

Results of Directional Survey

API number:	30-025-38312		
OGRID:		Operator:	APACHE CORP
		Property:	NORTH MONUMENT G/SA UNIT # 353H

surface	ULSTR:	M	04	T	20S	R	37E
				1140	FSL	260	FWL

BH Loc	ULSTR:	P	32	T	19S	R	37E
7829	MD	3840.1	TVD	11	FSL	109	FEL
				5291	FSL		

Top Perf/OH	ULSTR:	M	04	T	20S	R	37E
3477	MD	3476.8	TVD	1148	FSL	246	FWL

Bot Perf/OH	ULSTR:	P	32	T	19S	R	37E
7829	MD	3840.1	TVD	11	FSL	109	FEL
				5291	FSL		

	MD	N/S	E/W	VD
	0	0.00	0.00	0
TOP PERFS/OH	3477	7.94	-14.23	3476.75
	3548	8.10	-14.52	3547.74
	7785	4107.34	-361.94	3838.91
BOT PERFS/OH	7829	4150.68	-369.43	3840.12
	7829	4150.68	-369.43	3840.12

NEXT TO LAST	7785	4107.34	-361.94	3838.91
LAST READING	7829	4150.68	-369.43	3840.12
TD	7829	4150.68	-369.43	3840.12

Surface Location	1140	FS	260	FW
Projected BHL	5291	FS	109	FE
Location of				
Top Perfs/OH	1148	FS	246	FW
Bottom Perfs/OH	5291	FS	109	FE

SUMMARY of Subsurface Locations

Surface Location	M-04-20S-37E	1140	FS	260	FW	Vert. Depth
Top Perfs/OH	M-04-20S-37E	1148	FS	246	FW	3476.75
Bottom Perfs/OH	P-32-19S-37E	5291	FS	109	FE	3840.12
Projected TD	P-32-19S-37E	5291	FS	109	FE	3840.12

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Apache Corporation

Lea County, NM (NAD83 NME)

NMGSAU 30-025-38312

#353H

OH/Job #1310192

M-4-20S-37E

1140' FSL + 260' FWL

Survey: Phoenix MWD Survey

Phoenix Final Survey Report

21 July, 2013





Phoenix Technology Services
Phoenix Final Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #353H
Project:	Lea County, NM (NAD83 NME)	TVD Reference:	KB @ 3572.00usft (Key 36)
Site:	NMGSAU	MD Reference:	KB @ 3572.00usft (Key 36)
Well:	#353H	North Reference:	Grid
Wellbore:	OH/Job #1310192	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Key 36)	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		
Map Zone:	New Mexico Eastern Zone		

Site	NMGSAU		
Site Position:		Northing:	582,973.08 usft
From:	Map	Easting:	870,597.88 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 35' 53.144390 N
		Longitude:	103° 15' 51.083479 W
		Grid Convergence:	0.58 °

Well	#353H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 35' 53.144390 N
		Longitude:	103° 15' 51.083479 W
		Ground Level:	3,561.00 usft

Wellbore	OH/Job #1310192				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	03/13/13	7.25	60.54	48,699

Design	Surveys (Key 36)			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth:
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	355.86

Survey Program	Date	07/21/13		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	3,548.00	SDI Gyro (OH/Job #1310192)	Keeper	Keeper Standard Rate Gyro
3,624.00	7,829.00	Phoenix MWD Survey (OH/Job #1310192)	MWD	MWD - Standard

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
3,548.00	0.66	293.99	3,547.74	8.10	-14.52	9.12	0.00
Tie-on to SDI Gyro							
3,624.00	18.00	0.40	3,622.48	20.11	-14.84	21.13	23.35
First Phoenix MWD Survey							
3,634.00	22.70	358.50	3,631.85	23.59	-14.88	24.60	47.46
3,644.00	27.10	355.70	3,640.92	27.79	-15.10	28.81	45.54
3,654.00	30.20	353.60	3,649.69	32.56	-15.56	33.60	32.59
3,664.00	35.40	350.10	3,658.10	37.92	-16.33	39.00	55.33
3,674.00	39.40	348.00	3,666.04	43.88	-17.49	45.03	41.98
3,685.00	43.60	347.30	3,674.28	51.00	-19.05	52.24	38.41
3,695.00	46.50	347.30	3,681.34	57.90	-20.61	59.24	29.00



