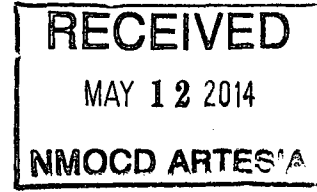
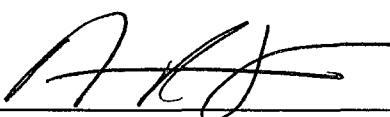


Apache Corporation
303 Veterans Airpark Lane, #3000
Midland, TX 79705

Crow Federal #17 H **API #30-015-40991**
Eddy County, New Mexico **1775' FSL + 110' FWL** **ULL: L, 09-175-31E**

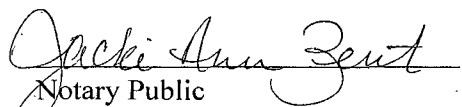
236	2.36	0.25	0.44	1.03	1.03
487	4.87	0.50	0.88	4.26	4.26



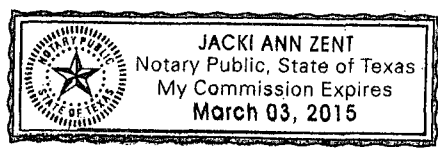


Archie Brown - General Manager

The attached instrument was acknowledged before me on the 23rd day of September, 2013 by
Archie Brown - General Manager, CapStar Drilling, Inc.



Notary Public





Apache Corporation

Eddy County, NM (NAD27 NME)

Crow Federal

#17H API #30-015-40991

WB1/Job #1311090

Survey: Pheonix MWD Survey

Apache Corporation

06 September, 2013





Apache Corporation

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #17H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3848.00usft (Capstar 114)
Site:	Crow Federal	MD Reference:	KB @ 3848.00usft (Capstar 114)
Well:	#17H	North Reference:	Grid
Wellbore:	WB1/Job #1311090	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000.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:	#17H			
Well Position	+N/-S	0.00 usft	Northing:	671,987.60 usft
	+E/-W	0.00 usft	Easting:	638,480.60 usft
Position Uncertainty	0.00 usft		Wellhead Elevation:	usft
			Latitude:	32° 50' 47.63874 N
			Longitude:	103° 52' 56.72661 W
			Ground Level:	3,837.00 usft

Wellbore:	WB1/Job #1311090				
Magnetics:	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010_14	08/21/13	(°)	(°)	(nT)
			7.51	60.65	48,735

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	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.00	0.00	0.00	89.63	



Apache Corporation

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #17H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3848.00usft (Capstar 114)
Site:	Crow Federal	MD Reference:	KB @ 3848.00usft (Capstar 114)
Well:	#17H	North Reference:	Grid
Wellbore:	WB1/Job #1311090	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR DB

Survey Program		Date	09/06/13		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	400.00	Gyrodata Survey (WB1/Job #1311090)	CB-GYRO-MS	Camera based gyro multishot	
455.00	10,303.00	Phoenix MWD Survey (WB1/Job #131109)	MWD	MWD - Standard	

