



HOBBS OCD

OCT 06 2016

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Chevron

Lea County, NM (NAD27 NME)

SD WE 14 Fed

P7 4H

OH / Job 60048

Survey: Phoenix MWD Surveys

Standard Survey Report

09 May, 2016





Phoenix Technology Services

Survey Report



Company:	Chevron	Local Co-ordinate Reference:	Well P7 4H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	RKB @ 3198.00usft (Pace X30)
Site:	SD WE 14 Fed	MD Reference:	RKB @ 3198.00usft (Pace X30)
Well:	P7 4H	North Reference:	Grid
Wellbore:	OH / Job 60048	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 14 Fed			
Site Position:		Northing:	377,311.00 usft	Latitude:	32° 2' 7.83756 N
From:	Map	Easting:	711,217.00 usft	Longitude:	103° 39' 6.19467 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.36 °

Well	P7 4H					
Well Position	+N/-S	0.00 usft	Northing:	377,548.00 usft	Latitude:	32° 2' 9.92717 N
	+E/-W	0.00 usft	Easting:	715,273.00 usft	Longitude:	103° 38' 19.05948 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,165.00 usft

Wellbore	OH / Job 60048				
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	3.33	

Survey Program	Date	5/9/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
165.00	815.00	Teledrift MWD Surveys (OH / Job 60048)	MWD	MWD - Standard	
949.00	8,567.00	Phoenix MWD Surveys (OH / Job 60048)	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)	
815.00	1.80	260.00	814.88	-5.02	-8.68	-5.51	0.00	0.00	0.00	
Tie-in to Teledrift Surveys										
949.00	1.80	271.30	948.81	-5.34	-12.86	-6.07	0.26	0.00	8.43	
First Phoenix MWD Survey										
1,126.00	1.60	175.40	1,125.77	-7.74	-15.44	-8.62	1.43	-0.11	-54.18	
1,303.00	1.80	127.40	1,302.70	-11.89	-13.04	-12.63	0.79	0.11	-27.12	
1,481.00	3.20	76.80	1,480.54	-12.45	-5.98	-12.78	1.40	0.79	-28.43	
1,658.00	3.60	77.00	1,657.23	-10.07	4.25	-9.81	0.23	0.23	0.11	
1,835.00	6.50	68.40	1,833.53	-5.13	18.98	-4.02	1.69	1.64	-4.86	



