



PHOENIX
TECHNOLOGY SERVICES

April 14, 2015

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

Dear District 2 - Artesia

Attention: Regulatory Department

Re: Apache Corporation
Hummingbird Federal Com #1H
Eddy County, NM
API #30-015-42631
Job No. 1410314

NM OIL CONSERVATION
ARTESIA DISTRICT

APR 27 2015

RECEIVED

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	1H	4,543	10,103	04/02/15	04/05/15	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 7330

Phoenix Technology Services
SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER

1410314

OPERATOR

Apache

WELL NAME

Hummingbird Federal Com #1H

COUNTY & STATE

Eddy County, NM

API WELL NUMBER

30-015-42631

PROPOSED DIRECTION

89.31

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
4,454 ft	4,453.56 ft	0.17	264.93	-8.90 ft	-2.57 ft	Gyro

FIRST SURVEY DATE	FIRST SURVEY DEPTH	INCLIN	AZIMUTH
2-Apr-15	4,543 ft	0.20	277.10

SURVEY INSTRUMENT TYPE
Phoenix MWD

LAST SURVEY DATE	LAST SURVEY DEPTH	INCLIN	AZIMUTH
5-Apr-15	10,103 ft	94.7	89.70

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
5-Apr-15	10,174 ft	94.7	89.70

Burton P. Fowles

PRINT YOUR NAME ABOVE

Burton P. Fowles

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	7.28
DECLINATION OR GRID	GRID

4/6/2015

TODAY'S DATE

MWD SUPERVISOR 1

Burton Fowles

DIRECTIONAL DRILLER 1

Ian Hobbs

MWD SUPERVISOR 2

Justin Hearne

DIRECTIONAL DRILLER 2

Josh Ashley

1805 Brittmore Road

Houston, Texas 77043

(713)3370609 (Voice), (713)337-0599 (Fax)



EXPLORING WHAT'S POSSIBLE

Apache Corporation

Eddy County, NM (NAD27 NME)

Hummingbird Federal Com

#1H

WB1/Job #1410314

Survey: Phoenix MWD Surveys

Standard Survey Report

06 April, 2015

NM OIL CONSERVATION
ARTESIA DISTRICT

APR 27 2015

RECEIVED



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 4013.00usft (Capstar 114)
Site:	Hummingbird Federal Com	MD Reference:	KB @ 4013.00usft (Capstar 114)
Well:	#1H	North Reference:	Grid
Wellbore:	WB1/Job #1410314	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	Hummingbird Federal Com		
Site Position:		Northing:	677,262.80 usft
From:	Map	Easting:	655,481.80 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 51' 39.07462 N
		Longitude:	103° 49' 37.14798 W
		Grid Convergence:	0.27 °

Well	#1H		
Well Position	+N/-S	0.00 usft	Northing: 677,254.20 usft
	+E/-W	0.00 usft	Easting: 654,282.00 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 51' 39.04624 N
		Longitude:	103° 49' 51.21432 W
		Ground Level:	4,002.00 usft

Wellbore	WB1/Job #1410314		
Magnetics	Model Name	Sample Date	Declination
	HDGM	4/2/2015	(°) 7.55
			Dip Angle (°) 60.87
			Field Strength (nT) 48,623

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 (°) 89.31

Survey Program	Date	4/6/2015		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
83.00	4,454.00	Phoenix Gyro Survey (WB1/Job #1410314)	NS-GYRO-MS	North sensing gyrocompassing m/s
4,543.00	10,174.00	Phoenix MWD Surveys (WB1/Job #14103)	PHX+MWD+HDGM	PHX+MWD+HDGM

Survey									
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)
4,454.00	0.17	264.93	4,453.56	-8.90	-2.57	-2.67	0.00	0.00	0.00
Tie-on to Phoenix Gyro Survey									
4,543.00	0.20	277.10	4,542.56	-8.89	-2.85	-2.96	0.06	0.03	13.67
First Phoenix MWD Survey									
4,800.00	0.50	246.10	4,799.55	-9.29	-4.32	-4.43	0.13	0.12	-12.06
4,971.00	0.40	251.50	4,970.55	-9.78	-5.57	-5.69	0.06	-0.06	3.16
5,013.00	0.60	261.80	5,012.55	-9.86	-5.93	-6.05	0.52	0.48	24.52
5,056.00	1.70	63.90	5,055.54	-9.61	-5.58	-5.69	5.30	2.56	376.98
5,099.00	6.40	70.80	5,098.42	-8.54	-2.74	-2.84	10.97	10.93	16.05

