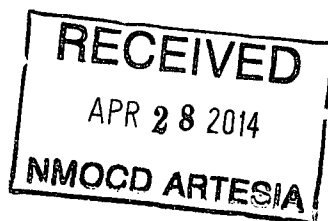




PHOENIX
TECHNOLOGY SERVICES

April 22, 2014

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
Crow Federal #18H
Eddy County, NM
API #30-015-41944 ✓
Job No. 1311118

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	
Joe Bass	25H	724	9,633	03/17/14	03/27/14	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 1783

Phoenix Technology Services SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER

1311118

OPERATOR

Apache

WELL NAME

Crow Federal #25H

COUNTY & STATE

Eddy County, NM

API WELL NUMBER

30-015-41944

PROPOSED DIRECTION

269.61

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
668 ft	667.96 ft	0.51	302.42	1.23 ft	-7.09 ft	Gyro

FIRST SURVEY DATE	FIRST SURVEY DEPTH	INCLIN	AZIMUTH
17-Mar-14	724 ft	0.7	296.3

SURVEY INSTRUMENT TYPE
Phoenix MWD

LAST SURVEY DATE	LAST SURVEY DEPTH	INCLIN	AZIMUTH
27-Mar-14	9,633 ft	90.2	269.1

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
27-Mar-14	9720 ft	89.8	268.8

Joe Bass

PRINT YOUR NAME ABOVE

Joe Bass

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	DECLINATION
7.16	
DECLINATION OR GRID	DECLINATION

3/27/2014

TODAY'S DATE

MWD SUPERVISOR 1

Rick Reed

DIRECTIONAL DRILLER 1

Richard Thurman

MWD SUPERVISOR 2

Joe Bass

DIRECTIONAL DRILLER 2

Tim Noland

1805 Brittmore Road

Houston, Texas 77043

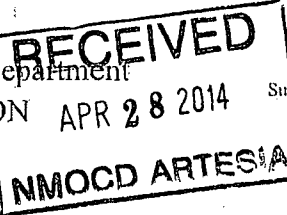
(713)3370609 (Voice), (713)337-0599 (Fax)

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 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 30-05-41944	Pool Code	Pool Name
Property Code	Property Name CROW FEDERAL	Well Number 25H
OGRID No.	Operator Name APACHE CORPORATION	Elevation 3940'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	10	17-S	31-E		1680	NORTH	330	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
E	10	17-S	31-E		1680	NORTH	330	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

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

DETAIL 3935.9' 3942.9' 600' 600' 3931.7' 3937.8' B.H. GRID AZ. = 269°36'39" HORIZ. DIST. = 4621.6' S.L. SEE DETAIL CORNER COORDINATES TABLE A) Y=674209.2 N, X=643639.5 E B) Y=674246.0 N, X=648919.7 E C) Y=672888.0 N, X=643646.5 E D) Y=672925.7 N, X=648927.0 E GEODETTIC COORDINATES NAD '27 NME- SURFACE LOCATION Y=673884.5 N X=648591.7 E LAT.=32° 51' 06" N LONG.=103° 50' 58" W BOTTOM HOLE LOCATION Y=673853.1 N X=643971.3 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 _____ Date _____ Printed Name _____ 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. MAY 16, 2012 Date of Survey _____ Signature & Seal of Professional Surveyor: Certificate Number _____ AF JWSC W.O.: 12.11.0474
---	---



Apache Corporation

Eddy County, NM (NAD27 NME)

Crow Federal

#25H

WB1/Job #1311118

Survey: Phoenix MWD Survey

Standard Survey Report

27 March, 2014





Phoenix Technology Services

Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #25H
Project:	Eddy County, NM (NAD27-NME)	TVD Reference:	KB @ 3951.00usft (Capstar 114)
Site:	Crow Federal	MD Reference:	KB @ 3951.00usft (Capstar 114)
Well:	#25H	North Reference:	Grid
Wellbore:	WB1/Job #1311118	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
From:	Map	Easting:	643,906.80 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 50' 38.92796 N
		Longitude:	103° 51' 53.16689 W
		Grid Convergence:	0.25 °

