

Apache Corporation

Eddy County, New Mexico (NAD 83)

Sec 32, T17S, R28E

AB State 647 #13 API# 30-015-41497

Wellbore #1

Design: Wellbore #1

Standard Survey Report

16 October, 2013





DDC
Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well AB State 647 #13
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 3700.0usft (Capstar)
Site:	Sec 32, T17S, R28E	MD Reference:	WELL @ 3700.0usft (Capstar)
Well:	AB State 647 #13	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	Eddy County, New Mexico (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 32, T17S, R28E		
Site Position:		Northing:	651,211.44 usft
From:	Map	Easting:	582,974.92 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 47' 24.499 N
		Longitude:	104° 11' 52.221 W
		Grid Convergence:	0.07 °

Well	AB State 647 #13		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 47' 2.964 N
		Longitude:	104° 12' 18.207 W
		Ground Level:	3,689.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2010	9/20/2013	7.64
			Dip Angle (°)
			60.54
			Field Strength (nT)
			48,655

Design	Wellbore #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
			Direction (°)
			359.00

Survey Program	Date 10/16/2013		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
86.6	374.0	GyroData Gyro (Wellbore #1)	Good_gyro
447.0	5,065.0	MWD (Wellbore #1)	Good Gyro

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
86.6	0.50	300.45	86.6	0.2	-0.3	0.2	0.58	0.58	0.00
115.5	0.55	287.18	115.5	0.3	-0.6	0.3	0.45	0.17	-45.92
143.1	0.52	287.14	143.1	0.4	-0.8	0.4	0.11	-0.11	-0.14
171.3	0.43	275.66	171.3	0.4	-1.0	0.4	0.46	-0.32	-40.71
200.3	0.37	296.81	200.3	0.5	-1.2	0.5	0.55	-0.21	72.93
230.3	0.19	282.23	230.3	0.5	-1.4	0.6	0.64	-0.60	-48.60
258.6	0.25	279.87	258.6	0.5	-1.5	0.6	0.21	0.21	-8.34
286.8	0.27	296.78	286.8	0.6	-1.6	0.6	0.28	0.07	59.96
316.6	0.26	303.28	316.6	0.7	-1.7	0.7	0.11	-0.03	21.81



