

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NMOCD

Hobbs

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*5. Lease Serial No.
NMNM116166

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other2. Name of Operator
MCELVAIN OIL & GAS PROP INC

Contact: TONY G COOPER

E-Mail: tony.cooper@mcelvain.com

8. Well Name and No.

EK 29 BS2 FEDERAL COM 3H

3a. Address

1050 17TH STREET SUITE 1800
DENVER, CO 80265-1801

3b. Phone No. (include area code)

Ph: 303-893-0933 Ext: 331

9. API Well No.

30-025-42699-00-X1

10. Field and Pool, or Exploratory
E K

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 29 T18S R34E SESW 305FSL 2155FWL

11. County or Parish, and State

LEA COUNTY, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☐ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☒ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

See attached Final Survey Report.

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #352828 verified by the BLM Well Information System
For MCELVAIN OIL & GAS PROP INC, sent to the Hobbs
Committed to AFMSS for processing by JENNIFER SANCHEZ on 10/03/2016 (17JAS0005SE)

Name (Printed/Typed) CHRIS CAPLIS

Title VP DRILLING AND COMPLETION

Signature (Electronic Submission)

Date 09/28/2016

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By

Title

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED **

K3



McElvain Energy, Inc.

Lea County, NM (NAD83)
EK 29 BS2 Federal Com
3H

OH / Job 60185

Survey: Phoenix MWD Surveys

Standard Survey Report

30 August, 2016





Phoenix Technology Services LP
Survey Report



Company:	McElvain Energy, Inc.	Local Co-ordinate Reference:	Well 3H
Project:	Lea County, NM (NAD83)	TVD Reference:	RKB @ 3968.00usft (H&P 497)
Site:	EK 29 BS2 Federal Com	MD Reference:	RKB @ 3968.00usft (H&P 497)
Well:	3H	North Reference:	Grid
Wellbore:	OH / Job 60185	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (H&P 497)	Database:	Compass 5000 GCR

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

Site	EK 29 BS2 Federal Com		
Site Position:		Northing:	623,533.90 usft
From:	Map	Easting:	769,543.90 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 42' 42.98578 N
		Longitude:	103° 35' 28.94512 W
		Grid Convergence:	0.40 "

Well	3H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 42' 44.27059 N
		Longitude:	103° 35' 2.56113 W
		Ground Level:	3,943.00 usft

Wellbore	OH / Job 60185		
Magnetics	Model Name	Sample Date	Declination
			(°)
	HDGM	7/25/2016	6.82
			Dip Angle
			(°)
			60.78
			Field Strength
			(nT)
			48,467

Design	Surveys (H&P 497)		
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
			(°)
			357.19

Survey Program	Date 8/30/2016		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
118.00	1,785.00	VES Gyro Surveys (OH / Job 60185 (Surfa	NS-GYRO-MS
1,833.00	14,814.00	Phoenix MWD Surveys (OH / Job 60185)	PHX+MWD+HDGM
			Description
			North sensing gyrocompassing m/s
			PHX+OWSG MWD + HDGM

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate
(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)
1,785.00	0.31	178.49	1,784.94	-2.39	11.76	-2.96	0.00	0.00	0.00
1,785.01	0.31	178.49	1,784.95	-2.39	11.76	-2.96	0.00	0.00	0.00
Tie In to VES Gyros									
1,833.00	0.40	104.90	1,832.94	-2.56	11.93	-3.14	0.90	0.19	-153.33
First Phoenix MWD Survey									
1,928.00	0.30	83.90	1,927.94	-2.62	12.49	-3.23	0.17	-0.11	-22.11
2,069.00	0.30	155.70	2,068.94	-2.92	13.01	-3.55	0.25	0.00	50.92
2,163.00	0.30	148.90	2,162.94	-3.35	13.24	-4.00	0.04	0.00	-7.23
2,258.00	0.30	90.20	2,257.94	-3.57	13.62	-4.23	0.31	0.00	-61.79



