

Apache Corporation

Eddy County, New Mexico

Sec 26, T17S, R28E

A State #62

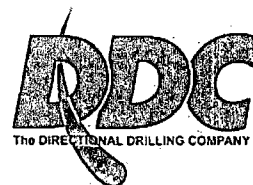
Wellbore #1

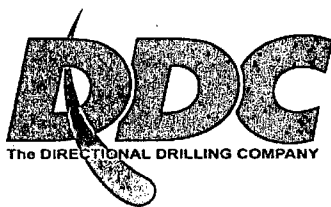
APR # 30-015-4105-0

Survey: MWD

DDC Survey Report

10 July, 2013





Survey Certification Sheet

Apache Corporation
Company

WT-13357
Job Number

7/10/13
Date

Sec26, T17S, R28E
Lease

A State # 62
Well Name

Eddy, NM
County & State

API: 30-015-41050

Surveyed from a depth of: 380 feet to 5848 feet MD

Type of Survey: MWD

Directional Supervisor/Surveyor: Gordyn Kirschner

The data and calculations for this survey have been checked by me and conform to the standards and procedures set forth by **The Directional Drilling Company (DDC)**. This report represents a true and correct Directional survey of this well based on the original data obtained at the well site. Wellbore Coordinates are calculated using minimum curvature.

Digitally signed by Larry Wright
DN: cn=Larry Wright, o=The
Directional Drilling Company,
ou=GM of Guidance Services,
email=larryw@directionaldrillers.c
om, c=US
Date: 2013.07.11 15:58:27 -05'00'

Larry Wright
MWD General Manager



DDC
Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well A State #62
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 3682.0usft (Capstar #118)
Site:	Sec 26,T17S, R28E	MD Reference:	WELL @ 3682.0usft (Capstar #118)
Well:	A State #62	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		
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	Sec 26,T17S, R28E		
Site Position:		Northing:	658,850.20 usft
From:	Map	Easting:	556,524.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 48' 40.077 N
		Longitude:	104° 8' 57.685 W
		Grid Convergence:	0.10 °

Well	A State #62		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 48' 35.045 N
		Longitude:	104° 8' 53.349 W
		Ground Level:	3,682.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	5/3/2013	7.67
			Dip Angle
			(°)
			60.58
			Field Strength
			(nT)
			48,715

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
			(°)
			33.58

Survey Program	Date 7/10/2013		
From:	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.0	380.0	Gyro (Wellbore #1)	Good_gyro
550.0	5,848.0	MWD (Wellbore #1)	MWD default
			Description
			Good Gyro
			MWD - Standard

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 IN @ 380' MD / 380' TVD										
380.0	1.12	276.21	379.9	2.7	-7.3	-1.8	0.00	0.00	0.00	
550.0	1.30	256.60	549.9	2.4	-10.8	-4.0	0.26	0.11	-11.54	
665.0	0.80	335.00	664.8	2.8	-12.4	-4.5	1.20	-0.43	68.17	
792.0	1.90	20.20	791.8	5.6	-12.0	-2.0	1.14	0.87	35.59	
921.0	3.10	39.90	920.7	10.3	-9.1	3.6	1.13	0.93	15.27	
1,049.0	5.20	38.50	1,048.3	17.5	-3.2	12.8	1.64	1.64	-1.09	
1,177.0	5.80	34.60	1,175.8	27.4	4.0	25.0	0.55	0.47	-3.05	
1,263.0	7.30	31.70	1,261.2	35.6	9.4	34.8	1.79	1.74	-3.37	
1,391.0	9.20	31.00	1,387.9	51.3	18.9	53.2	1.49	1.48	-0.55	



