

Results of Directional Survey

API number:	30-025-40847	DD
OGRID:		Operator: APACHE CORP
	Property:	NORTHEAST DRINKARD UNIT # 172

surface	ULSTR:	J (B)	03	T 21S	R 37E
		Lot 10		3515 FNL	1425 FEL

BH Loc	ULSTR:	J (B)	03	T 21S	R 37E
7055 MD		7048.9	TVD	3307 FNL	1332 FEL

Top Perf/OH	ULSTR:	J (B)	03	T 21S	R 37E
6583 MD		6577.3	TVD	3324 FNL	1338 FEL

Bot Perf/OH	ULSTR:	J (B)	03	T 21S	R 37E
6786 MD		6780.1	TVD	3316 FNL	1335 FEL

	MD	N/S	E/W	VD
	6553	189.56	86.12	6547.29
TOP PERFS/OH	6583	190.83	86.59	6577.26
	6638	193.17	87.45	6632.20
	6724	196.85	88.96	6718.11
BOT PERFS/OH	6786	199.47	89.99	6780.05
	6809	200.44	90.37	6803.03

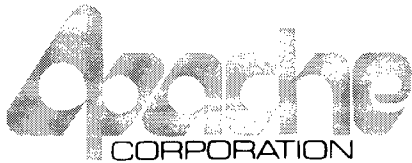
NEXT TO LAST	7001	206.96	92.84	6994.90
LAST READING	7055	208.46	93.41	7048.87
TD	7055	208.46	93.41	7048.87

Surface Location	3515 FN	1425 FE
Projected BHL	3307 FN	1332 FE
Location of		
Top Perfs/OH	3324 FN	1338 FE
Bottom Perfs/OH	3316 FN	1335 FE

SUMMARY of Subsurface Locations

Surface Location	J-03-21S-37E	3515 FN	1425 FE	Vert. Depth
Top Perfs/OH	J-03-21S-37E	3324 FN	1338 FE	6577.26
Bottom Perfs/OH	J-03-21S-37E	3316 FN	1335 FE	6780.05
Projected TD	J-03-21S-37E	3307 FN	1332 FE	7048.87

DEC 10 2013



Apache Corporation (873)

Lea County, NM (NAD83 NME)

NEDU 30-025-40847

#172W

WB1/Job #1311284

SURF. Loc. 3515' FNL + 1425' FEL
LOT 10 B-3-215-37E

BHL 3307' FNL + 1332' FEL

Survey: Phoenix MWD Survey

Phoenix Final Survey Report

07 October, 2013

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Phoenix Technology Services

Phoenix Final Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #172W
Project:	Lea County, NM (NAD83 NME)	TVD Reference:	KB @ 3492.00usft (Capstar 120)
Site:	NEDU	MD Reference:	KB @ 3492.00usft (Capstar 120)
Well:	#172W	North Reference:	Grid
Wellbore:	WB1/Job #1311284	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 120)	Database:	GCR DB

Project	Lea County, NM (NAD83 NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		HOBBES OCD
Map Zone:	New Mexico Eastern Zone		

Site	NEDU		
Site Position:		Northing:	549,246.17 usft
From:	Map	Easting:	907,874.81 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 30' 15.55234 N
		Longitude:	103° 8' 39.81023 W
		Grid Convergence:	0.64 °

Well	#172W		
Well Position	+N-S	0.00 usft	Northing:
	+E-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 30' 45.38872 N
		Longitude:	103° 8' 49.23478 W
		Ground Level:	3,481.00 usft

Wellbore	WB1/Job #1311284		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010_14	08/29/13	(°)
			Dip Angle
			(°)
			Field Strength
			(nT)
			48,614

Design	Surveys (Capstar 120)		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N-S	+E-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			223.64

Survey Program	Date 10/07/13		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.00	1,100.00	Gyro Survey (WB1/Job #1311284)	CB-GYRO-MS
1,200.00	7,055.00	Phoenix MWD Survey (WB1/Job #131128)	MWD
			Description
			Camera based gyro multishot
			MWD - Standard

