

Chevron

Lea County NM (NAD27 NME)

Gramma Ridge 14-24-34

#1H

WB1

Plan: Plan #1 04-02-14

Standard Survey Report

02 April, 2014

MAY 07 2014

Phoenix Technology Services

Survey Report

Company:	Chevron	Local Co-ordinate Reference:	Well #1H
Project:	Lea County NM (NAD27 NME)	TVD Reference:	KB @ 3516.50usft (Ensign 153)
Site:	Gramma Ridge 14-24-34	MD Reference:	KB @ 3516.50usft (Ensign 153)
Well:	#1H	North Reference:	Grid
Wellbore:	WB1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1 04-02-14	Database:	GCR DB

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	Gramma Ridge 14-24-34		
Site Position:		Northing:	446,243.20 usft
From:	Map	Easting:	773,870.90 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 13' 25.45288 N
		Longitude:	103° 26' 51.79837 W
		Grid Convergence:	0.47 °

Well	#1H		
Well Position	+N/-S	0.00 usft	Northing: 446,271.80 usft
	+E/-W	0.00 usft	Easting: 776,517.00 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 13' 25.51902 N
		Longitude:	103° 26' 20.99488 W
		Ground Level:	3,492.00 usft

Wellbore	WB1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	04/02/14	7.18	60.14	48,350

Design	Plan #1 04-02-14			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	179.53

Survey Tool Program	Date	04/02/14		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	16,432.03	Plan #1 04-02-14 (WB1)	MWD	MWD - Standard

Planned 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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11,539.54	0.00	0.00	11,539.54	0.00	0.00	0.00	0.00	0.00	0.00
KOP, 12°/100' Build									
11,600.00	7.26	179.53	11,599.84	-3.82	0.03	3.82	12.00	12.00	0.00
11,700.00	19.26	179.53	11,697.00	-26.71	0.22	26.71	12.00	12.00	0.00
11,800.00	31.26	179.53	11,787.27	-69.30	0.57	69.30	12.00	12.00	0.00
11,900.00	43.26	179.53	11,866.72	-129.72	1.08	129.73	12.00	12.00	0.00
12,000.00	55.26	179.53	11,931.87	-205.34	1.70	205.35	12.00	12.00	0.00
12,100.00	67.26	179.53	11,979.87	-292.86	2.43	292.87	12.00	12.00	0.00
12,200.00	79.26	179.53	12,008.63	-388.44	3.22	388.45	12.00	12.00	0.00
12,289.54	90.00	179.53	12,017.00	-477.45	3.96	477.46	12.00	12.00	0.00

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Well:	#1H	North Reference:	Grid:
Wellbore:	WB1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1 04-02-14	Database:	GCR DB

