

Apache Corporation (873)
303 Veterans Airpark Lane, #3000
Midland, TX 79705

NFE Federal #052H
Eddy County, New Mexico

30-015-42907

A-6-175-31E

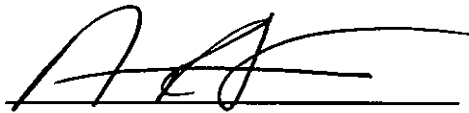
485' FNL + 1025' FEL

257	2.57	0.25	0.44	1.12	1.12
376	1.19	0.75	1.31	1.56	2.69
618	2.42	1.60	2.80	6.78	9.46
864	2.46	1.30	2.28	5.60	15.06
1159	2.95	1.50	2.63	7.74	22.80
1415	2.56	1.60	2.80	7.17	29.97
1671	2.56	1.20	2.10	5.38	35.35
1890	2.19	0.70	1.23	2.68	38.03
2146	2.56	0.40	0.70	1.79	39.82
2402	2.56	0.20	0.35	0.90	40.72
2615	2.13	0.30	0.53	1.12	41.84
2868	2.53	0.20	0.35	0.89	42.72
3038	1.70	0.30	0.53	0.89	43.61
3295	2.57	0.10	0.18	0.45	44.06
3430	1.35	0.20	0.35	0.47	44.54
3695	2.65	0.10	0.18	0.46	45.00
3955	2.60	0.10	0.18	0.46	45.45
4223	2.68	0.30	0.53	1.41	46.86
4362	1.39	0.20	0.35	0.49	47.35

HOBBS OCD

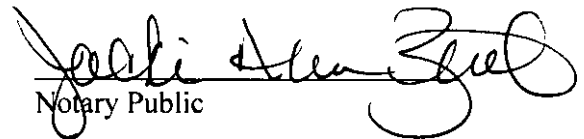
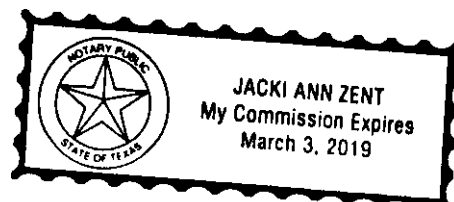
SEP 21 2015

RECEIVED



Archie Brown - General Manager

The attached instrument was acknowledged before me on the 11th day of May, 2015 by
Archie Brown - General Manager, CapStar Drilling, Inc.


Notary Public

SURVEY CERTIFICATION FORM



3610 Elkins Road Midland, TX 79705 t:432-684-0057 f: 432-686-7964

Company: Apache (873)

Job #: 1513490

Well Name: NFE Federal #52H

County/State: Eddy Co, NM

Survey Instrument Type: North Seek Rate Gyro ✓

API # 30-015-42907

A-6-175-31E 485' FAL + 1025' FEL

TIE-IN DATA

Measure Depth (ft)	Vertical Depth (ft)	Inclination (°)	Azimuth (°)	N-S Coordinates	E-W Coordinates	Data Source
0	0	0	0	0	0	Surface

First Survey

Date	Depth (ft)	Inclination (°)	Azimuth (°)
2015-05-01	0	0	0

Last Survey

Date	Depth (ft)	Inclination (°)	Azimuth (°)
2015-05-01	4288	0.14	183.96

Projected TD Survey

Date	Depth (ft)	Inclination (°)	Azimuth (°)
0	0	0	0

Grid Correction
-0.23

Gyro Operator: Leon Laskowski

Gyro Supervisor:

To the best of my knowledge I certify this survey data to be correct and true

Date: 2015-05-02

Print Name: Leon Laskowski

Signature:

30-015-42907 A-6-175-31E 485' FNL + 1025' FEL



Company: Apache (873)
 Well: NFE Federal #52H
 Location: Eddy Co, NM
 Rig: Capstar 114

Job Number: 1513490
 Grid Corr.: -0.23
 Lat: 32.87
 Long: -103.90
 Calculation Method: Minimum Curvature
 Proposed Azimuth:
 RKB - MSL in feet: 11'
 Tie Into:

Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure		Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
							N/S (ft)	E/W (ft)	Distance (ft)	Angle (deg)			
Enter Tie-In Survey on Line 10													
Field Copy Non Definitive													
TIE IN	0	0.00	0	0	0	0	0	0					
Gyro	100.00	0.28	24.97	100	100.00	0.22	0.22 N	0.10 E	0.24	24.97	0.28	0.28	24.97
	200.00	0.29	74.14	100	200.00	0.51	0.51 N	0.45 E	0.68	41.29	0.24	0.01	49.17
	300.00	1.27	62.34	100	299.99	1.10	1.10 N	1.67 E	2.00	56.80	0.99	0.98	-11.80
	400.00	1.50	59.14	100	399.96	2.28	2.28 N	3.78 E	4.42	58.88	0.24	0.23	-3.20
	500.00	1.63	64.33	100	499.92	3.57	3.57 N	6.19 E	7.14	60.01	0.19	0.13	5.19
	600.00	1.54	72.31	100	599.88	4.59	4.59 N	8.75 E	9.88	62.29	0.24	-0.09	7.98
	700.00	1.48	60.85	100	699.85	5.63	5.63 N	11.16 E	12.50	63.22	0.31	-0.06	-11.46
	800.00	1.45	63.46	100	799.82	6.83	6.83 N	13.42 E	15.05	63.03	0.07	-0.03	2.61
	900.00	1.51	63.77	100	899.78	7.97	7.97 N	15.73 E	17.63	63.12	0.06	0.06	0.31
	1000.00	1.57	70.32	100	999.75	9.02	9.02 N	18.20 E	20.31	63.65	0.19	0.06	6.55
	1100.00	1.57	73.34	100	1099.71	9.87	9.87 N	20.80 E	23.03	64.62	0.08	0.00	3.02
	1200.00	1.71	77.47	100	1199.67	10.59	10.59 N	23.57 E	25.84	65.81	0.18	0.14	4.13
	1300.00	1.68	63.23	100	1299.62	11.57	11.57 N	26.34 E	28.77	66.28	0.42	-0.03	-14.24
	1400.00	1.79	76.14	100	1399.58	12.61	12.61 N	29.16 E	31.77	66.62	0.41	0.11	12.91
	1500.00	1.61	83.00	100	1499.53	13.15	13.15 N	32.07 E	34.66	67.71	0.27	-0.18	6.86
	1600.00	1.70	77.26	100	1599.49	13.65	13.65 N	34.91 E	37.49	68.65	0.19	0.09	-5.74
	1700.00	1.38	70.49	100	1699.46	14.38	14.38 N	37.50 E	40.16	69.02	0.37	-0.32	-6.77
	1800.00	1.00	64.91	100	1799.44	15.15	15.15 N	39.42 E	42.23	68.98	0.40	-0.38	-5.58
	1900.00	0.66	72.27	100	1899.42	15.70	15.70 N	40.76 E	43.68	68.94	0.36	-0.34	7.36
	2000.00	0.39	19.06	100	1999.42	16.19	16.19 N	41.42 E	44.47	68.65	0.53	-0.27	-53.21
	2100.00	0.39	287.83	100	2099.42	16.62	16.62 N	41.21 E	44.43	68.04	0.56	0.00	268.77
	2200.00	0.27	325.03	100	2199.42	16.92	16.92 N	40.75 E	44.12	67.45	0.24	-0.12	37.20
	2300.00	0.25	6.66	100	2299.42	17.33	17.33 N	40.64 E	44.18	66.91	0.19	-0.02	-318.37
	2400.00	0.05	175.16	100	2399.42	17.50	17.50 N	40.67 E	44.27	66.72	0.30	-0.20	168.50
	2500.00	0.17	250.54	100	2499.42	17.41	17.41 N	40.53 E	44.11	66.76	0.16	0.12	75.38
	2600.00	0.11	172.50	100	2599.42	17.26	17.26 N	40.40 E	43.94	66.87	0.18	-0.06	-78.04
	2700.00	0.05	39.44	100	2699.42	17.20	17.20 N	40.44 E	43.95	66.96	0.15	-0.06	-133.06