Survey	MD	Inc	Azi (azimuth)	TVD	N/S	E/W	V. Sec	DLeg
	(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)
	1,298.00	1.28	219.84	1,297.89	-9.04	-8.88	12.67	0.00
Tie-on to Gyro								
	1,435.00	1.00	218.00	1,434.86	-11.15	-10.60	15.38	0.21
First Phoenix MWD Survey								
	1,521.00	0.40	185.40	1,520.86	-12.04	-11.09	16.37	0.81
	1,606.00	0.90	358.60	1,605.85	-11.67	-11.13	16.13	1.53
	1,691.00	1.80	355.20	1,690.83	-9.67	-11.26	14.77	1.06
	1,776.00	3.30	18.40	1,775.74	-6.02	-10.60	11.67	2.11
	1,862.00	3.40	19.10	1,861.60	-1.26	-8.98	7.11	0.13
	1,947.00	4.10	23.50	1,946.42	3.90	-6.94	1.97	0.89
	2,032.00	3.80	32.10	2,031.21	9.08	-4.24	-3.65	0.78



Phoenix Technology Services
Phoenix Final Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #172W
Project:	Lea County, NM (NAD83 NME)	TVD Reference:	KB @ 3492.00usft (Capstar 120)
Site:	NEDU	MD Reference:	KB @ 3492.00usft (Capstar 120)
Well:	#172W	North Reference:	Grid
Wellbore:	WB1/Job #1311284	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 120)	Database:	GCR DB

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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
2,118.00	3.40	30.00	2,117.04	13.70	-1.45	-8.92	0.49
2,203.00	3.60	24.20	2,201.89	18.32	0.91	-13.88	0.48
2,288.00	3.70	26.70	2,286.71	23.20	3.23	-19.02	0.22
2,374.00	3.70	26.90	2,372.53	28.15	5.74	-24.33	0.02
2,459.00	2.70	37.30	2,457.40	32.19	8.19	-28.95	1.36
2,545.00	2.60	27.10	2,543.31	35.54	10.31	-32.83	0.56
2,630.00	2.30	22.50	2,628.23	38.83	11.84	-36.27	0.42
2,715.00	1.90	21.10	2,713.18	41.72	13.00	-39.17	0.47
2,800.00	2.10	19.60	2,798.12	44.50	14.03	-41.89	0.24
2,885.00	2.40	22.20	2,883.06	47.62	15.22	-44.97	0.37
2,971.00	2.80	25.80	2,968.97	51.18	16.82	-48.64	0.50
3,056.00	2.90	27.30	3,053.86	54.96	18.71	-52.68	0.15
3,141.00	3.10	20.90	3,138.75	59.02	20.51	-56.87	0.46
3,226.00	3.10	20.70	3,223.62	63.31	22.14	-61.10	0.01
3,311.00	3.80	21.50	3,308.47	68.08	23.99	-65.83	0.83
3,396.00	3.40	19.20	3,393.30	73.08	25.85	-70.73	0.50
3,481.00	3.90	24.30	3,478.13	78.10	27.87	-75.76	0.70
3,566.00	3.70	30.50	3,562.94	83.10	30.45	-81.15	0.54
3,652.00	3.50	26.40	3,648.77	87.84	33.03	-86.36	0.38
3,737.00	3.40	41.70	3,733.62	92.05	35.86	-91.36	1.09
3,822.00	2.90	41.70	3,818.49	95.53	38.96	-96.03	0.59
3,908.00	2.50	38.50	3,904.40	98.62	41.58	-100.07	0.50
3,993.00	2.30	0.30	3,989.33	101.78	42.74	-103.16	1.86
4,078.00	3.00	5.40	4,074.24	105.70	42.96	-106.15	0.87
4,164.00	3.30	25.00	4,160.11	110.19	44.22	-110.26	1.29
4,249.00	3.20	29.70	4,244.97	114.46	46.43	-114.88	0.33
4,334.00	2.90	41.50	4,329.85	118.13	49.03	-119.33	0.82
4,420.00	2.30	38.40	4,415.76	121.12	51.54	-123.22	0.72
4,505.00	2.20	35.90	4,500.70	123.77	53.56	-126.54	0.16
4,590.00	2.00	36.40	4,585.64	126.29	55.39	-129.63	0.24
4,675.00	1.30	5.10	4,670.61	128.44	56.36	-131.85	1.31
4,761.00	1.90	9.20	4,756.57	130.82	56.67	-133.79	0.71
4,847.00	2.60	19.20	4,842.51	134.07	57.54	-136.74	0.93
4,932.00	2.60	13.90	4,927.42	137.77	58.64	-140.17	0.28
5,017.00	2.60	19.90	5,012.33	141.45	59.76	-143.61	0.32
5,103.00	2.60	42.90	5,098.24	144.71	61.75	-147.35	1.21
5,188.00	2.60	40.90	5,183.16	147.58	64.33	-151.20	0.11
5,273.00	2.20	38.40	5,268.08	150.32	66.60	-154.75	0.49
5,359.00	2.40	39.80	5,354.01	152.99	68.78	-158.19	0.24
5,445.00	2.50	43.70	5,439.93	155.73	71.23	-161.86	0.23
5,530.00	2.20	36.60	5,524.86	158.38	73.48	-165.34	0.49
5,615.00	1.90	20.60	5,609.81	161.01	74.95	-168.25	0.76
5,700.00	2.00	17.40	5,694.76	163.75	75.89	-170.88	0.17
5,785.00	2.30	26.70	5,779.70	166.69	77.10	-173.84	0.54