DDC
Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well AB State 647 #13
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 3700.0usft (Capstar)
Site:	Sec 32, T17S, R28E	MD Reference:	WELL @ 3700.0usft (Capstar)
Well:	AB State 647 #13	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User 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)
344.1	0.23	270.33	344.1	0.7	-1.8	0.7	0.52	-0.11	-119.82
374.0	0.19	285.05	374.0	0.7	-1.9	0.7	0.22	-0.13	49.23
Tie In @ 374' MD / 374' TVD									
447.0	0.30	109.90	447.0	0.7	-1.9	0.7	0.67	0.15	-239.93
550.0	0.20	114.60	550.0	0.5	-1.4	0.5	0.10	-0.10	4.56
620.0	1.00	21.50	620.0	1.0	-1.1	1.0	1.47	1.14	-133.00
706.0	1.20	11.80	706.0	2.6	-0.7	2.6	0.32	0.23	-11.28
834.0	1.70	9.00	833.9	5.8	-0.1	5.8	0.39	0.39	-2.19
876.0	1.80	6.30	875.9	7.1	0.1	7.1	0.31	0.24	-6.43
962.0	2.60	356.70	961.8	10.4	0.1	10.3	1.02	0.93	-11.16
1,047.0	3.00	358.80	1,046.7	14.5	0.0	14.5	0.49	0.47	2.47
1,132.0	3.00	1.80	1,131.6	18.9	0.0	18.9	0.18	0.00	3.53
1,260.0	2.50	4.60	1,259.5	25.1	0.3	25.1	0.40	-0.39	2.19
1,346.0	2.90	1.40	1,345.4	29.1	0.5	29.1	0.50	0.47	-3.72
1,431.0	3.60	355.40	1,430.2	33.9	0.4	33.9	0.91	0.82	-7.06
1,517.0	3.50	354.90	1,516.1	39.2	-0.1	39.2	0.12	-0.12	-0.58
1,602.0	3.10	354.00	1,600.9	44.1	-0.6	44.1	0.47	-0.47	-1.06
1,687.0	2.80	355.40	1,685.8	48.5	-1.0	48.5	0.36	-0.35	1.65
1,773.0	2.70	0.00	1,771.7	52.6	-1.1	52.6	0.28	-0.12	5.35
1,858.0	3.00	3.70	1,856.6	56.8	-1.0	56.8	0.41	0.35	4.35
1,944.0	2.90	7.40	1,942.5	61.2	-0.6	61.2	0.25	-0.12	4.30
2,029.0	2.80	10.20	2,027.4	65.4	0.1	65.4	0.20	-0.12	3.29
2,114.0	3.30	12.00	2,112.3	69.8	1.0	69.8	0.60	0.59	2.12
2,200.0	3.50	15.00	2,198.1	74.8	2.1	74.7	0.31	0.23	3.49
2,285.0	3.50	13.50	2,283.0	79.8	3.4	79.7	0.11	0.00	-1.76
2,371.0	3.30	13.70	2,368.8	84.8	4.6	84.7	0.23	-0.23	0.23
2,456.0	3.80	359.70	2,453.7	90.0	5.2	89.9	1.17	0.59	-16.47
2,542.0	3.80	356.80	2,539.5	95.6	5.0	95.5	0.22	0.00	-3.37
2,627.0	3.70	356.80	2,624.3	101.2	4.7	101.1	0.12	-0.12	0.00
2,712.0	3.50	357.00	2,709.1	106.5	4.4	106.4	0.24	-0.24	0.24
2,790.6	3.50	354.26	2,787.6	111.3	4.0	111.2	0.21	0.00	-3.49
Crossed Hard Line @ 2791' MD / 2788' TVD									
2,798.0	3.50	354.00	2,795.0	111.8	4.0	111.7	0.21	0.01	-3.49
2,883.0	3.50	354.70	2,879.8	116.9	3.5	116.8	0.05	0.00	0.82
3,053.0	2.40	344.50	3,049.6	125.5	2.1	125.5	0.71	-0.65	-6.00
3,139.0	1.30	342.10	3,135.5	128.2	1.3	128.1	1.28	-1.28	-2.79
3,224.0	0.70	102.00	3,220.5	129.0	1.5	129.0	2.07	-0.71	141.06
3,352.0	0.50	53.60	3,348.5	129.2	2.7	129.1	0.41	-0.16	-37.81
3,523.0	0.40	77.00	3,519.5	129.7	3.9	129.7	0.12	-0.06	13.68
3,694.0	0.40	111.10	3,690.5	129.7	5.0	129.6	0.14	0.00	19.94
3,865.0	0.50	148.70	3,861.5	128.8	6.0	128.7	0.18	0.06	21.99
4,035.0	0.20	144.50	4,031.5	127.9	6.5	127.8	0.18	-0.18	-2.47
4,206.0	0.30	106.50	4,202.5	127.6	7.1	127.4	0.11	0.06	-22.22



DDC
Survey Report

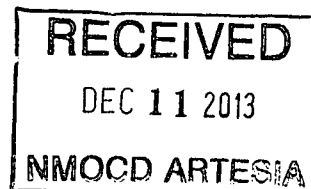


Company:	Apache Corporation	Local Co-ordinate Reference:	Well AB State 647 #13
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 3700.0usft (Capstar)
Site:	Sec 32, T17S, R28E	MD Reference:	WELL @ 3700.0usft (Capstar)
Well:	AB State 647 #13	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User 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)	
4,334.0	0.40	92.10	4,330.5	127.5	7.9	127.3	0.10	0.08	-11.25	
4,505.0	0.80	52.00	4,501.5	128.2	9.4	128.0	0.33	0.23	-23.45	
4,590.0	0.50	340.90	4,586.5	128.9	9.8	128.7	0.93	-0.35	-83.65	
4,676.0	1.10	9.30	4,672.5	130.1	9.8	129.9	0.82	0.70	33.02	
4,761.0	1.30	8.80	4,757.5	131.8	10.1	131.6	0.24	0.24	-0.59	
4,847.0	1.10	329.40	4,843.4	133.5	9.8	133.3	0.97	-0.23	-45.81	
4,932.0	1.50	319.40	4,928.4	135.0	8.7	134.9	0.54	0.47	-11.76	
5,015.0	0.70	287.80	5,011.4	136.0	7.5	135.9	1.18	-0.96	-38.07	
5,065.0	0.70	287.80	5,061.4	136.2	6.9	136.1	0.00	0.00	0.00	
TD @ 5065' MD / 5061' TVD										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
374.0	374.0	0.7	-1.9	Tie In @ 374' MD / 374' TVD	
2,790.6	2,787.6	111.3	4.0	Crossed Hard Line @ 2791' MD / 2788' TVD	
5,065.0	5,061.4	136.2	6.9	TD @ 5065' MD / 5061' TVD	