Phoenix Technology Services
Phoenix Final Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #353H
Project:	Lea County, NM (NAD83 NME)	TVD Reference:	KB @ 3572.00usft (Key 36)
Site:	NMGSAU	MD Reference:	KB @ 3572.00usft (Key 36)
Well:	#353H	North Reference:	Grid
Wellbore:	OH/Job #1310192	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Key 36)	Database:	GCR DB

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
3,705.00	48.90	347.60	3,688.07	65.12	-22.22	66.55	24.10
3,717.00	51.60	347.80	3,695.74	74.13	-24.18	75.69	22.54
3,727.00	54.20	348.10	3,701.78	81.93	-25.84	83.59	26.11
3,737.00	56.40	349.20	3,707.47	89.99	-27.46	91.74	23.79
3,749.00	58.40	350.70	3,713.93	99.95	-29.22	101.80	19.71
3,759.00	60.20	353.30	3,719.04	108.46	-30.42	110.37	28.70
3,769.00	62.20	355.10	3,723.86	117.18	-31.30	119.13	25.47
3,780.00	64.40	356.20	3,728.80	126.98	-32.05	128.96	21.90
3,790.00	66.90	356.60	3,732.92	136.07	-32.62	138.07	25.26
3,800.00	69.60	355.60	3,736.63	145.33	-33.25	147.35	28.55
3,811.00	71.90	354.10	3,740.25	155.68	-34.18	157.74	24.55
3,834.00	78.60	353.00	3,746.11	177.76	-36.68	179.95	29.49
3,865.00	81.30	353.20	3,751.52	208.06	-40.35	210.43	8.73
3,897.00	81.80	353.00	3,756.22	239.49	-44.15	242.05	1.68
3,929.00	82.50	353.30	3,760.59	270.96	-47.93	273.71	2.38
3,961.00	83.70	352.40	3,764.43	302.48	-51.89	305.44	4.68
3,992.00	84.20	352.30	3,767.70	333.03	-55.99	336.21	1.64
4,023.00	84.60	351.90	3,770.73	363.59	-60.23	366.99	1.82
4,053.00	85.90	352.60	3,773.21	393.22	-64.26	396.83	4.92
4,084.00	86.80	353.00	3,775.18	423.91	-68.14	427.72	3.18
4,116.00	87.30	353.80	3,776.83	455.65	-71.82	459.65	2.95
4,147.00	87.70	353.80	3,778.18	486.44	-75.16	490.60	1.29
4,178.00	88.00	354.60	3,779.34	517.26	-78.29	521.56	2.75
4,209.00	88.30	355.40	3,780.35	548.13	-80.99	552.54	2.75
4,240.00	89.10	356.40	3,781.05	579.04	-83.21	583.54	4.13
4,272.00	89.20	357.40	3,781.52	610.99	-84.94	615.53	3.14
4,303.00	88.90	357.50	3,782.04	641.95	-86.32	646.51	1.02
4,335.00	88.50	357.50	3,782.76	673.92	-87.71	678.49	1.25
4,367.00	89.40	359.20	3,783.35	705.90	-88.63	710.45	6.01
4,398.00	88.10	358.80	3,784.03	736.88	-89.17	741.40	4.39
4,429.00	86.50	357.30	3,785.49	767.83	-90.23	772.34	7.07
4,460.00	86.40	357.50	3,787.41	798.74	-91.63	803.27	0.72
4,491.00	87.70	357.70	3,789.00	829.67	-92.93	834.21	4.24
4,522.00	88.00	357.40	3,790.16	860.62	-94.25	865.18	1.37
4,552.00	87.90	357.50	3,791.24	890.57	-95.58	895.15	0.47
4,583.00	87.70	357.60	3,792.43	921.52	-96.91	926.11	0.72
4,615.00	89.20	358.10	3,793.29	953.48	-98.11	958.08	4.94
4,646.00	88.40	357.60	3,793.94	984.45	-99.27	989.05	3.04
4,678.00	86.80	357.10	3,795.28	1,016.39	-100.75	1,021.01	5.24
4,708.00	86.60	357.10	3,797.01	1,046.30	-102.26	1,050.95	0.67
4,738.00	86.40	356.80	3,798.84	1,076.20	-103.86	1,080.89	1.20
4,770.00	87.40	358.10	3,800.57	1,108.12	-105.28	1,112.83	5.12
4,801.00	87.90	358.50	3,801.84	1,139.08	-106.20	1,143.78	2.06
4,832.00	89.80	358.70	3,802.46	1,170.07	-106.96	1,174.74	6.16