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							N/S (ft)	E/W (ft)	Distance (ft)	Angle (deg)			
	2800.00	0.12	344.30	100	2799.42	17.33	17.33 N	40.44 E	44.00	66.80	0.10	0.07	304.86
	2900.00	0.27	347.63	100	2899.41	17.67	17.67 N	40.36 E	44.06	66.36	0.15	0.15	3.33
	3000.00	0.33	294.41	100	2999.41	18.01	18.01 N	40.05 E	43.92	65.78	0.27	0.06	-53.22
	3100.00	0.48	141.49	100	3099.41	17.81	17.81 N	40.05 E	43.83	66.03	0.79	0.15	-152.92
	3200.00	0.45	176.62	100	3199.41	17.09	17.09 N	40.33 E	43.80	67.04	0.28	-0.03	35.13
	3300.00	0.18	338.98	100	3299.41	16.84	16.84 N	40.30 E	43.68	67.32	0.62	-0.27	162.36
	3400.00	0.13	276.68	100	3399.41	17.00	17.00 N	40.13 E	43.58	67.04	0.17	-0.05	-62.30
	3500.00	0.18	122.73	100	3499.41	16.93	16.93 N	40.15 E	43.57	67.14	0.30	0.05	-153.95
	3600.00	0.31	137.43	100	3599.41	16.64	16.64 N	40.47 E	43.76	67.64	0.14	0.13	14.70
	3700.00	0.29	272.86	100	3699.41	16.46	16.46 N	40.40 E	43.62	67.83	0.56	-0.02	135.43
	3800.00	0.29	121.35	100	3799.41	16.34	16.34 N	40.36 E	43.54	67.96	0.56	0.00	-151.51
	3900.00	0.18	247.22	100	3899.41	16.15	16.15 N	40.43 E	43.54	68.23	0.42	-0.11	125.87
	4000.00	0.08	121.69	100	3999.41	16.05	16.05 N	40.35 E	43.42	68.31	0.24	-0.10	-125.53
	4100.00	0.07	152.81	100	4099.41	15.96	15.96 N	40.43 E	43.47	68.46	0.04	-0.01	31.12
	4200.00	0.13	87.48	100	4199.41	15.91	15.91 N	40.57 E	43.58	68.59	0.12	0.06	-65.33
	4288.00	0.14	183.96	88	4287.40	15.81	15.81 N	40.67 E	43.63	68.76	0.23	0.01	109.64

Phoenix Technology Services
SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER

1513428

OPERATOR

Apache (873)

WELL NAME

NFE Federal #52H

COUNTY & STATE

Eddy County, NM

API WELL NUMBER

30-015-42907

PROPOSED DIRECTION

269.61

A-6-17S-31E 485' FNL + 102S' FEL

TIE-IN DATA

MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
4,288 ft	4,288.00 ft	0.14	183.96	15.81 N	40.67 E	GYRO

FIRST SURVEY DATE	FIRST SURVEY DEPTH		
DATE	DEPTH	INCLIN	AZIMUTH
2-May-15	4319 ft.	0.30	185.5

SURVEY INSTRUMENT

TYPE

Phoenix MWD

LAST SURVEY DATE	LAST SURVEY DEPTH		
DATE	DEPTH	INCLIN	AZIMUTH
4-May-15	8281 ft.	93.5	268.2

TO THE BEST OF MY KNOWLEDGE I
CERTIFY THIS SURVEY DATA TO BE
TRUE AND CORRECT.

PROJECTED TD SURVEY DATE	PROJECTED TD SURVEY DEPTH		
DATE	DEPTH	INCLIN	AZIMUTH
4-May-15	8350 ft.	93.5	268.2

Burton P. Fowles

PRINT YOUR NAME ABOVE

Burton P. Fowles

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	7.45
DECLINATION OR GRID	GRID

5/5/2015

TODAY'S DATE

MWD SUPERVISOR 1

Burton Fowles

DIRECTIONAL DRILLER 1

Ian Hobbs

MWD SUPERVISOR 2

Jimmy Confer

DIRECTIONAL DRILLER 2

Josh Ashley

1805 Brittmore Road Houston, Texas 77043 (713)3370609 (Voice), (713)337-0599 (Fax)