Checked By: _____ Approved By: _____ Date: _____



Apache Corporation

Eddy County, New Mexico (NAD 83)

Sec 32, T17S, R28E

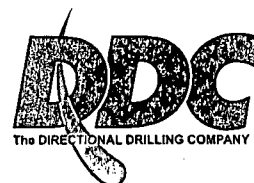
AB State 647 #13 API # 30 -015-41497

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

16 October, 2013





DDC
Survey Report - Geographic



Company:	Apache Corporation	Local Co-ordinate Reference:	Well AB State 647 #13
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 3700.0usft (Capstar)
Site:	Sec 32, T17S, R28E	MD Reference:	WELL @ 3700.0usft (Capstar)
Well:	AB State 647 #13	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	Eddy County, New Mexico (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 32, T17S, R28E		
Site Position:		Northing:	651,211.44 usft
From:	Map	Easting:	582,974.92 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 47' 24.499 N
		Longitude:	104° 11' 52.221 W
		Grid Convergence:	0.07 °

Well	AB State 647 #13		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 47' 2.964 N
		Longitude:	104° 12' 18.207 W
		Ground Level:	3,689.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	9/20/2013	7.64
			Dip Angle
			(°)
			60.54
			Field Strength
			(nT)
			48,655

Design	Wellbore #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			359.00

Survey Program	Date 10/16/2013		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
86.6	374.0	GyroData Gyro (Wellbore #1)	Good_gyro
447.0	5,065.0	MWD (Wellbore #1)	Good Gyro

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Map	Map	Latitude	Longitude
Depth	(°)	(°)	Depth	(usft)	(usft)	Northing	Easting		
(usft)			(usft)			(usft)	(usft)		
0.0	0.00	0.00	0.0	0.0	0.0	649,032.33	580,759.39	32° 47' 2.964 N	104° 12' 18.207 W
86.6	0.50	300.45	86.6	0.2	-0.3	649,032.53	580,759.07	32° 47' 2.966 N	104° 12' 18.210 W
115.5	0.55	287.18	115.5	0.3	-0.6	649,032.63	580,758.83	32° 47' 2.967 N	104° 12' 18.213 W
143.1	0.52	287.14	143.1	0.4	-0.8	649,032.71	580,758.58	32° 47' 2.968 N	104° 12' 18.216 W
171.3	0.43	275.66	171.3	0.4	-1.0	649,032.76	580,758.35	32° 47' 2.968 N	104° 12' 18.219 W
200.3	0.37	296.81	200.3	0.5	-1.2	649,032.81	580,758.16	32° 47' 2.969 N	104° 12' 18.221 W
230.3	0.19	282.23	230.3	0.5	-1.4	649,032.86	580,758.03	32° 47' 2.969 N	104° 12' 18.223 W
258.6	0.25	279.87	258.6	0.5	-1.5	649,032.88	580,757.92	32° 47' 2.970 N	104° 12' 18.224 W
286.8	0.27	296.78	286.8	0.6	-1.6	649,032.92	580,757.80	32° 47' 2.970 N	104° 12' 18.225 W
316.6	0.26	303.28	316.6	0.7	-1.7	649,032.99	580,757.68	32° 47' 2.971 N	104° 12' 18.227 W
344.1	0.23	270.33	344.1	0.7	-1.8	649,033.03	580,757.57	32° 47' 2.971 N	104° 12' 18.228 W



