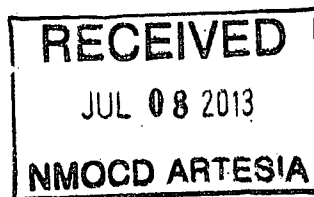




PHOENIX
TECHNOLOGY SERVICES

July 3, 2013

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 #11H
Eddy Co., NM
API #30-015-40575
Job No. 1310714

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	Drainhole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Matthew Dice	11H	100	10,208	06/13/13	06/25/13	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,

Dolly Aguirre

Dolly Aguirre
Operations Administrator

Certified mail receipt number: 7011 1570 0001 4364 9056

Phoenix Technology Services SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER

1310714

OPERATOR

Apache Corporation

WELL NAME

Crow Federal 11H

COUNTY & STATE

Eddy, NM

API WELL NUMBER

30-015-40575

PROPOSED DIRECTION

89.57

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
ft	.00 ft	.0 ft	.0 ft	.00 ft	.00 ft	Surface

FIRST	FIRST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
13-Jun-13	100 ft	0.1	197.0

SURVEY INSTRUMENT
TYPE
Phoenix MWD

LAST	LAST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
25-Jun-13	10,208 ft	89.3	90.1

TO THE BEST OF MY KNOWLEDGE I
CERTIFY THIS SURVEY DATA TO BE
TRUE AND CORRECT.

PROJECTED	PROJECTED		
TD SURVEY	TD SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
25-Jun-13	10,262 ft	89.3	90.1

Matthew Dice

PRINT YOUR NAME ABOVE

Matthew Dice

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	
	0.25
DECLINATION OR GRID	DECLINATION

6/25/2013

TODAY'S DATE

MWD SUPERVISOR 1

Brad Hill

DIRECTIONAL DRILLER 1

Tim Owens

MWD SUPERVISOR 2

Matt Dice

DIRECTIONAL DRILLER 2

Ken Smith

1805 Brittmore Road

Houston, Texas 77043

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



Apache Corporation

Eddy County, NM (NAD27 NME)

Crow Federal

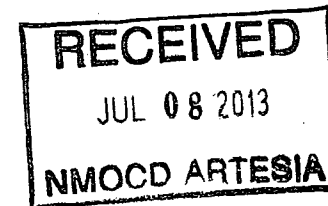
#11H

OH/Job #1310714

Survey: Phoenix MWD Survey

Survey Report

25 June, 2013





Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #11H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3894.00usft (Capstar 114)
Site:	Crow Federal	MD Reference:	KB @ 3894.00usft (Capstar 114)
Well:	#11H	North Reference:	Grid
Wellbore:	OH/Job #1310714	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	GCR.DB v5000

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		
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Site Position:		Northing:	671,130.90 usft	Latitude:	32° 50' 38.927956 N
From:	Map	Easting:	643,906.80 usft	Longitude:	103° 51' 53.166888 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.25 °

Well	#11H				
Well Position	+N/-S	0.00 usft	Northing:	671,195.90 usft	Latitude: 32° 50' 39.571153 N
	+E/-W	0.00 usft	Easting:	643,906.40 usft	Longitude: 103° 51' 53.168197 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level: 3,884.00 usft

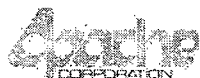
Wellbore	OH/Job #1310714				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	06/10/13	7.52	60.66	48,755

Design	Surveys (Capstar 114)				
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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	89.57	

Survey Program	Date 06/25/13				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
622.00	10,262.00	Phoenix MWD Survey (OH/Job #1310714)	MWD	MWD - Standard	



Survey Report



Company: Apache Corporation
Project: Eddy County, NM (NAD27 NME)
Site: Crow Federal
Well: #11H
Wellbore: OH/Job #1310714
Design: Surveys (Capstar 114)

Local Co-ordinate Reference: Well #11H
TVD Reference: KB @ 3894.00usft (Capstar 114)
MD Reference: KB @ 3894.00usft (Capstar 114)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: GCR DB v5000