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Wellbore:	OH / Job 60048	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)
2,014.00	6.30	78.20	2,011.42	0.60	38.02	2.81	0.62	-0.11	5.47
2,192.00	6.60	81.00	2,188.29	4.20	57.68	7.55	0.24	0.17	1.57
2,370.00	6.80	87.60	2,365.08	6.24	78.31	10.78	0.45	0.11	3.71
2,547.00	5.50	92.20	2,541.05	6.36	97.26	12.00	0.78	-0.73	2.60
2,724.00	5.40	93.30	2,717.25	5.55	114.05	12.17	0.08	-0.06	0.62
2,901.00	5.40	91.20	2,893.47	4.90	130.69	12.48	0.11	0.00	-1.19
3,079.00	5.50	91.00	3,070.66	4.57	147.59	13.14	0.06	0.06	-0.11
3,257.00	5.90	88.20	3,247.78	4.71	165.27	14.31	0.27	0.22	-1.57
3,434.00	6.60	87.10	3,423.73	5.51	184.52	16.23	0.40	0.40	-0.62
3,611.00	5.50	88.00	3,599.74	6.32	203.15	18.12	0.62	-0.62	0.51
3,790.00	5.40	89.50	3,777.93	6.70	220.15	19.48	0.10	-0.06	0.84
3,967.00	5.80	90.40	3,954.09	6.71	237.42	20.49	0.23	0.23	0.51
4,144.00	6.10	89.30	4,130.13	6.76	255.77	21.61	0.18	0.17	-0.62
4,322.00	6.80	95.70	4,307.01	5.83	275.71	21.84	0.56	0.39	3.60
4,499.00	6.90	95.40	4,482.75	3.79	296.72	21.02	0.06	0.06	-0.17
4,509.00	6.90	96.10	4,492.67	3.67	297.92	20.97	0.84	0.00	7.00
4,598.00	6.70	96.60	4,581.05	2.50	308.39	20.42	0.23	-0.22	0.56
4,776.00	4.20	100.10	4,758.23	0.16	325.13	19.06	1.42	-1.40	1.97
4,953.00	1.20	100.50	4,935.01	-1.31	333.33	18.06	1.69	-1.69	0.23
5,131.00	1.10	304.30	5,113.00	-0.69	333.75	18.71	1.26	-0.06	-87.75
5,308.00	1.20	284.20	5,289.96	0.72	330.55	19.93	0.23	0.06	-11.36
5,485.00	1.50	284.30	5,466.91	1.75	326.51	20.72	0.17	0.17	0.06
5,662.00	1.60	282.00	5,643.85	2.84	321.85	21.54	0.07	0.06	-1.30
5,839.00	1.10	306.60	5,820.80	4.36	318.07	22.84	0.43	-0.28	13.90
6,016.00	0.90	291.00	5,997.78	5.88	315.41	24.20	0.19	-0.11	-8.81
6,194.00	0.90	308.80	6,175.75	7.25	313.01	25.43	0.16	0.00	10.00
6,371.00	0.90	310.40	6,352.73	9.02	310.87	27.08	0.01	0.00	0.90
6,549.00	1.00	285.40	6,530.71	10.34	308.31	28.24	0.24	0.06	-14.04
6,726.00	0.60	265.30	6,707.69	10.68	305.90	28.44	0.27	-0.23	-11.36
6,904.00	1.00	253.50	6,885.67	10.16	303.48	27.78	0.24	0.22	-6.63
7,082.00	1.00	243.90	7,063.65	9.03	300.59	26.49	0.09	0.00	-5.39
7,259.00	1.00	257.20	7,240.62	8.01	297.70	25.30	0.13	0.00	7.51
7,436.00	0.60	239.60	7,417.60	7.20	295.39	24.36	0.26	-0.23	-9.94
7,614.00	0.30	203.40	7,595.60	6.30	294.41	23.40	0.22	-0.17	-20.34
7,791.00	0.30	210.40	7,772.59	5.48	293.99	22.55	0.02	0.00	3.95
7,969.00	0.50	212.40	7,950.59	4.42	293.33	21.46	0.11	0.11	1.12
8,146.00	0.80	210.00	8,127.58	2.70	292.30	19.68	0.17	0.17	-1.36
8,323.00	1.20	211.50	8,304.55	0.05	290.72	16.94	0.23	0.23	0.85
8,500.00	1.20	211.80	8,481.51	-3.11	288.77	13.68	0.00	0.00	0.17
8,510.00	1.00	214.10	8,491.51	-3.27	288.67	13.51	2.05	-2.00	23.00
Final Phoenix MWD Survey									
8,567.00	1.00	214.10	8,548.50	-4.09	288.11	12.66	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)	
815.00	814.88	-5.02	-8.68	Tie-in to Teledrift Surveys
949.00	948.81	-5.34	-12.86	First Phoenix MWD Survey
8,510.00	8,491.51	-3.27	288.67	Final Phoenix MWD Survey
8,567.00	8,548.50	-4.09	288.11	Projection to TD

Checked By: _____ Approved By: _____ Date: _____

Phoenix Technology Services
SURVEY DATA CERTIFICATION



PHOENIX
TECHNOLOGY SERVICES

HOBBS OCD
OCT 06 2016
RECEIVED

PHOENIX JOB NUMBER 60048

OPERATOR Chevron

WELL NAME SD WE 14 FED P7 4H

COUNTY & STATE

Lea County, NM

API WELL NUMBER 30-025-43087

PROPOSED DIRECTION 3.33

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
815.00 ft	814.88 ft	1.8°	260.0°	5.02 S	8.68 W	Teledrift

FIRST	FIRST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
4-May-16	949 ft	1.8°	271.3°

SURVEY INSTRUMENT

TYPE

Phoenix MWD

LAST	LAST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
9-May-16	8,510 ft	1.0°	214.1°

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
9-May-16	8,567 ft	1.0°	214.1°

Benjamin J. Maulding

PRINT YOUR NAME ABOVE

Benjamin Maulding

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	6.60
DECLINATION OR GRID	GRID

Monday, May 09, 2016

TODAY'S DATE

MWD SUPERVISOR 1 Robert Brewer

DIRECTIONAL DRILLER 1 Casey Tubbe

MWD SUPERVISOR 2 Benjamin Maulding

DIRECTIONAL DRILLER 2 Monte Gordon

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