



Chevron

Lea County, NM (NAD27 NME)
SD WE 23 Fed
P7 4H

OH / Job 60049

Survey: Phoenix MWD Surveys

Standard Survey Report

11 May, 2016

HOBBS OCD

OCT 07 2016

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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 23 Fed	MD Reference:	RKB @ 3198.00usft (Pace X30)
Well:	P7 4H	North Reference:	Grid
Wellbore:	OH / Job 60049	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	Latitude: 32° 2' 7.84590 N
From:	Map	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	P7 4H			
Well Position	+N/-S	0.00 usft	Northing:	377,549.00 usft
	+E/-W	0.00 usft	Easting:	715,298.00 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level: 3,165.00 usft

Wellbore	OH / Job 60049				
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	176.66

Survey Program	Date	5/11/2016		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
165.00	816.00	Teledrift MWD Surveys (OH / Job 60049)	MWD	MWD - Standard
949.00	8,409.00	Phoenix MWD Surveys (OH / Job 60049)	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM
8,466.00	14,002.00	Baker Hughes MWD Surveys (OH / Job 60)	MWD	MWD - Standard

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)
816.00	2.70	249.00	815.81	-7.88	-9.61	7.31	0.00	0.00	0.00
Tie-in to Teledrift Surveys									
949.00	2.50	233.80	948.67	-10.72	-14.88	9.83	0.54	-0.15	-11.43
First Phoenix MWD Survey									
1,126.00	3.20	188.50	1,125.47	-17.88	-18.72	16.76	1.29	0.40	-25.59
1,303.00	5.00	141.80	1,302.06	-28.83	-14.68	27.93	2.06	1.02	-26.38
1,480.00	7.80	108.80	1,477.99	-38.77	1.47	38.79	2.55	1.58	-18.64
1,658.00	7.10	105.90	1,654.49	-45.68	23.48	46.97	0.45	-0.39	-1.63