Phoenix Technology Services LP

Survey Report



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Site:	EK 29 BS2 Federal Com	MD Reference:	RKB @ 3968.00usft (H&P 497)
Well:	3H	North Reference:	Grid
Wellbore:	OH / Job 60185	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (H&P 497)	Database:	Compass 5000 GCR

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
2,352.00	0.50	132.60	2,351.94	-3.85	14.17	-4.54	0.37	0.21	45.11	
2,446.00	0.40	122.40	2,445.93	-4.30	14.74	-5.02	0.14	-0.11	-10.85	
2,540.00	0.50	131.00	2,539.93	-4.74	15.33	-5.49	0.13	0.11	9.15	
2,635.00	0.90	99.70	2,634.92	-5.14	16.38	-5.94	0.57	0.42	-32.95	
2,729.00	1.00	100.50	2,728.91	-5.42	17.91	-6.29	0.11	0.11	0.85	
2,823.00	1.10	87.00	2,822.89	-5.52	19.62	-6.47	0.28	0.11	-14.36	
2,918.00	1.10	93.80	2,917.88	-5.53	21.44	-6.58	0.14	0.00	7.16	
3,012.00	1.10	84.10	3,011.86	-5.50	23.24	-6.63	0.20	0.00	-10.32	
3,106.00	1.40	94.70	3,105.84	-5.50	25.28	-6.73	0.40	0.32	11.28	
3,200.00	1.10	100.60	3,199.81	-5.76	27.31	-7.09	0.35	-0.32	6.28	
3,295.00	0.60	96.70	3,294.80	-5.99	28.70	-7.39	0.53	-0.53	-4.11	
3,389.00	0.80	105.70	3,388.80	-6.22	29.82	-7.67	0.24	0.21	9.57	
3,483.00	0.40	240.10	3,482.79	-6.56	30.17	-8.03	1.19	-0.43	142.98	
3,578.00	0.40	258.50	3,577.79	-6.79	29.56	-8.23	0.13	0.00	19.37	
3,672.00	0.40	271.60	3,671.79	-6.85	28.91	-8.26	0.10	0.00	13.94	
3,766.00	0.40	263.90	3,765.79	-6.87	28.25	-8.25	0.06	0.00	-8.19	
3,861.00	0.70	275.50	3,860.78	-6.85	27.35	-8.19	0.34	0.32	12.21	
3,955.00	0.50	295.40	3,954.78	-6.62	26.41	-7.91	0.30	-0.21	21.17	
4,049.00	0.60	262.40	4,048.77	-6.51	25.55	-7.76	0.35	0.11	-35.11	
4,144.00	0.40	279.80	4,143.77	-6.52	24.73	-7.73	0.26	-0.21	18.32	
4,238.00	0.80	284.60	4,237.76	-6.30	23.77	-7.46	0.43	0.43	5.11	
4,333.00	0.70	273.80	4,332.76	-6.10	22.55	-7.19	0.18	-0.11	-11.37	
4,427.00	0.60	274.00	4,426.75	-6.02	21.48	-7.07	0.11	-0.11	0.21	
4,522.00	0.80	278.40	4,521.74	-5.89	20.33	-6.88	0.22	0.21	4.63	
4,616.00	0.60	299.30	4,615.74	-5.55	19.25	-6.49	0.34	-0.21	22.23	
4,711.00	0.80	280.90	4,710.73	-5.19	18.17	-6.07	0.31	0.21	-19.37	
4,805.00	0.80	297.00	4,804.72	-4.76	16.94	-5.59	0.24	0.00	17.13	
4,878.00	0.50	285.60	4,877.72	-4.45	16.18	-5.23	0.45	-0.41	-15.62	
5,010.00	1.00	309.90	5,009.70	-3.55	14.74	-4.27	0.44	0.38	18.41	
5,105.00	0.80	304.20	5,104.69	-2.65	13.56	-3.31	0.23	-0.21	-6.00	
5,199.00	0.70	292.30	5,198.68	-2.06	12.48	-2.67	0.20	-0.11	-12.66	
5,294.00	0.70	275.70	5,293.68	-1.78	11.37	-2.34	0.21	0.00	-17.47	
5,388.00	0.60	260.60	5,387.67	-1.81	10.31	-2.31	0.21	-0.11	-16.06	
5,483.00	1.00	258.70	5,482.66	-2.05	9.01	-2.49	0.42	0.42	-2.00	
5,577.00	1.00	255.10	5,576.65	-2.42	7.41	-2.78	0.07	0.00	-3.83	
5,672.00	1.50	252.70	5,671.62	-3.01	5.42	-3.27	0.53	0.53	-2.53	
5,767.00	1.60	266.30	5,766.59	-3.46	2.91	-3.60	0.40	0.11	14.32	
5,861.00	1.80	276.10	5,860.55	-3.39	0.13	-3.39	0.37	0.21	10.43	
5,956.00	1.60	273.70	5,955.51	-3.14	-2.67	-3.01	0.22	-0.21	-2.53	
6,050.00	1.60	280.50	6,049.47	-2.82	-5.27	-2.56	0.20	0.00	7.23	
6,145.00	1.20	262.20	6,144.44	-2.71	-7.56	-2.34	0.63	-0.42	-19.26	
6,239.00	1.60	180.20	6,238.42	-4.16	-8.54	-3.74	1.98	0.43	-87.23	
6,333.00	3.60	163.50	6,332.32	-8.30	-7.71	-7.91	2.25	2.13	-17.77	



