



# **Chevron**

**Lea County, NM (NAD27 NME)**

**SD WE 23 Fed**

**P5 2H**

**OH / Job 60135**

**Survey: Phoenix MWD Surveys**

## **Standard Survey Report**

**27 June, 2016**





Phoenix Technology Services  
Survey Report



<b>Company:</b>	Chevron	<b>Local Co-ordinate Reference:</b>	Well P5 2H
<b>Project:</b>	Lea County, NM (NAD27 NME)	<b>TVD Reference:</b>	RKB @ 3189.00usft (Pace X30)
<b>Site:</b>	SD WE 23 Fed	<b>MD Reference:</b>	RKB @ 3189.00usft (Pace X30)
<b>Well:</b>	P5 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH / Job 60135	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys (Pace X30)	<b>Database:</b>	Compass 5000 GCR

<b>Project</b>	Lea County, NM (NAD27 NME)		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	New Mexico East 3001		

<b>Site</b>	SD WE 23 Fed				
<b>Site Position:</b>		<b>Northing:</b>	377,312.00 usft	<b>Latitude:</b>	32° 2' 7.84590 N
<b>From:</b>	Map	<b>Easting:</b>	711,242.00 usft	<b>Longitude:</b>	103° 39' 5.90418 W
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.36 °

<b>Well</b>	P5 2H					
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	377,312.00 usft	<b>Latitude:</b>	32° 2' 7.84277 N
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	711,292.00 usft	<b>Longitude:</b>	103° 39' 5.32334 W
<b>Position Uncertainty</b>	0.00 usft		<b>Wellhead Elevation:</b>	0.00 usft	<b>Ground Level:</b>	3,156.00 usft

<b>Wellbore</b>	OH / Job 60135				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	6/15/2016	6.95	59.75	48,027

<b>Design</b>	Surveys (Pace X30)				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	176.39	

<b>Survey Program</b>	Date 6/27/2016			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
175.00	656.00	Teledrift MWD Surveys (OH / Job 60135)	MWD	MWD - Standard
768.00	8,513.00	Phoenix MWD Surveys (OH / Job 60135)	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
656.00	0.40	265.00	655.98	-3.21	-3.32	2.99	0.00	0.00	0.00	
<b>Tie In</b>										
768.00	0.40	246.20	767.97	-3.40	-4.07	3.14	0.12	0.00	-16.79	
<b>First Phoenix MWD Survey</b>										
945.00	0.60	238.90	944.97	-4.13	-5.43	3.78	0.12	0.11	-4.12	
1,123.00	2.10	111.40	1,122.93	-5.80	-3.19	5.59	1.41	0.84	-71.63	
1,301.00	5.70	102.00	1,300.49	-8.83	8.50	9.35	2.05	2.02	-5.28	
1,478.00	7.10	99.80	1,476.38	-12.52	27.88	14.25	0.80	0.79	-1.24	
1,655.00	7.20	99.50	1,652.01	-16.21	49.60	19.30	0.06	0.06	-0.17	



