

HOBBSOCD

APR 06 2015

RECEIVED

PHOENIX
TECHNOLOGY SERVICESPhoenix Technology Services
SURVEY DATA CERTIFICATION

PHOENIX JOB NUMBER

1412203

ENERGY COMPANY Chevron

WELL NAME

Gramma Ridge 14 24 34 8H - WB1

COUNTY & STATE

Lea County, NM

API WELL NUMBER

30-025-42060

PROPOSED DIRECTION

182.97

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
1,194	11,93.83	0.40	347.80	10.21 S	11.36 E	Tele Dift.

FIRST	FIRST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
26-Dec-14	1,418	1.04	325.26

SURVEY INSTRUMENT

TYPE

Phoenix MWD

LAST	LAST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
18-Jan-15	12,196	2.73	45.42

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
18-Jan-15	12,260	2.73	45.42

Edward LaGarce

PRINT YOUR NAME ABOVE

Edward LaGarce

SIGN YOUR NAME ABOVE

1/18/2015

TODAY'S DATE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	
	6.77
DECLINATION OR GRID	GRID

MWD SUPERVISOR 1

Edward LaGarce

DIRECTIONAL DRILLER 1

Craig Cannon

MWD SUPERVISOR 2

Mike Chrismer

DIRECTIONAL DRILLER 2

Jared Spittle

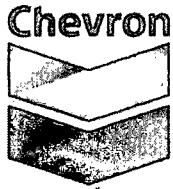
12329 Cutten Rd.,

Houston, Texas 777066

(713)337-0600 (Voice), (713)337-0599 (Fax)

APR 16 2015

m



Chevron

Lea County, NM (NAD27 NME)

Gamma Ridge 14 24 34

8H

WB1 Job #1412203

Survey: Phoenix MWD Surveys

Standard Survey Report

02 February, 2015





Survey Report



Company:	Chevron	Local Co-ordinate Reference:	Well 8H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB @ 3481.50usft (Ensign 153)
Site:	Gramma Ridge 14 24 34	MD Reference:	KB @ 3481.50usft (Ensign 153)
Well:	8H	North Reference:	Grid
Wellbore:	WB1 Job #1412203	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Ensign 153)	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	Gramma Ridge 14 24 34				
Site Position:		Northing:	446,243.20 usft	Latitude:	32° 13' 25.45288 N
From:	Map	Easting:	773,870.90 usft	Longitude:	103° 26' 51.79837 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.47 °

Well	8H				
Well Position	+N/-S	0.00 usft	Northing:	446,283.00 usft	Latitude: 32° 13' 25.47118 N
	+E/-W	0.00 usft	Easting:	778,437.00 usft	Longitude: 103° 25' 58.64493 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level: 3,457.00 usft

Wellbore	WB1 Job #1412203				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	12/20/2014	7.25	60.12	48,236

Design	Surveys (Ensign 153)				
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	182.97	

Survey Program	Date	2/2/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
144.00	1,194.00	Teledrift Surveys (WB1 Job #1412203)	NS-GYRO-MS	North sensing gyrocompassing m/s	
1,418.00	12,260.00	Phoenix MWD Surveys (WB1 Job #14122)	PHX+MWD+BGGM	PHX+MWD+BGGM v3:standard declination	

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)	
1,194.00	0.40	347.80	1,193.83	-10.21	11.36	9.61	0.00	0.00	0.00	
Tie-in to Teledrift Surveys										
1,418.00	1.04	325.26	1,417.81	-7.78	10.04	7.25	0.31	0.29	-10.06	
WB1 First Phoenix MWD Survey										
1,608.00	1.06	322.29	1,607.78	-4.97	7.98	4.55	0.03	0.01	-1.56	
1,798.00	0.61	309.05	1,797.76	-2.94	6.12	2.62	0.26	-0.24	-6.97	
1,987.00	0.55	315.46	1,986.75	-1.66	4.70	1.42	0.05	-0.03	3.39	
2,176.00	0.57	325.59	2,175.74	-0.24	3.54	0.06	0.05	0.01	5.36	
2,365.00	0.69	336.62	2,364.73	1.58	2.55	-1.71	0.09	0.06	5.84	



