

Cedar Lake Federal CA #827#
E-8-17S 31E, 2063 South, 220 West

OPERATOR Apache (873)
WELL/LEASE NFE Federal 27H -orig. 30-015-40470
COUNTY Eddy E-8-17S-31E 2063' FUL + 220' FUL

STATE OF NEW MEXICO
DEVIATION REPORT

173	0.75
292	1.50
612	1.40
696	1.20
1021	2.10
1231	3.20
2115	0.80
2533	0.80
2617	1.00
2701	1.00
2784	1.30
2868	1.10
3218	2.10
3326	2.40
3410	1.00
3493	1.20
3577	1.00
3660	1.30
3744	1.20
3827	1.20
4161	0.80
4663	1.00
4747	0.90
4831	0.90
4915	0.90
4998	0.10
5081	0.50
5165	0.80
5356	0.60
5549	1.40

NM OIL CONSERVATION
ARTESIA DISTRICT

AUG 19 2016

RECEIVED

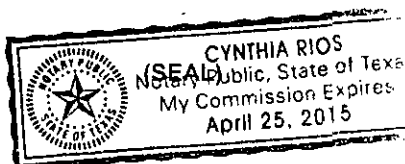
SIGNED BY:



RON SCANDOLARI, VP CONTRACT DRILLING

STATE OF TEXAS
COUNTY OF MIDLAND

ON THIS 14th DAY OF December, 2012, BEFORE ME, C RIOS, A NOTARY
PUBLIC, PERSONALLY APPEARED RON SCANDOLARI, WHO ACKNOWLEDGED AND EXECUTED
THIS DOCUMENT. WITNESS MY HAND AND OFFICIAL SEAL.



Cynthia Rios
NOTARY PUBLIC



PHOENIX
TECHNOLOGY SERVICES

Apache Corporation

Eddy County, NM (Nad27)

NFE Federal

NFE Federal 27H

Job # 1210329

NM OIL CONSERVATION
ARTESIA DISTRICT

AUG 19 2016

RECEIVED

Survey: Phoenix MWD Surveys

Approach Energy Survey Report

22 November, 2012

Apache

EXPLORING WHAT'S POSSIBLE

Company: Apache Corporation Project: Eddy County, NM (Nad27) Site: NFE Federal Well: NFE Federal 27H Wellbore: Job # 1210329 Design: Job # 1210329		Local Co-ordinate Reference: TVD Reference: WELL @ 3741.00usft (Basic 44) MD Reference: WELL @ 3741.00usft (Basic 44) North Reference: Grid Survey Calculation Method: Minimum Curvature Database: Compass5000	
Project Eddy County, NM (Nad27)		Mean Sea Level	
Map System: US State Plane 1927 (Exact solution) Geo Datum: NAD 1927 (NADCON CONUS) Map Zone: New Mexico East 3001			
Site NFE Federal			
Site Position: From: Map Position Uncertainty: 0.00 usft		Northing: 673,264.70 usft Easting: 633,303.50 usft Slot Radius: 13-3/16" Latitude: 32° 51' 0.4904 N Longitude: 103° 53' 57.3497 W Grid Convergence: 0.24°	
Well NFE Federal 27H			
Well Position +N/-S 0.00 usft +E/-W 0.00 usft Position Uncertainty 0.00 usft		Northing: 673,394.69 usft Easting: 633,303.50 usft Wellhead Elevation: 0.00 usft Latitude: 32° 51' 1.7767 N Longitude: 103° 53' 57.3434 W Ground Level: 3,727.00 usft	
Wellbore Job # 1210329			
Magnetics		Sample Date 10/12/12 Model Name IGRF2010_14 Declination (°) 7.62 Dip Angle (°) 60.68 Field Strength (nT) 48,822	
Design Job # 1210329			
Audit Notes:			
Version: 1.0 Phase: ACTUAL Tie On Depth: 0.00			
Vertical Section:		Depth From (TVD) (usft) 0.00 +N/-S (usft) 0.00 +E/-W (usft) 0.00 Direction (°) 89.60	
Survey Program Date 11/22/12			
From (usft) 497.00 To (usft) 10,415.00 Survey (Wellbore) Phoenix MWD Surveys (Job # 1210329)		Tool Name MWD Description MWD - Standard	