DDC
Survey Report - Geographic



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Site:	Sec 32, T17S, R28E	MD Reference:	WELL @ 3700.0usft (Capstar)
Well:	AB State 647 #13	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
374.0	0.19	285.05	374.0	0.7	-1.9	649,033.04	580,757.46	32° 47' 2.971 N	104° 12' 18.229 W
Tie In @ 374' MD / 374' TVD									
447.0	0.30	109.90	447.0	0.7	-1.9	649,033.01	580,757.53	32° 47' 2.971 N	104° 12' 18.228 W
550.0	0.20	114.60	550.0	0.5	-1.4	649,032.84	580,757.94	32° 47' 2.969 N	104° 12' 18.224 W
620.0	1.00	21.50	620.0	1.0	-1.1	649,033.36	580,758.28	32° 47' 2.974 N	104° 12' 18.220 W
706.0	1.20	11.80	706.0	2.6	-0.7	649,034.94	580,758.74	32° 47' 2.990 N	104° 12' 18.214 W
834.0	1.70	9.00	833.9	5.8	-0.1	649,038.12	580,759.31	32° 47' 3.021 N	104° 12' 18.207 W
876.0	1.80	6.30	875.9	7.1	0.1	649,039.39	580,759.48	32° 47' 3.034 N	104° 12' 18.205 W
962.0	2.60	356.70	961.8	10.4	0.1	649,042.68	580,759.52	32° 47' 3.067 N	104° 12' 18.205 W
1,047.0	3.00	358.80	1,046.7	14.5	0.0	649,046.83	580,759.36	32° 47' 3.108 N	104° 12' 18.207 W
1,132.0	3.00	1.80	1,131.6	18.9	0.0	649,051.28	580,759.38	32° 47' 3.152 N	104° 12' 18.206 W
1,260.0	2.50	4.60	1,259.5	25.1	0.3	649,057.41	580,759.71	32° 47' 3.212 N	104° 12' 18.202 W
1,346.0	2.90	1.40	1,345.4	29.1	0.5	649,061.46	580,759.91	32° 47' 3.252 N	104° 12' 18.200 W
1,431.0	3.60	355.40	1,430.2	33.9	0.4	649,066.27	580,759.75	32° 47' 3.300 N	104° 12' 18.202 W
1,517.0	3.50	354.90	1,516.1	39.2	-0.1	649,071.57	580,759.30	32° 47' 3.352 N	104° 12' 18.207 W
1,602.0	3.10	354.00	1,600.9	44.1	-0.6	649,076.44	580,758.83	32° 47' 3.401 N	104° 12' 18.213 W
1,687.0	2.80	355.40	1,685.8	48.5	-1.0	649,080.80	580,758.42	32° 47' 3.444 N	104° 12' 18.217 W
1,773.0	2.70	0.00	1,771.7	52.6	-1.1	649,084.92	580,758.26	32° 47' 3.484 N	104° 12' 18.219 W
1,858.0	3.00	3.70	1,856.6	56.8	-1.0	649,089.14	580,758.40	32° 47' 3.526 N	104° 12' 18.217 W
1,944.0	2.90	7.40	1,942.5	61.2	-0.6	649,093.54	580,758.82	32° 47' 3.570 N	104° 12' 18.212 W
2,029.0	2.80	10.20	2,027.4	65.4	0.1	649,097.72	580,759.47	32° 47' 3.611 N	104° 12' 18.205 W
2,114.0	3.30	12.00	2,112.3	69.8	1.0	649,102.15	580,760.35	32° 47' 3.655 N	104° 12' 18.194 W
2,200.0	3.50	15.00	2,198.1	74.8	2.1	649,107.11	580,761.54	32° 47' 3.704 N	104° 12' 18.180 W
2,285.0	3.50	13.50	2,283.0	79.8	3.4	649,112.14	580,762.82	32° 47' 3.754 N	104° 12' 18.165 W
2,371.0	3.30	13.70	2,368.8	84.8	4.6	649,117.10	580,764.02	32° 47' 3.803 N	104° 12' 18.151 W
2,456.0	3.80	359.70	2,453.7	90.0	5.2	649,122.29	580,764.58	32° 47' 3.854 N	104° 12' 18.145 W
2,542.0	3.80	356.80	2,539.5	95.6	5.0	649,127.98	580,764.41	32° 47' 3.911 N	104° 12' 18.146 W
2,627.0	3.70	356.80	2,624.3	101.2	4.7	649,133.53	580,764.10	32° 47' 3.966 N	104° 12' 18.150 W
2,712.0	3.50	357.00	2,709.1	106.5	4.4	649,138.86	580,763.81	32° 47' 4.018 N	104° 12' 18.153 W
2,790.6	3.50	354.26	2,787.6	111.3	4.0	649,143.65	580,763.44	32° 47' 4.066 N	104° 12' 18.158 W
Crossed Hard Line @ 2791' MD / 2788' TVD									
2,798.0	3.50	354.00	2,795.0	111.8	4.0	649,144.10	580,763.40	32° 47' 4.070 N	104° 12' 18.158 W
2,883.0	3.50	354.70	2,879.8	116.9	3.5	649,149.26	580,762.88	32° 47' 4.121 N	104° 12' 18.164 W
3,053.0	2.40	344.50	3,049.6	125.5	2.1	649,157.86	580,761.45	32° 47' 4.206 N	104° 12' 18.181 W
3,139.0	1.30	342.10	3,135.5	128.2	1.3	649,160.52	580,760.67	32° 47' 4.233 N	104° 12' 18.190 W
3,224.0	0.70	102.00	3,220.5	129.0	1.5	649,161.33	580,760.88	32° 47' 4.241 N	104° 12' 18.187 W
3,352.0	0.50	53.60	3,348.5	129.2	2.7	649,161.50	580,762.10	32° 47' 4.242 N	104° 12' 18.173 W
3,523.0	0.40	77.00	3,519.5	129.7	3.9	649,162.08	580,763.28	32° 47' 4.248 N	104° 12' 18.159 W
3,694.0	0.40	111.10	3,690.5	129.7	5.0	649,162.00	580,764.42	32° 47' 4.247 N	104° 12' 18.146 W
3,865.0	0.50	148.70	3,861.5	128.8	6.0	649,161.14	580,765.36	32° 47' 4.239 N	104° 12' 18.135 W
4,035.0	0.20	144.50	4,031.5	127.9	6.5	649,160.27	580,765.92	32° 47' 4.230 N	104° 12' 18.128 W
4,206.0	0.30	106.50	4,202.5	127.6	7.1	649,159.90	580,766.52	32° 47' 4.226 N	104° 12' 18.121 W
4,334.0	0.40	92.10	4,330.5	127.5	7.9	649,159.79	580,767.29	32° 47' 4.225 N	104° 12' 18.112 W
4,505.0	0.80	52.00	4,501.5	128.2	9.4	649,160.50	580,768.83	32° 47' 4.232 N	104° 12' 18.094 W
4,590.0	0.50	340.90	4,586.5	128.9	9.8	649,161.22	580,769.18	32° 47' 4.239 N	104° 12' 18.090 W
4,676.0	1.10	9.30	4,672.5	130.1	9.8	649,162.38	580,769.19	32° 47' 4.251 N	104° 12' 18.090 W
4,761.0	1.30	8.80	4,757.5	131.8	10.1	649,164.14	580,769.47	32° 47' 4.268 N	104° 12' 18.087 W
4,847.0	1.10	329.40	4,843.4	133.5	9.8	649,165.82	580,769.19	32° 47' 4.285 N	104° 12' 18.090 W
4,932.0	1.50	319.40	4,928.4	135.0	8.7	649,167.36	580,768.06	32° 47' 4.300 N	104° 12' 18.103 W
5,015.0	0.70	287.80	5,011.4	136.0	7.5	649,168.34	580,766.87	32° 47' 4.310 N	104° 12' 18.117 W
5,065.0	0.70	287.80	5,061.4	136.2	6.9	649,168.53	580,766.28	32° 47' 4.312 N	104° 12' 18.124 W
TD @ 5065' MD / 5061' TVD									