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)	
600.00	0.43	226.12	-3,294.01	599.99	-2.30	-1.78	-1.80	0.00	671,193.60	643,904.62	
Gyro Tie-on											
622.00	0.60	221.50	-3,272.01	621.99	-2.44	-1.91	-1.93	0.79	671,193.46	643,904.49	
First Phoenix MWD Survey											
695.00	0.60	206.10	-3,199.01	694.99	-3.07	-2.34	-2.36	0.22	671,192.83	643,904.06	
781.00	0.60	150.20	-3,113.02	780.98	-3.87	-2.31	-2.34	0.65	671,192.03	643,904.09	
866.00	1.50	102.10	-3,028.03	865.97	-4.49	-1.00	-1.03	1.40	671,191.41	643,905.40	
952.00	2.20	98.50	-2,942.08	951.92	-4.97	1.73	1.70	0.82	671,190.93	643,908.13	
1,038.00	2.70	94.90	-2,856.16	1,037.84	-5.38	5.38	5.34	0.61	671,190.52	643,911.78	
1,123.00	3.60	87.40	-2,771.29	1,122.71	-5.43	10.04	10.00	1.16	671,190.47	643,916.44	
1,209.00	4.00	90.20	-2,685.47	1,208.53	-5.32	15.74	15.70	0.51	671,190.58	643,922.14	
1,294.00	4.40	91.30	-2,600.70	1,293.30	-5.41	21.97	21.92	0.48	671,190.49	643,928.37	
1,380.00	4.70	93.60	-2,514.97	1,379.03	-5.70	28.78	28.74	0.41	671,190.20	643,935.18	
1,466.00	5.00	94.60	-2,429.28	1,464.72	-6.22	36.03	35.98	0.36	671,189.68	643,942.43	
1,550.00	3.70	98.60	-2,345.53	1,548.47	-6.92	42.36	42.31	1.59	671,188.98	643,948.76	
1,636.00	2.20	106.60	-2,259.64	1,634.36	-7.81	46.69	46.63	1.80	671,188.09	643,953.09	
1,721.00	1.00	144.60	-2,174.67	1,719.33	-8.88	48.68	48.61	1.81	671,187.02	643,955.08	
1,807.00	1.10	142.90	-2,088.69	1,805.31	-10.15	49.61	49.53	0.12	671,185.75	643,956.01	
1,893.00	1.50	82.90	-2,002.71	1,891.29	-10.67	51.23	51.15	1.56	671,185.23	643,957.63	
1,978.00	1.50	73.80	-1,917.74	1,976.26	-10.22	53.40	53.32	0.28	671,185.68	643,959.80	
2,064.00	1.50	71.30	-1,831.77	2,062.23	-9.55	55.55	55.47	0.08	671,186.35	643,961.95	
2,149.00	1.10	35.00	-1,746.79	2,147.21	-8.52	57.07	57.00	1.05	671,187.38	643,963.47	
2,235.00	1.30	16.20	-1,660.80	2,233.20	-6.91	57.81	57.76	0.51	671,188.99	643,964.21	
2,321.00	1.40	17.00	-1,574.83	2,319.17	-4.97	58.39	58.35	0.12	671,190.93	643,964.79	
2,405.00	1.40	11.00	-1,490.85	2,403.15	-2.98	58.89	58.87	0.17	671,192.92	643,965.29	
2,491.00	1.50	11.80	-1,404.88	2,489.12	-0.84	59.32	59.31	0.12	671,195.06	643,965.72	
2,577.00	1.50	6.00	-1,318.91	2,575.09	1.38	59.67	59.68	0.18	671,197.28	643,966.07	



Survey Report



Company: Apache Corporation
Project: Eddy County, NM (NAD27 NME)
Site: Crow Federal
Well: #11H
Wellbore: OH/Job #1310714
Design: Surveys (Capstar 114)

Local Co-ordinate Reference: Well #11H
TVD Reference: KB @ 3894.00usft (Capstar 114)
MD Reference: KB @ 3894.00usft (Capstar 114)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: GCR DB v5000