Well:	#25H		
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' 5.96596 N
		Longitude:	103° 50' 58.10569 W
		Ground Level:	3,940.00 usft

Wellbore:	WB1/Job #1311118		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010_14	03/12/14	(°)
			7.42
			Dip Angle
			(°)
			60.65
			Field Strength
			(nT)
			48,685

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 03/27/14		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.00	724.00	Gyrodatta Gyro Survey (WB1/Job #131111	CB-GYRO-MS
853.00	9,720.00	Phoenix MWD Survey (WB1/Job #1311118	MWD
			Description
			Camera based gyro multishot
			MWD - Standard

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)
	668.00	0.51	302.42	667.96	1.23	-7.09	7.08	0.00	0.00	0.00
	Tie-on to Gyrodatta Gyro Survey									
	724.00	0.70	296.30	723.95	1.51	-7.61	7.60	0.36	0.34	-10.93
	First Phoenix MWD Survey									
	853.00	0.70	310.50	852.94	2.37	-8.91	8.90	0.13	0.00	11.01
	981.00	0.80	315.30	980.93	3.52	-10.14	10.11	0.09	0.08	3.75
	1,109.00	0.80	326.10	1,108.92	4.89	-11.26	11.23	0.12	0.00	8.44
	1,238.00	0.20	3.30	1,237.92	5.87	-11.75	11.71	0.51	-0.47	28.84
	1,366.00	0.20	348.40	1,365.91	6.31	-11.79	11.74	0.04	0.00	-11.64