DDC

Survey Report - Geographic



Company:	Apache Corporation	Local Co-ordinate Reference:	Well AB State 647 #13
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 3700.0usft (Capstar)
Site:	Sec 32, T17S, R28E	MD Reference:	WELL @ 3700.0usft (Capstar)
Well:	AB State 647 #13	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
374.0	374.0	0.7	-1.9	Tie In @ 374' MD / 374' TVD
2,790.6	2,787.6	111.3	4.0	Crossed Hard Line @ 2791' MD / 2788' TVD
5,065.0	5,061.4	136.2	6.9	TD @ 5065' MD / 5061' TVD

Checked By: _____	Approved By: _____	Date: _____
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•Apache Corporation
303 Veterans Airpark Lane, #3000
Midland, TX 79705

AB State 647 #13 API# 30-015-41497
Eddy County, New Mexico 220' FSL + 350' FWL ULM 32-178-28E

413

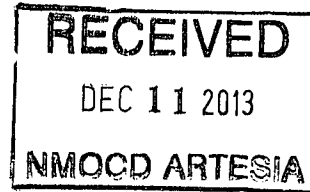
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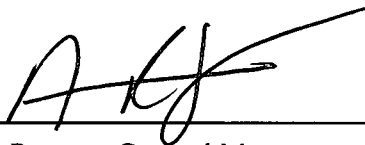
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0.88

3.61

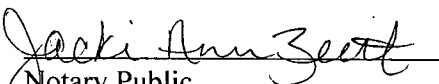
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Archie Brown - General Manager

The attached instrument was acknowledged before me on the 22nd day of October, 2013 by
Archie Brown - General Manager, CapStar Drilling, Inc.



Notary Public