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 4013.00usft (Capstar 114)
Site:	Hummingbird Federal Com	MD Reference:	KB @ 4013.00usft (Capstar 114)
Well:	#1H	North Reference:	Grid
Wellbore:	WB1/Job #1410314	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)	
5,141.00	11.80	74.40	5,139.88	-6.61	3.61	3.53	12.92	12.86	8.57	
5,184.00	17.60	74.50	5,181.45	-3.69	14.12	14.08	13.49	13.49	0.23	
5,226.00	23.30	76.30	5,220.79	-0.03	28.32	28.32	13.65	13.57	4.29	
5,269.00	28.30	79.20	5,259.49	3.90	46.61	46.65	11.99	11.63	6.74	
5,312.00	33.90	80.40	5,296.30	7.81	68.46	68.55	13.10	13.02	2.79	
5,355.00	39.10	81.20	5,330.85	11.89	93.70	93.84	12.14	12.09	1.86	
5,397.00	45.00	82.50	5,362.03	15.86	121.54	121.72	14.20	14.05	3.10	
5,440.00	48.40	85.10	5,391.52	19.22	152.64	152.86	9.05	7.91	6.05	
5,483.00	52.30	85.90	5,418.95	21.81	185.64	185.89	9.18	9.07	1.86	
5,526.00	56.00	88.40	5,444.13	23.52	220.44	220.71	9.81	8.60	5.81	
5,568.00	62.10	88.80	5,465.72	24.40	256.43	256.71	14.55	14.52	0.95	
5,611.00	68.70	88.70	5,483.61	25.25	295.50	295.78	15.35	15.35	-0.23	
5,654.00	74.10	87.60	5,497.32	26.57	336.22	336.51	12.79	12.56	-2.56	
5,697.00	78.20	87.00	5,507.61	28.54	377.91	378.23	9.63	9.53	-1.40	
5,739.00	82.70	86.80	5,514.58	30.78	419.26	419.60	10.72	10.71	-0.48	
5,782.00	88.70	85.30	5,517.80	33.74	462.01	462.39	14.38	13.95	-3.49	
5,824.00	91.70	84.70	5,517.66	37.40	503.85	504.26	7.28	7.14	-1.43	
5,952.00	92.30	85.40	5,513.19	48.43	631.29	631.83	0.72	0.47	0.55	
6,080.00	88.70	90.30	5,512.07	53.23	759.14	759.72	4.75	-2.81	3.83	
6,209.00	89.50	92.10	5,514.10	50.53	888.09	888.63	1.53	0.62	1.40	
6,339.00	88.70	91.90	5,516.14	45.99	1,017.99	1,018.47	0.63	-0.62	-0.15	
6,468.00	89.50	91.30	5,518.17	42.39	1,146.92	1,147.35	0.78	0.62	-0.47	
6,599.00	89.80	90.50	5,518.97	40.34	1,277.90	1,278.30	0.65	0.23	-0.61	
6,727.00	88.00	90.30	5,521.42	39.44	1,405.87	1,406.24	1.41	-1.41	-0.16	
6,855.00	90.10	90.30	5,523.55	38.77	1,533.85	1,534.20	1.64	1.64	0.00	
6,983.00	91.10	90.70	5,522.21	37.66	1,661.83	1,662.16	0.84	0.78	0.31	
7,112.00	89.70	89.80	5,521.30	37.09	1,790.82	1,791.14	1.29	-1.09	-0.70	
7,240.00	88.00	89.40	5,523.87	37.99	1,918.79	1,919.11	1.36	-1.33	-0.31	
7,371.00	90.20	89.00	5,525.93	39.81	2,049.75	2,050.08	1.71	1.68	-0.31	
7,500.00	89.30	89.80	5,526.49	41.17	2,178.74	2,179.08	0.93	-0.70	0.62	
7,628.00	87.90	88.80	5,529.62	42.73	2,306.69	2,307.04	1.34	-1.09	-0.78	
7,756.00	90.10	88.10	5,531.86	46.19	2,434.61	2,434.99	1.80	1.72	-0.55	
7,884.00	89.00	89.80	5,532.86	48.54	2,562.58	2,562.98	1.58	-0.86	1.33	
8,012.00	89.70	91.20	5,534.31	47.42	2,690.56	2,690.94	1.22	0.55	1.09	
8,139.00	90.70	92.00	5,533.87	43.87	2,817.51	2,817.84	1.01	0.79	0.63	
8,267.00	88.90	92.10	5,534.32	39.29	2,945.42	2,945.68	1.41	-1.41	0.08	
8,396.00	88.30	89.90	5,537.47	37.04	3,074.36	3,074.58	1.77	-0.47	-1.71	
8,524.00	89.70	89.10	5,539.70	38.16	3,202.33	3,202.56	1.26	1.09	-0.63	
8,652.00	89.10	89.80	5,541.04	39.39	3,330.31	3,330.55	0.72	-0.47	0.55	
8,780.00	87.00	89.60	5,545.40	40.06	3,458.23	3,458.46	1.65	-1.64	-0.16	
8,909.00	88.70	89.00	5,550.24	41.63	3,587.12	3,587.37	1.40	1.32	-0.47	
9,040.00	91.30	88.70	5,550.24	44.26	3,718.09	3,718.35	2.00	1.98	-0.23	
9,168.00	89.80	89.60	5,549.01	46.16	3,846.06	3,846.34	1.37	-1.17	0.70	