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
400.00	0.29	25.41	-3,448.00	400.00	0.62	-0.98	-0.97	0.00	671,988.22	638,479.62
455.00	0.27	41.22	-3,393.00	455.00	0.84	-0.83	-0.83	0.14	671,988.44	638,479.77
First Phoenix MWD Survey										
534.00	0.20	58.40	-3,314.00	534.00	1.06	-0.59	-0.58	0.12	671,988.66	638,480.01
577.00	0.30	66.00	-3,271.00	577.00	1.14	-0.42	-0.42	0.24	671,988.74	638,480.18
653.00	0.80	273.20	-3,195.01	652.99	1.25	-0.77	-0.76	1.42	671,988.85	638,479.83
738.00	1.90	272.00	-3,110.03	737.97	1.33	-2.77	-2.76	1.29	671,988.93	638,477.83
824.00	2.40	276.80	-3,024.09	823.91	1.60	-5.99	-5.97	0.62	671,989.20	638,474.61
909.00	3.30	279.10	-2,939.20	908.80	2.20	-10.17	-10.15	1.07	671,989.80	638,470.43
995.00	3.60	280.30	-2,853.35	994.65	3.07	-15.27	-15.25	0.36	671,990.67	638,465.33
1,084.00	3.20	279.90	-2,764.51	1,083.49	4.00	-20.47	-20.44	0.45	671,991.60	638,460.13
1,169.00	3.90	282.90	-2,679.67	1,168.33	5.05	-25.62	-25.59	0.85	671,992.65	638,454.98
1,255.00	2.70	272.90	-2,593.82	1,254.18	5.80	-30.49	-30.46	1.54	671,993.40	638,450.11
1,341.00	2.60	270.70	-2,507.91	1,340.09	5.93	-34.47	-34.43	0.17	671,993.53	638,446.13
1,426.00	2.80	271.80	-2,423.00	1,425.00	6.02	-38.47	-38.43	0.24	671,993.62	638,442.13
1,512.00	1.50	245.60	-2,337.07	1,510.93	5.62	-41.60	-41.56	1.86	671,993.22	638,439.00
1,598.00	0.90	218.10	-2,251.08	1,596.92	4.62	-43.04	-43.01	0.95	671,992.22	638,437.56
1,682.00	0.90	220.00	-2,167.09	1,680.91	3.60	-43.87	-43.84	0.04	671,991.20	638,436.73
1,766.00	0.90	209.40	-2,083.10	1,764.90	2.52	-44.62	-44.60	0.20	671,990.12	638,435.98
1,857.00	0.90	217.80	-1,992.12	1,855.88	1.33	-45.40	-45.40	0.14	671,988.93	638,435.20
1,943.00	0.90	220.70	-1,906.13	1,941.87	0.29	-46.26	-46.26	0.05	671,987.89	638,434.34



Apache Corporation

Company: Apache Corporation
 Project: Eddy County, NM (NAD27 NME)
 Site: Crow Federal
 Well: #17H
 Wellbore: WB1/Job #1311090
 Design: Surveys (Capstar 114)

Local Coordinate Reference: Well #17H
 TVD Reference: KB @ 3848.00usft (Capstar 114)
 MD Reference: KB @ 3848.00usft (Capstar 114)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: Compass 5000 GCR DB