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Well:	A State #62	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)
1,519.0	10.00	31.10	1,514.1	69.6	29.9	74.5	0.63	0.63	0.08
1,648.0	10.60	34.50	1,641.0	88.9	42.4	97.6	0.66	0.47	2.64
1,733.0	11.40	39.00	1,724.4	101.9	52.2	113.7	1.38	0.94	5.29
1,861.0	12.00	36.00	1,849.8	122.5	67.9	139.6	0.67	0.47	-2.34
1,946.0	12.70	34.10	1,932.8	137.4	78.4	157.8	0.95	0.82	-2.24
2,074.0	13.50	37.50	2,057.5	160.9	95.4	186.8	0.87	0.63	2.66
2,202.0	13.10	37.50	2,182.0	184.2	113.3	216.2	0.31	-0.31	0.00
2,330.0	13.00	37.50	2,306.7	207.2	130.9	245.0	0.08	-0.08	0.00
2,458.0	12.60	37.80	2,431.5	229.6	148.2	273.3	0.32	-0.31	0.23
2,656.0	10.80	35.70	2,625.4	261.8	172.3	313.4	0.93	-0.91	-1.06
2,843.0	9.50	33.80	2,809.5	288.8	191.1	346.3	0.72	-0.70	-1.02
3,014.0	6.90	8.80	2,978.8	310.7	200.5	369.7	2.55	-1.52	-14.62
3,141.0	6.20	345.40	3,105.0	324.9	199.9	381.2	2.16	-0.55	-18.43
3,270.0	6.20	329.10	3,233.2	337.6	194.6	388.9	1.36	0.00	-12.64
3,355.0	5.20	327.80	3,317.8	344.8	190.2	392.5	1.19	-1.18	-1.53
3,483.0	2.60	332.20	3,445.5	352.3	185.7	396.2	2.04	-2.03	3.44
3,616.0	2.20	300.00	3,578.4	356.2	182.1	397.5	1.04	-0.30	-24.21
3,740.0	2.60	282.00	3,702.3	358.0	177.3	396.3	0.68	0.32	-14.52
3,910.0	2.90	220.30	3,872.1	355.5	170.8	390.6	1.67	0.18	-36.29
4,038.0	1.10	233.80	4,000.0	352.3	167.7	386.3	1.44	-1.41	10.55
4,166.0	0.80	235.00	4,128.0	351.1	166.0	384.3	0.23	-0.23	0.94
4,294.0	0.20	133.00	4,256.0	350.4	165.4	383.4	0.68	-0.47	-79.69
4,434.0	1.10	104.00	4,396.0	349.9	166.9	383.8	0.66	0.64	-20.71
4,594.0	2.20	143.80	4,555.9	347.1	170.2	383.3	0.95	0.69	24.88
4,721.0	2.30	146.60	4,682.9	343.0	173.0	381.4	0.12	0.08	2.20
4,892.0	2.60	176.00	4,853.7	336.2	175.2	377.0	0.75	0.18	17.19
5,020.0	2.00	161.90	4,981.6	331.2	176.1	373.3	0.64	-0.47	-11.02
5,148.0	2.10	162.10	5,109.5	326.9	177.5	370.5	0.08	0.08	0.16
5,276.0	2.50	168.00	5,237.4	321.9	178.8	367.1	0.36	0.31	4.61
5,319.0	2.40	174.60	5,280.4	320.1	179.1	365.7	0.70	-0.23	15.35
5,450.0	2.50	178.40	5,411.3	314.5	179.4	361.3	0.15	0.08	2.90
5,578.0	1.90	182.50	5,539.2	309.6	179.4	357.2	0.48	-0.47	3.20
5,620.0	1.80	179.50	5,581.1	308.2	179.4	356.0	0.33	-0.24	-7.14
5,706.0	1.20	187.20	5,667.1	306.0	179.3	354.1	0.73	-0.70	8.95
5,748.0	0.90	192.90	5,709.1	305.2	179.1	353.4	0.76	-0.71	13.57
5,798.0	0.60	193.70	5,759.1	304.6	179.0	352.8	0.60	-0.60	1.60
TD @ 5848' MD / 5809.1' TVD									
5,848.0	0.60	193.70	5,809.1	304.1	178.9	352.3	0.00	0.00	0.00



DDC
Survey Report



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Well:	A State #62	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
380.0	379.9	2.7	-7.3	TIE IN @ 380' MD / 380' TVD
5,848.0	5,809.1	304.1	178.9	TD @ 5848' MD / 5809.1' TVD

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

A State #062
Eddy County, New Mexico

416

4.16

1.00

1.75

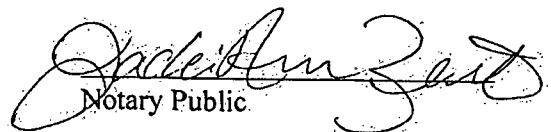
7.28

7.28



Archie Brown - General Manager

The attached instrument was acknowledged before me on the 20th day of August, 2013 by
Archie Brown - General Manager, CapStar Drilling, Inc.


Notary Public