



PHOENIX
TECHNOLOGY SERVICES

July 3, 2014

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

NM OIL CONSERVATION
ARTESIA DISTRICT
JUL 10 2014

Dear District 2 - Artesia

RECEIVED

Attention: Regulatory Department

Re: Apache Corporation
Crow Federal #35H
Eddy County, NM
API #30-015-42140
Job No. 1410849

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	
Brad Hill	35H	4,871	9,396	05/29/14	06/02/14	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,

Dana Robinson

Dana Robinson
Operations Administrator
Certified mail receipt number: _____

7011 1570 0001 4365 2193

Phoenix Technology Services SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER

1410849

OPERATOR

Apache Corporation

WELL NAME

Crow Federal #35H

COUNTY & STATE

Eddy, New Mexico

API WELL NUMBER

30-015-42140

PROPOSED DIRECTION

89.61

TIE-IN DATA						
MEASURED DEPTH	VERTICAL DEPTH	INCLIN	AZIMUTH	N-S COORD	E-W COORD	DATA SOURCE
4,700 ft	4,699.83 ft	0.17 ft.	246.81	-2.12 ft	13.14 ft	Gyro

FIRST SURVEY DATE	FIRST SURVEY DEPTH	INCLIN	AZIMUTH
29-May-14	4,871 ft	5.1	87.9

SURVEY INSTRUMENT

TYPE

Phoenix MWD

LAST SURVEY DATE	LAST SURVEY DEPTH	INCLIN	AZIMUTH
2-Jun-14	9,396 ft	89.2	88.4

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
2-Jun-14	9,461 ft	89.2	88.4

Bradley Hill

PRINT YOUR NAME ABOVE

Bradley Hill

SIGN YOUR NAME ABOVE

7/3/2014

TODAY'S DATE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	7.16
DECLINATION OR GRID	GRID

MWD SUPERVISOR 1

Bradley Hill

DIRECTIONAL DRILLER 1

Richard Thurman

MWD SUPERVISOR 2

Shelby Johnson

DIRECTIONAL DRILLER 2

Jim Burnham

1805 Brittmore Road

Houston, Texas 77043

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

NM OIL CONSERVATION
ARTESIA DISTRICT

JUL 10 2014

Form C-102

Revised August 1, 2011

Submit one copy to appropriate
District Office

□ AMENDED REPORT

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (505) 393-6161 Fax: (505) 393-0720
DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (505) 748-1283 Fax: (505) 748-9720
DISTRICT III
1000 Rio Arriba 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

RECEIVED

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-	Pool Code 26770	Pool Name Fren, Glorieta - Yeso
Property Code 308711	Property Name CROW FEDERAL	
OGRID No. 873	Operator Name APACHE CORPORATION	Well Number 35H
		Elevation 3927'

Surface Location

U.I. or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	3	17-S	31-E		930	SOUTH	557	WEST	EDDY

Bottom Hole Location If Different From Surface

U.I. or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	3	17-S	31-E		930	SOUTH	330	EAST	EDDY

Dedicated Acres 160	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

CORNER COORDINATES TABLE Ⓐ - Y=676849.1 N, X=643624.5 E Ⓑ - Y=676886.4 N, X=648904.4 E Ⓒ - Y=675566.2 N, X=648912.5 E Ⓓ - Y=675530.4 N, X=643632.5 E	GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y=676463.9 N X=644184.1 E LAT.=32.858802° N LONG.=103.863788° W LAT.=32° 51' 32" N LONG.=103° 51' 50" W BOTTOM HOLE LOCATION Y=676493.7 N X=648576.9 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 interest or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Larry L. Flores</i> 9/25/13 Signature Date Printed Name _____ 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. MAY 2, 2012 Date of Survey Signature & Seal of Professional Surveyor: Certification Number 3239 Gary Eidson 12641 Ronald J. Eidson 3239 DSS NWSC W.O.: 12.11.0833



EXPLORING WHAT'S POSSIBLE

Apache Corporation

Eddy County, NM (NAD27 NME)

Crow Federal

#35H

WB1/Job 1410849

Design: Surveys (Capstar 114)

Standard Survey Report

03 June, 2014

NM OIL CONSERVATION
ARTESIA DISTRICT

JUL 10 2014

RECEIVED



PHOENIX
TECHNOLOGY SERVICES

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #35H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3938.00usft (Capstar 114)
Site:	Crow Federal	MD Reference:	KB @ 3938.00usft (Capstar 114)
Well:	#35H	North Reference:	Grid
Wellbore:	WB1/Job 1410849	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	GCR DB