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)
2,662.00	1.70	7.20	-1,233.94	2,660.06	3.73	59.94	59.97	0.24	671,199.63	643,966.34
2,748.00	0.50	355.90	-1,147.96	2,746.04	5.37	60.08	60.11	1.41	671,201.27	643,966.48
2,833.00	0.40	328.70	-1,062.96	2,831.04	6.00	59.89	59.94	0.27	671,201.90	643,966.29
2,919.00	0.70	330.70	-976.97	2,917.03	6.71	59.48	59.53	0.35	671,202.61	643,965.88
3,005.00	0.80	340.80	-890.98	3,003.02	7.74	59.03	59.08	0.19	671,203.64	643,965.43
3,090.00	0.90	333.60	-805.98	3,088.02	8.90	58.54	58.60	0.17	671,204.80	643,964.94
3,176.00	0.90	329.50	-720.00	3,174.00	10.08	57.89	57.97	0.07	671,205.98	643,964.29
3,261.00	1.00	323.40	-635.01	3,258.99	11.25	57.11	57.19	0.17	671,207.15	643,963.51
3,347.00	1.10	324.70	-549.02	3,344.98	12.53	56.19	56.28	0.12	671,208.43	643,962.59
3,432.00	1.10	330.40	-464.04	3,429.96	13.90	55.31	55.41	0.13	671,209.80	643,961.71
3,451.00	1.10	329.70	-445.04	3,448.96	14.22	55.13	55.24	0.07	671,210.12	643,961.53
3,516.00	1.10	327.40	-380.05	3,513.95	15.28	54.48	54.59	0.07	671,211.18	643,960.88
3,602.00	1.20	321.10	-294.07	3,599.93	16.68	53.47	53.59	0.19	671,212.58	643,959.87
3,688.00	1.10	321.50	-208.09	3,685.91	18.03	52.39	52.52	0.12	671,213.93	643,958.79
3,773.00	0.80	160.30	-123.09	3,770.91	18.11	52.08	52.22	2.21	671,214.01	643,958.48
3,859.00	1.70	147.20	-37.11	3,856.89	16.47	52.97	53.10	1.09	671,212.37	643,959.37
3,944.00	1.60	145.90	47.85	3,941.85	14.43	54.32	54.43	0.13	671,210.33	643,960.72
4,030.00	1.50	144.60	133.82	4,027.82	12.52	55.65	55.74	0.12	671,208.42	643,962.05
4,116.00	1.50	147.00	219.79	4,113.79	10.65	56.91	56.99	0.07	671,206.55	643,963.31
4,201.00	1.20	144.20	304.77	4,198.77	9.00	58.04	58.11	0.36	671,204.90	643,964.44
4,287.00	1.10	140.90	390.75	4,284.75	7.63	59.09	59.14	0.14	671,203.53	643,965.49
4,372.00	1.20	152.30	475.73	4,369.73	6.21	60.02	60.06	0.29	671,202.11	643,966.42
4,458.00	0.90	143.10	561.72	4,455.72	4.87	60.84	60.87	0.40	671,200.77	643,967.24
4,543.00	0.70	149.20	646.71	4,540.71	3.89	61.51	61.53	0.26	671,199.79	643,967.91
4,629.00	0.80	148.90	732.70	4,626.70	2.92	62.09	62.11	0.12	671,198.82	643,968.49
4,714.00	0.90	139.20	817.69	4,711.69	1.91	62.83	62.84	0.21	671,197.81	643,969.23
4,800.00	0.80	251.20	903.69	4,797.69	1.21	62.70	62.71	1.64	671,197.11	643,969.10



Survey Report



Company: Apache Corporation
Project: Eddy County, NM (NAD27:NME)
Site: Crow Federal
Well: #11H
Wellbore: OH/Job #1310714
Design: Surveys (Capstar-114)

