



Chevron

Lea County, NM (NAD27 NME)

SD WE 23 Fed

P5 1H

OH / Job 60133

Survey: Phoenix MWD Surveys

Standard Survey Report

24 July, 2016





Phoenix Technology Services

Survey Report



Company: Chevron
Project: Lea County, NM (NAD27 NME)
Site: SD WE 23 Fed
Well: P5 1H
Wellbore: OH / Job 60133
Design: Surveys (Pace X30)

Local Co-ordinate Reference: Well P5 1H
TVD Reference: RKB @ 3190.00usft (Pace X30)
MD Reference: RKB @ 3190.00usft (Pace X30)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass 5000 GCR

Project Lea County, NM (NAD27 NME)

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

Site SD WE 23 Fed

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

Well P5 1H

Well Position **+N/-S** 0.00 usft **Northing:** 377,312.00 usft **Latitude:** 32° 2' 7.84590 N
+E/-W 0.00 usft **Easting:** 711,242.00 usft **Longitude:** 103° 39' 5.90418 W
Position Uncertainty 0.00 usft **Wellhead Elevation:** 0.00 usft **Ground Level:** 3,157.00 usft

Wellbore OH / Job 60133

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/15/2016	6.95	59.75	48,027

Design Surveys (Pace X30)

Audit Notes:
Version: 1.0 **Phase:** ACTUAL **Tie On Depth:** 0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	183.12

Survey Program Date 7/24/2016

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
176.00	649.00	Teledrift MWD Surveys (OH / Job 60133)	MWD	MWD - Standard
649.00	8,500.00	Phoenix MWD Surveys (OH / Job 60133)	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM

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)
649.00	0.60	25.00	648.94	6.09	2.97	-6.24	0.00	0.00	0.00
Tie In to Teledrift Surveys									
676.00	0.30	38.40	675.94	6.27	3.07	-6.43	1.17	-1.11	49.63
First Phoenix MWD Survey									
858.00	0.30	1.80	857.94	7.12	3.38	-7.29	0.10	0.00	-20.11
1,040.00	0.70	320.30	1,039.93	8.45	2.69	-8.58	0.28	0.22	-22.80
1,222.00	3.80	271.70	1,221.78	9.49	-4.05	-9.25	1.86	1.70	-26.70
1,402.00	6.90	254.20	1,400.98	6.72	-20.42	-5.59	1.93	1.72	-9.72
1,580.00	7.70	252.20	1,577.54	0.16	-42.06	2.13	0.47	0.45	-1.12