Survey Report



Company:	Chevron	Local Co-ordinate Reference:	Well 8H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB @ 3481.50usft (Ensign 153)
Site:	Gramma Ridge 14 24 34	MD Reference:	KB @ 3481.50usft (Ensign 153)
Well:	8H	North Reference:	Grid
Wellbore:	WB1 Job #1412203	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Ensign 153)	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)
2,555.00	0.72	349.26	2,554.72	3.80	1.88	-3.90	0.08	0.02	6.65
2,744.00	0.82	340.04	2,743.70	6.24	1.19	-6.30	0.08	0.05	-4.88
2,928.00	1.05	4.73	2,927.68	9.16	0.88	-9.19	0.25	0.13	13.42
3,107.00	1.58	14.05	3,106.63	13.19	1.62	-13.25	0.32	0.30	5.21
3,286.00	1.72	24.55	3,285.56	18.03	3.33	-18.17	0.19	0.08	5.87
3,465.00	1.53	38.63	3,464.48	22.34	5.94	-22.61	0.25	-0.11	7.87
3,644.00	0.79	64.49	3,643.45	24.73	8.55	-25.14	0.50	-0.41	14.45
3,823.00	1.22	60.64	3,822.42	26.20	11.32	-26.75	0.24	0.24	-2.15
4,002.00	0.83	62.78	4,001.39	27.73	14.13	-28.42	0.22	-0.22	1.20
4,181.00	0.27	44.93	4,180.38	28.62	15.58	-29.39	0.32	-0.31	-9.97
4,360.00	1.01	61.14	4,359.37	29.68	17.26	-30.53	0.42	0.41	9.06
4,539.00	2.77	127.86	4,538.28	27.79	22.06	-28.89	1.42	0.98	37.27
4,718.00	1.44	212.57	4,717.19	23.23	24.27	-24.46	1.68	-0.74	47.32
4,897.00	1.16	189.68	4,896.14	19.55	22.75	-20.71	0.33	-0.16	-12.79
5,076.00	2.38	144.76	5,075.06	14.73	24.59	-15.99	0.98	0.68	-25.09
5,255.00	1.20	213.81	5,253.99	10.14	25.69	-11.45	1.26	-0.66	38.58
5,434.00	0.84	196.29	5,432.96	7.32	24.28	-8.57	0.26	-0.20	-9.79
5,613.00	0.76	169.37	5,611.94	4.89	24.13	-6.14	0.21	-0.04	-15.04
5,793.00	0.81	164.42	5,791.93	2.50	24.69	-3.77	0.05	0.03	-2.75
5,972.00	0.58	167.19	5,970.91	0.39	25.23	-1.70	0.13	-0.13	1.55
6,150.00	0.51	134.03	6,148.90	-1.04	26.00	-0.31	0.18	-0.04	-18.63
6,329.00	0.48	112.47	6,327.90	-1.88	27.27	0.46	0.10	-0.02	-12.04
6,508.00	0.56	83.12	6,506.89	-2.06	28.83	0.56	0.15	0.04	-16.40
6,687.00	0.67	51.61	6,685.88	-1.30	30.52	-0.28	0.20	0.06	-17.60
6,866.00	0.72	51.01	6,864.87	0.05	32.21	-1.72	0.03	0.03	-0.34
7,044.00	0.74	44.95	7,042.85	1.57	33.90	-3.33	0.04	0.01	-3.40
7,223.00	0.91	22.48	7,221.84	3.70	35.26	-5.52	0.20	0.09	-12.55
7,402.00	0.54	2.84	7,400.82	5.86	35.84	-7.71	0.25	-0.21	-10.97
7,581.00	0.67	24.05	7,579.81	7.66	36.31	-9.53	0.14	0.07	11.85
7,760.00	0.82	15.31	7,758.80	9.85	37.07	-11.76	0.10	0.08	-4.88
7,939.00	1.13	3.09	7,937.77	12.85	37.51	-14.77	0.21	0.17	-6.83
8,118.00	1.32	11.30	8,116.73	16.63	38.01	-18.58	0.14	0.11	4.59
8,297.00	1.73	8.61	8,295.67	21.32	38.82	-23.31	0.23	0.23	-1.50
8,476.00	1.40	7.70	8,474.60	26.16	39.51	-28.17	0.18	-0.18	-0.51
8,655.00	1.79	0.77	8,653.53	31.12	39.84	-33.15	0.24	0.22	-3.87
8,834.00	1.96	3.64	8,832.43	36.97	40.08	-39.00	0.11	0.09	1.60
9,013.00	2.13	3.59	9,011.32	43.35	40.48	-45.39	0.09	0.09	-0.03
9,177.00	2.40	0.95	9,175.19	49.82	40.73	-51.87	0.18	0.16	-1.61
9,374.00	2.11	356.94	9,372.04	57.57	40.80	-59.60	0.17	-0.15	-2.04
9,553.00	2.02	355.70	9,550.92	64.01	40.19	-66.00	0.06	-0.05	-0.69
9,732.00	1.54	287.04	9,729.85	67.86	37.65	-69.72	1.14	-0.27	-38.36
9,912.00	1.06	279.50	9,909.81	68.84	33.70	-70.49	0.28	-0.27	-4.19
10,090.00	2.62	342.74	10,087.72	73.00	30.87	-74.50	1.32	0.88	35.53