Planned 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)
LP, Hold 90° Inc, 179.53° Azm - TL 12017' TVD @ 0' VS w/90° Inc									
12,300.00	90.00	179.53	12,017.00	-487.91	4.04	487.93	0.00	0.00	0.00
12,400.00	90.00	179.53	12,017.00	-587.91	4.87	587.93	0.00	0.00	0.00
12,500.00	90.00	179.53	12,017.00	-687.91	5.70	687.93	0.00	0.00	0.00
12,600.00	90.00	179.53	12,017.00	-787.90	6.53	787.93	0.00	0.00	0.00
12,700.00	90.00	179.53	12,017.00	-887.90	7.36	887.93	0.00	0.00	0.00
12,800.00	90.00	179.53	12,017.00	-987.90	8.19	987.93	0.00	0.00	0.00
12,900.00	90.00	179.53	12,017.00	-1,087.89	9.02	1,087.93	0.00	0.00	0.00
13,000.00	90.00	179.53	12,017.00	-1,187.89	9.85	1,187.93	0.00	0.00	0.00
13,100.00	90.00	179.53	12,017.00	-1,287.89	10.68	1,287.93	0.00	0.00	0.00
13,200.00	90.00	179.53	12,017.00	-1,387.88	11.51	1,387.93	0.00	0.00	0.00
13,300.00	90.00	179.53	12,017.00	-1,487.88	12.34	1,487.93	0.00	0.00	0.00
13,400.00	90.00	179.53	12,017.00	-1,587.88	13.16	1,587.93	0.00	0.00	0.00
13,500.00	90.00	179.53	12,017.00	-1,687.87	13.99	1,687.93	0.00	0.00	0.00
13,600.00	90.00	179.53	12,017.00	-1,787.87	14.82	1,787.93	0.00	0.00	0.00
13,700.00	90.00	179.53	12,017.00	-1,887.86	15.65	1,887.93	0.00	0.00	0.00
13,800.00	90.00	179.53	12,017.00	-1,987.86	16.48	1,987.93	0.00	0.00	0.00
13,900.00	90.00	179.53	12,017.00	-2,087.86	17.31	2,087.93	0.00	0.00	0.00
14,000.00	90.00	179.53	12,017.00	-2,187.85	18.14	2,187.93	0.00	0.00	0.00
14,100.00	90.00	179.53	12,017.00	-2,287.85	18.97	2,287.93	0.00	0.00	0.00
14,200.00	90.00	179.53	12,017.00	-2,387.85	19.80	2,387.93	0.00	0.00	0.00
14,300.00	90.00	179.53	12,017.00	-2,487.84	20.63	2,487.93	0.00	0.00	0.00
14,400.00	90.00	179.53	12,017.00	-2,587.84	21.45	2,587.93	0.00	0.00	0.00
14,500.00	90.00	179.53	12,017.00	-2,687.84	22.28	2,687.93	0.00	0.00	0.00
14,600.00	90.00	179.53	12,017.00	-2,787.83	23.11	2,787.93	0.00	0.00	0.00
14,700.00	90.00	179.53	12,017.00	-2,887.83	23.94	2,887.93	0.00	0.00	0.00
14,800.00	90.00	179.53	12,017.00	-2,987.83	24.77	2,987.93	0.00	0.00	0.00
14,900.00	90.00	179.53	12,017.00	-3,087.82	25.60	3,087.93	0.00	0.00	0.00
15,000.00	90.00	179.53	12,017.00	-3,187.82	26.43	3,187.93	0.00	0.00	0.00
15,100.00	90.00	179.53	12,017.00	-3,287.82	27.26	3,287.93	0.00	0.00	0.00
15,200.00	90.00	179.53	12,017.00	-3,387.81	28.09	3,387.93	0.00	0.00	0.00
15,300.00	90.00	179.53	12,017.00	-3,487.81	28.92	3,487.93	0.00	0.00	0.00
15,400.00	90.00	179.53	12,017.00	-3,587.81	29.74	3,587.93	0.00	0.00	0.00
15,500.00	90.00	179.53	12,017.00	-3,687.80	30.57	3,687.93	0.00	0.00	0.00
15,600.00	90.00	179.53	12,017.00	-3,787.80	31.40	3,787.93	0.00	0.00	0.00
15,700.00	90.00	179.53	12,017.00	-3,887.80	32.23	3,887.93	0.00	0.00	0.00
15,800.00	90.00	179.53	12,017.00	-3,987.79	33.06	3,987.93	0.00	0.00	0.00
15,900.00	90.00	179.53	12,017.00	-4,087.79	33.89	4,087.93	0.00	0.00	0.00
16,000.00	90.00	179.53	12,017.00	-4,187.79	34.72	4,187.93	0.00	0.00	0.00
16,100.00	90.00	179.53	12,017.00	-4,287.78	35.55	4,287.93	0.00	0.00	0.00
16,200.00	90.00	179.53	12,017.00	-4,387.78	36.38	4,387.93	0.00	0.00	0.00
16,300.00	90.00	179.53	12,017.00	-4,487.78	37.21	4,487.93	0.00	0.00	0.00
16,400.00	90.00	179.53	12,017.00	-4,587.77	38.03	4,587.93	0.00	0.00	0.00

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Survey Report

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Site:	Gamma Ridge 14-24-34	MD Reference:	KB @ 3516.50usft (Ensign 153)
Well:	#1H	North Reference:	Grid
Wellbore:	WB1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1 04-02-14	Database:	GCR DB

Planned 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)
16,432.03	90.00	179.53	12,017.00	-4,619.80	38.30	4,619.96	0.00	0.00	0.00
TD at 16432.03 - PBHL-GR 14-24-34 #1H									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL-GR 14-24-34 #1H	0.00	0.01	12,017.00	-4,619.80	38.30	441,652.00	776,555.30	32° 12' 39.80209 N	103° 26' 20.99651 W
- plan hits target center									
- Point									

Formations									
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)				
12,289.54	12,017.00	TL 12017' TVD @ 0° VS w/90° Inc		0.00	179.53				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
11,540	11,540	0	0	KOP, 12°/100' Build	
12,290	12,017	-477	4	LP, Hold 90° Inc, 179.53° Azm	
16,432	12,017	-4620	38	TD at 16432.03	

Checked By: _____	Approved By: _____	Date: _____
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