Phoenix Technology Services

Phoenix Final Survey Report



Company: Apache Corporation
Project: Lea County, NM (NAD83 NME)
Site: NEDU
Well: #172W
Wellbore: WB1/Job #1311284
Design: Surveys (Capstar 120)

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

Well #172W
KB @ 3492.00usft (Capstar 120)
KB @ 3492.00usft (Capstar 120)
Grid
Minimum Curvature
GCR DB

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Survey								RECEIVED
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
5,870.00	2.10	26.40	5,864.64	169.61	78.56	-176.96	0.24	
5,955.00	1.90	27.40	5,949.59	172.25	79.90	-179.80	0.24	
6,041.00	1.90	21.40	6,035.54	174.84	81.08	-182.49	0.23	
6,126.00	1.70	20.00	6,120.50	177.34	82.02	-184.95	0.24	
6,211.00	1.50	18.40	6,205.46	179.58	82.80	-187.11	0.24	
6,297.00	1.30	20.10	6,291.44	181.57	83.49	-189.02	0.24	
6,382.00	1.50	16.50	6,376.41	183.54	84.14	-190.90	0.26	
6,468.00	2.20	18.30	6,462.37	186.18	84.98	-193.39	0.82	
6,553.00	2.60	18.90	6,547.29	189.56	86.12	-196.62	0.47	
6,638.00	2.60	21.60	6,632.20	193.17	87.45	-200.16	0.14	
6,724.00	2.70	22.90	6,718.11	196.85	88.96	-203.86	0.14	
6,809.00	2.50	19.90	6,803.03	200.44	90.37	-207.43	0.28	
6,894.00	2.10	21.40	6,887.96	203.63	91.57	-210.57	0.48	
6,979.00	1.80	20.70	6,972.91	206.33	92.61	-213.24	0.35	
7,001.00	1.70	20.60	6,994.90	206.96	92.84	-213.85	0.45	
Last Phoenix MWD Survey								
7,055.00	1.70	20.60	7,048.87	208.46	93.41	-215.33	0.00	
Projection to TD								

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			Comment
		+N/-S (usft)	+E/-W (usft)		
1,298.00	1,297.89	-9.04	-8.88		Tie-on to Gyro
1,435.00	1,434.86	-11.15	-10.60		First Phoenix MWD Survey
7,001.00	6,994.90	206.96	92.84		Last Phoenix MWD Survey
7,055.00	7,048.87	208.46	93.41		Projection to TD

Checked By: _____ Approved By: _____ Date: _____

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APACHE CORP (873)

Eunice

Lea County, NM

Northeast Drinkard Unit #172 30-025-40847

VH - Job #320913-KW-1015

Surf. Loc. 3515' FNL + 1425' FEL
LOT 10 B-3-21S-37E

Survey: Gyro

SDI Survey Report

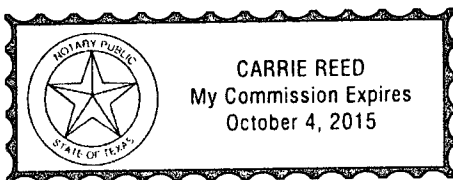
This survey is correct to the best of my knowledge and is supported by actual field data.

[Signature]

Notarized this date 1st of October, 2013.

