

Apache Corporation
303 Veterans Airpark Lane, #3000
Midland, TX 79705

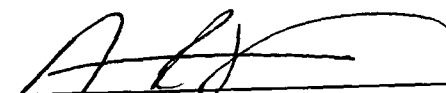
Crow Federal #043H
Eddy County, New Mexico

APT # 30-015-42445
L-03-17S-31E
2298 FSL + 10 FWL

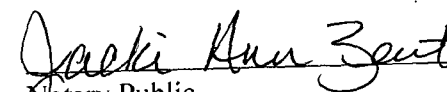
NM OIL CONSERVATION
ARTESIA DISTRICT
AUG 6 2015

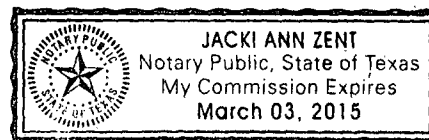
RECEIVED

234	2.34	0.50	0.88	2.05	2.05
504	2.70	1.00	1.75	4.73	6.77
743	2.39	0.50	0.88	2.09	8.86
999	2.56	1.00	1.75	4.48	13.34
1256	2.57	1.10	1.93	4.95	18.29
1514	2.58	1.50	2.63	6.77	25.06
1735	2.21	2.30	4.03	8.90	33.96
1992	2.57	2.20	3.85	9.89	43.85
2198	2.06	1.00	1.75	3.61	47.46
2413	2.15	1.10	1.93	4.14	51.60
2719	3.06	0.60	1.05	3.21	54.81
3056	3.37	0.60	1.05	3.54	58.35
3313	2.57	0.80	1.40	3.60	61.95
3465	1.52	0.10	0.18	0.27	62.21
3743	2.78	0.50	0.88	2.43	64.65
3996	2.53	0.30	0.53	1.33	65.97
4295	2.99	0.20	0.35	1.05	67.02
4552	2.57	0.20	0.35	0.90	67.92
4810	2.58	0.40	0.70	1.81	69.73
5065	2.55	0.60	1.05	2.68	72.40


Archie Brown - General Manager

The attached instrument was acknowledged before me on the 17th day of February, 2015 by
Archie Brown - General Manager, CapStar Drilling, Inc.


Notary Public





Apache Corporation

Eddy County, NM (NAD27 NME)

Crow Federal

#43H

WB1 / Job #1512791

Design: Surveys (Capstar 114)

Standard Survey Report

03 February, 2015

NM OIL CONSERVATION
ARTESIA DISTRICT

AUG 6 2015

RECEIVED



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #43H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3920.00usft (Capstar 114)
Site:	Crow Federal	MD Reference:	KB @ 3920.00usft (Capstar 114)
Well:	#43H	North Reference:	Grid
Wellbore:	WB1 / Job #1512791	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	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	#43H		
Well Position	+N/-S	0.00 usft	Northing: 677,790.10 usft
	+E/-W	0.00 usft	Easting: 638,347.60 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 51' 45.06051 N
		Longitude:	103° 52' 57.99543 W
		Ground Level:	3,909.00 usft

Wellbore	WB1 / Job #1512791				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	1/28/2015	7.51	60.63	48,549

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	89.59	

Survey Program	Date 2/3/2015				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	5,200.00	Phoenix Gyro Survey (WB1 / Job #151279	NS-GYRO-MS	North sensing gyrocompassing m/s	
5,258.00	10,521.00	Phoenix MWD Survey (WB1 / Job #15127	PHX+MWD+BGGM	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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.62	25.32	100.00	0.49	0.23	0.23	0.62	0.62	0.00
200.00	0.61	191.86	200.00	0.46	0.35	0.36	1.22	-0.01	166.54
300.00	0.52	100.86	299.99	-0.15	0.69	0.69	0.81	-0.09	-91.00
400.00	0.55	244.24	399.99	-0.44	0.70	0.70	1.02	0.03	143.38
500.00	0.54	98.03	499.99	-0.72	0.74	0.73	1.04	-0.01	-146.21
600.00	0.66	258.24	599.99	-0.90	0.64	0.63	1.18	0.12	160.21
700.00	0.56	28.13	699.98	-0.59	0.31	0.30	1.11	-0.10	129.89
800.00	0.76	26.72	799.98	0.44	0.84	0.84	0.20	0.20	-1.41
900.00	0.86	254.44	899.97	0.83	0.41	0.42	1.48	0.10	-132.28