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Survey Report



<b>Company:</b>	Chevron	<b>Local Co-ordinate Reference:</b>	Well P5 2H
<b>Project:</b>	Lea County, NM (NAD27 NME)	<b>TVD Reference:</b>	RKB @ 3189.00usft (Pace X30)
<b>Site:</b>	SD WE 23 Fed	<b>MD Reference:</b>	RKB @ 3189.00usft (Pace X30)
<b>Well:</b>	P5 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH / Job 60135	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys (Pace X30)	<b>Database:</b>	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)	
1,832.00	7.40	100.60	1,827.57	-20.14	71.74	24.62	0.14	0.11	0.62	
2,010.00	6.50	110.00	2,004.27	-25.69	92.48	31.47	0.81	-0.51	5.28	
2,187.00	6.20	113.70	2,180.18	-32.96	110.64	39.87	0.29	-0.17	2.09	
2,365.00	6.40	112.70	2,357.11	-40.66	128.60	48.68	0.13	0.11	-0.56	
2,542.00	6.60	113.80	2,532.97	-48.57	147.00	57.73	0.13	0.11	0.62	
2,720.00	5.60	120.10	2,709.96	-57.05	163.88	67.26	0.68	-0.56	3.54	
2,898.00	4.20	93.10	2,887.33	-61.76	177.90	72.85	1.49	-0.79	-15.17	
3,076.00	4.10	91.40	3,064.86	-62.27	190.77	74.16	0.09	-0.06	-0.96	
3,253.00	5.80	91.10	3,241.20	-62.59	206.04	75.45	0.96	0.96	-0.17	
3,431.00	6.50	87.60	3,418.17	-62.34	225.10	76.40	0.45	0.39	-1.97	
3,608.00	6.80	96.70	3,593.99	-63.15	245.52	78.49	0.62	0.17	5.14	
3,786.00	6.60	98.70	3,770.77	-65.92	266.10	82.56	0.17	-0.11	1.12	
3,963.00	6.70	102.40	3,946.58	-69.68	286.23	87.58	0.25	0.06	2.09	
4,140.00	5.00	115.80	4,122.66	-75.26	303.27	94.21	1.23	-0.96	7.57	
4,317.00	4.20	140.50	4,299.11	-83.61	314.33	103.25	1.20	-0.45	13.95	
4,488.00	1.50	166.70	4,469.89	-90.63	318.83	110.53	1.71	-1.58	15.32	
4,686.00	1.90	235.10	4,667.82	-95.03	316.74	114.79	0.98	0.20	34.55	
4,864.00	2.50	278.20	4,845.70	-96.16	310.47	115.53	0.96	0.34	24.21	
5,041.00	2.70	279.80	5,022.51	-94.90	302.54	113.77	0.12	0.11	0.90	
5,219.00	1.50	315.80	5,200.40	-92.52	296.79	111.03	0.97	-0.67	20.22	
5,396.00	1.30	313.20	5,377.34	-89.48	293.71	107.81	0.12	-0.11	-1.47	
5,574.00	1.30	294.30	5,555.30	-87.27	290.40	105.39	0.24	0.00	-10.62	
5,751.00	1.50	323.80	5,732.25	-84.57	287.20	102.50	0.42	0.11	16.67	
5,928.00	1.60	327.80	5,909.18	-80.61	284.51	98.38	0.08	0.06	2.26	
6,105.00	1.90	332.50	6,086.10	-75.92	281.84	93.52	0.19	0.17	2.66	
6,282.00	1.20	39.00	6,263.05	-71.88	281.65	89.48	1.02	-0.40	37.57	
6,460.00	1.00	35.90	6,441.01	-69.17	283.74	86.91	0.12	-0.11	-1.74	
6,638.00	0.70	40.90	6,619.00	-67.09	285.36	84.93	0.17	-0.17	2.81	
6,815.00	0.30	56.30	6,795.99	-66.01	286.45	83.93	0.24	-0.23	8.70	
6,992.00	0.50	50.30	6,972.98	-65.26	287.43	83.24	0.12	0.11	-3.39	
7,170.00	0.70	31.30	7,150.97	-63.84	288.60	81.89	0.16	0.11	-10.67	
7,347.00	1.60	194.90	7,327.96	-65.30	288.52	83.35	1.29	0.51	92.43	
7,524.00	1.90	169.70	7,504.88	-70.58	288.41	88.61	0.46	0.17	-14.24	
7,702.00	1.90	178.20	7,682.78	-76.43	289.03	94.49	0.16	0.00	4.78	
7,880.00	0.40	172.10	7,860.74	-80.00	289.21	98.06	0.84	-0.84	-3.43	
8,057.00	0.70	174.30	8,037.73	-81.68	289.40	99.75	0.17	0.17	1.24	
8,234.00	0.90	163.70	8,214.71	-84.09	289.90	102.19	0.14	0.11	-5.99	
8,411.00	0.90	198.20	8,391.69	-86.75	289.86	104.84	0.30	0.00	19.49	
8,455.00	1.10	203.40	8,435.68	-87.46	289.58	105.53	0.50	0.45	11.82	
<b>Final Phoenix MWD Survey</b>										
8,513.00	1.10	203.40	8,493.67	-88.49	289.14	106.53	0.00	0.00	0.00	
<b>Projection to TD</b>										





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Survey Report



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<b>Design:</b>	Surveys (Pace X30)	<b>Database:</b>	Compass 5000 GCR

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
656.00	655.99	-3.21	-3.32	Tie In
768.00	767.99	-3.40	-4.07	First Phoenix MWD Survey
8,455.00	8,435.70	-87.47	289.58	Final Phoenix MWD Survey
8,513.00	8,493.69	-88.49	289.14	Projection to TD

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

**Phoenix Technology Services  
SURVEY DATA CERTIFICATION**



PHOENIX JOB NUMBER **60135**

OPERATOR **Chevron**

WELL NAME **SD WE 23 Fed P5 2H**

COUNTY & STATE **Lea County, NM**

API WELL NUMBER **30-025-42803**

PROPOSED DIRECTION **176.39**

TIE-IN DATA						
MEASURED DEPTH	VERTICAL DEPTH	INCLIN	AZIMUTH	N-S COORD	E-W COORD	DATA SOURCE
656.00 ft	655.98 ft	0.4°	265.0°	3.21 S	3.32 W	Teledrift

FIRST SURVEY DATE	FIRST SURVEY DEPTH	INCLIN	AZIMUTH
18-Jun-16	768 ft	0.4°	246.2°

SURVEY INSTRUMENT TYPE
Phoenix MWD

LAST SURVEY DATE	LAST SURVEY DEPTH	INCLIN	AZIMUTH
23-Jun-16	8,455 ft	1.1	203.4

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

PROJECTED TD SURVEY DATE	PROJECTED TD SURVEY DEPTH	INCLIN	AZIMUTH
23-Jun-16	8,513 ft	1.1	203.4

**Robert Brewer**

PRINT YOUR NAME ABOVE

*Robert Brewer*

SIGN YOUR NAME ABOVE

**MAGNETIC DECLINATION OR TOTAL GRID**

TOTAL CORRECTION USED	6.59
DECLINATION OR GRID	GRID

**23-Jun-2016**

TODAY'S DATE

MWD SUPERVISOR 1 **Robert Brewer**

DIRECTIONAL DRILLER 1 **Casey Tubbe**

MWD SUPERVISOR 2 **Lance Mosby**

DIRECTIONAL DRILLER 2 **Monte Gordon**