	63.80	268.30	4,839.98	14.90	-275.49	275.39	10.61	6.56	-9.38
4,986.00	66.20	266.10	4,853.50	13.48	-304.45	304.36	9.75	7.50	-6.88
5,017.00	68.20	265.30	4,865.52	11.34	-332.95	332.87	6.88	6.45	-2.58
5,048.00	71.20	264.50	4,876.27	8.75	-361.91	361.84	9.98	9.68	-2.58
5,080.00	74.90	263.50	4,885.60	5.55	-392.34	392.30	11.94	11.56	-3.13
5,112.00	78.70	264.50	4,892.90	2.29	-423.32	423.30	12.26	11.88	3.13
5,143.00	82.40	264.60	4,897.99	-0.61	-453.76	453.75	11.94	11.94	0.32
5,174.00	85.60	264.50	4,901.23	-3.54	-484.44	484.46	10.33	10.32	-0.32
5,205.00	89.10	265.50	4,902.66	-6.24	-515.29	515.32	11.74	11.29	3.23
5,237.00	90.10	266.70	4,902.89	-8.41	-547.21	547.25	4.88	3.13	3.75
5,269.00	90.70	269.30	4,902.66	-9.53	-579.19	579.24	8.34	1.88	8.13
5,300.00	91.00	269.50	4,902.20	-9.85	-610.18	610.23	1.16	0.97	0.65
5,332.00	91.70	269.40	4,901.45	-10.16	-642.17	642.22	2.21	2.19	-0.31
5,364.00	92.00	268.90	4,900.42	-10.63	-674.15	674.21	1.82	0.94	-1.56
5,395.00	91.70	269.40	4,899.42	-11.09	-705.13	705.19	1.88	-0.97	1.61
5,427.00	90.60	269.90	4,898.77	-11.29	-737.12	737.18	3.78	-3.44	1.56
5,459.00	90.40	270.70	4,898.50	-11.12	-769.12	769.18	2.58	-0.63	2.50
5,491.00	90.80	270.90	4,898.16	-10.67	-801.12	801.17	1.40	1.25	0.63
5,521.00	91.20	270.80	4,897.64	-10.23	-831.11	831.16	1.37	1.33	-0.33
5,561.00	92.40	270.60	4,894.65	-9.07	-926.05	926.09	1.28	1.26	-0.21
5,711.00	91.30	270.10	4,891.59	-8.49	-1,021.00	1,021.03	1.27	-1.16	-0.53
5,805.00	91.70	270.00	4,889.13	-8.41	-1,114.97	1,115.00	0.44	0.43	-0.11
5,900.00	92.00	269.90	4,886.06	-8.49	-1,209.92	1,209.95	0.33	0.32	-0.11
5,995.00	92.70	269.80	4,882.16	-8.74	-1,304.84	1,304.87	0.74	0.74	-0.11
6,090.00	91.00	269.50	4,879.10	-9.32	-1,399.78	1,399.81	1.82	-1.79	-0.32
6,184.00	91.30	269.80	4,877.21	-9.89	-1,493.76	1,493.79	0.45	0.32	0.32
6,279.00	91.00	268.90	4,875.30	-10.97	-1,588.74	1,588.77	1.00	-0.32	-0.95
6,374.00	90.80	268.40	4,873.81	-13.21	-1,683.70	1,683.75	0.57	-0.21	-0.53
6,469.00	90.80	267.80	4,872.48	-16.36	-1,778.63	1,778.70	0.63	0.00	-0.63
6,564.00	89.40	269.70	4,872.32	-18.43	-1,873.61	1,873.69	2.48	-1.47	2.00

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Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3763.00usft (Capstar 119)
Site:	NFE Federal	MD Reference:	KB @ 3763.00usft (Capstar 119)
Well:	#28H	North Reference:	Grid
Wellbore:	WB1 / Job #1512833	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 119)	Database:	Compass 5000 GCR