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #43H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3920.00usft (Capstar 114)
Site:	Crow Federal	MD Reference:	KB @ 3920.00usft (Capstar 114)
Well:	#43H	North Reference:	Grid
Wellbore:	WB1 / Job #1512791	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)
1,000.00	0.97	40.69	999.97	1.27	0.24	0.25	1.75	0.11	146.25
1,100.00	1.12	256.65	1,099.96	1.68	-0.16	-0.15	1.99	0.15	-144.04
1,200.00	0.92	131.53	1,199.95	0.93	-0.51	-0.50	1.81	-0.20	-125.12
1,300.00	1.22	15.56	1,299.94	1.42	0.38	0.39	1.82	0.30	-115.97
1,400.00	1.20	296.44	1,399.93	2.91	-0.28	-0.25	1.54	-0.02	-79.12
1,500.00	1.54	107.40	1,499.92	2.98	0.07	0.09	2.73	0.34	170.96
1,600.00	1.92	253.10	1,599.90	2.09	-0.25	-0.24	3.31	0.38	145.70
1,700.00	2.10	131.67	1,699.87	0.38	-0.49	-0.48	3.51	0.18	-121.43
1,800.00	2.08	305.85	1,799.85	0.23	-0.59	-0.59	4.17	-0.02	174.18
1,900.00	2.18	118.18	1,899.82	0.39	-0.38	-0.38	4.25	0.10	172.33
2,000.00	1.84	288.74	1,999.80	0.01	-0.23	-0.23	4.01	-0.34	170.56
2,100.00	1.68	108.51	2,099.79	0.06	-0.36	-0.36	3.52	-0.16	179.77
2,200.00	1.12	49.00	2,199.76	0.23	1.77	1.77	1.47	-0.56	-59.51
2,300.00	1.11	158.45	2,299.75	-0.03	2.87	2.86	1.82	-0.01	109.45
2,400.00	0.82	279.04	2,399.74	-0.81	2.51	2.51	1.68	-0.29	120.59
2,500.00	0.86	192.81	2,499.74	-1.43	1.64	1.63	1.15	0.04	-86.23
2,600.00	0.77	56.03	2,599.73	-1.79	2.03	2.02	1.52	-0.09	-136.78
2,700.00	0.56	115.22	2,699.73	-1.62	3.03	3.02	0.68	-0.21	59.19
2,800.00	0.49	95.12	2,799.72	-1.87	3.90	3.89	0.20	-0.07	-20.10
2,900.00	0.41	349.44	2,899.72	-1.56	4.26	4.25	0.72	-0.08	-105.68
3,000.00	0.36	198.39	2,999.72	-1.50	4.09	4.08	0.75	-0.05	-151.05
3,100.00	0.43	213.31	3,099.72	-2.11	3.79	3.77	0.12	0.07	14.92
3,200.00	0.59	215.93	3,199.71	-2.84	3.28	3.26	0.16	0.16	2.62
3,300.00	0.71	87.04	3,299.71	-3.23	3.60	3.57	1.17	0.12	-128.89
3,400.00	0.52	163.56	3,399.71	-3.63	4.35	4.32	0.78	-0.19	76.52
3,500.00	0.46	190.70	3,499.70	-4.46	4.40	4.37	0.24	-0.06	27.14
3,600.00	0.47	245.03	3,599.70	-5.03	3.95	3.92	0.42	0.01	54.33
3,700.00	0.38	350.49	3,699.70	-4.88	3.53	3.49	0.68	-0.09	105.46
3,800.00	0.56	150.90	3,799.70	-4.98	3.71	3.67	0.93	0.18	160.41
3,900.00	0.35	103.90	3,899.69	-5.48	4.24	4.20	0.41	-0.21	-47.00
4,000.00	0.31	305.53	3,999.69	-5.39	4.32	4.28	0.65	-0.04	-158.37
4,100.00	0.31	120.47	4,099.69	-5.37	4.33	4.29	0.62	0.00	174.94
4,200.00	0.21	26.83	4,199.69	-5.35	4.65	4.61	0.39	-0.10	-93.64
4,300.00	0.30	79.17	4,299.69	-5.13	4.99	4.95	0.24	0.09	52.34
4,400.00	0.23	183.33	4,399.69	-5.28	5.23	5.20	0.42	-0.07	104.16
4,500.00	0.20	335.34	4,499.69	-5.33	5.15	5.11	0.42	-0.03	152.01
4,600.00	0.46	172.31	4,599.69	-5.57	5.13	5.09	0.65	0.26	-163.03
4,700.00	0.20	233.42	4,699.69	-6.07	5.04	5.00	0.40	-0.26	61.11
4,800.00	0.29	7.54	4,799.69	-5.92	4.94	4.89	0.45	0.09	134.12
4,900.00	0.26	268.80	4,899.69	-5.67	4.74	4.70	0.42	-0.03	-98.74
5,000.00	0.41	81.58	4,999.69	-5.63	4.87	4.83	0.67	0.15	172.78
5,100.00	0.40	228.70	5,099.69	-5.80	4.96	4.92	0.78	-0.01	147.12
5,200.00	0.35	260.80	5,199.68	-6.08	4.40	4.35	0.21	-0.05	32.10