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	Crow Federal				
Site Position:		Northing:	671,130.90 usft	Latitude:	32° 50' 38.92796 N
From:	Map	Easting:	643,906.80 usft	Longitude:	103° 51' 53.16689 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.25 °

Well	#35H					
Well Position	+N/-S	0.00 usft	Northing:	676,463.90 usft	Latitude:	32° 51' 31.68608 N
	+E/-W	0.00 usft	Easting:	644,184.10 usft	Longitude:	103° 51' 49.63866 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,927.00 usft

Wellbore	WB1/Job 1410849				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	05/19/14	7.41	60.65	48,669

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

Survey Program	Date 06/03/14			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	4,700.00	Gyrodata Gyro Survey (WB1/Job 1410849)	NS-GYRO-MS	North sensing gyrocompassing m/s
4,871.00	9,461.00	Phoenix MWD Surveys (WB1/Job 141084)	MWD	MWD - Standard

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
	100.00	0.17	84.74	100.00	0.01	0.15	0.15	0.17	0.17	0.00
	200.00	0.30	130.52	200.00	-0.14	0.49	0.49	0.22	0.13	45.78
	300.00	0.37	143.47	300.00	-0.57	0.89	0.88	0.10	0.07	12.95
	400.00	0.42	145.45	399.99	-1.13	1.29	1.28	0.05	0.05	1.98
	500.00	0.46	147.53	499.99	-1.77	1.71	1.70	0.04	0.04	2.08
	600.00	0.42	149.63	599.99	-2.43	2.11	2.09	0.04	-0.04	2.10
	700.00	0.42	148.83	699.99	-3.06	2.48	2.46	0.01	0.00	-0.80
	800.00	0.39	159.39	799.98	-3.69	2.79	2.77	0.08	-0.03	10.56
	900.00	0.14	161.48	899.98	-4.13	2.95	2.92	0.25	-0.25	2.09



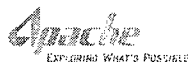
Phoenix Technology Services

Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #35H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3938.00usft (Capstar 114)
Site:	Crow Federal	MD Reference:	KB @ 3938.00usft (Capstar 114)
Well:	#35H	North Reference:	Grid
Wellbore:	WB1/Job 1410849	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	GCR DB