Survey											
MD (usft)	Inc (°)	Azi.(azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
2,028.00	0.90	225.40	-1,821.14	2,026.86	-0.69	-47.17	-47.17	0.09	671,986.91	638,433.43	
2,114.00	0.90	230.10	-1,735.15	2,112.85	-1.60	-48.17	-48.18	0.09	671,986.00	638,432.43	
2,199.00	0.90	237.10	-1,650.16	2,197.84	-2.39	-49.24	-49.26	0.13	671,985.21	638,431.36	
2,284.00	0.90	242.70	-1,565.17	2,282.83	-3.06	-50.40	-50.41	0.10	671,984.54	638,430.20	
2,370.00	0.90	251.40	-1,479.18	2,368.82	-3.58	-51.64	-51.66	0.16	671,984.02	638,428.96	
2,456.00	1.00	256.00	-1,393.19	2,454.81	-3.98	-53.00	-53.03	0.15	671,983.62	638,427.60	
2,541.00	1.00	257.30	-1,308.20	2,539.80	-4.32	-54.45	-54.47	0.03	671,983.28	638,426.15	
2,627.00	1.60	201.30	-1,222.22	2,625.78	-5.60	-55.62	-55.65	1.55	671,982.00	638,424.98	
2,713.00	0.90	193.60	-1,136.24	2,711.76	-7.38	-56.21	-56.26	0.84	671,980.22	638,424.39	
2,801.00	0.70	21.80	-1,048.25	2,799.75	-7.55	-56.17	-56.22	1.81	671,980.05	638,424.43	
2,887.00	1.00	18.80	-962.26	2,885.74	-6.35	-55.74	-55.78	0.35	671,981.25	638,424.86	
2,972.00	1.10	19.40	-877.27	2,970.73	-4.88	-55.23	-55.26	0.12	671,982.72	638,425.37	
3,058.00	1.20	21.80	-791.29	3,056.71	-3.27	-54.62	-54.64	0.13	671,984.33	638,425.98	
3,143.00	1.20	20.40	-706.31	3,141.69	-1.61	-53.98	-53.99	0.03	671,985.99	638,426.62	
3,229.00	1.20	23.00	-620.33	3,227.67	0.07	-53.31	-53.31	0.06	671,987.67	638,427.29	
3,315.00	1.40	25.90	-534.35	3,313.65	1.84	-52.50	-52.49	0.24	671,989.44	638,428.10	
3,400.00	1.40	24.00	-449.37	3,398.63	3.72	-51.62	-51.60	0.05	671,991.32	638,428.98	
3,450.00	1.50	19.70	-399.39	3,448.61	4.90	-51.16	-51.12	0.30	671,992.50	638,429.44	
3,529.00	1.40	22.90	-320.41	3,527.59	6.76	-50.43	-50.39	0.16	671,994.36	638,430.17	
3,615.00	1.60	322.70	-234.44	3,613.56	8.68	-50.75	-50.69	1.76	671,996.28	638,429.85	
3,701.00	1.50	207.80	-148.46	3,699.54	8.64	-52.00	-51.95	3.04	671,996.24	638,428.60	
3,786.00	1.30	181.90	-63.48	3,784.52	6.69	-52.55	-52.51	0.77	671,994.29	638,428.05	
3,872.00	1.20	184.40	22.50	3,870.50	4.82	-52.66	-52.62	0.13	671,992.42	638,427.94	
3,957.00	1.60	169.70	107.47	3,955.47	2.77	-52.51	-52.49	0.63	671,990.37	638,428.09	
4,043.00	2.20	186.20	193.43	4,041.43	-0.06	-52.47	-52.47	0.94	671,987.54	638,428.13	
4,128.00	0.60	190.50	278.40	4,126.40	-2.12	-52.73	-52.74	1.89	671,985.48	638,427.87	
4,213.00	1.20	86.90	363.39	4,211.39	-2.50	-51.92	-51.94	1.72	671,985.10	638,428.68	



Apache Corporation

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #17H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3848.00usft (Capstar 114)
Site:	Crow-Federal	MD Reference:	KB @ 3848.00usft (Capstar 114)
Well:	#17H	North Reference:	Grid
Wellbore:	WB1/Job #1311090	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR DB