Survey Report



Company:	Chevron	Local Co-ordinate Reference:	Well 8H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB @ 3481.50usft (Ensign 153)
Site:	Gamma Ridge 14 24 34	MD Reference:	KB @ 3481.50usft (Ensign 153)
Well:	8H	North Reference:	Grid
Wellbore:	WB1 Job #1412203	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Ensign 153)	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)
10,269.00	2.56	334.36	10,266.54	80.51	27.92	-81.85	0.21	-0.03	-4.68
10,448.00	0.74	313.64	10,445.46	84.91	25.35	-86.11	1.05	-1.02	-11.58
10,627.00	0.85	61.30	10,624.45	86.35	25.68	-87.56	0.72	0.06	60.15
10,805.00	0.98	66.15	10,802.43	87.60	28.23	-88.94	0.08	0.07	2.72
10,984.00	2.06	52.09	10,981.36	90.19	32.17	-91.74	0.63	0.60	-7.85
11,162.00	1.26	48.67	11,159.29	93.45	36.17	-95.20	0.45	-0.45	-1.92
11,341.00	1.05	233.58	11,338.27	93.78	36.32	-95.53	1.29	-0.12	-97.82
11,520.00	0.61	58.99	11,517.27	93.29	35.82	-95.02	0.93	-0.25	-97.54
11,699.00	1.71	34.76	11,696.23	95.98	38.16	-97.83	0.66	0.61	-13.54
11,878.00	1.71	54.55	11,875.15	99.72	41.86	-101.76	0.33	0.00	11.06
12,058.00	2.46	50.73	12,055.03	103.72	47.04	-106.02	0.42	0.42	-2.12
12,196.00	2.73	45.42	12,192.89	107.91	51.67	-110.44	0.26	0.20	-3.85
WB1 Final Phoenix MWD Survey									
12,260.00	2.73	45.42	12,256.82	110.05	53.84	-112.69	0.00	0.00	0.00
WB1 Projection to TD									

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,194.00	1,193.83	-7.78	10.04	Tie-in to Teledrift Surveys
1,418.00	1,417.81	107.91	51.67	WB1 First Phoenix MWD Survey
12,196.00	12,192.89	110.05	53.84	WB1 Final Phoenix MWD Survey
12,260.00	12,256.81			WB1 Projection to TD

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



PHOENIX JOB NUMBER

1412203

ENERGY COMPANY

Chevron

WELL NAME

Gramma Ridge 14 24 34 8H - WB2

COUNTY & STATE

Lea County, NM

API WELL NUMBER

30-025-42060

PROPOSED DIRECTION

182.97

TIE-IN DATA

MEASURED DEPTH	VERTICAL DEPTH	INCLIN	AZIMUTH	N-S COORD	E-W COORD	DATA SOURCE
11,520	11517.27	0.61	58.99	93.29 N	35.82 E	QDT

