



HOBBS OCD

OCT 07 2016

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Chevron

Lea County, NM (NAD27 NME)

SD WE 23 Fed

P7 3H

OH / Job 60047

Survey: Phoenix MWD Surveys

Standard Survey Report

23 May, 2016





Phoenix Technology Services

Survey Report



Company:	Chevron	Local Co-ordinate Reference:	Well P7 3H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	RKB @ 3198.00usft (Pace X30)
Site:	SD WE 23 Fed	MD Reference:	RKB @ 3198.00usft (Pace X30)
Well:	P7 3H	North Reference:	Grid
Wellbore:	OH / Job 60047	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Pace X30)	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:		Northing:	377,312.00 usft
From:	Map	Easting:	711,242.00 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 2' 7.84590 N
		Longitude:	103° 39' 5.90418 W
		Grid Convergence:	0.36 °

Well	P7 3H		
Well Position	+N/-S	0.00 usft	Northing: 377,548.00 usft
	+E/-W	0.00 usft	Easting: 715,248.00 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 2' 9.92876 N
		Longitude:	103° 38' 19.34990 W
		Ground Level:	3,165.00 usft

Wellbore	OH / Job 60047				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	4/18/2016	6.97	59.75	48,036

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	183.13

Survey Program	Date 5/23/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
165.00	807.00	Teledrift MWD Surveys (OH / Job 60047)	MWD	MWD - Standard
948.00	8,540.00	Phoenix MWD Surveys (OH / Job 60047)	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)	
807.00	0.70	268.00	806.97	1.91	2.16	-2.03	0.00	0.00	0.00	
Tie-in										
948.00	1.10	281.60	947.95	2.15	-0.03	-2.15	0.32	0.28	9.65	
First Phoenix MWD Survey										
1,125.00	1.00	255.10	1,124.92	2.10	-3.18	-1.92	0.28	-0.06	-14.97	
1,302.00	1.10	254.20	1,301.89	1.24	-6.31	-0.89	0.06	0.06	-0.51	
1,480.00	1.30	250.50	1,479.85	0.10	-9.86	0.44	0.12	0.11	-2.08	
1,657.00	1.70	258.10	1,656.79	-1.11	-14.32	1.89	0.25	0.23	4.29	
1,834.00	5.40	242.50	1,833.43	-5.50	-24.28	6.82	2.14	2.09	-8.81	