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)
1,000.00	0.11	180.16	999.98	-4.34	2.99	2.96	0.05	-0.03	18.68
1,100.00	0.08	154.82	1,099.98	-4.50	3.02	2.99	0.05	-0.03	-25.34
1,200.00	0.07	171.28	1,199.98	-4.62	3.06	3.03	0.02	-0.01	16.46
1,300.00	0.09	23.10	1,299.98	-4.61	3.10	3.07	0.15	0.02	-148.18
1,400.00	0.63	31.15	1,399.98	-4.07	3.42	3.39	0.54	0.54	8.05
1,500.00	1.11	51.24	1,499.97	-2.99	4.45	4.43	0.56	0.48	20.09
1,600.00	1.19	57.92	1,599.95	-1.83	6.09	6.08	0.16	0.08	6.68
1,700.00	1.25	67.95	1,699.93	-0.87	7.98	7.97	0.22	0.06	10.03
1,800.00	1.20	74.24	1,799.90	-0.18	10.00	10.00	0.14	-0.05	6.29
1,900.00	0.81	77.95	1,899.89	0.26	11.70	11.70	0.40	-0.39	3.71
2,000.00	0.57	84.14	1,999.88	0.45	12.88	12.89	0.25	-0.24	6.19
2,100.00	0.32	82.00	2,099.88	0.54	13.66	13.66	0.25	-0.25	-2.14
2,200.00	0.14	68.32	2,199.88	0.63	14.05	14.05	0.19	-0.18	-13.68
2,300.00	0.06	25.44	2,299.88	0.72	14.18	14.19	0.10	-0.08	-42.88
2,400.00	0.01	351.81	2,399.88	0.78	14.20	14.21	0.05	-0.05	-33.63
2,500.00	0.23	308.36	2,499.88	0.91	14.04	14.05	0.22	0.22	-43.45
2,600.00	0.18	263.32	2,599.88	1.02	13.73	13.74	0.16	-0.05	-45.04
2,700.00	0.32	275.18	2,699.87	1.02	13.30	13.30	0.15	0.14	11.86
2,800.00	0.52	278.41	2,799.87	1.11	12.57	12.58	0.20	0.20	3.23
2,900.00	0.27	262.37	2,899.87	1.15	11.89	11.90	0.27	-0.25	-16.04
3,000.00	0.39	257.81	2,999.87	1.05	11.32	11.33	0.12	0.12	-4.56
3,100.00	0.42	253.33	3,099.86	0.87	10.64	10.64	0.04	0.03	-4.48
3,200.00	0.34	256.23	3,199.86	0.69	10.00	10.00	0.08	-0.08	2.90
3,300.00	0.41	263.92	3,299.86	0.59	9.35	9.36	0.09	0.07	7.69
3,400.00	0.38	259.36	3,399.86	0.49	8.67	8.68	0.04	-0.03	-4.56
3,500.00	0.29	281.00	3,499.86	0.47	8.10	8.10	0.15	-0.09	21.64
3,600.00	0.11	261.71	3,599.86	0.51	7.76	7.76	0.19	-0.18	-19.29
3,700.00	0.13	180.50	3,699.86	0.38	7.66	7.66	0.16	0.02	-81.21
3,800.00	0.65	122.54	3,799.85	-0.04	8.14	8.14	0.59	0.52	-57.96
3,900.00	0.61	122.29	3,899.85	-0.63	9.06	9.06	0.04	-0.04	-0.25
4,000.00	0.58	127.55	3,999.84	-1.22	9.92	9.91	0.06	-0.03	5.26
4,100.00	0.44	101.36	4,099.84	-1.60	10.69	10.68	0.27	-0.14	-26.19
4,200.00	0.47	95.76	4,199.83	-1.72	11.48	11.47	0.05	0.03	-5.60
4,300.00	0.27	84.89	4,299.83	-1.74	12.12	12.11	0.21	-0.20	-10.87
4,400.00	0.30	87.22	4,399.83	-1.71	12.62	12.61	0.03	0.03	2.33
4,500.00	0.25	103.15	4,499.83	-1.74	13.09	13.08	0.09	-0.05	15.93
4,600.00	0.15	187.11	4,599.83	-1.92	13.29	13.27	0.28	-0.10	83.96
4,700.00	0.17	246.81	4,699.83	-2.11	13.13	13.12	0.16	0.02	59.70
Tie-on to Gyrodata Gyro Survey									
4,871.00	5.10	87.90	4,870.61	-1.93	20.50	20.49	3.08	2.88	-92.93
First Phoenix MWD Survey									
4,914.00	10.70	89.90	4,913.19	-1.86	26.41	26.40	13.04	13.02	4.65
4,957.00	17.10	91.80	4,954.90	-2.05	36.73	36.71	14.92	14.88	4.42



Phoenix Technology Services Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #35H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3938.00usft (Capstar 114)
Site:	Crow Federal	MD Reference:	KB @ 3938.00usft (Capstar 114)
Well:	#35H	North Reference:	Grid
Wellbore:	WB1/Job 1410849	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	GCR DB

