

Cedar Lake Federal Ch. #827H
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

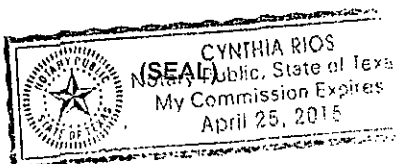
RECEIVED

SIGNED BY:

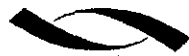
R. Scandolari
RON SCANDOLARI, VP CONTRACT DRILLING

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

Survey: Phoenix MWD Surveys

Approach Energy Survey Report

22 November, 2012

NM OIL CONSERVATION
ARTESIA DISTRICT
AUG 19 2016
RECEIVED



EXPLORING WHAT'S POSSIBLE

Approach Energy Survey Report

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
TWD 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)
Map System: US State Plane 1927 (Exact solution)
Geo Datum: NAD 1927 (NADCON CONUS)
Map Zone: New Mexico East 3001

System Datum:

Mean Sea Level

Site: NFE Federal
Site Position: 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
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

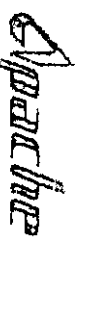
Wellbore: Job # 1210329
Magnetics: Model Name Sample Date Declination (°) Dip Angle (°) Field Strength (nT)
IGRF2010_14 10/12/12 7.62 60.68 48,822

Design: Job # 1210329
Audit Notes: Version: 1.0 Phase: ACTUAL
Vertical Section: Depth From (TVD) (usft) +N/S (usft) Tie On Depth: (usft) Direction (°)
0.00 0.00 0.00 89.60

Survey Program: Date 11/22/12
From (usft): To (usft) Survey (Wellbore) Tool Name Description
497.00 10,415.00 Phoenix MWD Surveys (Job # 1210329) MWD MWD - Standard



Approach Energy Survey Report



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Wellbore: Job # 1210329
Design: Job # 1210329

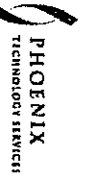
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MD Reference: WELL @ 3741.00usft (Basic 44)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass5000

Survey	MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLog (°/100usft)	Northing (usft)	Easting (usft)
	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	280.70	3,129.17	611.83	-4.08	-11.92	-11.95	0.87	673,390.61	633,291.58
	666.00	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	28.50	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
	1,187.00	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	78.10	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	118.00	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	1,208.89	2,532.12	8.61	10.36	10.42	0.01	673,403.31	633,313.86

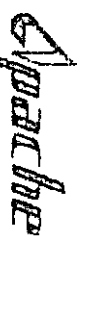
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Project: Eddy County, NM (Nad27)
Site: NFE Federal
Well: NFE Federal 27H
Wellbore: Job # 1210329
Design: Job # 1210329

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MD Reference: WELL @ 3741.00usft (Basic 44)
North Reference: WELL @ 3741.00usft (Basic 44)
Survey Calculation Method: Gnd
Database: Minimum Curvature
Compass5000

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)
	2,617.00	1.00	240.50	1,124.89	2,616.11	7.89	9.26	9.32	0.29	673,402.58	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	967.92	2,783.08	6.56	6.43	6.48	0.37	673,401.25	633,308.93
	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	633,306.59
	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	6.78	1.30	1.36	1.34	673,403.48	633,304.80
	3,203.00	2.10	12.10	539.04	3,201.96	11.46	1.72	1.80	0.66	673,406.15	633,305.22
	3,328.00	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	16.55	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	673,398.43	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



Approach Energy Survey Report



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 NFE Federal 27H
MID Reference: WELL @ 3741.00ustf (Basic 44)
North Reference: WELL @ 3741.00ustf (Basic 44)
Survey Calculation Method: Grid
Database: Minimum Curvature
Compass5000

Survey	MID (ustf)	Inc (°)	Azi (azimuth) (°)	TVDSS (ustf)	TVD (ustf)	N/S (ustf)	EW (ustf)	V. Sec (ustf)	Dleg (°/100ustf)	Northing (ustf)	Easting (ustf)
	4,912.00	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	286.00	-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	285.90	-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	267.00	-1,709.54	5,450.54	-0.01	2.26	2.26	0.08	673,394.68	633,305.76
	5,484.00	0.30	76.30	-1,741.54	5,482.54	0.00	2.17	2.17	2.80	673,394.69	633,305.67
	5,517.00	6.90	92.30	-1,774.46	5,515.46	-0.06	4.24	4.24	20.04	673,394.63	633,307.74
	5,546.00	14.40	91.00	-1,805.88	5,546.88	-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	19.66	19.67	18.54	673,394.12	633,323.18
	5,613.00	26.20	90.40	-1,865.80	5,606.80	-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
	5,708.00	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	673,394.62	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



Approach Energy Survey Report

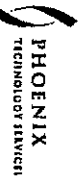


Company: Apache Corporation
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Well: NFE Federal 27H
Wellbore: Job # 1210329
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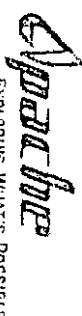
Local Co-ordinate Reference:
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Survey Calculation Method:
Database:

Well NFE Federal 27H
WELL @ 3741.00ust (Basic 44)
WELL @ 3741.00ust (Basic 44)
Grid
Minimum Curvature
Compass5000

Survey	MD (ustf)	Inc (°)	Azi (azimuth) (°)	TVDSS (ustf)	TVD (ustf)	NIS (ustf)	E/W (ustf)	V. Sec (ustf)	Dleg (°/100ustf)	Northing (ustf)	Easting (ustf)
	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	441.26	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	673,395.38	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	856.00	856.01	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	88.80	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	88.00	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	-2,148.57	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	635,308.10
	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
	7,979.00	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	636,076.76



Approach Energy Survey Report

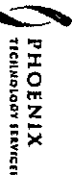


Company: Apache Corporation
Project: Eddy County, NM (Herd27)
Site: NFE Federal
Well: NFE Federal 27H
Wellbore: Job # 1210329
Design: Job # 1210329

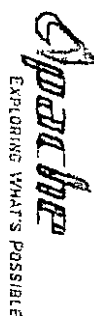
Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well NFE Federal 27H
WELL @ 3741.00usft (Basic 44)
WELL @ 3741.00usft (Basic 44)
Grid
Minimum Curvature
Compass5000

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)
	8,557.00	89.30	88.60	-2,174.94	5,915.94	18.48	2,871.22	2,971.28	0.90	673,413.17	636,174.72
	8,653.00	89.30	88.50	-2,175.28	5,916.28	20.91	2,967.19	2,967.26	1.05	673,415.60	636,270.69
	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	636,367.64
	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	89.00	-2,174.69	5,915.69	30.40	3,256.03	3,256.16	1.71	673,425.10	636,558.53
	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	-2,176.05	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	-2,176.97	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	38.86	3,736.89	3,737.07	0.70	673,433.57	637,040.39
	9,520.00	88.60	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	88.70	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	-2,186.65	5,929.65	43.84	4,218.77	4,218.97	0.65	673,438.54	637,522.27
	10,001.00	88.50	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											



Approach Energy Survey Report



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:
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

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)		Comment
		+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: _____