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 4013.00usft (Capstar 114)
Site:	Hummingbird Federal Com	MD Reference:	KB @ 4013.00usft (Capstar 114)
Well:	#1H	North Reference:	Grid
Wellbore:	WB1/Job #1410314	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)	
9,296.00	92.20	89.30	5,546.77	47.39	3,974.03	3,974.31	1.89	1.88	-0.23	
9,424.00	90.20	90.90	5,544.09	47.17	4,101.99	4,102.26	2.00	-1.56	1.25	
9,553.00	87.00	90.90	5,547.25	45.14	4,230.92	4,231.15	2.48	-2.48	0.00	
9,684.00	87.90	89.60	5,553.07	44.57	4,361.78	4,362.00	1.21	0.69	-0.99	
9,812.00	89.80	89.80	5,555.64	45.24	4,489.75	4,489.97	1.49	1.48	0.16	
9,940.00	91.40	89.40	5,554.30	46.13	4,617.73	4,617.95	1.29	1.25	-0.31	
10,103.00	94.70	89.70	5,545.63	47.41	4,780.48	4,780.70	2.03	2.02	0.18	
Last Phoenix MWD Survey										
10,174.00	94.70	89.70	5,539.81	47.78	4,851.24	4,851.46	0.00	0.00	0.00	
Projection to TD										

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
4,454.00	4,453.56	-8.90	-2.57	Tie-on to Phoenix Gyro Survey	
4,543.00	4,542.56	-8.89	-2.85	First Phoenix MWD Survey	
10,103.00	5,545.63	47.41	4,780.48	Last Phoenix MWD Survey	
10,174.00	5,539.81	47.78	4,851.24	Projection to TD	

Checked By: _____	Approved By: _____	Date: _____
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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	Pool Code	Pool Name
Property Code	Property Name HUMMINGBIRD FEDERAL COM	Well Number 1H
OGRID No.	Operator Name APACHE CORPORATION	Elevation 4002'

Surface Location

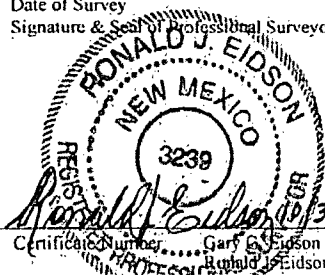
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	1	17-S	31-E		1650	SOUTH	100	WEST	EDDY

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
I	1	17-S	31-E		1650	SOUTH	330	EAST	EDDY