Phoenix Technology Services
Phoenix Final Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #353H
Project:	Lea County, NM (NAD83 NME)	TVD Reference:	KB @ 3572.00usft (Key 36)
Site:	NMGSAU	MD Reference:	KB @ 3572.00usft (Key 36)
Well:	#353H	North Reference:	Grid
Wellbore:	OH/Job #1310192	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Key 36)	Database:	GCR DB

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
4,864.00	90.20	358.70	3,802.46	1,202.06	-107.68	1,206.70	1.25
4,896.00	89.60	358.30	3,802.52	1,234.05	-108.52	1,238.66	2.25
4,928.00	89.40	358.70	3,802.80	1,266.04	-109.36	1,270.63	1.40
4,959.00	89.10	358.80	3,803.21	1,297.03	-110.03	1,301.58	1.02
4,991.00	90.00	358.40	3,803.46	1,329.01	-110.81	1,333.55	3.08
5,023.00	90.90	358.30	3,803.21	1,361.00	-111.74	1,365.52	2.83
5,055.00	90.80	358.10	3,802.73	1,392.98	-112.74	1,397.49	0.70
5,086.00	90.40	358.10	3,802.41	1,423.96	-113.77	1,428.46	1.29
5,118.00	90.00	358.80	3,802.29	1,455.95	-114.63	1,460.43	2.52
5,180.00	88.30	357.30	3,803.21	1,517.90	-116.74	1,522.37	3.66
5,243.00	89.40	356.90	3,804.48	1,580.81	-119.93	1,585.34	1.86
5,306.00	86.80	352.70	3,806.57	1,643.50	-125.63	1,648.28	7.84
5,368.00	90.30	353.80	3,808.14	1,705.04	-132.92	1,710.18	5.92
5,431.00	90.20	353.50	3,807.86	1,767.65	-139.88	1,773.13	0.50
5,495.00	91.60	354.50	3,806.86	1,831.29	-146.57	1,837.09	2.69
5,559.00	91.50	354.70	3,805.13	1,894.98	-152.59	1,901.05	0.35
5,621.00	92.40	356.20	3,803.02	1,956.75	-157.51	1,963.01	2.82
5,683.00	92.70	355.80	3,800.26	2,018.53	-161.83	2,024.95	0.81
5,745.00	92.50	356.10	3,797.44	2,080.32	-166.20	2,086.89	0.58
5,809.00	90.80	355.50	3,795.60	2,144.11	-170.89	2,150.86	2.82
5,871.00	90.80	355.70	3,794.74	2,205.93	-175.65	2,212.85	0.32
5,934.00	91.00	355.90	3,793.75	2,268.75	-180.26	2,275.84	0.45
5,997.00	91.90	356.20	3,792.15	2,331.58	-184.60	2,338.82	1.51
6,060.00	89.70	357.30	3,791.27	2,394.47	-188.17	2,401.80	3.90
6,122.00	89.30	357.40	3,791.81	2,456.40	-191.04	2,463.78	0.67
6,185.00	89.60	356.20	3,792.42	2,519.29	-194.55	2,526.77	1.96
6,248.00	91.10	357.90	3,792.03	2,582.21	-197.79	2,589.75	3.60
6,311.00	89.80	357.70	3,791.54	2,645.16	-200.21	2,652.71	2.09
6,375.00	88.10	357.40	3,792.71	2,709.08	-202.95	2,716.67	2.70
6,437.00	87.60	357.50	3,795.04	2,770.98	-205.70	2,778.60	0.82
6,499.00	87.10	357.40	3,797.90	2,832.85	-208.46	2,840.51	0.82
6,561.00	83.90	356.40	3,802.77	2,894.56	-211.80	2,902.30	5.41
6,625.00	85.70	356.90	3,808.57	2,958.19	-215.52	2,966.03	2.92
6,687.00	86.60	358.00	3,812.73	3,019.98	-218.28	3,027.86	2.29
6,750.00	89.10	357.10	3,815.10	3,082.88	-220.97	3,090.78	4.22
6,812.00	88.70	355.50	3,816.29	3,144.73	-224.97	3,152.77	2.66
6,874.00	89.50	353.90	3,817.26	3,206.46	-230.69	3,214.75	2.88
6,937.00	90.40	354.80	3,817.31	3,269.15	-236.90	3,277.72	2.02
6,999.00	90.00	353.20	3,817.10	3,330.81	-243.38	3,339.69	2.66
7,062.00	89.90	352.20	3,817.15	3,393.30	-251.38	3,402.59	1.60
7,125.00	89.40	351.50	3,817.54	3,455.66	-260.31	3,465.43	1.37
7,189.00	89.10	352.00	3,818.38	3,518.99	-269.50	3,529.26	0.91
7,253.00	89.00	351.50	3,819.44	3,582.32	-278.68	3,593.09	0.80
7,315.00	88.70	351.00	3,820.68	3,643.59	-288.11	3,654.88	0.94