Phoenix Technology Services LP

Survey Report



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Well:	3H	North Reference:	Grid
Wellbore:	OH / Job 60185	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (H&P 497)	Database:	Compass 5000 GCR

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,428.00	4.70	157.60	6,427.07	-14.76	-5.38	-14.48	1.24	1.16	-6.21
6,522.00	5.80	159.30	6,520.68	-22.76	-2.23	-22.63	1.18	1.17	1.81
6,617.00	5.70	159.40	6,615.20	-31.67	1.12	-31.69	0.11	-0.11	0.11
6,711.00	5.80	159.10	6,708.73	-40.48	4.46	-40.65	0.11	0.11	-0.32
6,806.00	5.50	162.20	6,803.26	-49.30	7.56	-49.61	0.45	-0.32	3.26
6,900.00	5.70	165.30	6,896.82	-58.10	10.13	-58.53	0.39	0.21	3.30
6,994.00	5.40	170.30	6,990.38	-66.98	12.06	-67.49	0.61	-0.32	5.32
7,089.00	5.70	173.10	7,084.93	-76.07	13.38	-76.63	0.43	0.32	2.95
7,183.00	5.60	176.00	7,178.47	-85.28	14.26	-85.87	0.32	-0.11	3.09
7,278.00	5.60	176.90	7,273.02	-94.53	14.83	-95.14	0.09	0.00	0.95
7,372.00	5.40	176.30	7,366.59	-103.52	15.36	-104.15	0.22	-0.21	-0.64
7,467.00	5.20	175.60	7,461.18	-112.27	15.98	-112.92	0.22	-0.21	-0.74
7,561.00	4.70	178.10	7,554.83	-120.37	16.44	-121.03	0.58	-0.53	2.66
7,656.00	4.70	186.40	7,649.51	-128.13	16.13	-128.77	0.72	0.00	8.74
7,750.00	5.70	188.20	7,743.12	-136.58	15.04	-137.15	1.08	1.06	1.91
7,845.00	5.50	189.00	7,837.67	-145.74	13.65	-146.24	0.23	-0.21	0.84
7,939.00	5.00	188.20	7,931.28	-154.25	12.36	-154.67	0.54	-0.53	-0.85
8,033.00	4.60	191.70	8,024.95	-161.99	11.01	-162.34	0.53	-0.43	3.72
8,128.00	5.10	183.20	8,119.61	-169.94	10.01	-170.22	0.92	0.53	-8.95
8,222.00	5.00	185.30	8,213.24	-178.19	9.40	-178.43	0.22	-0.11	2.23
8,317.00	4.60	185.30	8,307.91	-186.10	8.66	-186.30	0.42	-0.42	0.00
8,411.00	5.90	167.40	8,401.52	-194.57	9.37	-194.80	2.21	1.38	-19.04