Phoenix Technology Services Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #25H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3951.00usft (Capstar 114)
Site:	Crow Federal	MD Reference:	KB @ 3951.00usft (Capstar 114)
Well:	#25H	North Reference:	Grid
Wellbore:	WB1/Job #1311118	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)
1,494.00	0.30	102.40	1,493.91	6.45	-11.50	11.46	0.33	0.08	89.06
1,622.00	0.60	104.60	1,621.91	6.21	-10.53	10.48	0.23	0.23	1.72
1,751.00	1.10	137.50	1,750.90	5.13	-9.04	9.00	0.53	0.39	25.50
1,879.00	1.10	142.00	1,878.87	3.26	-7.45	7.43	0.07	0.00	3.52
2,007.00	1.20	158.70	2,006.85	1.04	-6.21	6.20	0.27	0.08	13.05
2,135.00	0.80	152.40	2,134.83	-1.00	-5.31	5.31	0.32	-0.31	-4.92
2,264.00	0.80	162.20	2,263.81	-2.66	-4.61	4.63	0.11	0.00	7.60
2,392.00	0.70	168.40	2,391.80	-4.27	-4.18	4.21	0.10	-0.08	4.84
2,520.00	0.60	173.40	2,519.80	-5.71	-3.95	3.99	0.09	-0.08	3.91
2,649.00	0.50	185.40	2,648.79	-6.94	-3.92	3.97	0.12	-0.08	9.30
2,777.00	0.40	206.60	2,776.79	-7.89	-4.18	4.23	0.15	-0.08	16.56
2,905.00	0.50	214.60	2,904.78	-8.75	-4.69	4.75	0.09	0.08	6.25
3,034.00	0.40	196.70	3,033.78	-9.65	-5.14	5.21	0.13	-0.08	-13.88
3,162.00	0.40	187.40	3,161.77	-10.52	-5.33	5.40	0.05	0.00	-7.27
3,290.00	0.20	108.90	3,289.77	-11.03	-5.18	5.25	0.32	-0.16	-61.33
3,446.00	0.40	107.10	3,445.77	-11.28	-4.40	4.47	0.13	0.13	-1.15
3,585.00	0.50	60.40	3,584.77	-11.12	-3.41	3.48	0.26	0.07	-33.60
3,713.00	2.40	16.00	3,712.72	-8.27	-2.18	2.24	1.62	1.48	-34.69
3,841.00	2.30	12.70	3,840.62	-3.19	-0.88	0.90	0.13	-0.08	-2.58
3,972.00	0.30	17.80	3,971.57	-0.30	-0.20	0.20	1.53	-1.53	3.89
4,104.00	0.40	31.80	4,103.57	0.42	0.15	-0.16	0.10	0.08	10.61
4,232.00	0.40	50.80	4,231.57	1.08	0.73	-0.74	0.10	0.00	14.84
4,360.00	0.30	71.40	4,359.57	1.47	1.40	-1.41	0.12	-0.08	16.09
4,489.00	0.40	64.30	4,488.56	1.78	2.12	-2.14	0.08	0.08	-5.50
4,617.00	0.50	61.70	4,616.56	2.24	3.02	-3.03	0.08	0.08	-2.03
4,745.00	1.00	305.40	4,744.55	3.15	2.60	-2.62	1.02	0.39	-90.86
4,870.00	1.10	298.70	4,869.53	4.36	0.66	-0.69	0.13	0.08	-5.36
4,962.00	8.40	266.80	4,961.16	4.40	-6.84	6.81	8.14	7.93	-34.67
5,005.00	15.60	266.20	5,003.19	3.84	-15.75	15.73	16.75	16.74	-1.40
5,051.00	22.50	267.30	5,046.65	3.02	-30.73	30.71	15.02	15.00	2.39
5,093.00	26.70	268.70	5,084.83	2.43	-48.20	48.19	10.10	10.00	3.33
5,136.00	31.30	269.30	5,122.43	2.07	-69.04	69.03	10.72	10.70	1.40
5,179.00	35.70	269.20	5,158.28	1.76	-92.77	92.75	10.23	10.23	-0.23
5,221.00	39.40	268.30	5,191.57	1.19	-118.35	118.34	8.91	8.81	-2.14
5,264.00	44.00	267.40	5,223.67	0.11	-146.93	146.92	10.79	10.70	-2.09
5,307.00	48.90	267.90	5,253.28	-1.16	-178.06	178.06	11.43	11.40	1.16
5,349.00	52.10	266.90	5,280.00	-2.64	-210.43	210.44	7.84	7.62	-2.38
5,392.00	56.10	266.20	5,305.20	-4.74	-245.19	245.22	9.40	9.30	-1.63
5,435.00	61.00	266.30	5,327.63	-7.14	-281.78	281.82	11.40	11.40	0.23
5,478.00	65.10	266.50	5,347.12	-9.54	-320.03	320.09	9.54	9.53	0.47
5,521.00	69.20	266.60	5,363.81	-11.93	-359.57	359.65	9.54	9.53	0.23
5,564.00	74.00	266.40	5,377.38	-14.42	-400.29	400.38	11.17	11.16	-0.47
5,606.00	78.90	266.70	5,387.22	-16.87	-441.03	441.14	11.69	11.67	0.71