Company:	Apache Corporation	Local Co-ordinate Reference:	Well NFE Federal 27H
Project:	Eddy County, NM (Nad27)	TVD Reference:	WELL @ 3741.00ust (Basic 44)
Site:	NFE Federal	MD Reference:	WELL @ 3741.00ust (Basic 44)
Well:	NFE Federal 27H	North Reference:	Grid
Wellbore:	Job # 1210329	Survey Calculation Method:	Minimum Curvature
Design:	Job # 1210329	Database:	Compass5000

Survey	MD (ust)	Inc (°)	Azi (azimuth) (°)	TVDSS (ust)	TVD (ust)	N/S (ust)	E/W (ust)	V. Sec (ust)	D/Leg (°/100ust)	Northing (ust)	Easting (ust)
	0.00	0.00	0.00	3,741.00	0.00	0.00	0.00	0.00	0.00	673,394.69	633,303.50
	497.00	2.10	249.90	3,244.11	496.89	-3.13	-8.55	-8.57	0.42	673,391.56	633,294.95
First Phoenix MWD Survey 497' MD											
	612.00	1.40	260.70	3,128.17	611.83	-4.08	-11.92	-11.95	0.67	673,390.61	633,291.58
	696.00	1.20	274.70	3,045.19	695.81	-4.17	-13.81	-13.84	0.45	673,390.52	633,289.69
	780.00	0.90	313.70	2,961.20	779.80	-3.65	-15.16	-15.19	0.90	673,391.05	633,288.34
	863.00	1.50	358.50	2,878.22	862.78	-2.11	-15.66	-15.67	1.29	673,392.58	633,287.84
	947.00	2.10	26.50	2,794.26	946.74	0.37	-15.00	-15.00	1.25	673,395.06	633,288.50
	1,030.00	2.40	32.80	2,711.32	1,029.68	3.19	-13.38	-13.36	0.47	673,397.88	633,290.12
	1,114.00	3.00	41.10	2,627.41	1,113.59	6.32	-10.98	-10.94	0.85	673,401.02	633,292.52
	1,197.00	3.20	47.00	2,544.54	1,196.46	9.54	-7.86	-7.80	0.45	673,404.23	633,295.64
	1,280.00	2.40	58.10	2,461.63	1,279.37	12.04	-4.69	-4.61	1.16	673,406.73	633,298.81
	1,363.00	1.40	66.60	2,378.68	1,362.32	13.36	-2.29	-2.19	1.25	673,408.05	633,301.21
	1,447.00	0.80	76.70	2,294.70	1,446.30	13.90	-0.77	-0.68	0.75	673,408.59	633,302.73
	1,531.00	1.00	79.10	2,210.71	1,530.29	14.17	0.52	0.62	0.24	673,408.87	633,304.02
	1,614.00	1.20	84.60	2,127.72	1,613.28	14.39	2.09	2.19	0.27	673,409.09	633,305.59
	1,698.00	1.40	87.60	2,043.74	1,697.26	14.52	3.99	4.09	0.25	673,409.21	633,307.49
	1,781.00	1.60	84.90	1,960.77	1,780.23	14.66	6.16	6.26	0.26	673,409.36	633,309.66
	1,865.00	1.20	94.10	1,876.80	1,864.20	14.71	8.21	8.31	0.54	673,409.40	633,311.71
	1,948.00	1.10	108.00	1,793.81	1,947.19	14.40	9.83	9.93	0.36	673,409.09	633,313.33
	2,032.00	1.00	116.00	1,709.83	2,031.17	13.80	11.24	11.34	0.25	673,408.50	633,314.74
	2,115.00	0.80	133.40	1,626.84	2,114.16	13.07	12.31	12.40	0.38	673,407.76	633,315.81
	2,199.00	0.50	146.60	1,542.84	2,198.16	12.36	12.93	13.02	0.40	673,407.05	633,316.43
	2,283.00	0.90	203.00	1,458.85	2,282.15	11.44	12.88	12.96	0.89	673,406.14	633,316.38
	2,366.00	1.00	217.60	1,375.86	2,365.14	10.27	12.18	12.25	0.31	673,404.96	633,315.68
	2,450.00	0.80	232.20	1,291.87	2,449.13	9.33	11.27	11.33	0.36	673,404.02	633,314.77
	2,533.00	0.80	231.50	1,208.88	2,532.12	8.61	10.36	10.42	0.01	673,403.31	633,313.86