MD	Inc	Azi (azimuth)	TVDSS	TVD	N/S	E/W	V-Sec	D Leg	Northing	Easting
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(usft)	(usft)
4,300.00	1.10	79.80	450.37	4,298.37	-2.31	-50.19	-50.21	0.20	671,985.29	638,430.41
4,385.00	1.10	87.50	535.36	4,383.36	-2.13	-48.57	-48.59	0.17	671,985.47	638,432.03
4,476.00	1.10	88.70	626.34	4,474.34	-2.07	-46.83	-46.84	0.03	671,985.53	638,433.77
4,563.00	1.10	89.00	713.33	4,561.33	-2.04	-45.16	-45.17	0.01	671,985.56	638,435.44
4,648.00	1.10	88.90	798.31	4,646.31	-2.01	-43.53	-43.54	0.00	671,985.59	638,437.07
4,736.00	1.00	76.30	886.30	4,734.30	-1.81	-41.94	-41.95	0.29	671,985.79	638,438.66
4,823.00	1.00	71.40	973.28	4,821.28	-1.39	-40.48	-40.49	0.10	671,986.21	638,440.12
4,908.00	1.00	63.00	1,058.27	4,906.27	-0.81	-39.12	-39.12	0.17	671,986.79	638,441.48
4,994.00	0.90	55.60	1,144.26	4,992.26	-0.09	-37.89	-37.89	0.18	671,987.51	638,442.71
5,079.00	0.90	50.10	1,229.25	5,077.25	0.71	-36.83	-36.82	0.10	671,988.31	638,443.77
5,119.00	0.90	43.10	1,269.24	5,117.24	1.15	-36.37	-36.36	0.27	671,988.75	638,444.23
5,162.00	1.50	86.20	1,312.23	5,160.23	1.43	-35.58	-35.57	2.43	671,989.03	638,445.02
5,205.00	7.30	96.40	1,355.09	5,203.09	1.16	-32.30	-32.29	13.56	671,988.76	638,448.30
5,247.00	13.30	89.40	1,396.39	5,244.39	0.92	-24.81	-24.80	14.57	671,988.52	638,455.79
5,290.00	18.60	85.30	1,437.73	5,285.73	1.53	-13.02	-13.01	12.59	671,989.13	638,467.58
5,333.00	23.30	86.40	1,477.87	5,325.87	2.63	2.31	2.33	10.97	671,990.23	638,482.91
5,376.00	27.40	87.50	1,516.72	5,364.72	3.59	20.69	20.71	9.60	671,991.19	638,501.29
5,418.00	31.90	88.90	1,553.22	5,401.22	4.23	41.45	41.48	10.84	671,991.83	638,522.05
5,461.00	36.80	89.80	1,588.71	5,436.71	4.49	65.70	65.73	11.46	671,992.09	638,546.30
5,504.00	41.20	90.40	1,622.11	5,470.11	4.44	92.76	92.78	10.27	671,992.04	638,573.36
5,548.00	45.80	90.50	1,654.02	5,502.02	4.20	123.04	123.06	10.46	671,991.80	638,603.64
5,594.00	52.00	90.30	1,684.25	5,532.25	3.96	157.68	157.70	13.48	671,991.56	638,638.28
5,637.00	56.80	90.20	1,709.27	5,557.27	3.81	192.64	192.66	11.16	671,991.41	638,673.24
5,680.00	61.50	90.80	1,731.32	5,579.32	3.48	229.54	229.56	11.00	671,991.08	638,710.14
5,723.00	66.50	91.30	1,750.16	5,598.16	2.77	268.17	268.18	11.67	671,990.37	638,748.77
5,765.00	71.80	90.80	1,765.10	5,613.10	2.05	307.40	307.40	12.67	671,989.65	638,788.00
5,808.00	77.90	89.30	1,776.34	5,624.34	2.02	348.88	348.89	14.58	671,989.62	638,829.48



Apache Corporation

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #17H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3848.00usft (Capstar 114)
Site:	Crow Federal	MD Reference:	KB @ 3848.00usft (Capstar 114)
Well:	#17H	North Reference:	Grid
Wellbore:	WB1/Job #1311090	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR DB