Local Co-ordinate Reference: Well #11H
TVD Reference: KB @ 3894.00usft (Capstar-114)
MD Reference: KB @ 3894.00usft (Capstar-114)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: GCR DB v5000

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)
4,885.00	0.70	252.20	988.68	4,882.68	0.86	61.65	61.65	0.12	671,196.76	643,968.05
4,971.00	0.70	266.70	1,074.67	4,968.67	0.67	60.62	60.62	0.21	671,196.57	643,967.02
5,057.00	0.60	291.70	1,160.67	5,054.67	0.80	59.68	59.68	0.35	671,196.70	643,966.08
5,142.00	0.80	306.40	1,245.66	5,139.66	1.32	58.79	58.79	0.31	671,197.22	643,965.19
5,227.00	1.10	347.00	1,330.65	5,224.65	2.47	58.13	58.14	0.84	671,198.37	643,964.53
5,295.00	1.10	335.50	1,398.64	5,292.64	3.70	57.71	57.73	0.32	671,199.60	643,964.11
5,327.00	1.00	351.50	1,430.63	5,324.63	4.25	57.54	57.57	0.96	671,200.15	643,963.94
5,370.00	3.80	65.10	1,473.60	5,367.60	5.22	58.78	58.81	8.48	671,201.12	643,965.18
5,413.00	9.10	72.60	1,516.31	5,410.31	6.84	63.32	63.37	12.45	671,202.74	643,969.72
5,454.00	14.20	71.00	1,556.45	5,450.45	9.45	71.17	71.24	12.46	671,205.35	643,977.57
5,497.00	19.80	68.90	1,597.56	5,491.56	13.79	82.96	83.06	13.10	671,209.69	643,989.36
5,540.00	24.30	70.50	1,637.40	5,531.40	19.37	98.10	98.25	10.56	671,215.27	644,004.50
5,583.00	29.00	74.80	1,675.83	5,569.83	25.06	116.52	116.70	11.81	671,220.96	644,022.92
5,625.00	34.50	80.00	1,711.54	5,605.54	29.80	138.07	138.29	14.62	671,225.70	644,044.47
5,668.00	39.40	85.30	1,745.90	5,639.90	33.03	163.69	163.93	13.58	671,228.93	644,070.09
5,711.00	43.90	91.20	1,778.03	5,672.03	33.84	192.22	192.47	13.87	671,229.74	644,098.62
5,754.00	48.40	94.80	1,807.82	5,701.82	32.18	223.17	223.40	12.08	671,228.08	644,129.57
5,797.00	53.00	95.70	1,835.05	5,729.05	29.13	256.29	256.51	10.82	671,225.03	644,162.69
5,840.00	58.00	95.50	1,859.40	5,753.40	25.68	291.55	291.74	11.63	671,221.58	644,197.95
5,882.00	64.80	94.70	1,879.49	5,773.49	22.41	328.26	328.42	16.28	671,218.31	644,234.66
5,925.00	71.30	93.80	1,895.55	5,789.55	19.46	368.01	368.15	15.24	671,215.36	644,274.41
5,968.00	75.30	92.50	1,907.91	5,801.91	17.20	409.13	409.24	9.74	671,213.10	644,315.53
6,011.00	78.60	89.90	1,917.62	5,811.62	16.33	451.00	451.11	9.67	671,212.23	644,357.40
6,054.00	82.70	88.90	1,924.60	5,818.60	16.78	493.41	493.53	9.81	671,212.68	644,399.81
6,096.00	87.80	88.30	1,928.08	5,822.08	17.80	535.24	535.36	12.23	671,213.70	644,441.64
6,139.00	89.90	88.40	1,928.94	5,822.94	19.04	578.21	578.34	4.89	671,214.94	644,484.61
6,182.00	88.80	89.50	1,929.43	5,823.43	19.83	621.20	621.33	3.62	671,215.73	644,527.60



Survey Report



Company: Apache Corporation
Project: Eddy County, NM (NAD27 NME)
Site: Crow Federal
Well: #11H
Wellbore: OH/Job #1310714
Design: Surveys (Capstar 114)