Company: Apache Corporation Project: Eddy County, NM (Nad27) Site: NFE Federal Well: NFE Federal 27H Wellbore: Job # 1210329 Design: Job # 1210329		Local Co-ordinate Reference: TVD Reference: Well @ 3741.00ustf (Basic 44) MD Reference: Well @ 3741.00ustf (Basic 44) North Reference: Grid Survey Calculation Method: Minimum Curvature Database: Compass5000	
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Survey	MD (ustf)	Inc (°)	Azi (azimuth) (°)	TVDSS (ustf)	TVD (ustf)	N/S (ustf)	EW (ustf)	V. Sec (ustf)	D Leg (°/100ustf)	Northing (ustf)	Easting (ustf)
	2,617.00	1.00	240.50	1,124.89	2,616.11	7.89	9.26	9.32	0.29	673,402.56	633,312.76
	2,701.00	1.00	244.80	1,040.90	2,700.10	7.22	7.96	8.01	0.09	673,401.91	633,311.46
	2,784.00	1.30	248.10	957.92	2,783.08	6.56	6.43	6.48	0.37	673,401.25	633,309.93
	2,868.00	1.10	263.60	873.94	2,867.06	6.11	4.75	4.79	0.45	673,400.80	633,308.25
	2,952.00	1.20	282.20	789.95	2,951.05	6.21	3.09	3.13	0.46	673,400.90	633,308.59
	3,036.00	1.10	320.50	705.97	3,035.03	7.01	1.71	1.76	0.91	673,401.71	633,305.21
	3,119.00	1.60	4.60	622.99	3,118.01	8.78	1.30	1.36	1.34	673,403.48	633,304.80
	3,203.00	2.10	12.10	539.04	3,201.96	11.48	1.72	1.80	0.66	673,406.15	633,305.22
	3,326.00	2.40	16.00	416.13	3,324.87	16.14	2.90	3.01	0.27	673,410.83	633,306.40
	3,410.00	1.00	10.60	332.17	3,408.83	18.55	3.52	3.65	1.68	673,413.24	633,307.02
	3,493.00	1.20	221.40	249.18	3,491.82	18.61	3.08	3.21	2.56	673,413.30	633,306.58
	3,577.00	1.00	205.70	165.19	3,575.81	17.29	2.18	2.30	0.43	673,411.98	633,305.68
	3,660.00	1.30	208.40	82.21	3,658.79	15.81	1.41	1.52	0.37	673,410.50	633,304.91
	3,744.00	1.20	215.20	-1.77	3,742.77	14.25	0.45	0.55	0.21	673,408.94	633,303.95
	3,827.00	1.20	208.50	-84.75	3,825.75	12.78	-0.46	-0.37	0.17	673,407.47	633,303.04
	3,911.00	1.00	215.50	-168.74	3,909.74	11.41	-1.31	-1.23	0.29	673,406.10	633,302.19
	3,995.00	1.00	217.40	-252.73	3,993.73	10.23	-2.18	-2.11	0.04	673,404.92	633,301.32
	4,078.00	1.10	210.90	-335.71	4,076.71	8.97	-3.03	-2.96	0.19	673,403.66	633,300.47
	4,161.00	0.80	210.90	-418.70	4,159.70	7.79	-3.73	-3.68	0.36	673,402.48	633,299.77
	4,245.00	1.00	132.10	-502.69	4,243.69	6.79	-3.49	-3.44	1.37	673,401.49	633,300.01
	4,328.00	1.40	123.50	-585.67	4,326.67	5.75	-2.11	-2.07	0.53	673,400.44	633,301.39
	4,412.00	1.00	127.60	-669.66	4,410.66	4.73	-0.67	-0.64	0.49	673,399.43	633,302.83
	4,496.00	1.30	124.60	-753.64	4,494.64	3.75	0.69	0.72	0.36	673,398.44	633,304.19
	4,579.00	1.20	130.00	-836.62	4,577.62	2.65	2.13	2.15	0.19	673,397.35	633,305.63
	4,663.00	1.00	135.40	-920.60	4,661.60	1.57	3.32	3.33	0.27	673,396.26	633,306.82
	4,747.00	0.90	126.70	-1,004.59	4,745.59	0.65	4.37	4.37	0.21	673,395.34	633,307.87
	4,831.00	0.90	136.70	-1,088.58	4,829.58	-0.23	5.35	5.35	0.19	673,394.47	633,308.85

