



Apache Corporation

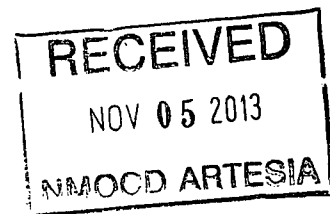
Eddy County, New Mexico (NAD 83)

Sec 8, T17S, R29E

Jaguar State #002 API # 30-015-41455

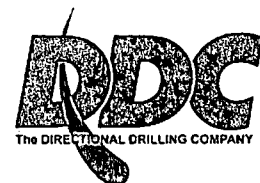
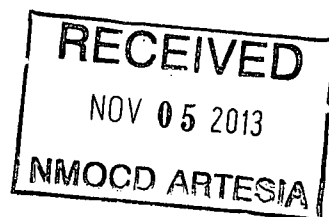
Wellbore #1

Survey: MWD



DDC Survey Report

16 August, 2013





Survey Certification Sheet

Apache Corporation
Company

WT-13632
Job Number

8/16/13
Date

Sec8, T17S, R29E
Lease

Jaguar State # 002
Well Name

Eddy, NM
County & State

API: 30-015-41455

Surveyed from a depth of: 415 feet to 5505 feet MD

Type of Survey: MWD

Directional Supervisor/Surveyor: Winston Montes De Oca

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.
com, c=US
Date: 2013.08.20 15:45:48 -05'00'

Larry Wright
MWD General Manager



DDC
Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well Jaguar State #002
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 3630.0usft (Basic #38)
Site:	Sec 8, T17S, R29E	MD Reference:	WELL @ 3630.0usft (Basic #38)
Well:	Jaguar State #002	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 8, T17S, R29E			
Site Position:		Northing:	671,061.00 usft	Latitude:	32° 50' 40.350 N
From:	Map	Easting:	614,972.61 usft	Longitude:	104° 5' 36.845 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.13 °

Well		Jaguar State #002				
Well Position	+N/-S	0.0 usft	Northing:	671,061.00 usft	Latitude:	32° 50' 40.350 N
	+E/-W	0.0 usft	Easting:	614,972.61 usft	Longitude:	104° 5' 36.845 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,630.0 usft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/29/2013	7.61	60.62	48,718

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)	Direction (°)	
	0.0	0.0	0.0	256.76	

Survey Program	Date 8/14/2013				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
415.0	5,505.0	MWD (Wellbore #1)			

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 @ 415' MD / 415' TVD										
415.0	0.94	172.16	414.9	-6.5	2.3	-0.7	0.00	0.00	0.00	
546.0	1.70	123.90	545.9	-8.7	4.0	-2.0	0.98	0.58	-36.84	
632.0	0.70	104.70	631.9	-9.5	5.6	-3.3	1.24	-1.16	-22.33	
818.0	0.30	32.10	817.9	-9.4	7.0	-4.6	0.36	-0.22	-39.03	
1,007.0	0.80	270.60	1,006.9	-9.0	5.9	-3.7	0.52	0.26	-64.29	
1,197.0	2.60	274.80	1,196.8	-8.6	0.3	1.7	0.95	0.95	2.21	
1,387.0	2.20	274.40	1,386.6	-7.9	-7.6	9.3	0.21	-0.21	-0.21	
1,577.0	2.50	262.70	1,576.4	-8.2	-15.4	16.9	0.30	0.16	-6.16	
1,767.0	1.80	264.70	1,766.3	-9.0	-22.5	23.9	0.37	-0.37	1.05	
1,957.0	2.10	261.00	1,956.2	-9.8	-28.9	30.4	0.17	0.16	-1.95	



