



PHOENIX
TECHNOLOGY SERVICES

May 11, 2015

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

NM OIL CONSERVATION

ARTESIA DISTRICT

FEB 17 2016

Dear District 2 - Artesia

Attention: Regulatory Department

RECEIVED

Re: Apache Corporation
NFE Federal #52H
Eddy County, NM
API #30-015-42907
Job No. 1513428

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 Fowles	52H	4,319	8,281	05/02/15	05/04/15	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,

Alva J. Dunigan

Alva J. Dunigan
Operations Administrator

Certified mail receipt number: 7011 1570 0001 4365 0540

Phoenix Technology Services SURVEY DATA CERTIFICATION

RECEIVED



PHOENIX JOB NUMBER 1513428

OPERATOR Apache

WELL NAME NFE Federal #52H COUNTY & STATE Eddy County, NM

API WELL NUMBER 30-015-42907 PROPOSED DIRECTION 269.61

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
4,288 ft	4,288.00 ft	0.14	183.96	15.81 N	40.67 E	GYRO

FIRST	FIRST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
2-May-15	4319 ft.	0.30	185.5

SURVEY INSTRUMENT
TYPE
Phoenix MWD

LAST	LAST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
4-May-15	8281 ft.	93.5	268.2

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

PROJECTED	PROJECTED		
TD SURVEY	TD SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
4-May-15	8350 ft.	93.5	268.2

Burton P. Fowles

PRINT YOUR NAME ABOVE

Burton P. Fowles

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	7.45
DECLINATION OR GRID	GRID

5/5/2015

TODAY'S DATE

MWD SUPERVISOR 1 Burton Fowles
MWD SUPERVISOR 2 Jimmy Confer

DIRECTIONAL DRILLER 1 Ian Hobbs
DIRECTIONAL DRILLER 2 Josh Ashley



Apache Corporation

Eddy County, NM (NAD27 NME)

NFE Federal

#52H

WB1 / Job #1513428

Survey: Phoenix MWD Surveys

Standard Survey Report

06 May, 2015

NM OIL CONSERVATION
ARTESIA DISTRICT

FEB 17 2016

RECEIVED



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #52H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3778.00usft (Capstar 114)
Site:	NFE Federal	MD Reference:	KB @ 3778.00usft (Capstar 114)
Well:	#52H	North Reference:	Grid
Wellbore:	WB1 / Job #1513428	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	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	#52H		
Well Position	+N/-S	0.00 usft	Northing: 680,242.20 usft
	+E/-W	0.00 usft	Easting: 632,019.30 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
			Ground Level: 3,767.00 usft

Wellbore	WB1 / Job #1513428		
Magnetics	Model Name	Sample Date	Declination
			(°)
	HDGM	4/22/2015	7.68
			Dip Angle (°)
			60.82
			Field Strength (nT)
			48,578

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 (°)
			269.61

Survey Program	Date	5/4/2015			
From	To	Survey (Wellbore)	Tool Name	Description	
(usft)	(usft)				
100.00	4,288.00	Phoenix Gyro Surveys (WB1 / Job #15134	NS-GYRO-MS	North sensing gyrocompassing m/s	
4,319.00	6,969.00	Phoenix MWD Surveys (WB1 / Job #1513	PHX+MWD+HDGM	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)	
4,288.00	0.14	183.96	4,287.41	15.81	40.67	-40.77	0.00	0.00	0.00	
Tie-on to Phoenix Gyro Survey										
4,319.00	0.30	185.50	4,318.41	15.69	40.66	-40.76	0.52	0.52	4.97	
First Phoenix MWD Survey										
4,362.00	0.20	188.00	4,361.41	15.50	40.64	-40.74	0.23	-0.23	5.81	
4,403.00	2.70	268.50	4,402.39	15.40	39.66	-39.76	6.52	6.10	196.34	
4,446.00	7.40	282.30	4,445.21	15.97	35.94	-36.05	11.21	10.93	32.09	
4,488.00	12.60	285.80	4,486.56	17.79	28.88	-29.00	12.45	12.38	8.33	
4,530.00	18.60	285.80	4,527.00	20.87	18.02	-18.16	14.29	14.29	0.00	