[Signature]

Notary Signature
County of Midland
State of Texas



SDI
SDI Survey Report

Company:	APACHE CORP	Local Co-ordinate Reference:	Well Northeast Drinkard Unit #172
Project:	Eunice	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Lea County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Northeast Drinkard Unit #172	North Reference:	Grid
Wellbore:	VH - Job #320913-KW-1015	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #320913-KW-1015	Database:	EDM-Regulatory

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Project		Eunice		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level	DEC 06 2013
Geo Datum:	NAD 1927 (NADCON CONUS)			
Map Zone:	New Mexico East 3001			

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Site		Lea County, NM			
Site Position:		Northing:	550,762.04 usft	Latitude:	32° 30' 31.140 N
From:	Lat/Long	Easting:	862,794.70 usft	Longitude:	103° 9' 23.400 W
Position Uncertainty:	0.0 usft	Slot Radius:	0"	Grid Convergence:	0.63 °

Well	Northeast Drinkard Unit #172, Vertical					
Well Position	+N/-S	0.0 usft	Northing:	552,234.60 usft	Latitude:	32° 30' 45.390 N
	+E/-W	0.0 usft	Easting:	865,704.94 usft	Longitude:	103° 8' 49.230 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	0.0 usft

Wellbore	VH - Job #320913-KW-1015				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/30/2013	7.12	60.47	48,631

Design		VH - Job #320913-KW-1015		
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	224.49

Survey Program		Date	10/8/2013		
From	To	Survey (Wellbore)	Tool Name	Description	
(usft)	(usft)				
100.0	1,298.0	Gyro (VH - Job #320913-KW-1015)	Keeper	Keeper Gyro	

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.0
100.0	0.21	284.20	100.0	0.0	-0.2	284.20	0.2
200.0	0.27	321.14	200.0	0.3	-0.5	298.52	0.6
300.0	0.28	233.71	300.0	0.3	-0.8	290.22	0.9
400.0	0.37	176.16	400.0	-0.2	-1.0	261.41	1.0
500.0	0.31	246.97	500.0	-0.6	-1.3	245.02	1.4
600.0	0.29	246.29	600.0	-0.8	-1.7	245.47	1.9
700.0	0.39	228.51	700.0	-1.1	-2.2	243.26	2.5
800.0	0.63	200.37	800.0	-1.9	-2.7	235.11	3.2
900.0	0.87	223.61	900.0	-2.9	-3.4	229.14	4.5
1,000.0	0.78	220.03	1,000.0	-4.0	-4.3	227.38	5.9
1,100.0	1.43	215.25	1,100.0	-5.5	-5.5	224.81	7.8

SDI
SDI Survey Report

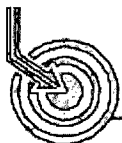
Company:	APACHE CORP	Local Co-ordinate Reference:	Well Northeast Drinkard Unit #172
Project:	Eunice	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Lea County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Northeast Drinkard Unit #172	North Reference:	Grid
Wellbore:	VH - Job #320913-KW-1015	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #320913-KW-1015	Database:	EDM-Regulatory

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
1,200.0	1.48	230.00	1,199.9	-7.4	-7.2	224.31	10.3	
1,298.0	1.28	219.84	1,297.9	-9.0	-8.9	224.49	12.7	

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Scientific Drilling

Project: Eunice
Lea County, NM
Well: Northeast Drinkard Unit #172
Wellbore: VH - Job #320913-KW-1015
Design: VH - Job #320913-KW-1015