8,506.00	6.00	167.40	8,496.01	-204.18	11.51	-204.50	0.11	0.11	0.00
8,601.00	5.30	165.20	8,590.54	-213.27	13.72	-213.69	0.77	-0.74	-2.32
8,695.00	4.80	162.10	8,684.18	-221.21	16.04	-221.73	0.61	-0.53	-3.30
8,789.00	4.40	161.10	8,777.88	-228.36	18.41	-228.99	0.43	-0.43	-1.06
8,883.00	4.10	157.30	8,871.62	-234.88	20.88	-235.62	0.44	-0.32	-4.04
8,978.00	4.20	159.60	8,966.37	-241.27	23.40	-242.13	0.20	0.11	2.42
9,072.00	3.00	163.90	9,060.18	-246.86	25.28	-247.80	1.31	-1.28	4.57
9,166.00	2.90	160.80	9,154.06	-251.47	26.75	-252.48	0.20	-0.11	-3.30
9,260.00	1.70	191.90	9,247.98	-255.08	27.24	-256.11	1.80	-1.28	33.09
9,355.00	1.40	191.60	9,342.95	-257.59	26.72	-258.59	0.32	-0.32	-0.32
9,434.00	1.20	193.50	9,421.93	-259.34	26.33	-260.32	0.26	-0.25	2.41
9,528.00	5.60	1.00	9,515.80	-255.71	26.18	-256.69	7.21	4.68	178.19
9,560.00	12.00	355.30	9,547.41	-250.83	25.94	-251.80	20.16	20.00	-17.81
9,591.00	17.50	352.80	9,577.38	-242.99	25.09	-243.93	17.86	17.74	-8.06
9,623.00	21.20	351.70	9,607.57	-232.49	23.65	-233.37	11.62	11.56	-3.44
9,654.00	25.60	350.80	9,636.01	-220.32	21.77	-221.12	14.24	14.19	-2.90
9,685.00	29.40	349.70	9,663.50	-206.22	19.33	-206.92	12.37	12.26	-3.55
9,717.00	31.70	351.20	9,691.06	-190.18	16.64	-190.77	7.57	7.19	4.69
9,748.00	33.50	354.20	9,717.17	-173.62	14.53	-174.12	7.80	5.81	9.68
9,780.00	35.20	354.40	9,743.59	-155.65	12.74	-156.09	5.32	5.31	0.63
9,811.00	36.80	353.60	9,768.67	-137.53	10.83	-137.90	5.38	5.16	-2.58
9,842.00	38.60	353.10	9,793.20	-118.70	8.64	-118.98	5.89	5.81	-1.61



Phoenix Technology Services LP

Survey Report



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Well:	3H	North Reference:	Grid
Wellbore:	OH / Job 60185	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (H&P 497)	Database:	Compass 5000 GCR