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Wellbore:	OH / Job 60049	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)	
1,835.00	7.10	105.40	1,830.13	-51.58	44.55	54.09	0.03	0.00	-0.28	
2,014.00	6.50	106.20	2,007.87	-57.34	64.94	61.03	0.34	-0.34	0.45	
2,192.00	6.20	109.00	2,184.78	-63.28	83.71	68.06	0.24	-0.17	1.57	
2,369.00	6.60	110.90	2,360.68	-70.02	102.25	75.87	0.26	0.23	1.07	
2,546.00	7.20	109.90	2,536.40	-77.43	122.18	84.42	0.35	0.34	-0.56	
2,724.00	7.60	113.00	2,712.91	-85.82	143.50	94.05	0.32	0.22	1.74	
2,901.00	6.70	112.40	2,888.54	-94.33	163.82	103.73	0.51	-0.51	-0.34	
3,079.00	6.20	111.90	3,065.41	-101.87	182.34	112.34	0.28	-0.28	-0.28	
3,256.00	6.80	110.10	3,241.27	-109.04	201.05	120.58	0.36	0.34	-1.02	
3,434.00	7.90	108.20	3,417.81	-116.48	222.57	129.27	0.63	0.62	-1.07	
3,611.00	6.80	111.70	3,593.35	-124.16	243.86	138.17	0.67	-0.62	1.98	
3,789.00	6.40	113.80	3,770.17	-132.06	262.73	147.16	0.26	-0.22	1.18	
3,967.00	6.40	113.40	3,947.06	-140.00	280.91	156.15	0.03	0.00	-0.22	
4,144.00	3.40	121.30	4,123.40	-146.65	294.45	163.57	1.73	-1.69	4.46	
4,322.00	1.90	119.10	4,301.20	-150.82	301.54	168.15	0.84	-0.84	-1.24	
4,499.00	0.90	124.60	4,478.14	-153.04	305.25	170.58	0.57	-0.56	3.11	
4,529.00	0.70	124.50	4,508.14	-153.28	305.60	170.84	0.67	-0.67	-0.33	
4,688.00	0.70	132.90	4,667.13	-154.49	307.11	172.14	0.06	0.00	5.28	
4,865.00	1.50	220.10	4,844.11	-157.00	306.41	174.60	0.92	0.45	49.27	
5,043.00	1.60	280.60	5,022.05	-158.32	302.46	175.69	0.88	0.06	33.99	
5,220.00	1.60	274.90	5,198.98	-157.66	297.57	174.74	0.09	0.00	-3.22	
5,397.00	1.90	271.10	5,375.90	-157.39	292.18	174.16	0.18	0.17	-2.15	
5,575.00	1.90	270.60	5,553.80	-157.30	286.28	173.73	0.01	0.00	-0.28	
5,751.00	0.80	234.50	5,729.75	-157.99	282.36	174.18	0.76	-0.63	-20.51	
5,928.00	0.70	328.60	5,906.74	-157.78	280.79	173.89	0.62	-0.06	53.16	
6,105.00	1.00	350.30	6,083.72	-155.33	279.96	171.40	0.25	0.17	12.26	
6,283.00	1.00	347.30	6,261.70	-152.29	279.36	168.32	0.03	0.00	-1.69	
6,461.00	0.70	340.20	6,439.68	-149.75	278.65	165.75	0.18	-0.17	-3.99	
6,638.00	0.80	313.30	6,616.66	-147.89	277.39	163.81	0.20	0.06	-15.20	
6,816.00	0.50	98.50	6,794.66	-147.15	277.25	163.07	0.70	-0.17	81.57	
6,993.00	0.20	102.00	6,971.65	-147.33	278.32	163.31	0.17	-0.17	1.98	
7,171.00	0.30	160.30	7,149.65	-147.83	278.78	163.84	0.15	0.06	32.75	
7,348.00	0.30	157.30	7,326.65	-148.69	279.11	164.72	0.01	0.00	-1.69	
7,526.00	0.70	202.20	7,504.64	-150.13	278.88	166.14	0.30	0.22	25.22	
7,703.00	0.90	197.90	7,681.63	-152.45	278.05	168.41	0.12	0.11	-2.43	
7,881.00	1.40	188.80	7,859.59	-155.93	277.28	171.84	0.30	0.28	-5.11	
8,058.00	2.00	191.40	8,036.51	-161.10	276.34	176.94	0.34	0.34	1.47	
8,235.00	2.30	188.50	8,213.39	-167.64	275.21	183.40	0.18	0.17	-1.64	
8,409.00	2.10	202.60	8,387.26	-174.03	273.47	189.69	0.33	-0.11	8.10	
Final Phoenix MWD Survey										
8,466.00	2.10	202.60	8,444.22	-175.96	272.66	191.56	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)	
816.00	815.81	-7.89	-9.60	Tie-in to Teledrift Surveys
949.00	948.67	-10.73	-14.87	First Phoenix MWD Survey
8,409.00	8,387.26	-174.05	273.47	Final Phoenix MWD Survey
8,466.00	8,444.22	-175.97	272.67	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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HOBBS OCD

Phoenix Technology Services SURVEY DATA CERTIFICATION

OCT 07 2016

RECEIVED


PHOENIX
TECHNOLOGY SERVICES

PHOENIX JOB NUMBER

60049

OPERATOR

Chevron

WELL NAME SD WE 23 FED P7 4H

COUNTY & STATE

Lea County, NM

API WELL NUMBER

30-025-43089

PROPOSED DIRECTION

176.7

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
816.00 ft	815.81 ft	2.7°	249.0°	7.88 S	9.61 W	Teledrift

FIRST	FIRST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
22-Apr	949 ft	2.5°	233.8°

 SURVEY INSTRUMENT
TYPE

Phoenix MWD

LAST	LAST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
26-Apr-16	8,409 ft	2.1	202.6

 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
26-Apr-16	8,466 ft	2.1	202.6

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

04/26/16

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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