Phoenix Technology Services
Phoenix Final Survey Report



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Project:	Lea County, NM (NAD83 NME)	TVD Reference:	KB @ 3572.00usft (Key 36)
Site:	NMGSAU	MD Reference:	KB @ 3572.00usft (Key 36)
Well:	#353H	North Reference:	Grid
Wellbore:	OH/Job #1310192	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Key 36)	Database:	GCR DB

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
7,378.00	88.10	350.30	3,822.44	3,705.72	-298.34	3,717.59	1.46
7,441.00	88.00	350.60	3,824.58	3,767.81	-308.78	3,780.27	0.50
7,503.00	86.90	350.10	3,827.34	3,828.88	-319.17	3,841.93	1.95
7,565.00	87.20	352.00	3,830.53	3,890.04	-328.80	3,903.62	3.10
7,629.00	87.30	351.70	3,833.60	3,953.32	-337.86	3,967.39	0.49
7,692.00	88.90	351.50	3,835.69	4,015.60	-347.06	4,030.18	2.56
7,754.00	87.60	350.50	3,837.59	4,076.81	-356.75	4,091.93	2.64
7,785.00	87.50	350.20	3,838.91	4,107.34	-361.94	4,122.76	1.02
Last Phoenix MWD Survey							
7,829.00	89.35	350.20	3,840.12	4,150.68	-369.43	4,166.52	4.20
Projection to TD							

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,548.00	3,547.74	8.10	-14.52	Tie-on to SDI Gyro
3,624.00	3,622.48	20.11	-14.84	First Phoenix MWD Survey
7,785.00	3,838.91	4,107.34	-361.94	Last Phoenix MWD Survey
7,829.00	3,840.12	4,150.68	-369.43	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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Phoenix Technology Services SURVEY DATA CERTIFICATION



PHOENIX
TECHNOLOGY SERVICES

PHOENIX JOB NUMBER **1310192**

OPERATOR **Apache**

WELL NAME **NMGSAU #353H**

COUNTY & STATE **Lea County, NM**

API WELL NUMBER **30-025-38312**

PROPOSED DIRECTION **356.4**

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
3,548-ft	3,547.74 ft	0.66	293.99	8.10 N	14.52 W	SDI Gyro

FIRST	FIRST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
11-Jul-13	3,624-ft	18.0	0.4