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #52H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3778.00usft (Capstar 114)
Site:	NFE Federal	MD Reference:	KB @ 3778.00usft (Capstar 114)
Well:	#52H	North Reference:	Grid
Wellbore:	WB1 / Job #1513428	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)
4,573.00	23.50	286.00	4,567.11	25.10	3.17	-3.34	11.40	11.40	0.47
4,615.00	27.60	287.00	4,605.00	30.26	-14.19	13.98	9.82	9.76	2.38
4,658.00	31.60	285.90	4,642.38	36.26	-34.56	34.31	9.39	9.30	-2.56
4,701.00	36.00	283.70	4,678.10	42.34	-57.68	57.39	10.62	10.23	-5.12
4,743.00	41.10	279.70	4,710.95	47.59	-83.30	82.98	13.51	12.14	-9.52
4,786.00	46.30	275.70	4,742.03	51.52	-112.73	112.37	13.69	12.09	-9.30
4,828.00	51.90	271.50	4,769.52	53.46	-144.39	144.02	15.32	13.33	-10.00
4,871.00	56.00	268.80	4,794.83	53.53	-179.14	178.77	10.80	9.53	-6.28
4,914.00	59.40	266.50	4,817.80	52.03	-215.45	215.09	9.11	7.91	-5.35
4,957.00	63.20	265.00	4,838.45	49.23	-253.05	252.71	9.35	8.84	-3.49
5,000.00	66.90	265.50	4,856.58	46.00	-291.90	291.58	8.67	8.60	1.16
5,042.00	71.20	267.30	4,871.60	43.55	-331.03	330.73	10.99	10.24	4.29
5,085.00	74.30	268.00	4,884.35	41.87	-372.06	371.76	7.37	7.21	1.63
5,127.00	80.20	268.00	4,893.61	40.44	-412.98	412.69	14.05	14.05	0.00
5,169.00	86.60	267.30	4,898.44	38.73	-454.64	454.37	15.33	15.24	-1.67
5,211.00	89.70	267.30	4,899.80	36.75	-496.57	496.31	7.38	7.38	0.00
5,294.00	90.30	267.20	4,899.80	32.77	-579.47	579.24	0.73	0.72	-0.12
5,422.00	92.40	266.50	4,896.78	25.74	-707.24	707.05	1.73	1.64	-0.55
5,551.00	92.50	266.80	4,891.27	18.20	-835.90	835.76	0.24	0.08	0.23
5,679.00	93.70	266.80	4,884.34	11.07	-963.51	963.41	0.94	0.94	0.00
5,810.00	93.30	268.80	4,876.35	6.05	-1,094.16	1,094.10	1.55	-0.31	1.53
5,941.00	93.10	268.70	4,869.03	3.20	-1,224.93	1,224.88	0.17	-0.15	-0.08
6,069.00	92.50	268.80	4,862.78	0.41	-1,352.74	1,352.71	0.48	-0.47	0.08
6,198.00	91.40	268.80	4,858.39	-2.29	-1,481.64	1,481.62	0.85	-0.85	0.00
6,326.00	91.80	268.80	4,854.82	-4.97	-1,609.56	1,609.56	0.31	0.31	0.00
6,457.00	90.20	268.30	4,852.53	-8.29	-1,740.49	1,740.51	1.28	-1.22	-0.38
6,585.00	91.50	268.20	4,850.63	-12.19	-1,868.42	1,868.46	1.02	1.02	-0.08
6,713.00	90.90	269.40	4,847.95	-14.87	-1,996.36	1,996.41	1.05	-0.47	0.94
6,841.00	89.10	270.20	4,847.95	-15.32	-2,124.35	2,124.41	1.54	-1.41	0.63
6,969.00	90.80	270.90	4,848.06	-14.09	-2,252.34	2,252.38	1.44	1.33	0.55
7,100.00	91.50	271.60	4,845.43	-11.23	-2,383.28	2,383.30	0.76	0.53	0.53
7,228.00	92.90	271.40	4,840.52	-7.89	-2,511.14	2,511.13	1.10	1.09	-0.16
7,357.00	90.00	271.40	4,837.26	-4.74	-2,640.05	2,640.02	2.25	-2.25	0.00
7,485.00	89.70	270.30	4,837.59	-2.84	-2,768.03	2,767.98	0.89	-0.23	-0.86
7,613.00	89.80	269.20	4,838.15	-3.40	-2,896.02	2,895.98	0.86	0.08	-0.86
7,741.00	90.60	268.80	4,837.70	-5.63	-3,024.00	3,023.97	0.70	0.63	-0.31
7,869.00	91.60	268.50	4,835.25	-8.64	-3,151.94	3,151.93	0.82	0.78	-0.23
7,997.00	92.50	268.40	4,830.67	-12.10	-3,279.81	3,279.82	0.71	0.70	-0.08
8,126.00	92.80	268.20	4,824.70	-15.93	-3,408.62	3,408.65	0.28	0.23	-0.16
8,254.00	93.40	268.10	4,817.78	-20.05	-3,536.36	3,536.42	0.48	0.47	-0.08
8,281.00	93.50	268.20	4,816.16	-20.92	-3,563.30	3,563.36	0.52	0.37	0.37
Last Phoenix MWD Survey									
8,350.00	93.50	268.20	4,811.94	-23.09	-3,632.14	3,632.21	0.00	0.00	0.00
Projection to TD									