DDC
Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well Jaguar State #002
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	WELL @ 3630.0usft (Basic #38)
Site:	Sec 8, T17S, R29E	MD Reference:	WELL @ 3630.0usft (Basic #38)
Well:	Jaguar State #002	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)	
2,146.0	1.90	266.00	2,145.1	-10.6	-35.4	36.9	0.14	-0.11	2.65	
2,336.0	1.80	272.00	2,335.0	-10.7	-41.5	42.9	0.11	-0.05	3.16	
2,526.0	2.50	262.30	2,524.9	-11.1	-48.6	49.9	0.41	0.37	-5.11	
2,716.0	2.30	249.30	2,714.7	-13.0	-56.3	57.8	0.30	-0.11	-6.84	
2,905.0	2.20	255.60	2,903.5	-15.3	-63.4	65.2	0.14	-0.05	3.33	
3,095.0	1.90	260.30	3,093.4	-16.7	-70.0	72.0	0.18	-0.16	2.47	
3,285.0	2.00	253.80	3,283.3	-18.2	-76.3	78.4	0.13	0.05	-3.42	
3,475.0	2.10	256.30	3,473.2	-19.9	-82.9	85.2	0.07	0.05	1.32	
3,506.0	1.40	254.60	3,504.2	-20.2	-83.8	86.2	2.26	-2.26	-5.48	
3,569.0	0.10	279.50	3,567.2	-20.4	-84.6	87.0	2.08	-2.06	39.52	
3,664.0	0.00	201.80	3,662.2	-20.3	-84.7	87.1	0.11	-0.11	0.00	
3,854.0	0.40	11.10	3,852.2	-19.7	-84.5	86.8	0.21	0.21	0.00	
4,044.0	0.30	37.50	4,042.2	-18.6	-84.1	86.1	0.10	-0.05	13.89	
4,233.0	0.10	205.10	4,231.2	-18.4	-83.9	85.9	0.21	-0.11	88.68	
4,423.0	0.20	293.60	4,421.2	-18.4	-84.2	86.2	0.12	0.05	46.58	
4,613.0	0.20	176.00	4,611.2	-18.6	-84.5	86.5	0.18	0.00	-61.89	
4,803.0	0.30	207.30	4,801.2	-19.4	-84.7	86.9	0.09	0.05	16.47	
4,993.0	0.50	226.30	4,991.2	-20.4	-85.6	88.0	0.12	0.11	10.00	
5,182.0	0.50	244.70	5,180.1	-21.3	-86.9	89.5	0.08	0.00	9.74	
5,372.0	0.50	302.60	5,370.1	-21.2	-88.3	90.9	0.25	0.00	30.47	
TD @ 5505' MD / 5503.1' TVD										
5,505.0	0.30	238.40	5,503.1	-21.1	-89.1	91.6	0.34	-0.15	-48.27	

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
415.0	414.9	-6.5	2.3	Tie In @ 415' MD / 415' TVD	
5,505.0	5,503.1	-21.1	-89.1	TD @ 5505' MD / 5503.1' TVD	

Checked By: _____	Approved By: _____	Date: _____
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DISTRICT I

1625 N. French Dr., Hobbs, NM 88240

DISTRICT II

1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV

320 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources DepartmentForm C-102
Revised July 16, 2010Submit one copy to appropriate
District OfficeOIL CONSERVATION DIVISION
320 South St. Francis Dr.
Santa Fe, New Mexico 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-41455	Pool Code 96610	Pool Name EMPIRE; GLORIETA-YESO, EAST
Property Code 39959	Property Name JAGUAR STATE	Well Number 002
OGRID No. 873	Operator Name APACHE CORPORATION	Elevation 3616'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	8	17 S	29 E		990	SOUTH	1585	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	8	17 S	29 E		969	SOUTH	1674	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
40			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

	PROPOSED BOTTOM HOLE LOCATION Lat - N 32°50'40.14" Long - W 104°05'37.89" NMSPCE- N 671039.9 E 614883.5 (NAD-83) Lat - N 32°50'39.73" Long - W 104°05'36.05" NMSPCE- N 670976.5 E 573704.5 (NAD-27)	OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>[Signature]</i> 10/31/2013 Signature Date Fatima Vasquez Printed Name Fatima.Vasquez@apachecorp.com Email Address
	SURFACE LOCATION Lat - N 32°50'40.35" Long - W 104°05'36.85" NMSPCE- N 671060.998 E 614972.604 (NAD-83) Lat - N 32°50'39.94" Long - W 104°05'35.01" NMSPCE- N 670997.601 E 573793.573 (NAD-27)	SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. <i>[Signature]</i> Date Surveyed Signature & Seal of Professional Surveyor 7977
	1674' 1585' 966' 990' B.H. S.L.	Certificate No. Gary L. Jones 7977 BASIN SURVEYS 28752
	7977	