Local Co-ordinate Reference: Well #11H
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Survey Calculation Method: Minimum Curvature
Database: GCR DB v5000

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)
6,267.00	88.70	89.60	1,931.29	5,825.29	20.49	706.18	706.31	0.17	671,216.39	644,612.58
6,353.00	88.70	89.00	1,933.24	5,827.24	21.54	792.15	792.29	0.70	671,217.44	644,698.55
6,438.00	88.80	88.30	1,935.09	5,829.09	23.55	877.11	877.26	0.83	671,219.45	644,783.51
6,524.00	89.90	90.90	1,936.07	5,830.07	24.15	963.09	963.24	3.28	671,220.05	644,869.49
6,609.00	90.00	90.80	1,936.14	5,830.14	22.89	1,048.08	1,048.22	0.17	671,218.79	644,954.48
6,695.00	90.10	90.40	1,936.07	5,830.07	21.99	1,134.08	1,134.21	0.48	671,217.89	645,040.48
6,780.00	90.10	90.10	1,935.92	5,829.92	21.61	1,219.08	1,219.20	0.35	671,217.51	645,125.48
6,866.00	90.00	89.50	1,935.84	5,829.84	21.91	1,305.07	1,305.20	0.71	671,217.81	645,211.47
6,952.00	90.20	89.40	1,935.69	5,829.69	22.74	1,391.07	1,391.20	0.26	671,218.64	645,297.47
7,037.00	89.70	90.90	1,935.77	5,829.77	22.52	1,476.07	1,476.19	1.86	671,218.42	645,382.47
7,123.00	89.80	90.80	1,936.14	5,830.14	21.24	1,562.06	1,562.17	0.16	671,217.14	645,468.46
7,208.00	89.60	90.70	1,936.59	5,830.59	20.13	1,647.05	1,647.15	0.26	671,216.03	645,553.45
7,294.00	89.30	90.90	1,937.41	5,831.41	18.93	1,733.04	1,733.13	0.42	671,214.83	645,639.44
7,380.00	88.90	90.90	1,938.76	5,832.76	17.58	1,819.01	1,819.10	0.47	671,213.48	645,725.41
7,465.00	88.60	90.90	1,940.62	5,834.62	16.24	1,903.98	1,904.05	0.35	671,212.14	645,810.38
7,551.00	88.40	90.90	1,942.87	5,836.87	14.89	1,989.94	1,990.00	0.23	671,210.79	645,896.34
7,636.00	88.20	91.00	1,945.39	5,839.39	13.48	2,074.89	2,074.94	0.26	671,209.38	645,981.29
7,722.00	88.80	88.70	1,947.64	5,841.64	13.71	2,160.86	2,160.90	2.76	671,209.61	646,067.26
7,807.00	88.60	88.50	1,949.57	5,843.57	15.79	2,245.81	2,245.87	0.33	671,211.69	646,152.21
7,893.00	88.40	87.70	1,951.82	5,845.82	18.64	2,331.73	2,331.81	0.96	671,214.54	646,238.13
7,979.00	90.20	88.20	1,952.87	5,846.87	21.71	2,417.67	2,417.76	2.17	671,217.61	646,324.07
8,064.00	90.10	88.10	1,952.65	5,846.65	24.46	2,502.62	2,502.74	0.17	671,220.36	646,409.02
8,150.00	90.00	89.70	1,952.57	5,846.57	26.11	2,588.61	2,588.73	1.86	671,222.01	646,495.01
8,235.00	89.70	89.20	1,952.80	5,846.80	26.92	2,673.60	2,673.73	0.69	671,222.82	646,580.00
8,321.00	89.70	89.30	1,953.25	5,847.25	28.05	2,759.59	2,759.72	0.12	671,223.95	646,665.99
8,406.00	88.80	90.20	1,954.36	5,848.36	28.42	2,844.58	2,844.72	1.50	671,224.32	646,750.98
8,492.00	88.80	89.70	1,956.16	5,850.16	28.49	2,930.56	2,930.69	0.58	671,224.39	646,836.96