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,874.00	40.60	351.60	9,817.85	-98.49	5.92	-98.66	6.93	6.25	-4.69
9,905.00	43.40	351.10	9,840.89	-77.98	2.79	-78.03	9.10	9.03	-1.61
9,937.00	46.50	351.70	9,863.53	-55.63	-0.58	-55.54	9.78	9.69	1.88
9,968.00	49.40	352.30	9,884.30	-32.84	-3.78	-32.62	9.46	9.35	1.94
10,000.00	51.50	353.30	9,904.67	-8.36	-6.87	-8.02	6.99	6.56	3.13
10,031.00	54.20	354.30	9,923.39	16.20	-9.54	16.65	9.08	8.71	3.23
10,063.00	56.40	355.20	9,941.61	42.40	-11.94	42.93	7.25	6.88	2.81
10,094.00	59.10	355.60	9,958.15	68.53	-14.04	69.13	8.78	8.71	1.29
10,126.00	64.10	355.10	9,973.36	96.57	-16.33	97.26	15.69	15.63	-1.56
10,157.00	67.20	355.80	9,986.14	124.72	-18.56	125.48	10.21	10.00	2.26
10,189.00	69.90	355.70	9,997.84	154.42	-20.77	155.25	8.44	8.44	-0.31
10,220.00	72.10	356.80	10,007.94	183.67	-22.69	184.56	7.85	7.10	3.55
10,251.00	74.70	358.90	10,016.79	213.35	-23.80	214.26	10.61	8.39	6.77
10,283.00	77.60	0.80	10,024.45	244.42	-23.88	245.29	10.74	9.06	5.94
10,314.00	81.30	3.10	10,030.13	274.87	-22.84	275.66	13.99	11.94	7.42
10,340.00	83.40	3.50	10,033.59	300.59	-21.35	301.28	8.22	8.08	1.54
10,371.00	85.70	3.70	10,036.53	331.39	-19.41	331.94	7.45	7.42	0.65
10,403.00	87.80	2.80	10,038.35	363.28	-17.60	363.71	7.14	6.56	-2.81
10,434.00	89.90	1.00	10,038.97	394.26	-16.58	394.59	8.92	6.77	-5.81
10,528.00	93.10	358.70	10,036.51	488.21	-16.82	488.44	4.19	3.40	-2.45
10,623.00	91.50	357.50	10,032.70	583.07	-19.97	583.35	2.10	-1.68	-1.26
10,717.00	90.00	357.50	10,031.47	676.97	-24.07	677.34	1.60	-1.60	0.00
10,811.00	90.60	357.90	10,030.97	770.89	-27.84	771.33	0.77	0.64	0.43
10,906.00	92.50	358.60	10,028.40	865.81	-30.74	866.28	2.13	2.00	0.74
11,000.00	93.60	358.70	10,023.40	959.65	-32.95	960.11	1.18	1.17	0.11
11,095.00	93.80	358.70	10,017.27	1,054.43	-35.10	1,054.88	0.21	0.21	0.00
11,189.00	92.80	359.60	10,011.86	1,148.26	-36.49	1,148.67	1.43	-1.06	0.96
11,284.00	91.70	359.90	10,008.13	1,243.18	-36.91	1,243.50	1.20	-1.16	0.32
11,378.00	92.90	358.00	10,004.36	1,337.09	-38.63	1,337.37	2.39	1.28	-2.02
11,472.00	92.10	356.00	10,000.26	1,430.86	-43.54	1,431.28	2.29	-0.85	-2.13
11,567.00	93.40	355.80	9,995.70	1,525.51	-50.33	1,526.14	1.38	1.37	-0.21
11,661.00	92.60	355.70	9,990.78	1,619.12	-57.28	1,619.98	0.86	-0.85	-0.11
11,756.00	92.10	356.00	9,986.88	1,713.79	-64.15	1,714.87	0.61	-0.53	0.32
11,850.00	91.60	354.90	9,983.85	1,807.44	-71.61	1,808.78	1.28	-0.53	-1.17
11,945.00	93.80	354.70	9,979.38	1,901.94	-80.21	1,903.59	2.33	2.32	-0.21
12,039.00	94.10	355.40	9,972.90	1,995.37	-88.30	1,997.30	0.81	0.32	0.74
12,133.00	91.30	356.00	9,968.47	2,088.99	-95.34	2,091.15	3.05	-2.98	0.64
12,227.00	92.10	356.40	9,965.68	2,182.74	-101.56	2,185.10	0.95	0.85	0.43
12,322.00	91.30	356.20	9,962.87	2,277.50	-107.69	2,280.04	0.87	-0.84	-0.21
12,416.00	92.10	356.00	9,960.08	2,371.24	-114.08	2,373.98	0.88	0.85	-0.21
12,510.00	90.50	355.90	9,957.94	2,464.98	-120.72	2,467.93	1.71	-1.70	-0.11
12,604.00	89.10	355.90	9,958.27	2,558.73	-127.44	2,561.91	1.49	-1.49	0.00
12,699.00	90.90	355.40	9,958.27	2,653.46	-134.65	2,656.87	1.97	1.89	-0.53