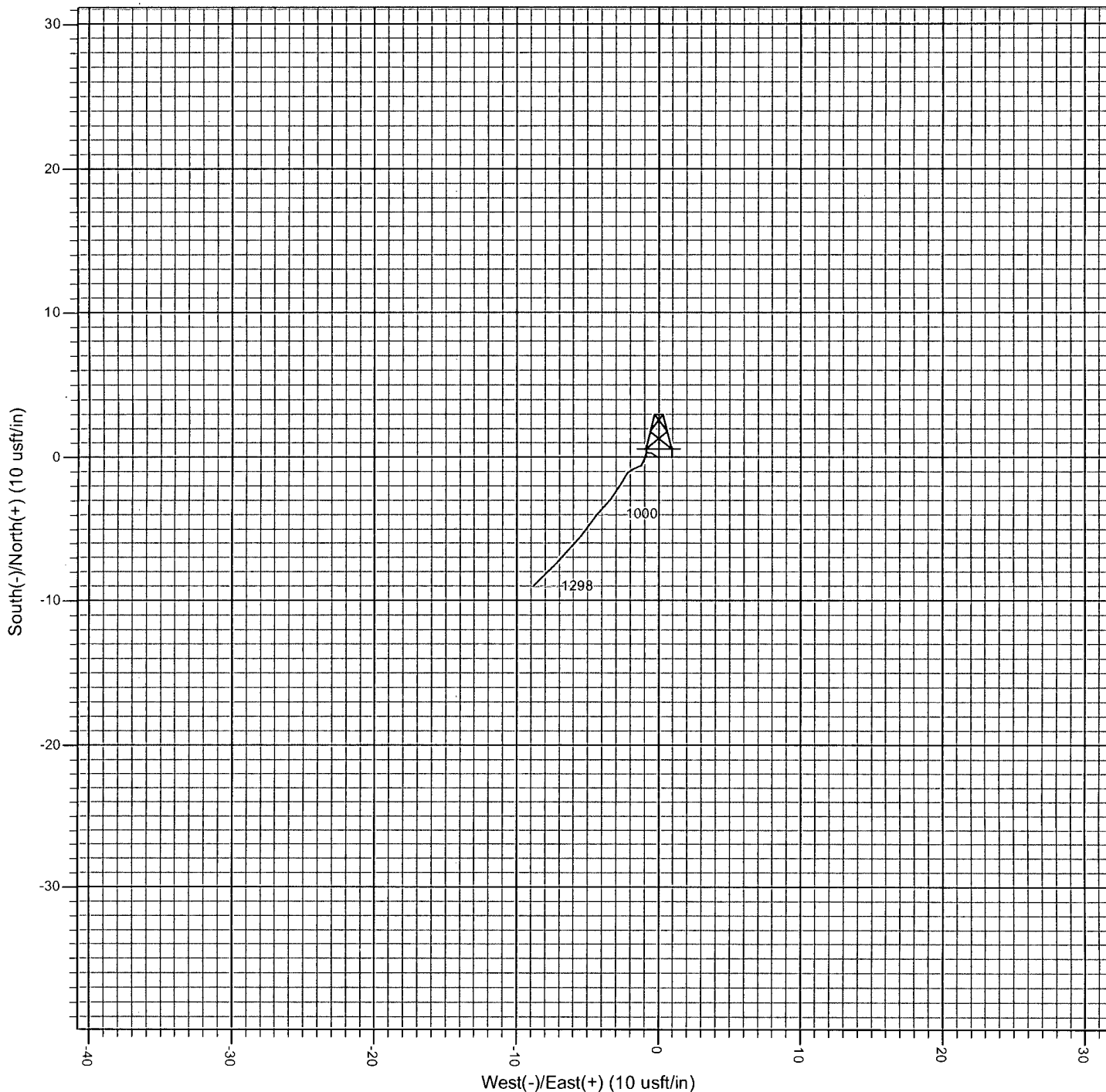
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WELL DETAILS: Northeast Drinkard Unit #172
WELL @ 0.0usft (Original Well Elev)

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+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	552234.60	865704.94	32° 30' 45.390 N	103° 8' 49.230 W	



PROJECT DETAILS: Eunice	SITE DETAILS: Lea County, NM
Geodetic System: US State Plane 1927 (Exact solution)	Site Centre Latitude: 32° 30' 31.140 N
Datum: NAD 1927 (NADCON CONUS)	Longitude: 103° 9' 23.400 W
Ellipsoid: Clarke 1866	Positional Uncertainty: 0.0
Zone: New Mexico East 3001	Convergence: 0.63
System Datum: Mean Sea Level	Local North: Grid



PHOENIX
TECHNOLOGY SERVICES

October 15, 2013

Apache Corporation
Attention: Drilling Department
303 Veterans Airpark Lane, Ste 3000
Midland, TX 79705

HOBBS OCD

Re: Apache Corporation
NEDU #172W
Lea County, NM
API #30-025-40847
Job No. 1311284

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Dear Regulatory Department;

Phoenix Technology Services, Inc. has filed the Survey Data Certification, Surveys, and Lease Plat for the above referenced well with the State of New Mexico Oil Conservation Division – District 1 via certified mail. A copy of the filing is attached for your records.

Name of Surveyor	Drainhole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Samuel D. Wilson	172W	1,435	7,001	10/02/13	10/06/13	MWD

Thank you for the opportunity to be of service. Please contact me if you have any questions or require additional information.