SURVEY INSTRUMENT
TYPE
Phoenix MWD

HOBBS OCD

NOV 12 2013

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LAST	LAST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
21-Jul-13	7,785-ft	87.5	350.2

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
21-Jul-13	7,829 ft	89.35	350.2

Travis LaGarce

PRINT YOUR NAME ABOVE

Travis LaGarce

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	6.67
DECLINATION OR GRID	GRID

7/21/2013

TODAY'S DATE

MWD SUPERVISOR 1

Travis LaGarce

DIRECTIONAL DRILLER 1

David White

MWD SUPERVISOR 2

Marcus Colvin

DIRECTIONAL DRILLER 2

Anthony Walters

1805 Brittmore Road

Houston, Texas 77043

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



PHOENIX
TECHNOLOGY SERVICES

July 23, 2013

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

HOBBS OCD

Re: Apache Corporation
NMGSAU #35 3H
Lea County, NM
API #30-025-38312
Job No. 1310192

NOV 12 2013

RECEIVED

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	
Travis LaGarce	3H	3,624	7,785	07/11/13	07/21/13	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 Aguirre

Dolly Aguirre
Operations Administrator



PHOENIX
TECHNOLOGY SERVICES

July 23, 2013

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

HOBBS OCD

NOV 12 2013

Attention: Regulatory Department

RECEIVED

Re: Apache Corporation
NMGSAU #35 3H
Lea County, NM
API #30-025-38312
Job No. 1310192

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	
Travis LaGarce	3H	3,624	7,785	07/11/13	07/21/13	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 Aguirre

Dolly Aguirre
Operations Administrator

Certified mail receipt number: 7011 1570 0001 4364 8530

APACHE CORP

NMGSAU

Lea County, NM 30-025-38312

NMGSA #353

VH - Job #320713-KW-685

M-4-205-37E
1140' FSL + 260' FWL

HOBBS OCD

Survey: Gyro

NOV 12 2013

RECEIVED

SDI Survey Report

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

Richard

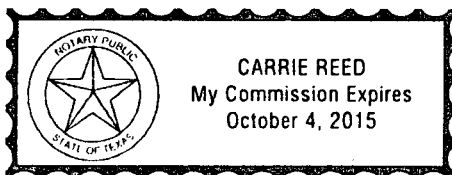
Notarized this date 6th of August, 2013.

Carrie Reed

Notary Signature

County of Midland

State of Texas



SDI
SDI Survey Report

Company:	APACHE CORP	Local Co-ordinate Reference:	Well NMGSA #353
Project:	NMGSAU	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Lea County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	NMGSA #353	North Reference:	Grid
Wellbore:	VH - Job #320713-KW-685	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #320713-KW-685	Database:	EDM-Regulatory

Project	NMGSAU		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico Central 3002		

Site	Lea County, NM		
Site Position:		Northing:	595,387.88 usft
From:	Lat/Long	Easting:	1,403,711.01 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Latitude:	32° 36' 9.176 N
		Longitude:	103° 18' 57.298 W
		Grid Convergence:	1.58 °

Well	NMGSA #353, Vertical		
Well Position	+N/-S	0.0 usft	Northing: 594,170.06 usft
	+E/-W	0.0 usft	Easting: 1,419,843.61 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 35' 52.699 N
		Longitude:	103° 15' 49.356 W
		Ground Level:	0.0 usft

Wellbore	VH - Job #320713-KW-685				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	7/6/2013	7.21	60.56	48,736

Design	VH - Job #320713-KW-685			
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	356.44

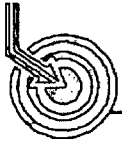
Survey Program	Date 8/12/2013			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	3,548.0	Gyro (VH - Job #320713-KW-685)	Keeper	Keeper Gyro