Survey Report



Company: Apache Corporation
Project: Eddy County, NM (NAD27 NME)
Site: Crow Federal
Well: #11H
Wellbore: OH/Job #1310714
Design: Surveys (Capstar 114)

Local Co-ordinate Reference: Well #11H
TVD Reference: KB @ 3894.00usft (Capstar 114)
MD Reference: KB @ 3894.00usft (Capstar 114)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: GCR DB v5000

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)
8,577.00	88.70	89.30	1,958.02	5,852.02	29.24	3,015.54	3,015.67	0.48	671,225.14	646,921.94
8,663.00	88.70	89.40	1,959.97	5,853.97	30.21	3,101.51	3,101.65	0.12	671,226.11	647,007.91
8,748.00	88.50	88.90	1,962.04	5,856.04	31.47	3,186.48	3,186.62	0.63	671,227.37	647,092.88
8,834.00	88.40	89.30	1,964.37	5,858.37	32.82	3,272.43	3,272.59	0.48	671,228.72	647,178.83
8,920.00	88.20	89.40	1,966.92	5,860.92	33.80	3,358.39	3,358.55	0.26	671,229.70	647,264.79
9,005.00	89.20	89.70	1,968.85	5,862.85	34.46	3,443.37	3,443.53	1.23	671,230.36	647,349.77
9,091.00	89.10	90.10	1,970.12	5,864.12	34.62	3,529.36	3,529.52	0.48	671,230.52	647,435.76
9,176.00	89.10	90.20	1,971.46	5,865.46	34.39	3,614.34	3,614.50	0.12	671,230.29	647,520.74
9,262.00	88.70	90.20	1,973.11	5,867.11	34.09	3,700.33	3,700.48	0.47	671,229.99	647,606.73
9,347.00	88.50	90.20	1,975.19	5,869.19	33.80	3,785.30	3,785.45	0.24	671,229.70	647,691.70
9,433.00	88.60	89.90	1,977.36	5,871.36	33.72	3,871.27	3,871.42	0.37	671,229.62	647,777.67
9,518.00	88.40	89.90	1,979.59	5,873.59	33.87	3,956.25	3,956.39	0.24	671,229.77	647,862.65
9,604.00	88.30	90.10	1,982.07	5,876.07	33.87	4,042.21	4,042.35	0.26	671,229.77	647,948.61
9,690.00	90.20	90.20	1,983.19	5,877.19	33.64	4,128.20	4,128.33	2.21	671,229.54	648,034.60
9,775.00	90.00	89.90	1,983.04	5,877.04	33.57	4,213.20	4,213.33	0.42	671,229.47	648,119.60
9,861.00	89.90	89.80	1,983.12	5,877.12	33.79	4,299.20	4,299.33	0.16	671,229.69	648,205.60
9,946.00	89.70	89.90	1,983.41	5,877.41	34.02	4,384.20	4,384.33	0.26	671,229.92	648,290.60
10,032.00	89.50	90.10	1,984.01	5,878.01	34.02	4,470.19	4,470.32	0.33	671,229.92	648,376.59
10,118.00	89.40	90.10	1,984.84	5,878.84	33.87	4,556.19	4,556.32	0.12	671,229.77	648,462.59
10,208.00	89.30	90.10	1,985.86	5,879.86	33.71	4,646.18	4,646.31	0.11	671,229.61	648,552.58
Final MWD Survey										
10,262.00	89.30	90.10	1,986.52	5,880.52	33.62	4,700.18	4,700.30	0.00	671,229.52	648,606.58
Projection to TD										



Survey Report



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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: GCR DB v5000

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
600.00	599.99	-2.30	-1.78	Gyro Tie-on
622.00	621.99	-2.44	-1.91	First Phoenix MWD Survey
10,208.00	5,879.86	33.71	4,646.18	Final MWD Survey
10,262.00	5,880.52	33.62	4,700.18	Projection to TD