Best Regards,

Dolly Bush

Dolly Bush
Operations Administrator

1805 Brittmoore Rd. Houston, TX 77043 • Phone (713) 337-0600 • Fax (713) 337-0599
www.phxtech.com



PHOENIX
TECHNOLOGY SERVICES

October 15, 2013

Oil Conservation Division
State of New Mexico
1625 N. French Drive
District 1 - Hobbs
Hobbs, New Mexico 88240

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Attention: Regulatory Department

Re: Apache Corporation
NEDU #172W
Lea County, NM
API #30-025-40847
Job No. 1311284

Enclosed please find the Survey Data Certification, and the original Plat and one copy of the Survey Report performed on the above referenced Well by Phoenix Technology Services, Inc. (P-5 No. 664171). Other information required by your office is as follows:

Name & Title of Surveyor	Drainhole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Samuel D. Wilson	172W	1,435	7,001	10/02/13	10/06/13	MWD

A certified plat on which the bottom hole location is oriented both to the surface location and to the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Best Regards,

Dolly Bush

Dolly Bush
Operations Administrator

Certified mail receipt number: 7011 1570 0001 4364 8691

1805 Brittmoore Rd. Houston, TX 77043 • Phone (713) 337-0600 • Fax (713) 337-0599
www.phxtech.com

PHOENIX TECHNOLOGY SERVICES SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER: 1311284

OPERATOR:

Apache Corporation

WELL NAME: NEDU #172W

COUNTY & STATE:

Lea County, New Mexico

API WELL NUMBER	30-025-40847
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PROPOSED DIRECTION	23.16
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TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
1,298 ft	1,297.89 ft	1.28	219.84	-9.05	-8.89	Gyro

FIRST SURVEY	FIRST SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
2-Oct-13	1,435 ft	1.00 ft	218.00 ft

SURVEY INSTRUMENT
TYPE
Phoenix MWD

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LAST SURVEY	LAST SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
6-Oct-13	7,001 ft	1.7	20.6

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

PROJECTED	PROJECTED		
TD SURVEY	TD SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
6-Oct-13	7,055 ft	1.7	20.6

Samuel D. Wilson

PRINT YOUR NAME ABOVE

Samuel D. Wilson

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	6.49
DECLINATION OR GRID	Grid

Sunday, October 06, 2013

TODAY'S DATE

MWD SUPERVISOR 1

Samuel D. Wilson

DIRECTIONAL DRILLER 1

Richard Thurman

MWD SUPERVISOR 2

n/a

DIRECTIONAL DRILLER 2

Ethan Haley

1805 Brittmore Road

Houston, Texas 77043

(713)3370609 (Voice), (713)337-0599 (Fax)

Phoenix Technology Services

Apache Corporation (873)

NEDU #172W 30-025-40847

Lea County, NM (NAD83 NME)

WB1/Job #1311284

Phoenix MWD Survey

Surface Loc.:

Northing: (Y) 907034.12

Easting: (X) 552252.56

KB Elev: 3492.00'

GL Elev: 3481.00'

Survey Type Information:

H 100.00 - 1100.00 GYRO SURVEY : CB-GYRO-MS

H 1200.00 - 7055.00 PHOENIX MWD SURVEY : MWD

Measured Depth (ft)	Incl.	Azim.	Sub-Sea Depth (ft)	Vertical Depth (ft)	Local Coord (+N/-S) (ft)	(+E/-W) (ft)	UTM Coord Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Annotation
1298	1.28	219.84	-2194.11	1297.89	-9.04	-8.88	552243.5	907025.3	12.67		0 Tie-on to Gyro
1435	1	218	-2057.14	1434.86	-11.15	-10.6	552241.4	907023.5	15.38		0.21 First Phoenix MWD Sur
1521	0.4	185.4	-1971.14	1520.86	-12.04	-11.09	552240.5	907023	16.37		0.81
1606	0.9	358.6	-1886.15	1605.85	-11.67	-11.13	552240.9	907023	16.13		1.53
1691	1.8	355.2	-1801.17	1690.83	-9.67	-11.26	552242.9	907022.9	14.77		1.06
1776	3.3	18.4	-1716.26	1775.74	-6.02	-10.6	552246.5	907023.5	11.67		2.11
1862	3.4	19.1	-1630.4	1861.6	-1.26	-8.98	552251.3	907025.1	7.11		0.13
1947	4.1	23.5	-1545.58	1946.42	3.9	-6.94	552256.5	907027.2	1.97		0.89
2032	3.8	32.1	-1460.79	2031.21	9.08	-4.24	552261.6	907029.9	-3.65		0.78
2118	3.4	30	-1374.96	2117.04	13.7	-1.45	552266.3	907032.7	-8.92		0.49