Company:	Apache Corporation	Local Co-ordinate Reference:	Well NFE Federal 27H
Project:	Eddy County, NM (Nad27)	TVD Reference:	WELL @ 3741.00usft (Basic 44)
Site:	NFE Federal	MD Reference:	WELL @ 3741.00usft (Basic 44)
Well:	NFE Federal 27H	North Reference:	Grid
Wellbore:	Job # 1210329	Survey Calculation Method:	Minimum Curvature
Design:	Job # 1210329	Database:	Compass5000

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLag (°/100usft)	Northing (usft)	Easting (usft)
4,915.00	0.90	129.70	-1,172.57	4,913.57	-1.13	6.31	6.30	0.13	673,393.57	633,309.81
4,998.00	0.10	291.30	-1,255.57	4,996.57	-1.52	6.74	6.73	1.20	673,393.18	633,310.24
5,081.00	0.50	299.30	-1,338.57	5,079.57	-1.31	6.36	6.35	0.48	673,393.38	633,309.86
5,165.00	0.80	293.70	-1,422.56	5,163.56	-0.90	5.50	5.50	0.36	673,393.79	633,309.00
5,249.00	0.60	295.00	-1,506.56	5,247.56	-0.48	4.57	4.56	0.24	673,394.22	633,308.07
5,272.00	0.90	295.90	-1,529.55	5,270.55	-0.35	4.29	4.29	1.31	673,394.35	633,307.79
5,356.00	0.60	274.40	-1,613.55	5,354.55	-0.03	3.26	3.26	0.48	673,394.67	633,306.76
5,452.00	0.60	287.00	-1,709.54	5,450.54	-0.01	2.26	2.26	0.08	673,394.88	633,305.76
5,484.00	0.30	76.30	-1,741.54	5,482.54	0.00	2.17	2.17	2.80	673,394.89	633,305.67
5,517.00	6.90	92.30	-1,774.46	5,515.46	-0.06	4.24	4.24	20.04	673,394.83	633,307.74
5,549.00	14.40	91.00	-1,805.88	5,548.88	-0.21	10.15	10.15	23.45	673,394.49	633,313.65
5,581.00	20.30	93.10	-1,836.41	5,577.41	-0.58	19.68	19.67	18.54	673,394.12	633,323.18
5,613.00	26.20	90.40	-1,865.80	5,608.80	-0.93	32.30	32.29	18.73	673,393.77	633,335.80
5,645.00	32.00	88.90	-1,893.75	5,634.75	-0.81	47.85	47.84	18.27	673,393.88	633,351.35
5,677.00	35.90	87.70	-1,920.29	5,661.29	-0.27	65.71	65.71	12.37	673,394.42	633,369.21
5,709.00	39.90	87.80	-1,945.54	5,686.54	0.50	85.35	85.35	12.50	673,395.19	633,388.85
5,741.00	43.70	88.30	-1,969.39	5,710.39	1.22	106.66	106.67	11.92	673,395.91	633,410.16
5,773.00	46.80	89.70	-1,991.92	5,732.92	1.61	129.38	129.39	10.17	673,396.30	633,432.88
5,805.00	49.10	91.20	-2,013.35	5,754.35	1.42	153.14	153.14	7.99	673,396.11	633,456.64
5,838.00	52.20	91.70	-2,034.27	5,775.27	0.77	178.64	178.65	9.47	673,395.46	633,482.14
5,870.00	55.70	92.00	-2,053.10	5,794.10	-0.07	204.50	204.49	10.96	673,394.82	633,508.00
5,902.00	58.70	92.10	-2,070.43	5,811.43	-1.03	231.38	231.36	9.38	673,393.66	633,534.88
5,934.00	61.70	91.80	-2,086.33	5,827.33	-1.98	259.13	259.11	9.41	673,392.72	633,562.63
5,966.00	64.60	90.40	-2,100.78	5,841.78	-2.52	287.67	287.64	9.87	673,392.17	633,591.17
5,998.00	68.80	89.40	-2,113.44	5,854.44	-2.46	317.05	317.03	13.43	673,392.23	633,620.55
6,030.00	73.20	88.50	-2,123.86	5,864.86	-1.91	347.29	347.27	14.00	673,392.79	633,650.79
6,062.00	77.10	88.40	-2,132.05	5,873.05	-1.07	378.21	378.19	12.19	673,393.62	633,681.71

Company:

Apache Corporation

Project:

Eddy County, NM (Nad27)