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #43H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3920.00usft (Capstar 114)
Site:	Crow Federal	MD Reference:	KB @ 3920.00usft (Capstar 114)
Well:	#43H	North Reference:	Grid
Wellbore:	WB1 / Job #1512791	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)
Tie-on to Gyro Survey									
5,258.00	0.30	205.10	5,257.68	-6.25	4.16	4.11	0.53	-0.09	-96.03
First Phoenix MWD Survey									
5,300.00	1.20	99.60	5,299.68	-6.42	4.55	4.50	3.12	2.14	-251.19
5,343.00	5.30	85.20	5,342.60	-6.33	6.97	6.92	9.65	9.53	-33.49
5,386.00	10.10	80.50	5,385.20	-5.54	12.67	12.63	11.25	11.16	-10.93
5,429.00	15.60	80.70	5,427.11	-3.98	22.10	22.07	12.79	12.79	0.47
5,471.00	20.80	79.90	5,466.99	-1.76	35.03	35.01	12.39	12.38	-1.90
5,514.00	26.40	80.80	5,506.38	1.11	51.99	52.00	13.05	13.02	2.09
5,557.00	31.80	82.60	5,543.94	4.10	72.68	72.71	12.72	12.56	4.19
5,599.00	36.20	87.30	5,578.76	6.11	96.06	96.10	12.20	10.48	11.19
5,645.00	41.90	91.60	5,614.47	6.32	125.01	125.05	13.71	12.39	9.35
5,688.00	46.20	94.20	5,645.37	4.78	154.86	154.89	10.85	10.00	6.05
5,730.00	50.60	92.70	5,673.25	2.91	186.20	186.22	10.81	10.48	-3.57
5,773.00	55.80	90.30	5,699.00	2.03	220.60	220.61	12.89	12.09	-5.58
5,816.00	61.60	90.40	5,721.33	1.80	257.33	257.33	13.49	13.49	0.23
5,859.00	67.80	89.80	5,739.70	1.74	296.18	296.19	14.47	14.42	-1.40
5,901.00	74.90	89.70	5,753.12	1.91	335.95	335.96	16.91	16.90	-0.24
5,944.00	80.80	90.50	5,762.17	1.84	377.97	377.97	13.84	13.72	1.86
5,987.00	82.20	90.80	5,768.53	1.36	420.50	420.49	3.33	3.26	0.70
6,072.00	86.50	90.40	5,776.89	0.47	505.06	505.05	5.08	5.06	-0.47
6,161.00	91.10	90.60	5,778.76	-0.31	594.01	593.99	5.17	5.17	0.22
6,246.00	90.20	90.90	5,777.79	-1.42	679.00	678.97	1.12	-1.06	0.35
6,332.00	89.80	90.50	5,777.79	-2.47	764.99	764.95	0.66	-0.47	-0.47
6,418.00	89.50	90.50	5,778.32	-3.22	850.99	850.94	0.35	-0.35	0.00
6,503.00	89.30	89.90	5,779.21	-3.52	935.98	935.93	0.74	-0.24	-0.71
6,589.00	88.80	89.50	5,780.63	-3.07	1,021.97	1,021.92	0.74	-0.58	-0.47
6,674.00	90.40	90.00	5,781.23	-2.69	1,106.96	1,106.91	1.97	1.88	0.59
6,762.00	90.60	90.00	5,780.46	-2.69	1,194.96	1,194.91	0.23	0.23	0.00
6,848.00	90.60	89.90	5,779.56	-2.62	1,280.95	1,280.90	0.12	0.00	-0.12
6,933.00	91.20	89.30	5,778.22	-2.03	1,365.94	1,365.89	1.00	0.71	-0.71
7,022.00	91.40	89.20	5,776.20	-0.86	1,454.91	1,454.86	0.25	0.22	-0.11
7,107.00	91.00	89.40	5,774.42	0.18	1,539.88	1,539.84	0.53	-0.47	0.24
7,196.00	89.90	88.30	5,773.72	1.96	1,628.86	1,628.83	1.75	-1.24	-1.24
7,281.00	89.80	88.50	5,773.95	4.34	1,713.83	1,713.81	0.26	-0.12	0.24
7,367.00	90.20	88.60	5,773.95	6.51	1,799.80	1,799.80	0.48	0.47	0.12
7,453.00	89.60	90.40	5,774.10	7.26	1,885.79	1,885.79	2.21	-0.70	2.09
7,538.00	89.40	90.80	5,774.84	6.37	1,970.78	1,970.78	0.53	-0.24	0.47
7,624.00	89.30	89.60	5,775.81	6.07	2,056.78	2,056.77	1.40	-0.12	-1.40
7,715.00	89.20	89.20	5,777.01	7.03	2,147.76	2,147.76	0.45	-0.11	-0.44
7,801.00	88.80	88.40	5,778.51	8.83	2,233.73	2,233.74	1.04	-0.47	-0.93
7,886.00	88.80	89.40	5,780.29	10.46	2,318.69	2,318.71	1.18	0.00	1.18
7,971.00	88.60	89.30	5,782.22	11.42	2,403.67	2,403.69	0.26	-0.24	-0.12
8,057.00	88.40	89.20	5,784.47	12.55	2,489.63	2,489.66	0.26	-0.23	-0.12