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Wellbore:	WB1 / Job #1513428	Survey Calculation Method:	Minimum Curvature
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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)

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
4,288.00	4,287.41	15.81	40.67	Tie-on to Phoenix Gyro Survey	
4,319.00	4,318.41	15.69	40.66	First Phoenix MWD Survey	
8,281.00	4,816.16	-20.92	-3,563.30	Last Phoenix MWD Survey	
8,350.00	4,811.94	-23.09	-3,632.14	Projection to TD	

Checked By: _____	Approved By: _____	Date: _____
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DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (505) 393-6161 Fax: (505) 393-0720
DISTRICT II
817 S. First St., Artesia, NM 88210
Phone: (505) 748-1283 Fax: (505) 748-9720
DISTRICT III
1000 Rio Brazos Road, Artesia, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6179
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 30-015-42907	Prop Code 96831	Pool Name Cedar Lake, Glorieta - Yesso
Property Code 368724	Property Name NFE FEDERAL	Well Number 52H
GRID No. 873	Operator Name APACHE CORPORATION	Elevation 3767'

Surface Location

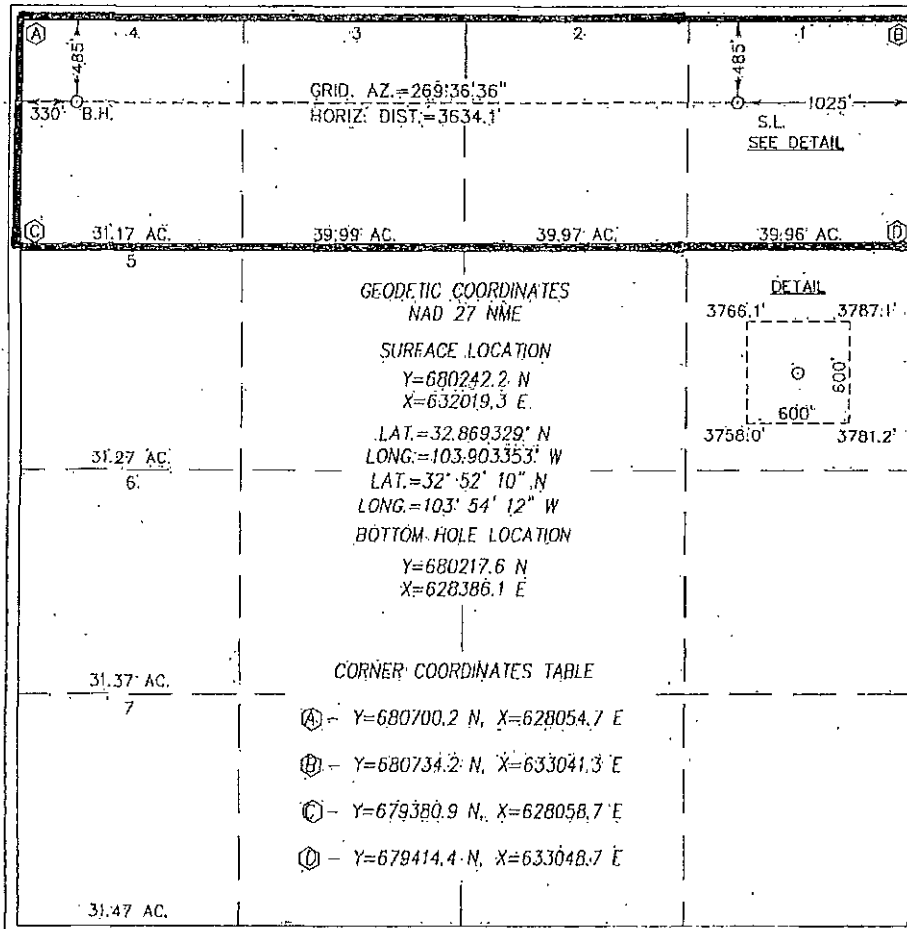
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	6	17-S	31-E		485	NORTH	1025'	EAST	EDDY

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
4	6	17-S	31-E		485	NORTH	330	WEST	EDDY

Dedicated Acres 151.09	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



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 interest or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Sorina R Flores 5/13/14
Signature Date
Sorina R. Flores
Printed Name
sorina.flores@apachecorp.com
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
Ronald J. Eidson 4/18/2012
Certificate Number: Gary C. Eidson 12641
Ronald J. Eidson 3239
AF WSC W.O.: 12.11.0741