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2203	3.6	24.2	-1290.11	2201.89	18.32	0.91	552270.9	907035	-13.88	0.48
2288	3.7	26.7	-1205.29	2286.71	23.2	3.23	552275.8	907037.4	-19.02	0.22
2374	3.7	26.9	-1119.47	2372.53	28.15	5.74	552280.7	907039.9	-24.33	0.02
2459	2.7	37.3	-1034.6	2457.4	32.19	8.19	552284.8	907042.3	-28.95	1.36
2545	2.6	27.1	-948.69	2543.31	35.54	10.31	552288.1	907044.4	-32.83	0.56
2630	2.3	22.5	-863.77	2628.23	38.83	11.84	552291.4	907046	-36.27	0.42
2715	1.9	21.1	-778.82	2713.18	41.72	13	552294.3	907047.1	-39.17	0.47
2800	2.1	19.6	-693.88	2798.12	44.5	14.03	552297.1	907048.2	-41.89	0.24
2885	2.4	22.2	-608.94	2883.06	47.62	15.22	552300.2	907049.4	-44.97	0.37
2971	2.8	25.8	-523.03	2968.97	51.18	16.82	552303.7	907050.9	-48.64	0.5
3056	2.9	27.3	-438.14	3053.86	54.96	18.71	552307.5	907052.8	-52.68	0.15
3141	3.1	20.9	-353.25	3138.75	59.02	20.51	552311.6	907054.6	-56.87	0.46
3226	3.1	20.7	-268.38	3223.62	63.31	22.14	552315.9	907056.3	-61.1	0.01
3311	3.8	21.5	-183.53	3308.47	68.08	23.99	552320.7	907058.1	-65.83	0.83
3396	3.4	19.2	-98.7	3393.3	73.08	25.85	552325.7	907060	-70.73	0.5
3481	3.9	24.3	-13.87	3478.13	78.1	27.87	552330.7	907062	-75.76	0.7
3566	3.7	30.5	70.94	3562.94	83.1	30.45	552335.7	907064.6	-81.15	0.54
3652	3.5	26.4	156.77	3648.77	87.84	33.03	552340.4	907067.2	-86.36	0.38
3737	3.4	41.7	241.62	3733.62	92.05	35.86	552344.6	907070	-91.36	1.09
3822	2.9	41.7	326.49	3818.49	95.53	38.96	552348.1	907073.1	-96.03	0.59
3908	2.5	38.5	412.4	3904.4	98.62	41.58	552351.2	907075.7	-100.07	0.5
3993	2.3	0.3	497.33	3989.33	101.78	42.74	552354.4	907076.9	-103.16	1.86
4078	3	5.4	582.24	4074.24	105.7	42.96	552358.3	907077.1	-106.15	0.87
4164	3.3	25	668.11	4160.11	110.19	44.22	552362.8	907078.3	-110.26	1.29
4249	3.2	29.7	752.97	4244.97	114.46	46.43	552367	907080.6	-114.88	0.33
4334	2.9	41.5	837.85	4329.85	118.13	49.03	552370.7	907083.2	-119.33	0.82
4420	2.3	38.4	923.76	4415.76	121.12	51.54	552373.7	907085.7	-123.22	0.72
4505	2.2	35.9	1008.7	4500.7	123.77	53.56	552376.3	907087.7	-126.54	0.16
4590	2	36.4	1093.64	4585.64	126.29	55.39	552378.9	907089.5	-129.63	0.24
4675	1.3	5.1	1178.61	4670.61	128.44	56.36	552381	907090.5	-131.85	1.31
4761	1.9	9.2	1264.57	4756.57	130.82	56.67	552383.4	907090.8	-133.79	0.71
4847	2.6	19.2	1350.51	4842.51	134.07	57.54	552386.6	907091.7	-136.74	0.93
4932	2.6	13.9	1435.42	4927.42	137.77	58.64	552390.3	907092.8	-140.17	0.28
5017	2.6	19.9	1520.33	5012.33	141.45	59.76	552394	907093.9	-143.61	0.32