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V.Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
5,850.00	83.50	88.50	1,783.12	5,631.12	2.82	390.31	390.32	13.47	671,990.42	638,870.91	
5,936.00	86.00	88.60	1,790.99	5,638.99	4.99	475.91	475.93	2.91	671,992.59	638,956.51	
6,021.00	87.10	89.90	1,796.10	5,644.10	6.10	560.75	560.77	2.00	671,993.70	639,041.35	
6,107.00	88.30	90.40	1,799.56	5,647.56	5.87	646.67	646.70	1.51	671,993.47	639,127.27	
6,193.00	88.80	90.70	1,801.73	5,649.73	5.05	732.64	732.66	0.68	671,992.65	639,213.24	
6,278.00	88.90	91.20	1,803.44	5,651.44	3.64	817.61	817.62	0.60	671,991.24	639,298.21	
6,368.00	88.90	91.00	1,805.17	5,653.17	1.91	907.58	907.57	0.22	671,989.51	639,388.18	
6,453.00	89.20	91.20	1,806.58	5,654.58	0.28	992.55	992.53	0.42	671,987.88	639,473.15	
6,537.00	88.40	89.90	1,808.33	5,656.33	-0.53	1,076.53	1,076.50	1.82	671,987.07	639,557.13	
6,623.00	88.50	90.10	1,810.66	5,658.66	-0.53	1,162.50	1,162.47	0.26	671,987.07	639,643.10	
6,708.00	87.60	89.00	1,813.55	5,661.55	0.14	1,247.44	1,247.42	1.67	671,987.74	639,728.04	
6,794.00	87.60	88.10	1,817.15	5,665.15	2.31	1,333.34	1,333.33	1.05	671,989.91	639,813.94	
6,879.00	87.60	88.50	1,820.71	5,668.71	4.83	1,418.23	1,418.23	0.47	671,992.43	639,898.83	
6,965.00	87.70	88.60	1,824.24	5,672.24	7.01	1,504.13	1,504.14	0.16	671,994.61	639,984.73	
7,050.00	87.90	88.40	1,827.50	5,675.50	9.23	1,589.04	1,589.06	0.33	671,996.83	640,069.64	
7,135.00	88.00	88.60	1,830.54	5,678.54	11.46	1,673.95	1,673.99	0.26	671,999.06	640,154.55	
7,220.00	88.10	88.60	1,833.44	5,681.44	13.53	1,758.88	1,758.93	0.12	672,001.13	640,239.48	
7,306.00	87.90	88.60	1,836.44	5,684.44	15.63	1,844.80	1,844.86	0.23	672,003.23	640,325.40	
7,391.00	87.20	89.20	1,840.07	5,688.07	17.26	1,929.70	1,929.78	1.08	672,004.86	640,410.30	
7,476.00	87.30	89.30	1,844.15	5,692.15	18.37	2,014.60	2,014.68	0.17	672,005.97	640,495.20	
7,561.00	87.30	89.00	1,848.15	5,696.15	19.63	2,099.50	2,099.58	0.35	672,007.23	640,580.10	
7,648.00	87.20	89.10	1,852.33	5,700.33	21.07	2,186.38	2,186.47	0.16	672,008.67	640,666.98	
7,733.00	87.20	88.90	1,856.48	5,704.48	22.55	2,271.27	2,271.37	0.24	672,010.15	640,751.87	
7,818.00	87.40	88.70	1,860.48	5,708.48	24.33	2,356.16	2,356.26	0.33	672,011.93	640,836.76	
7,903.00	87.10	88.20	1,864.56	5,712.56	26.63	2,441.03	2,441.15	0.69	672,014.23	640,921.63	
7,988.00	88.70	90.10	1,867.68	5,715.68	27.89	2,525.95	2,526.08	2.92	672,015.49	641,006.55	
8,072.00	88.90	90.00	1,869.44	5,717.44	27.82	2,609.93	2,610.06	0.27	672,015.42	641,090.53	



Apache Corporation

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #17H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3848.00usft (Capstar 114)
Site:	Crow Federal	MD Reference:	KB @ 3848.00usft (Capstar 114)
Well:	#17H	North Reference:	Grid
Wellbore:	WB1/Job #1311090	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR DB