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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)	
2,013.00	6.40	243.10	2,011.47	-13.91	-40.65	16.10	0.56	0.56	0.34	
2,191.00	7.50	242.10	2,188.16	-23.83	-59.76	27.06	0.62	0.62	-0.56	
2,369.00	6.30	231.20	2,364.88	-35.39	-77.64	39.57	1.00	-0.67	-6.12	
2,546.00	4.90	232.40	2,541.03	-46.08	-91.20	51.00	0.79	-0.79	0.68	
2,723.00	5.50	257.40	2,717.32	-52.55	-105.47	58.23	1.31	0.34	14.12	
2,900.00	5.90	258.20	2,893.45	-56.26	-122.65	62.87	0.23	0.23	0.45	
3,078.00	5.80	243.00	3,070.53	-62.21	-139.62	69.74	0.87	-0.06	-8.54	
3,256.00	5.60	236.80	3,247.65	-71.05	-154.90	79.40	0.36	-0.11	-3.48	
3,433.00	5.00	248.70	3,423.90	-78.58	-169.32	87.71	0.71	-0.34	6.72	
3,611.00	5.40	251.10	3,601.17	-84.11	-184.47	94.06	0.26	0.22	1.35	
3,789.00	5.40	249.90	3,778.38	-89.71	-200.26	100.51	0.06	0.00	-0.67	
3,966.00	5.00	246.30	3,954.65	-95.67	-215.14	107.27	0.29	-0.23	-2.03	
4,143.00	5.40	246.00	4,130.92	-102.16	-229.81	114.55	0.23	0.23	-0.17	
4,321.00	5.50	236.50	4,308.12	-110.27	-244.58	123.46	0.51	0.06	-5.34	
4,498.00	5.40	242.80	4,484.32	-118.76	-259.06	132.73	0.34	-0.06	3.56	
4,519.00	5.80	245.10	4,505.22	-119.66	-260.90	133.72	2.18	1.90	10.95	
4,599.00	5.60	244.90	4,584.83	-123.02	-268.10	137.47	0.25	-0.25	-0.25	
4,776.00	5.50	244.30	4,761.00	-130.36	-283.57	145.65	0.07	-0.06	-0.34	
4,954.00	4.30	253.60	4,938.35	-135.94	-297.66	151.99	0.81	-0.67	5.22	
5,132.00	1.80	258.50	5,116.08	-138.38	-306.80	154.93	1.41	-1.40	2.75	
5,309.00	0.50	80.30	5,293.06	-138.81	-308.76	155.46	1.30	-0.73	-100.68	
5,486.00	0.40	71.30	5,470.05	-138.48	-307.41	155.06	0.07	-0.06	-5.08	
5,662.00	1.10	212.10	5,646.04	-139.71	-307.73	156.31	0.81	0.40	80.00	
5,840.00	1.30	220.00	5,824.00	-142.71	-309.94	159.42	0.15	0.11	4.44	
6,017.00	1.30	223.90	6,000.96	-145.69	-312.62	162.54	0.05	0.00	2.20	
6,194.00	1.40	214.60	6,177.91	-148.92	-315.24	165.91	0.14	0.06	-5.25	
6,372.00	1.30	220.40	6,355.86	-152.25	-317.78	169.37	0.10	-0.06	3.26	
6,549.00	1.70	289.10	6,532.81	-152.92	-321.56	170.25	0.97	0.23	38.81	
6,727.00	2.50	332.60	6,710.70	-148.61	-325.85	166.17	0.97	0.45	24.44	
6,904.00	0.90	11.50	6,887.62	-143.82	-327.35	161.47	1.07	-0.90	21.98	
7,082.00	0.70	349.10	7,065.60	-141.38	-327.27	159.04	0.21	-0.11	-12.58	
7,260.00	1.10	63.30	7,243.59	-139.54	-325.95	157.13	0.64	0.22	41.69	
7,437.00	1.00	42.90	7,420.56	-137.65	-323.38	155.10	0.22	-0.06	-11.53	
7,614.00	1.10	49.20	7,597.53	-135.41	-321.05	152.73	0.09	0.06	3.56	
7,792.00	1.10	78.20	7,775.50	-133.94	-318.08	151.11	0.31	0.00	16.29	
7,970.00	0.70	103.40	7,953.47	-133.84	-315.35	150.86	0.31	-0.22	14.16	
8,148.00	0.70	138.40	8,131.46	-134.91	-313.57	151.83	0.24	0.00	19.66	
8,326.00	1.10	159.40	8,309.44	-137.32	-312.25	154.16	0.29	0.22	11.80	
8,483.00	1.00	189.70	8,466.42	-140.08	-311.95	156.90	0.35	-0.06	19.30	
Final Phoenix MWD Survey										
8,540.00	1.00	189.70	8,523.41	-141.06	-312.11	157.89	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)	
807.00	806.97	1.91	2.16	Tie-in
948.00	947.95	2.15	-0.03	First Phoenix MWD Survey
8,483.00	8,466.42	-140.08	-311.95	Final Phoenix MWD Survey
8,540.00	8,523.41	-141.06	-312.11	Projection to TD

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

HOBBS OCD

OCT 07 2016

RECEIVED



PHOENIX
TECHNOLOGY SERVICES

PHOENIX JOB NUMBER

60047

OPERATOR

Chevron

WELL NAME

SD WE 23 Fed P7 3H

COUNTY & STATE

Lea County, NM

API WELL NUMBER

30-025-43088

PROPOSED DIRECTION

183.13

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
807.00 ft	806.97 ft	0.7°	268.0°	1.91 N	2.16 E	Teledrift

FIRST	FIRST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
16-May	948 ft	1.1°	281.6°

SURVEY INSTRUMENT
TYPE
Phoenix MWD

LAST	LAST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
21-May-16	8,483 ft	1	189.7

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-May-16	8,540 ft	1	189.7

Robert Brewer

PRINT YOUR NAME ABOVE

Robert Brewer

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	6.60
DECLINATION OR GRID	GRID

05/21/16

TODAY'S DATE

MWD SUPERVISOR 1

Robert Brewer

DIRECTIONAL DRILLER 1

Casey Tubbe

MWD SUPERVISOR 2

Lance Mosby

DIRECTIONAL DRILLER 2

Monte Gordon

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