Phoenix Technology Services Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #25H
Project:	Eddy County, NM (NAD27-NME)	TVD Reference:	KB @ 3951.00usft (Capstar 114)
Site:	Crow Federal	MD Reference:	KB @ 3951.00usft (Capstar 114)
Well:	#25H	North Reference:	Grid
Wellbore:	WB1/Job #1311118	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)
5,649.00	81.90	269.00	5,394.39	-18.46	-483.39	483.51	8.75	6.98	5.35
5,692.00	84.40	270.40	5,399.52	-18.68	-526.08	526.20	6.65	5.81	3.26
5,734.00	87.70	271.70	5,402.41	-17.91	-567.97	568.08	8.44	7.86	3.10
5,777.00	89.40	272.10	5,403.50	-16.49	-610.93	611.03	4.06	3.95	0.93
5,908.00	90.60	271.70	5,403.50	-12.14	-741.85	741.92	0.97	0.92	-0.31
6,036.00	91.30	271.50	5,401.38	-8.57	-869.78	869.82	0.57	0.55	-0.16
6,165.00	92.10	270.70	5,397.55	-6.10	-998.70	998.72	0.88	0.62	-0.62
6,293.00	91.80	270.80	5,393.19	-4.42	-1,126.62	1,126.62	0.25	-0.23	0.08
6,420.00	92.20	270.10	5,388.76	-3.42	-1,253.53	1,253.53	0.63	0.31	-0.55
6,549.00	91.90	270.30	5,384.15	-2.97	-1,382.45	1,382.44	0.28	-0.23	0.16
6,677.00	92.60	269.90	5,379.12	-2.75	-1,510.35	1,510.33	0.63	0.55	-0.31
6,805.00	92.20	269.80	5,373.76	-3.09	-1,638.24	1,638.22	0.32	-0.31	-0.08
6,932.00	92.70	269.50	5,368.33	-3.86	-1,765.12	1,765.10	0.46	0.39	-0.24
7,060.00	91.90	268.90	5,363.20	-5.65	-1,893.00	1,893.00	0.78	-0.63	-0.47
7,192.00	91.00	269.70	5,359.86	-7.26	-2,024.95	2,024.95	0.91	-0.68	0.61
7,320.00	91.70	270.40	5,356.84	-7.15	-2,152.91	2,152.91	0.77	0.55	0.55
7,452.00	91.90	269.90	5,352.69	-6.80	-2,284.84	2,284.84	0.41	0.15	-0.38
7,580.00	92.10	268.60	5,348.23	-8.48	-2,412.75	2,412.75	1.03	0.16	-1.02
7,708.00	92.10	268.50	5,343.54	-11.71	-2,540.63	2,540.65	0.08	0.00	-0.08
7,836.00	92.00	268.60	5,338.96	-14.95	-2,668.50	2,668.54	0.11	-0.08	0.08
7,965.00	91.30	268.70	5,335.24	-17.99	-2,797.41	2,797.47	0.55	-0.54	0.08
8,093.00	90.80	269.00	5,332.90	-20.56	-2,925.36	2,925.44	0.46	-0.39	0.23
8,221.00	90.30	268.70	5,331.67	-23.12	-3,053.33	3,053.42	0.46	-0.39	-0.23
8,350.00	89.70	268.40	5,331.67	-26.39	-3,182.29	3,182.40	0.52	-0.47	-0.23
8,478.00	90.10	269.60	5,331.89	-28.62	-3,310.27	3,310.39	0.99	0.31	0.94
8,606.00	90.10	269.90	5,331.67	-29.18	-3,438.27	3,438.39	0.23	0.00	0.23
8,735.00	90.60	269.50	5,330.88	-29.86	-3,567.26	3,567.38	0.50	0.39	-0.31
8,863.00	90.60	269.50	5,329.54	-30.97	-3,695.25	3,695.37	0.00	0.00	0.00
8,991.00	90.40	268.90	5,328.42	-32.76	-3,823.23	3,823.37	0.49	-0.16	-0.47
9,120.00	90.60	268.70	5,327.30	-35.46	-3,952.20	3,952.35	0.22	0.16	-0.16
9,248.00	90.90	270.20	5,325.62	-36.69	-4,080.18	4,080.33	1.19	0.23	1.17
9,376.00	90.70	270.10	5,323.83	-36.36	-4,208.16	4,208.31	0.17	-0.16	-0.08
9,505.00	90.50	269.60	5,322.48	-36.69	-4,337.16	4,337.31	0.42	-0.16	-0.39
9,633.00	90.20	269.10	5,321.70	-38.15	-4,465.15	4,465.30	0.46	-0.23	-0.39
Last Phoenix MWD Survey									
9,720.00	89.80	268.80	5,321.70	-39.74	-4,552.13	4,552.30	0.57	-0.46	-0.34
Projection to Bit									



Phoenix Technology Services Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #25H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3951.00usft (Capstar-114)
Site:	Crow Federal	MD Reference:	KB @ 3951.00usft (Capstar 114)
Well:	#25H	North Reference:	Grid
Wellbore:	WB1/Job #1311118	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	GCR DB

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
668.00	667.96	1.23	-7.09	Tie-on to Gryodata Gyro Survey
724.00	723.95	1.51	-7.61	First Pheonix MWD Survey
9,633.00	5,321.70	-38.15	-4,465.15	Last Pheonix MWD Survey
9,720.00	5,321.70	-39.74	-4,552.13	Projection to Bit

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------