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	D Leg. (°/100usft)	Northing (usft)	Easting (usft)
8,159.00	88.80	89.70	1,871.18	5,719.18	28.04	2,696.92	2,697.04	0.36	672,015.64	641,177.52
8,244.00	89.10	90.10	1,872.74	5,720.74	28.19	2,781.90	2,782.03	0.59	672,015.79	641,262.50
8,328.00	89.30	89.20	1,873.91	5,721.91	28.70	2,865.89	2,866.02	1.10	672,016.30	641,346.49
8,413.00	88.70	91.40	1,875.40	5,723.40	28.26	2,950.87	2,950.99	2.68	672,015.86	641,431.47
8,498.00	88.40	90.50	1,877.55	5,725.55	26.85	3,035.83	3,035.94	1.12	672,014.45	641,516.43
8,583.00	88.70	90.90	1,879.70	5,727.70	25.81	3,120.80	3,120.90	0.59	672,013.41	641,601.40
8,671.00	88.70	90.10	1,881.69	5,729.69	25.04	3,208.77	3,208.87	0.91	672,012.64	641,689.37
8,756.00	89.10	90.00	1,883.33	5,731.33	24.97	3,293.76	3,293.85	0.49	672,012.57	641,774.36
8,840.00	89.00	89.70	1,884.72	5,732.72	25.19	3,377.74	3,377.84	0.38	672,012.79	641,858.34
8,925.00	89.20	90.10	1,886.05	5,734.05	25.34	3,462.73	3,462.82	0.53	672,012.94	641,943.33
9,010.00	89.30	89.80	1,887.17	5,735.17	25.41	3,547.73	3,547.82	0.37	672,013.01	642,028.33
9,094.00	88.20	89.40	1,889.00	5,737.00	26.00	3,631.70	3,631.79	1.39	672,013.60	642,112.30
9,179.00	88.20	89.50	1,891.67	5,739.67	26.81	3,716.66	3,716.75	0.12	672,014.41	642,197.26
9,263.00	88.40	89.90	1,894.16	5,742.16	27.25	3,800.62	3,800.71	0.53	672,014.85	642,281.22
9,347.00	88.30	89.80	1,896.58	5,744.58	27.47	3,884.58	3,884.68	0.17	672,015.07	642,365.18
9,431.00	88.60	88.00	1,898.85	5,746.85	29.09	3,968.53	3,968.64	2.17	672,016.69	642,449.13
9,519.00	89.30	88.30	1,900.46	5,748.46	31.93	4,056.47	4,056.59	0.87	672,019.53	642,537.07
9,611.00	88.20	90.10	1,902.47	5,750.47	33.21	4,148.44	4,148.56	2.29	672,020.81	642,629.04
9,700.00	88.50	90.10	1,905.03	5,753.03	33.06	4,237.40	4,237.52	0.34	672,020.66	642,718.00
9,788.00	88.70	90.30	1,907.18	5,755.18	32.75	4,325.37	4,325.49	0.32	672,020.35	642,805.97
9,880.00	88.60	89.90	1,909.35	5,757.35	32.59	4,417.35	4,417.46	0.45	672,020.19	642,897.95
9,971.00	88.30	89.30	1,911.81	5,759.81	33.22	4,508.31	4,508.43	0.74	672,020.82	642,988.91
10,062.00	88.70	89.30	1,914.20	5,762.20	34.33	4,599.27	4,599.40	0.44	672,021.93	643,079.87
10,150.00	89.10	89.30	1,915.88	5,763.88	35.41	4,687.25	4,687.38	0.45	672,023.01	643,167.85
10,242.00	90.20	89.30	1,916.45	5,764.45	36.53	4,779.24	4,779.37	1.20	672,024.13	643,259.84

Last Phoenix MWD Survey



Apache Corporation

Company: Apache Corporation
 Project: Eddy County, NM (NAD27 NME)
 Site: Crow Federal
 Well: #17H
 Wellbore: WB1/Job #1311090
 Design: Surveys (Capstar 114)

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:
 Database:

Well #17H
 KB @ 3848.00usft (Capstar 114)
 KB @ 3848.00usft (Capstar 114)
 Grid
 Minimum Curvature
 Compass 5000 GCR DB

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	D Leg (°/100usft)	Northing (usft)	Easting (usft)	
10,303.00	90.20	89.30	1,916.23	5,764.23	37.28	4,840.23	4,840.37	0.00	672,024.88	643,320.83	
Projection to TD											

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
455.00	455.00	0.84	-0.83	First Phoenix MWD Survey
10,242.00	5,764.45	36.53	4,779.24	Last Phoenix MWD Survey
10,303.00	5,764.23	37.28	4,840.23	Projection to TD

Checked By: _____ Approved By: _____ Date: _____