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Well:	#43H	North Reference:	Grid
Wellbore:	WB1 / Job #1512791	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)
8,142.00	88.20	88.70	5,786.99	14.10	2,574.58	2,574.61	0.63	-0.24	-0.59
8,228.00	88.10	88.70	5,789.76	16.05	2,660.51	2,660.56	0.12	-0.12	0.00
8,313.00	89.10	89.00	5,791.84	17.76	2,745.47	2,745.52	1.23	1.18	0.35
8,399.00	88.80	88.70	5,793.42	19.49	2,831.44	2,831.50	0.49	-0.35	-0.35
8,485.00	90.40	88.60	5,794.02	21.51	2,917.41	2,917.49	1.86	1.86	-0.12
8,573.00	90.50	88.00	5,793.33	24.12	3,005.36	3,005.46	0.69	0.11	-0.68
8,659.00	90.00	89.20	5,792.95	26.22	3,091.34	3,091.44	1.51	-0.58	1.40
8,744.00	90.00	88.90	5,792.95	27.63	3,176.32	3,176.44	0.35	0.00	-0.35
8,830.00	89.90	89.60	5,793.03	28.76	3,262.32	3,262.44	0.82	-0.12	0.81
8,915.00	90.10	90.00	5,793.03	29.05	3,347.32	3,347.44	0.53	0.24	0.47
9,001.00	90.30	89.90	5,792.73	29.13	3,433.32	3,433.44	0.26	0.23	-0.12
9,087.00	90.40	89.90	5,792.20	29.28	3,519.31	3,519.43	0.12	0.12	0.00
9,172.00	90.50	90.30	5,791.53	29.13	3,604.31	3,604.43	0.49	0.12	0.47
9,258.00	90.70	89.90	5,790.63	28.98	3,690.31	3,690.42	0.52	0.23	-0.47
9,343.00	90.60	90.30	5,789.67	28.83	3,775.30	3,775.41	0.49	-0.12	0.47
9,429.00	90.60	90.00	5,788.77	28.61	3,861.29	3,861.40	0.35	0.00	-0.35
9,515.00	90.30	89.70	5,788.09	28.83	3,947.29	3,947.40	0.49	-0.35	-0.35
9,600.00	90.30	89.00	5,787.65	29.80	4,032.28	4,032.39	0.82	0.00	-0.82
9,685.00	90.10	89.40	5,787.35	30.98	4,117.28	4,117.39	0.53	-0.24	0.47
9,771.00	89.90	89.00	5,787.35	32.18	4,203.27	4,203.39	0.52	-0.23	-0.47
9,856.00	89.60	88.30	5,787.72	34.19	4,288.24	4,288.38	0.90	-0.35	-0.82
9,945.00	89.70	87.90	5,788.27	37.14	4,377.19	4,377.34	0.46	0.11	-0.45
10,031.00	89.80	89.30	5,788.64	39.24	4,463.16	4,463.33	1.63	0.12	1.63
10,116.00	89.70	88.90	5,789.01	40.57	4,548.15	4,548.32	0.49	-0.12	-0.47
10,201.00	89.50	88.90	5,789.60	42.21	4,633.13	4,633.32	0.24	-0.24	0.00
10,286.00	89.10	88.70	5,790.64	43.99	4,718.11	4,718.30	0.53	-0.47	-0.24
10,369.00	88.50	88.20	5,792.38	46.23	4,801.06	4,801.27	0.94	-0.72	-0.60
10,451.00	88.50	88.00	5,794.53	48.95	4,882.99	4,883.21	0.24	0.00	-0.24
Last Phoenix MWD Survey									
10,521.00	88.50	88.00	5,796.36	51.39	4,952.92	4,953.16	0.00	0.00	0.00
Projection to Bit									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,200.00	5,199.68	-6.08	4.40	Tie-on to Gyro Survey
5,258.00	5,257.68	-6.25	4.16	First Phoenix MWD Survey
10,451.00	5,794.53	48.95	4,882.99	Last Phoenix MWD Survey
10,521.00	5,796.36	51.39	4,952.92	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____