FIRST
SURVEY
DATE

FIRST
SURVEY
DEPTH

INCLIN

AZIMUTH

23-Jan-15

11,595

6.81

196.96

SURVEY INSTRUMENT
TYPE

Phoenix MWD

LAST
SURVEY
DATE

LAST
SURVEY
DEPTH

INCLIN

AZIMUTH

1-Feb-15

16,637

86.67

182.49

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

1-Feb-15

16,696

86.67

182.49

Edward LaGarce

PRINT YOUR NAME ABOVE

Edward LaGarce

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED

6.77

DECLINATION OR GRID

GRID

2/2/2015

TODAY'S DATE

MWD SUPERVISOR 1

Edward LaGarce

DIRECTIONAL DRILLER 1

Craig Cannon

MWD SUPERVISOR 2

Mike Chrismer

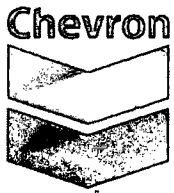
DIRECTIONAL DRILLER 2

Jared Spittle

12329 Cutten Rd.,

Houston, Texas 777066

(713)337-0600 (Voice), (713)337-0599 (Fax)



HOBBSOCD
APR 06 2015
RECEIVED

Chevron

Lea County, NM (NAD27 NME)
Gramma Ridge 14 24 34
8H

WB2 Job #1412203

Survey: Phoenix MWD Surveys

Standard Survey Report

02 February, 2015



fm



Survey Report



Company:	Chevron	Local Co-ordinate Reference:	Well 8H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB @ 3481.50usft (Ensign 153)
Site:	Gramma Ridge 14 24 34	MD Reference:	KB @ 3481.50usft (Ensign 153)
Well:	8H	North Reference:	Grid
Wellbore:	WB2 Job #1412203	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Ensign 153)	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	Gramma Ridge 14 24 34				
Site Position:		Northing:	446,243.20 usft	Latitude:	32° 13' 25.45288 N
From:	Map	Easting:	773,870.90 usft	Longitude:	103° 26' 51.79837 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.47 °

Well	8H				
Well Position	+N/-S	0.00 usft	Northing:	446,283.00 usft	Latitude: 32° 13' 25.47118 N
	+E/-W	0.00 usft	Easting:	778,437.00 usft	Longitude: 103° 25' 58.64493 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level: 3,457.00 usft

Wellbore	WB2 Job #1412203				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	12/20/2014	7.25	60.12	48,236

Design	Surveys (Ensign 153)				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	11,520.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	182.97	

Survey Program	Date	2/2/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
144.00	1,194.00	Teledrift Surveys (WB1 Job #1412203)	NS-GYRO-MS	North sensing gyrocompassing m/s	
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11,595.00	16,696.00	Phoenix MWD Surveys (WB2 Job #14122)	PHX+MWD+BGGM	PHX+MWD+BGGM v3:standard declination	

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)	
11,520.00	0.61	58.99	11,517.27	93.29	35.82	-95.02	0.00	0.00	0.00	
Tie-in to WB1										
11,595.00	6.81	196.96	11,592.10	89.24	34.86	-90.93	9.70	8.27	183.96	
WB2 First Phoenix Survey										
11,641.00	8.57	203.23	11,637.69	83.48	32.72	-85.07	4.23	3.83	13.63	
11,685.00	11.39	204.49	11,681.02	76.51	29.62	-77.95	6.43	6.41	2.86	
11,730.00	14.39	207.70	11,724.88	67.52	25.18	-68.73	6.85	6.67	7.13	
11,775.00	14.49	203.25	11,768.46	57.39	20.36	-58.37	2.48	0.22	-9.89	



Survey Report



Company:	Chevron	Local Co-ordinate Reference:	Well 8H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB @ 3481.50usft (Ensign 153)
Site:	Gramma Ridge 14 24 34	MD Reference:	KB @ 3481.50usft (Ensign 153)
Well:	8H	North Reference:	Grid
Wellbore:	WB2 Job #1412203	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Ensign 153)	Database:	Compass 5000 GCR