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5103	2.6	42.9	1606.24	5098.24	144.71	61.75	552397.3	907095.9	-147.35	1.21
5188	2.6	40.9	1691.16	5183.16	147.58	64.33	552400.2	907098.5	-151.2	0.11
5273	2.2	38.4	1776.08	5268.08	150.32	66.6	552402.9	907100.7	-154.75	0.49
5359	2.4	39.8	1862.01	5354.01	152.99	68.78	552405.6	907102.9	-158.19	0.24
5445	2.5	43.7	1947.93	5439.93	155.73	71.23	552408.3	907105.4	-161.86	0.23
5530	2.2	36.6	2032.86	5524.86	158.38	73.48	552411	907107.6	-165.34	0.49
5615	1.9	20.6	2117.81	5609.81	161.01	74.95	552413.6	907109.1	-168.25	0.76
5700	2	17.4	2202.76	5694.76	163.75	75.89	552416.3	907110	-170.88	0.17
5785	2.3	26.7	2287.7	5779.7	166.69	77.1	552419.3	907111.2	-173.84	0.54
5870	2.1	26.4	2372.64	5864.64	169.61	78.56	552422.2	907112.7	-176.96	0.24
5955	1.9	27.4	2457.59	5949.59	172.25	79.9	552424.8	907114	-179.8	0.24
6041	1.9	21.4	2543.54	6035.54	174.84	81.08	552427.4	907115.2	-182.49	0.23
6126	1.7	20	2628.5	6120.5	177.34	82.02	552429.9	907116.2	-184.95	0.24
6211	1.5	18.4	2713.46	6205.46	179.58	82.8	552432.2	907116.9	-187.11	0.24
6297	1.3	20.1	2799.44	6291.44	181.57	83.49	552434.1	907117.6	-189.02	0.24
6382	1.5	16.5	2884.41	6376.41	183.54	84.14	552436.1	907118.3	-190.9	0.26
6468	2.2	18.3	2970.37	6462.37	186.18	84.98	552438.8	907119.1	-193.39	0.82
6553	2.6	18.9	3055.29	6547.29	189.56	86.12	552442.1	907120.2	-196.62	0.47
6638	2.6	21.6	3140.2	6632.2	193.17	87.45	552445.7	907121.6	-200.16	0.14
6724	2.7	22.9	3226.11	6718.11	196.85	88.96	552449.4	907123.1	-203.86	0.14
6809	2.5	19.9	3311.03	6803.03	200.44	90.37	552453	907124.5	-207.43	0.28
6894	2.1	21.4	3395.96	6887.96	203.63	91.57	552456.2	907125.7	-210.57	0.48
6979	1.8	20.7	3480.91	6972.91	206.33	92.61	552458.9	907126.7	-213.24	0.35
7001	1.7	20.6	3502.9	6994.9	206.96	92.84	552459.5	907127	-213.85	0.45 Last Phoenix MWD Sur
7055	1.7	20.6	3556.87	7048.87	208.46	93.41	552461	907127.5	-215.33	0 Projection to TD

All data are in feet unless otherwise stated. Directions and coordinates are relative to Grid North.
Vertical depths are relative to KB. Northings and Eastings are relative to Well.

The Dogleg Severity is in Degrees per 100 feet.
Vertical Section is from Slot and calculated along an Azimuth of 223.636° (Grid).

Coordinate System is North American Datum 1983 US State Plane 1983, New Mexico Eastern Zone.

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Grid Convergence at Surface is 0.638° .

Based upon Minimum Curvature type calculations, at a Measured Depth of 7055.00ft., the Bottom Hole Displacement is 228.43ft., in the Direction of 223.636° (Grid).

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

Northeast Drinkard Unit #172 30-025-40847
Lea County, New Mexico

LOT 10

B-3-215-37E

3515' FUL + 1425' FEL

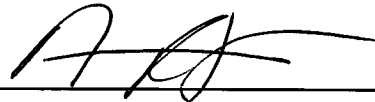
BHL 3307' FUL + 1332' FEL

233	2.33	0.40	0.70	1.63	1.63
500	2.67	0.00	0.00	0.00	1.63
750	2.50	0.20	0.35	0.88	2.51
1000	2.50	0.80	1.40	3.50	6.01
1255	2.55	0.80	1.40	3.57	9.58
1375	1.20	0.90	1.58	1.89	11.47

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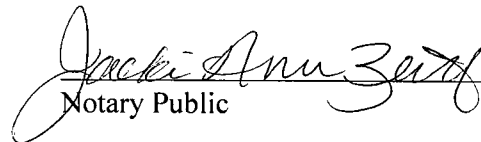
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Archie Brown - General Manager

The attached instrument was acknowledged before me on the 18th day of October, 2013 by
Archie Brown - General Manager, CapStar Drilling, Inc.


Notary Public