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	0.09	286.47	100.0	0.0	-0.1	286.47	0.1	
200.0	0.17	203.39	200.0	-0.1	-0.2	246.38	0.2	
300.0	0.10	246.67	300.0	-0.3	-0.3	233.03	0.4	
400.0	0.41	220.02	400.0	-0.6	-0.7	229.09	0.9	
500.0	0.42	241.16	500.0	-1.0	-1.2	229.82	1.6	
600.0	0.62	229.21	600.0	-1.6	-1.9	231.35	2.5	
700.0	0.46	231.43	700.0	-2.2	-2.7	231.02	3.4	
800.0	0.61	233.60	800.0	-2.7	-3.4	231.37	4.4	
900.0	0.54	214.03	900.0	-3.4	-4.1	230.09	5.3	
1,000.0	0.63	230.03	1,000.0	-4.2	-4.8	228.91	6.3	
1,100.0	0.71	215.51	1,100.0	-5.0	-5.6	227.89	7.5	

SDI
SDI Survey Report

Company:	APACHE CORP	Local Co-ordinate Reference:	Well NMGSA #353
Project:	NMGSAU	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Lea County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	NMGSA #353	North Reference:	Grid
Wellbore:	VH - Job #320713-KW-685	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #320713-KW-685	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	0.73	228.58	1,200.0	-6.0	-6.4	227.07	8.7	
1,300.0	0.91	248.92	1,299.9	-6.7	-7.6	228.84	10.1	
1,400.0	1.06	242.48	1,399.9	-7.4	-9.2	231.23	11.8	
1,500.0	1.03	252.68	1,499.9	-8.1	-10.9	233.38	13.5	
1,600.0	1.12	264.07	1,599.9	-8.4	-12.7	236.38	15.2	
1,700.0	1.08	265.18	1,699.9	-8.6	-14.6	239.45	17.0	
1,800.0	0.58	283.83	1,799.9	-8.6	-16.0	241.85	18.2	
1,900.0	0.58	3.05	1,899.9	-8.0	-16.5	244.27	18.3	
2,000.0	0.91	24.37	1,999.9	-6.7	-16.1	247.39	17.5	
2,100.0	1.01	20.79	2,099.8	-5.2	-15.5	251.54	16.3	
2,200.0	0.98	19.32	2,199.8	-3.5	-14.9	256.63	15.3	
2,300.0	0.87	27.62	2,299.8	-2.1	-14.3	261.77	14.4	
2,400.0	1.00	36.23	2,399.8	-0.7	-13.4	267.06	13.4	
2,500.0	0.90	20.74	2,499.8	0.8	-12.6	273.41	12.6	
2,600.0	0.69	25.97	2,599.8	2.0	-12.1	279.53	12.2	
2,700.0	0.61	25.68	2,699.8	3.0	-11.6	284.75	12.0	
2,800.0	0.69	10.24	2,799.8	4.1	-11.2	290.14	12.0	
2,900.0	0.53	356.32	2,899.8	5.2	-11.2	294.88	12.3	
3,000.0	0.42	345.54	2,999.8	6.0	-11.3	297.97	12.8	
3,100.0	0.54	320.49	3,099.8	6.7	-11.7	299.89	13.5	
3,200.0	0.33	311.08	3,199.8	7.3	-12.2	300.79	14.2	
3,300.0	0.39	312.71	3,299.7	7.7	-12.7	301.26	14.8	
3,400.0	0.45	281.26	3,399.7	8.0	-13.3	301.01	15.5	
3,500.0	0.40	276.67	3,499.7	8.1	-14.0	300.03	16.2	
3,548.0	0.66	294.57	3,547.7	8.2	-14.4	299.71	16.6	