Site:

NFE Federal

Well:

NFE Federal 27H

Wellbore:

Job # 1210329

Design:

Job # 1210329

Local Co-ordinate Reference:

Well NFE Federal 27H

TVD Reference:

WELL @ 3741.00usft (Basic 44)

MD Reference:

WELL @ 3741.00usft (Basic 44)

North Reference:

Grid

Survey Calculation Method:

Minimum Curvature

Database:

Compass5000

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)
6,094.00	80.10	89.40	-2,138.38	5,879.38	-0.47	409.57	409.55	9.86	673,394.22	633,713.07
6,126.00	84.20	88.90	-2,142.75	5,883.75	0.00	441.28	441.25	12.91	673,394.70	633,744.76
6,158.00	87.20	88.70	-2,145.15	5,886.15	0.67	473.16	473.15	9.40	673,395.36	633,776.66
6,255.00	92.00	88.30	-2,145.82	5,886.82	3.21	570.09	570.10	4.97	673,397.90	633,873.59
6,351.00	91.30	89.10	-2,143.06	5,884.06	5.39	666.03	666.05	1.11	673,400.08	633,969.53
6,447.00	90.30	90.50	-2,141.72	5,882.72	5.72	762.01	762.03	1.79	673,400.41	634,065.51
6,543.00	89.80	91.10	-2,141.64	5,882.64	4.38	858.00	858.01	0.81	673,399.07	634,161.50
6,640.00	89.40	90.90	-2,142.31	5,883.31	2.69	954.98	954.98	0.46	673,397.38	634,258.48
6,736.00	90.10	90.70	-2,142.73	5,883.73	1.35	1,050.97	1,050.96	0.76	673,396.04	634,354.47
6,832.00	90.10	90.70	-2,142.57	5,883.57	0.17	1,146.97	1,146.94	0.00	673,394.87	634,450.47
6,929.00	89.60	90.80	-2,142.82	5,883.82	-1.10	1,243.96	1,243.92	0.53	673,393.60	634,547.46
7,017.00	89.70	90.30	-2,143.36	5,884.36	-1.94	1,331.95	1,331.91	0.58	673,392.75	634,635.45
7,113.00	89.80	88.80	-2,143.78	5,884.78	-1.19	1,427.94	1,427.90	1.57	673,393.51	634,731.44
7,209.00	89.00	88.10	-2,144.78	5,885.78	1.41	1,523.90	1,523.88	1.11	673,396.10	634,827.40
7,305.00	89.00	88.00	-2,146.46	5,887.46	4.68	1,619.83	1,619.83	0.10	673,399.37	634,923.33
7,402.00	89.10	88.30	-2,148.06	5,889.06	7.81	1,716.77	1,716.78	0.33	673,402.50	635,020.27
7,498.00	89.10	88.70	-2,149.57	5,890.57	10.32	1,812.72	1,812.75	0.42	673,405.01	635,116.22
7,594.00	88.80	88.40	-2,151.33	5,892.33	12.75	1,908.68	1,908.72	0.44	673,407.44	635,212.18
7,691.00	88.00	88.20	-2,154.04	5,895.04	15.63	2,005.60	2,005.66	0.85	673,410.32	635,309.10
7,787.00	89.20	88.30	-2,156.39	5,897.39	18.56	2,101.52	2,101.60	1.25	673,413.25	635,405.02
7,883.00	88.80	90.70	-2,158.06	5,899.06	19.39	2,197.49	2,197.58	2.53	673,414.09	635,500.99
7,978.00	88.80	91.20	-2,160.07	5,901.07	17.80	2,293.46	2,293.53	0.52	673,412.50	635,596.96
8,076.00	88.70	90.60	-2,162.19	5,903.19	16.28	2,390.42	2,390.48	0.63	673,410.97	635,693.92
8,172.00	88.30	89.90	-2,164.70	5,905.70	15.86	2,486.39	2,486.44	0.84	673,410.55	635,789.89
8,268.00	88.20	90.30	-2,167.63	5,908.63	15.69	2,582.34	2,582.39	0.43	673,410.39	635,885.84
8,363.00	88.30	89.80	-2,170.53	5,911.53	15.61	2,677.30	2,677.34	0.54	673,410.30	635,980.80
8,461.00	88.60	89.10	-2,173.18	5,914.18	16.55	2,775.26	2,775.31	0.78	673,411.24	636,078.76