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)
11,820.00	17.49	200.09	11,811.71	45.87	15.81	-46.63	6.94	6.67	-7.02
11,865.00	21.54	202.23	11,854.12	31.86	10.36	-32.36	9.14	9.00	4.76
11,907.00	26.01	200.00	11,892.54	16.06	4.29	-16.27	10.85	10.64	-5.31
11,952.00	33.92	193.25	11,931.51	-5.47	-1.97	5.56	19.08	17.58	-15.00
11,996.00	42.70	188.71	11,966.01	-32.22	-7.06	32.55	20.94	19.95	-10.32
12,041.00	49.35	189.57	11,997.24	-64.18	-12.21	64.72	14.84	14.78	1.91
12,086.00	53.49	189.38	12,025.29	-98.87	-18.00	99.67	9.21	9.20	-0.42
12,130.00	58.75	188.36	12,049.81	-134.95	-23.62	135.99	12.11	11.95	-2.32
12,175.00	64.41	185.63	12,071.22	-174.21	-28.41	175.45	13.66	12.58	-6.07
12,220.00	68.94	183.91	12,089.04	-215.38	-31.84	216.74	10.66	10.07	-3.82
12,265.00	74.49	183.25	12,103.15	-258.01	-34.50	259.45	12.41	12.33	-1.47
12,297.00	78.56	183.77	12,110.61	-289.06	-36.41	290.56	12.82	12.72	1.63
12,342.00	83.91	181.96	12,117.46	-333.46	-38.62	335.01	12.54	11.89	-4.02
12,387.00	88.46	180.11	12,120.46	-378.34	-39.43	379.88	10.91	10.11	-4.11
12,476.00	88.91	178.96	12,122.50	-467.31	-38.71	468.69	1.39	0.51	-1.29
12,566.00	89.30	181.11	12,123.90	-557.30	-38.76	558.56	2.43	0.43	2.39
12,655.00	88.35	183.16	12,125.73	-646.21	-42.08	647.52	2.54	-1.07	2.30
12,745.00	88.44	183.58	12,128.25	-736.02	-47.37	737.48	0.48	0.10	0.47
12,834.00	87.73	183.61	12,131.22	-824.79	-52.94	826.43	0.80	-0.80	0.03
12,924.00	88.80	182.88	12,133.95	-914.61	-58.04	916.38	1.44	1.19	-0.81
13,014.00	88.51	182.69	12,136.06	-1,004.47	-62.41	1,006.36	0.39	-0.32	-0.21
13,103.00	87.84	182.46	12,138.90	-1,093.34	-66.40	1,095.31	0.80	-0.75	-0.26
13,193.00	89.69	182.78	12,140.84	-1,183.22	-70.52	1,185.28	2.09	2.06	0.36
13,282.00	90.11	183.15	12,140.99	-1,272.10	-75.12	1,274.28	0.63	0.47	0.42
13,372.00	89.21	182.44	12,141.52	-1,361.99	-79.51	1,364.28	1.27	-1.00	-0.79
13,461.00	88.54	182.46	12,143.27	-1,450.89	-83.31	1,453.26	0.75	-0.75	0.02
13,551.00	90.06	182.41	12,144.37	-1,540.80	-87.14	1,543.25	1.69	1.69	-0.06
13,640.00	90.81	182.90	12,143.70	-1,629.70	-91.26	1,632.24	1.01	0.84	0.55
13,730.00	91.07	182.90	12,142.22	-1,719.57	-95.81	1,722.23	0.29	0.29	0.00
13,819.00	89.39	184.17	12,141.86	-1,808.40	-101.30	1,811.22	2.37	-1.89	1.43
13,908.00	88.04	185.08	12,143.86	-1,897.08	-108.47	1,900.16	1.83	-1.52	1.02
13,997.00	85.52	185.42	12,148.86	-1,985.56	-116.60	1,988.94	2.86	-2.83	0.38
14,087.00	84.62	183.58	12,156.59	-2,074.95	-123.64	2,078.57	2.27	-1.00	-2.04
14,177.00	84.22	184.43	12,165.34	-2,164.30	-129.90	2,168.13	1.04	-0.44	0.94
14,266.00	83.91	182.47	12,174.55	-2,252.66	-135.22	2,256.64	2.22	-0.35	-2.20
14,356.00	85.55	181.89	12,182.81	-2,342.21	-138.63	2,346.25	1.93	1.82	-0.64
14,445.00	85.27	180.83	12,189.94	-2,430.90	-140.74	2,434.93	1.23	-0.31	-1.19
14,535.00	87.23	180.42	12,195.82	-2,520.70	-141.72	2,524.66	2.22	2.18	-0.46
14,624.00	87.25	180.56	12,200.11	-2,609.59	-142.48	2,613.47	0.16	0.02	0.16
14,713.00	88.23	181.40	12,203.62	-2,698.51	-144.00	2,702.34	1.45	1.10	0.94
14,803.00	88.26	181.05	12,206.37	-2,788.44	-145.92	2,792.26	0.39	0.03	-0.39
14,892.00	87.31	180.60	12,209.81	-2,877.37	-147.20	2,881.13	1.18	-1.07	-0.51
14,982.00	85.85	179.88	12,215.18	-2,967.20	-147.58	2,970.86	1.81	-1.62	-0.80
15,071.00	86.44	180.25	12,221.17	-3,056.00	-147.68	3,059.55	0.78	0.66	0.42