Dedicated Acres	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

GEODETIC COORDINATES NAD 83 NME SURFACE LOCATION Y=677318.5 N X=695460.5 E LAT.=32.860964° N LONG.=103.831399° W LAT.=32°51'39" N LONG.=103°49'53" W	GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y=677254.2 N X=654282.0 E LAT.=32.860846° N LONG.=103.830893° W LAT.=32°51'39" N LONG.=103°49'51" W	GEODETIC COORDINATES NAD 83 NME BOTTOM HOLE LOCATION Y=677352.3 N X=700312.3 E LAT.=32.860993° N LONG.=103.815598° W LAT.=32°51'39" N LONG.=103°48'56" W	GEODETIC COORDINATES NAD 27 NME BOTTOM HOLE LOCATION Y=677288.0 N X=659133.9 E LAT.=32.860874° N LONG.=103.815092° W LAT.=32°51'39" N LONG.=103°48'54" 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. Signature _____ Date _____ Printed Name _____ E-mail Address _____
CORNER COORDINATES TABLE NAD 27 NME A - Y=678243.3 N, X=654176.5 E B - Y=676923.6 N, X=654183.9 E C - Y=676960.4 N, X=659465.7 E D - Y=678280.1 N, X=659458.2 E		CORNER COORDINATES TABLE NAD 83 NME A - Y= 678307.6 N, X= 695354.9 E B - Y= 678344.4 N, X= 700636.6 E C - Y= 677024.7 N, X= 700644.1 E D - Y= 678344.5 N, X= 700636.6 E		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 22, 2014 Date of Survey _____ Signature & Seal of Professional Surveyor:  Certificate Number: Gary E. Eidson 12641 Ronald J. Eidson 3239 ACK _____

DISTRICT I
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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

NM OIL CONSERVATION

Form C-102

ARTESIA DISTRICT

Revised August 1, 2011

Submit one copy to appropriate District Office

SEP 11 2014

RECEIVED

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-42631	Pool Code 36770	Pool Name Frenj, Glorieta-Yeso
Property Code 313695	Property Name HUMMINGBIRD FEDERAL COM	Well Number 1H
OGRID No. 873	Operator Name APACHE CORPORATION	Elevation 4009'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn'	Feet from the	North/South line	Feet from the...	East/West line	County
L	I	17-S	31-E		1650	SOUTH	1300	WEST	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
I	I	17-S	31-E		1650	SOUTH	330	EAST	EDDY

Dedicated Acres 120	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

GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y=677262.8 N X=655481.8 E LAT.=32.860854° N LONG.=103.826986° W LAT.=32° 51' 39" N LONG.=103° 49' 37" W BOTTOM HOLE LOCATION Y=677288.0 N X=659133.9 E CORNER COORDINATES TABLE <table border="1"> <tr> <td>A - Y=678243.3 N, X=654176.5 E</td> </tr> <tr> <td>B - Y=678280.1 N, X=659458.2 E</td> </tr> <tr> <td>C - Y=676960.4 N, X=659465.7 E</td> </tr> <tr> <td>D - Y=676923.6 N, X=654183.9 E</td> </tr> </table>	A - Y=678243.3 N, X=654176.5 E	B - Y=678280.1 N, X=659458.2 E	C - Y=676960.4 N, X=659465.7 E	D - Y=676923.6 N, X=654183.9 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 Flores</i> 2/20/14 Signature Date <i>Sorina Flores</i> Printed Name <i>sorina.flores@apachecorp.com</i> E-mail Address
	A - Y=678243.3 N, X=654176.5 E				
B - Y=678280.1 N, X=659458.2 E					
C - Y=676960.4 N, X=659465.7 E					
D - Y=676923.6 N, X=654183.9 E					
DETAIL GRID AZ.=89°36'10" HORIZ. DIST.=3653.2' S.L. SEE DETAIL B.H. 330'	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. JULY 26, 2013 Date of Survey <i>Ronald J. Eidson</i> Signature & Seal of Professional Surveyor: <i>Ronald J. Eidson</i> 08/16/2013 Certificate Number NEW MEXICO 3239 REGISTERED SURVEYOR BKL. JWSC W.O.: 13.11.0796				