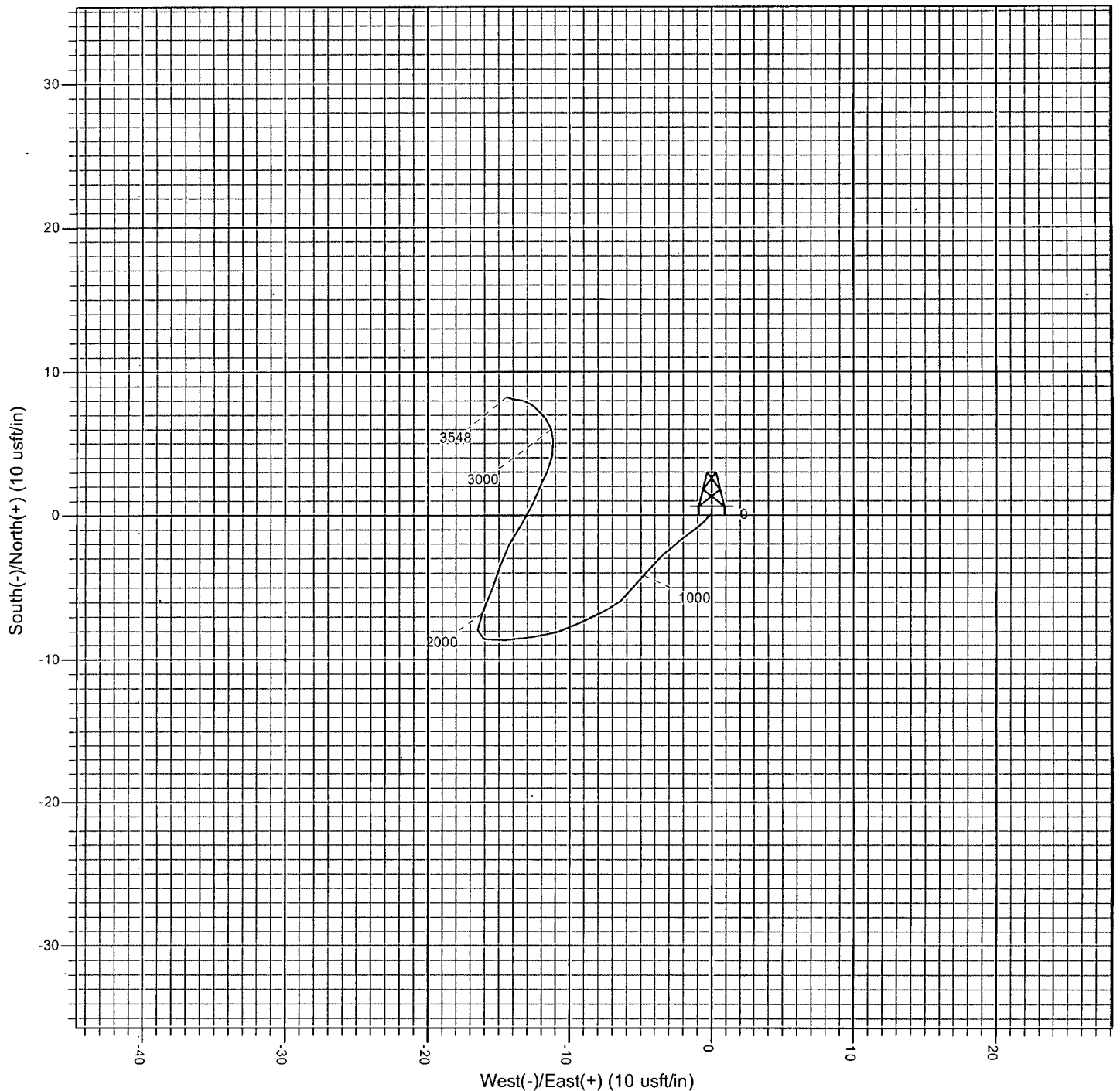


Scientific Drilling

Project: NMGSAU
Lea County, NM
Well: NMGSA #353
Wellbore: VH - Job #320713-KW-685
Design: VH - Job #320713-KW-685

WELL DETAILS: NMGSA #353
WELL @ 0.0usft (Original Well Elev)
Ground Level: 0.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	594170.06	1419843.61	32° 35' 52.699 N	103° 15' 49.356 W	



PROJECT DETAILS: NMGSAU	SITE DETAILS: Lea County, NM
Geodetic System: US State Plane 1927 (Exact solution)	Site Centre Latitude: 32° 36' 9.176 N
Datum: NAD 1927 (NADCON CONUS)	Longitude: 103° 18' 57.298 W
Ellipsoid: Clarke 1866	Positional Uncertainty: 0.0
Zone: New Mexico Central 3002	Convergence: 1.58
System Datum: Mean Sea Level	Local North: Grid