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)
6,659.00	89.80	269.60	4,872.98	-19.01	-1,968.60	1,968.68	0.43	0.42	-0.11
6,753.00	90.10	269.40	4,873.06	-19.83	-2,062.60	2,062.68	0.38	0.32	-0.21
6,848.00	90.00	268.90	4,872.98	-21.24	-2,157.59	2,157.68	0.54	-0.11	-0.53
6,943.00	91.30	269.60	4,871.90	-22.48	-2,252.57	2,252.67	1.55	1.37	0.74
7,039.00	91.30	270.50	4,869.73	-22.40	-2,348.54	2,348.64	0.94	0.00	0.94
7,134.00	92.00	271.20	4,866.99	-20.99	-2,443.49	2,443.58	1.04	0.74	0.74
7,229.00	92.20	271.30	4,863.51	-18.92	-2,538.41	2,538.48	0.24	0.21	0.11
7,323.00	91.80	269.70	4,860.23	-18.10	-2,632.34	2,632.40	1.75	-0.43	-1.70
7,418.00	91.80	268.80	4,857.24	-19.34	-2,727.29	2,727.35	0.95	0.00	-0.95
7,513.00	91.10	270.00	4,854.84	-20.34	-2,822.25	2,822.32	1.46	-0.74	1.26
7,608.00	91.60	269.70	4,852.60	-20.59	-2,917.22	2,917.29	0.61	0.53	-0.32
7,703.00	91.80	269.40	4,849.78	-21.33	-3,012.18	3,012.25	0.38	0.21	-0.32
7,797.00	91.30	270.10	4,847.24	-21.74	-3,106.14	3,106.22	0.91	-0.53	0.74
7,892.00	92.00	270.10	4,844.51	-21.58	-3,201.10	3,201.17	0.74	0.74	0.00
7,987.00	89.80	269.90	4,843.01	-21.58	-3,296.08	3,296.15	2.33	-2.32	-0.21
8,082.00	90.30	269.70	4,842.93	-21.91	-3,391.08	3,391.15	0.57	0.53	-0.21
8,176.00	90.90	269.60	4,841.95	-22.48	-3,485.07	3,485.15	0.65	0.64	-0.11
8,271.00	91.60	269.80	4,839.87	-22.98	-3,580.05	3,580.12	0.77	0.74	0.21
8,365.00	90.40	271.00	4,838.23	-22.32	-3,674.03	3,674.10	1.81	-1.28	1.28
8,460.00	91.60	271.70	4,836.58	-20.09	-3,768.99	3,769.04	1.46	1.26	0.74
8,555.00	92.20	271.30	4,833.43	-17.60	-3,863.90	3,863.93	0.76	0.63	-0.42
8,649.00	90.30	270.80	4,831.37	-15.88	-3,957.86	3,957.88	2.09	-2.02	-0.53
8,744.00	89.50	270.90	4,831.54	-14.47	-4,052.85	4,052.85	0.85	-0.84	0.11
8,839.00	89.80	268.10	4,832.12	-15.30	-4,147.83	4,147.84	2.96	0.32	-2.95
8,934.00	90.40	267.20	4,831.96	-19.19	-4,242.75	4,242.78	1.14	0.63	-0.95
9,029.00	91.20	266.80	4,830.63	-24.16	-4,337.61	4,337.67	0.94	0.84	-0.42
9,124.00	92.10	266.50	4,827.89	-29.71	-4,432.41	4,432.51	1.00	0.95	-0.32
Last Phoenix MWD Survey									
9,200.00	92.10	266.50	4,825.11	-34.35	-4,508.21	4,508.34	0.00	0.00	0.00
Projection to TD									

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
4,275.00	4,274.56	18.78	12.77	Tie In to Phoenix Gyro Surveys
4,354.00	4,353.56	19.18	12.08	First Phoenix MWD Survey
9,124.00	4,827.89	-29.71	-4,432.41	Last Phoenix MWD Survey
9,200.00	4,825.11	-34.35	-4,508.21	Projection to TD

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 Bruzos 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-		Pool Code	Pool Name
Property Code	Property Name NFE FEDERAL		Well Number 28H
GRID No. 873	Operator Name APACHE CORPORATION		Elevation 3752'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	6	17-S	31-E		920	SOUTH	155	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	6	17-S	31-E		920	SOUTH	330	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
151.47			

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

CORNER COORDINATES TABLE (A) - Y=676741.8 N, X=628067.0 E (B) - Y=676775.0 N, X=633063.5 E (C) - Y=675422.0 N, X=628071.2 E (D) - Y=675455.2 N, X=633070.9 E		GEODEIC COORDINATES NAD 27 NME SURFACE LOCATION Y=676373.9 N X=632910.8 E LAT.=32.858687° N LONG.=103.900501° W LAT.=32° 51' 31" N LONG.=103° 54' 02" W BOTTOM HOLE LOCATION Y=676343.9 N X=628398.2 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. Signature: <u>Sorina L. Flores</u> 1/21/14 Date: _____ Printed Name: <u>Sorina L. Flores</u> E-mail Address: <u>sorina.flores@apachecorp.com</u>
DETAIL 				
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 5, 2012 Date of Survey Signature & Seal of Professional Surveyor: <u>Ronald J. Eidson</u> Certificate Number: <u>3239</u> DSS: _____ JWSC-W.O.: 12.11.0707				

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State of New Mexico
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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 30-015-42653	Pool Code 96831	Pool Name COOAR LAKE
Property Code 308724	Property Name NFE FEDERAL	Well Number 28H
OGRID No. 873	Operator Name APACHE CORPORATION	Elevation 3752'

Surface Location

UL or lot No.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
P	6	17-S	31-E		920	SOUTH	155	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
7	6	17-S	31-E		920	SOUTH	330	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
151.47			

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

CORNER COORDINATES TABLE (A) - Y=676741.8 N, X=628067.0 E (B) - Y=676775.0 N, X=633063.5 E (C) - Y=675422.0 N, X=628071.2 E (D) - Y=675455.2 N, X=633070.9 E	GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y=676373.9 N X=632910.8 E LAT.=32.858687° N LONG.=103.900501° W LAT.=32° 51' 31" N LONG.=103° 54' 02" W BOTTOM HOLE LOCATION Y=676343.9 N X=628398.2 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> 1/21/14 Signature Date Sorina L. Flores Printed Name sorina.flores@apachecorp.com E-mail Address
DETAIL		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 5, 2012 Date of Survey Signature of Professional Surveyor: RONALD J. EIDSON NEW MEXICO REG. 3239 Certification Number: 3239 Surveyor: Ronald J. Eidson 12641 Professional: Ronald J. Eidson 3239 DSS JWSC W.O.: 12.11.0707