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)
5,000.00	23.90	94.00	4,995.16	-2.86	51.76	51.74	15.91	15.81	5.12
5,043.00	30.40	94.60	5,033.40	-4.34	71.31	71.28	15.13	15.12	1.40
5,085.00	36.00	94.50	5,068.53	-6.16	94.23	94.18	13.33	13.33	-0.24
5,128.00	39.80	94.50	5,102.45	-8.23	120.55	120.50	8.84	8.84	0.00
5,171.00	43.70	93.30	5,134.53	-10.17	149.12	149.04	9.26	9.07	-2.79
5,214.00	47.40	91.80	5,164.64	-11.52	179.77	179.69	8.96	8.60	-3.49
5,257.00	51.10	91.50	5,192.70	-12.46	212.33	212.24	8.62	8.60	-0.70
5,299.00	56.10	91.30	5,217.62	-13.28	246.12	246.02	11.91	11.90	-0.48
5,342.00	62.50	90.60	5,239.56	-13.88	283.06	282.96	14.95	14.88	-1.63
5,385.00	69.00	89.80	5,257.21	-14.01	322.25	322.15	15.21	15.12	-1.86
5,428.00	74.20	89.10	5,270.78	-13.62	363.03	362.93	12.19	12.09	-1.63
5,470.00	78.20	89.60	5,280.80	-13.16	403.81	403.71	9.59	9.52	1.19
5,513.00	81.20	89.70	5,288.48	-12.90	446.11	446.01	6.98	6.98	0.23
5,556.00	85.90	89.90	5,293.31	-12.75	488.83	488.73	10.94	10.93	0.47
5,599.00	87.40	88.20	5,295.83	-12.04	531.75	531.65	5.27	3.49	-3.95
5,727.00	87.90	87.60	5,301.07	-7.35	659.55	659.49	0.61	0.39	-0.47
5,859.00	86.90	86.20	5,307.06	-0.22	791.22	791.20	1.30	-0.76	-1.06
5,987.00	87.40	87.00	5,313.43	7.36	918.83	918.86	0.74	0.39	0.63
6,115.00	88.50	87.20	5,318.01	13.83	1,046.58	1,046.65	0.87	0.86	0.16
6,243.00	90.90	89.70	5,318.68	17.29	1,174.52	1,174.61	2.71	1.88	1.95
6,372.00	90.70	89.20	5,316.87	18.53	1,303.50	1,303.59	0.42	-0.16	-0.39
6,500.00	91.30	90.30	5,314.64	19.09	1,431.47	1,431.57	0.98	0.47	0.86
6,628.00	90.30	90.60	5,312.85	18.08	1,559.46	1,559.54	0.82	-0.78	0.23
6,756.00	89.40	90.70	5,313.19	16.63	1,687.45	1,687.52	0.71	-0.70	0.08
6,888.00	89.00	90.10	5,315.03	15.71	1,819.43	1,819.49	0.55	-0.30	-0.45
7,016.00	89.80	90.00	5,316.37	15.60	1,947.42	1,947.48	0.63	0.63	-0.08
7,144.00	88.80	89.40	5,317.94	16.27	2,075.41	2,075.47	0.91	-0.78	-0.47
7,272.00	87.80	88.70	5,321.73	18.39	2,203.33	2,203.41	0.95	-0.78	-0.55
7,400.00	89.00	89.20	5,325.31	20.73	2,331.26	2,331.34	1.02	0.94	0.39
7,528.00	88.70	89.40	5,327.88	22.30	2,459.22	2,459.32	0.28	-0.23	0.16
7,656.00	89.20	89.20	5,330.22	23.86	2,587.19	2,587.29	0.42	0.39	-0.16
7,785.00	89.50	89.90	5,331.68	24.87	2,716.18	2,716.28	0.59	0.23	0.54
7,913.00	88.90	90.70	5,333.47	24.20	2,844.16	2,844.26	0.78	-0.47	0.63
8,041.00	90.10	91.30	5,334.59	21.97	2,972.13	2,972.21	1.05	0.94	0.47
8,170.00	88.00	90.50	5,336.73	19.94	3,101.09	3,101.16	1.74	-1.63	-0.62
8,298.00	88.80	90.20	5,340.30	19.16	3,229.04	3,229.09	0.67	0.63	-0.23
8,426.00	90.20	90.40	5,341.42	18.49	3,357.03	3,357.08	1.10	1.09	0.16
8,555.00	90.90	91.00	5,340.18	16.92	3,486.01	3,486.05	0.71	0.54	0.47
8,683.00	88.30	89.50	5,341.07	16.36	3,613.99	3,614.02	2.34	-2.03	-1.17
8,812.00	89.10	89.10	5,344.00	17.93	3,742.95	3,742.98	0.69	0.62	-0.31
8,940.00	89.70	88.60	5,345.34	20.50	3,870.91	3,870.96	0.61	0.47	-0.39
9,069.00	88.50	89.00	5,347.37	23.20	3,999.87	3,999.93	0.98	-0.93	0.31
9,197.00	87.90	88.70	5,351.39	25.77	4,127.78	4,127.86	0.52	-0.47	-0.23
9,325.00	88.60	88.60	5,355.30	28.79	4,255.68	4,255.78	0.55	0.55	-0.08



Phoenix Technology Services Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #35H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3938.00usft (Capstar.114)
Site:	Crow Federal	MD Reference:	KB @ 3938.00usft (Capstar.114)
Well:	#35H	North Reference:	Grid
Wellbore:	WB1/Job 1410849	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	GCR DB

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)
9,396.00	89.20	88.40	5,356.66	30.64	4,326.64	4,326.75	0.89	0.85	-0.28
Last Phoenix MWD Survey									
9,461.00	89.20	88.40	5,357.57	32.46	4,391.61	4,391.73	0.00	0.00	0.00
Projection to Bit									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
4,700.00	4,699.83	-2.11	13.13	Tie-on to Gyrodata Gyro Survey	
4,871.00	4,870.61	-1.93	20.50	First Phoenix MWD Survey	
9,396.00	5,356.66	30.64	4,326.64	Last Phoenix MWD Survey	
9,461.00	5,357.57	32.46	4,391.61	Projection to Bit	

Checked By: _____	Approved By: _____	Date: _____
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