Phoenix Technology Services

Survey Report



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Site:	SD WE 23 Fed	MD Reference:	RKB @ 3190.00usft (Pace X30)
Well:	P5 1H	North Reference:	Grid
Wellbore:	OH / Job 60133	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Pace X30)	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)
1,758.00	8.20	252.50	1,753.83	-7.30	-65.52	10.86	0.28	0.28	0.17
1,935.00	8.70	252.60	1,928.91	-15.10	-90.34	20.00	0.28	0.28	0.06
2,112.00	8.60	248.90	2,103.90	-23.87	-115.46	30.13	0.32	-0.06	-2.09
2,290.00	7.40	242.80	2,280.16	-33.90	-138.07	41.37	0.82	-0.67	-3.43
2,467.00	6.30	251.80	2,455.90	-42.14	-157.44	50.66	0.87	-0.62	5.08
2,645.00	6.90	255.90	2,632.72	-47.80	-177.08	57.38	0.43	0.34	2.30
2,822.00	7.70	258.40	2,808.29	-52.77	-199.01	63.54	0.49	0.45	1.41
2,999.00	6.40	252.00	2,983.95	-58.21	-220.01	70.11	0.86	-0.73	-3.62
3,177.00	5.40	247.80	3,161.00	-64.44	-237.20	77.27	0.61	-0.56	-2.36
3,355.00	5.90	259.10	3,338.14	-69.33	-253.94	83.07	0.68	0.28	6.35
3,533.00	5.40	266.80	3,515.28	-71.53	-271.29	86.21	0.51	-0.28	4.33
3,711.00	5.20	264.40	3,692.52	-72.78	-287.68	88.36	0.17	-0.11	-1.35
3,888.00	4.90	263.40	3,868.83	-74.44	-303.17	90.85	0.18	-0.17	-0.56
4,066.00	3.80	253.30	4,046.32	-77.00	-316.37	94.13	0.75	-0.62	-5.67
4,243.00	3.30	230.60	4,222.99	-81.92	-325.93	99.57	0.84	-0.28	-12.82
4,420.00	3.00	213.70	4,399.72	-89.01	-332.43	107.00	0.55	-0.17	-9.55
4,478.00	2.90	212.60	4,457.65	-91.51	-334.07	109.58	0.20	-0.17	-1.90
4,606.00	2.80	223.00	4,585.49	-96.52	-337.94	114.80	0.41	-0.08	8.13
4,783.00	0.50	175.80	4,762.41	-100.46	-340.83	118.89	1.41	-1.30	-26.67
4,961.00	0.60	119.20	4,940.40	-101.69	-339.96	120.07	0.30	0.06	-31.80
5,137.00	1.20	57.70	5,116.38	-101.15	-337.60	119.40	0.60	0.34	-34.94
5,314.00	1.80	51.50	5,293.32	-98.43	-333.86	116.48	0.35	0.34	-3.50
5,492.00	1.90	48.30	5,471.23	-94.73	-329.47	112.54	0.08	0.06	-1.80
5,669.00	1.60	35.90	5,648.15	-90.77	-325.83	108.40	0.27	-0.17	-7.01
5,847.00	1.90	27.70	5,826.06	-86.15	-323.00	103.63	0.22	0.17	-4.61
6,024.00	1.30	58.10	6,003.00	-82.49	-319.93	99.80	0.58	-0.34	17.18
6,201.00	1.50	66.80	6,179.94	-80.51	-316.10	97.62	0.16	0.11	4.92
6,378.00	0.30	88.90	6,356.92	-79.59	-313.50	96.56	0.69	-0.68	12.49
6,555.00	0.30	200.70	6,533.92	-80.02	-313.20	96.97	0.28	0.00	63.16
6,733.00	0.40	238.60	6,711.91	-80.78	-313.90	97.77	0.14	0.06	21.29
6,911.00	0.30	238.80	6,889.91	-81.34	-314.83	98.38	0.06	-0.06	0.11
7,088.00	0.50	236.20	7,066.91	-82.01	-315.87	99.11	0.11	0.11	-1.47
7,265.00	1.00	213.10	7,243.89	-83.73	-317.35	100.91	0.32	0.28	-13.05
7,443.00	1.00	1.00	7,421.88	-83.48	-318.17	100.70	1.08	0.00	83.09
7,620.00	0.70	4.90	7,598.86	-80.86	-318.05	98.08	0.17	-0.17	2.20
7,797.00	0.40	11.20	7,775.85	-79.18	-317.84	96.39	0.17	-0.17	3.56
7,975.00	0.20	293.50	7,953.85	-78.44	-318.01	95.66	0.23	-0.11	-43.65
8,153.00	0.60	175.60	8,131.85	-79.25	-318.22	96.48	0.40	0.22	-66.24
8,330.00	0.60	183.80	8,308.84	-81.10	-318.21	98.32	0.05	0.00	4.63
8,441.00	0.60	204.60	8,419.83	-82.21	-318.49	99.45	0.20	0.00	18.74
Final Phoenix MWD Survey									
8,500.00	0.60	204.60	8,478.83	-82.77	-318.75	100.02	0.00	0.00	0.00
Projection to TD									



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Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
649.00	648.94	6.09	2.97	Tie In to Teledrift Surveys
676.00	675.94	6.27	3.07	First Phoenix MWD Survey
8,441.00	8,419.83	-82.21	-318.49	Final Phoenix MWD Survey
8,500.00	8,478.83	-82.77	-318.75	Projection to TD

Phoenix Technology Services
SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER 60133

OPERATOR Chevron

WELL NAME SD WE 23 Fed P5 1H

COUNTY & STATE

Lea County, New Mexico

API WELL NUMBER 30-025-42802

PROPOSED DIRECTION 183.12

TIE-IN DATA

MEASURED DEPTH	VERTICAL DEPTH	INCLIN	AZIMUTH	N-S COORD	E-W COORD	DATA SOURCE
649.00 ft	648.94 ft	0.6°	25.0°	6.09 N	2.97 E	TeleDrift

FIRST SURVEY DATE	FIRST SURVEY DEPTH	INCLIN	AZIMUTH
7/18/16	676.00	0.30	38.40

SURVEY INSTRUMENT
TYPE

Phoenix MWD

LAST SURVEY DATE	LAST SURVEY DEPTH	INCLIN	AZIMUTH
7/22/16	8441.00	0.60	204.60

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
7/22/16	8500.00	0.60	204.60

Lance Mosby

PRINT YOUR NAME ABOVE

Lance Mosby

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED 6.59

DECLINATION OR GRID GRID

22-Jul-2016

TODAY'S DATE

MWD SUPERVISOR 1 Lance Mosby

DIRECTIONAL DRILLER 1 Monte Gordon

MWD SUPERVISOR 2 Benjamin Maulding

DIRECTIONAL DRILLER 2 Gustavo Rodriguez

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