Company: Apache Corporation Project: Eddy County, NM (Nad27) Site: NFE Federal Well: NFE Federal 27H Wellbore: Job # 1210329 Design: Job # 1210329				Local Co-ordinate Reference: TVD Reference: WELL @ 3741.00usft (Basic 44) MD Reference: WELL @ 3741.00usft (Basic 44) North Reference: Grid Survey Calculation Method: Minimum Curvature Database: Compass5000						
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)
8,557.00	89.30	88.60	-2,174.94	5,915.94	18.48	2,871.22	2,871.28	0.90	673,413.17	636,174.72
8,653.00	90.30	88.50	-2,175.28	5,916.28	20.91	2,967.19	2,967.26	1.05	673,415.60	636,270.89
8,750.00	90.30	87.90	-2,174.77	5,915.77	23.95	3,064.14	3,064.23	0.62	673,418.65	636,367.84
8,846.00	89.60	87.70	-2,174.85	5,915.85	27.64	3,160.07	3,160.19	0.76	673,422.33	636,463.57
8,942.00	90.60	88.00	-2,174.69	5,915.69	30.40	3,256.03	3,256.16	1.71	673,425.10	636,559.53
9,038.00	89.40	89.30	-2,174.69	5,915.69	31.83	3,352.01	3,352.15	1.29	673,426.52	636,655.51
9,134.00	88.40	88.90	-2,176.53	5,917.53	33.33	3,447.98	3,448.13	1.12	673,428.03	636,751.48
9,231.00	89.80	89.20	-2,178.05	5,919.05	34.94	3,544.95	3,545.11	1.48	673,429.63	636,848.45
9,327.00	89.10	88.90	-2,178.97	5,919.97	36.53	3,640.94	3,641.10	0.79	673,431.23	636,944.44
9,423.00	88.80	88.30	-2,180.73	5,921.73	38.88	3,736.89	3,737.07	0.70	673,433.57	637,040.39
9,520.00	89.60	89.20	-2,182.09	5,923.09	40.99	3,833.86	3,834.05	1.24	673,435.69	637,137.36
9,616.00	88.70	88.70	-2,183.51	5,924.51	42.75	3,929.83	3,930.03	1.07	673,437.45	637,233.33
9,712.00	89.70	90.10	-2,184.85	5,925.85	43.76	4,025.81	4,026.02	1.79	673,438.45	637,329.31
9,808.00	88.80	90.00	-2,186.11	5,927.11	43.67	4,121.80	4,122.01	0.94	673,438.37	637,425.30
9,905.00	88.20	89.80	-2,188.65	5,929.65	43.84	4,218.77	4,218.97	0.65	673,438.54	637,522.27
10,001.00	89.50	90.30	-2,190.58	5,931.58	43.76	4,314.75	4,314.95	1.45	673,438.45	637,618.25
10,097.00	89.10	90.60	-2,191.75	5,932.75	43.01	4,410.74	4,410.93	0.52	673,437.70	637,714.24
10,193.00	89.60	90.40	-2,192.84	5,933.84	42.17	4,506.72	4,506.91	0.56	673,436.86	637,810.23
10,289.00	89.40	90.40	-2,193.68	5,934.68	41.50	4,602.72	4,602.90	0.21	673,436.19	637,906.22
10,359.00	88.80	90.30	-2,194.77	5,935.77	41.07	4,672.71	4,672.88	0.87	673,435.76	637,976.21
Last Phoenix MWD Surveys @ 10359' MD										
10,415.00	88.80	90.30	-2,195.95	5,936.95	40.78	4,728.70	4,728.87	0.00	673,435.47	638,032.20
Projection to TD, 10415' MD										

Company: Apache Corporation Project: Eddy County, NM (Nad27) Site: NFE Federal Well: NFE Federal 27H Design: Job # 1210329 Job # 1210329	Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method: Database:	Well NFE Federal 27H WELL @ 3741.00usft (Basic 44) WELL @ 3741.00usft (Basic 44) Grid Minimum Curvature Compass5000
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Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
497.00	496.89	-3.13	-8.55	First Phoenix MWD Survey 497' MD
10,359.00	5,935.77	41.07	4,672.71	Last Phoenix MWD Surveys @ 10359' MD
10,415.00	5,936.95	40.78	4,728.70	Projection to TD, 10415' MD

Checked By: _____	Approved By: _____	Date: _____
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