Phoenix Technology Services LP

Survey Report



Company:	McElvain Energy, Inc.	Local Co-ordinate Reference:	Well 3H
Project:	Lea County, NM (NAD83)	TVD Reference:	RKB @ 3968.00usft (H&P 497)
Site:	EK 29 BS2 Federal Com	MD Reference:	RKB @ 3968.00usft (H&P 497)
Well:	3H	North Reference:	Grid
Wellbore:	OH / Job 60185	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (H&P 497)	Database:	Compass 5000 GCR

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,793.00	90.00	356.00	9,957.53	2,747.19	-141.69	2,750.83	1.15	-0.96	0.64
12,887.00	91.70	355.60	9,956.14	2,840.92	-148.58	2,844.79	1.86	1.81	-0.43
12,981.00	91.80	356.00	9,953.27	2,934.63	-155.46	2,938.72	0.44	0.11	0.43
13,076.00	90.40	357.10	9,951.45	3,029.43	-161.17	3,033.69	1.87	-1.47	1.16
13,170.00	92.10	356.80	9,949.39	3,123.27	-166.17	3,127.66	1.84	1.81	-0.32
13,264.00	91.50	357.40	9,946.44	3,217.11	-170.93	3,221.62	0.90	-0.64	0.64
13,359.00	93.20	357.30	9,942.55	3,311.92	-175.31	3,316.53	1.79	1.79	-0.11
13,453.00	92.60	357.50	9,937.79	3,405.70	-179.57	3,410.41	0.67	-0.64	0.21
13,547.00	91.70	357.40	9,934.26	3,499.54	-183.75	3,504.34	0.96	-0.96	-0.11
13,641.00	90.70	357.40	9,932.30	3,593.42	-188.02	3,598.32	1.06	-1.06	0.00
13,735.00	92.80	357.20	9,929.43	3,687.27	-192.44	3,692.27	2.24	2.23	-0.21
13,829.00	90.90	357.30	9,926.39	3,781.11	-196.95	3,786.22	2.02	-2.02	0.11
13,923.00	91.80	357.50	9,924.18	3,874.99	-201.21	3,880.19	0.98	0.96	0.21
14,018.00	93.60	356.90	9,919.70	3,969.76	-205.85	3,975.08	2.00	1.89	-0.63
14,112.00	93.80	356.90	9,913.64	4,063.43	-210.92	4,068.88	0.21	0.21	0.00
14,207.00	92.30	356.60	9,908.58	4,158.14	-216.30	4,163.74	1.61	-1.58	-0.32
14,301.00	93.30	355.50	9,903.99	4,251.80	-222.76	4,257.61	1.58	1.06	-1.17
14,395.00	93.50	354.20	9,898.41	4,345.25	-231.19	4,351.36	1.40	0.21	-1.38
14,489.00	92.00	354.20	9,893.90	4,438.66	-240.68	4,445.13	1.60	-1.60	0.00
14,584.00	92.20	353.00	9,890.42	4,533.01	-251.26	4,539.87	1.28	0.21	-1.26
14,679.00	92.80	352.90	9,886.28	4,627.20	-262.91	4,634.52	0.64	0.63	-0.11
14,759.00	92.90	351.60	9,882.30	4,706.37	-273.68	4,714.13	1.63	0.13	-1.63
Final Phoenix MWD Survey									
14,814.00	92.90	351.60	9,879.52	4,760.71	-281.71	4,768.79	0.00	0.00	0.00
Projection to TD									

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,785.01	1,784.95	-2.39	11.76	Tie In to VES Gyros
1,833.00	1,832.94	-2.56	11.93	First Phoenix MWD Survey
14,759.00	9,882.30	4,706.37	-273.68	Final Phoenix MWD Survey
14,814.00	9,879.52	4,760.71	-281.71	Projection to TD