Survey Report



Company:	Chevron	Local Co-ordinate Reference:	Well 8H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB @ 3481.50usft (Ensign 153)
Site:	Gamma Ridge 14 24 34	MD Reference:	KB @ 3481.50usft (Ensign 153)
Well:	8H	North Reference:	Grid
Wellbore:	WB2 Job #1412203	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Ensign 153)	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)
15,160.00	88.15	180.50	12,225.37	-3,144.90	-148.26	3,148.35	1.94	1.92	0.28
15,250.00	87.23	179.65	12,228.99	-3,234.82	-148.38	3,238.17	1.39	-1.02	-0.94
15,339.00	88.43	180.41	12,232.36	-3,323.76	-148.43	3,326.98	1.60	1.35	0.85
15,429.00	89.66	181.38	12,233.86	-3,413.73	-149.83	3,416.91	1.74	1.37	1.08
15,518.00	90.22	183.27	12,233.96	-3,502.65	-153.44	3,505.90	2.21	0.63	2.12
15,608.00	88.93	182.78	12,234.62	-3,592.52	-158.19	3,595.89	1.53	-1.43	-0.54
15,697.00	88.91	184.95	12,236.30	-3,681.30	-164.19	3,684.86	2.44	-0.02	2.44
15,786.00	87.68	184.77	12,238.95	-3,769.94	-171.72	3,773.77	1.40	-1.38	-0.20
15,876.00	85.60	184.15	12,244.22	-3,859.51	-178.71	3,863.58	2.41	-2.31	-0.69
15,965.00	86.58	183.30	12,250.29	-3,948.11	-184.48	3,952.36	1.46	1.10	-0.96
16,055.00	88.80	183.96	12,253.92	-4,037.85	-190.17	4,042.28	2.57	2.47	0.73
16,144.00	88.41	183.85	12,256.09	-4,126.62	-196.23	4,131.24	0.46	-0.44	-0.12
16,234.00	86.70	183.52	12,259.93	-4,216.34	-202.01	4,221.15	1.93	-1.90	-0.37
16,323.00	87.73	183.34	12,264.25	-4,305.08	-207.33	4,310.04	1.17	1.16	-0.20
16,413.00	87.53	182.78	12,267.97	-4,394.87	-212.13	4,399.96	0.66	-0.22	-0.62
16,502.00	86.70	182.37	12,272.45	-4,483.67	-216.12	4,488.85	1.04	-0.93	-0.46
16,637.00	86.67	182.49	12,280.26	-4,618.32	-221.84	4,623.61	0.09	-0.02	0.09
WB2 Final Phoenix Survey									
16,696.00	86.67	182.49	12,283.69	-4,677.17	-224.40	4,682.51	0.00	0.00	0.00
WB2 Projection to TD									

273' South 604' East

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
11,520.00	11,517.27	93.29	35.82	Tie-in to WB1
11,595.00	11,592.10	89.24	34.86	WB2 First Phoenix Survey
16,637.00	12,280.26	-4,618.32	-221.84	WB2 Final Phoenix Survey
16,696.00	12,283.69	-4,677.17	-224.40	WB2 Projection to TD

Checked By: _____ Approved By: _____ Date: _____