

Results of Directional Survey

API number:	30-025-40994	DD
OGRID:		Operator: CHEVRON U S A INC
		Property: VACUUM GRAYBURG SAN ANDRES UNIT # 247

surface	ULSTR:	H	02	T 18S	R 34E
				1800 FNL	145 FEL

BH Loc	ULSTR:	A	02	T 18S	R 34E
5180	MD	5095.4	TVD	1311 FNL	94 FEL

Top Perf/OH	ULSTR:	H	02	T 18S	R 34E
4344	MD	4310.3	TVD	1585 FNL	182 FEL

Bot Perf/OH	ULSTR:	H	02	T 18S	R 34E
4918	MD	4848.5	TVD	1395 FNL	121 FEL

	MD	N/S	E/W	VD
	4331	210.40	-38.20	4298.1
TOP PERFS/OH	4344	214.79	-36.58	4310.28
	4421	240.80	-27.00	4382.40
	4872	390.40	19.50	4805.20
BOT PERFS/OH	4918	405.17	24.25	4848.49
	4962	419.30	28.80	4889.90

NEXT TO LAST	5052	448.00	38.10	4974.70
LAST READING	5180	488.80	51.10	5095.40
TD	5180	488.80	51.10	5095.40

Surface Location	1800 FN	145 FE
Projected BHL	1311 FN	94 FE
Location of		
Top Perfs/OH	1585 FN	182 FE
Bottom Perfs/OH	1395 FN	121 FE

SUMMARY of Subsurface Locations

Surface Location	H-02-18S-34E	1800 FN	145 FE	Vert. Depth
Top Perfs/OH	H-02-18S-34E	1585 FN	182 FE	4310.28
Bottom Perfs/OH	H-02-18S-34E	1395 FN	121 FE	4848.49
Projected TD	A-02-18S-34E	1311 FN	94 FE	5095.40

APR 14 2010

HOBBS OCD

MAR 10 2014

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Chevron

Lea County, NM (NAD27 NME)

VGSAU

247

OH

Design: OH - Job #321013-MPD-1019

SDI Survey Report

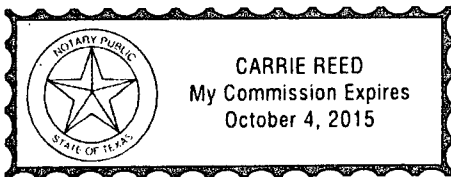
This survey is correct to the best of my knowledge and is supported by actual field data.

Richard

Notarized this date 31st of October, 2013.

Carrie Reed

Notary Signature
County of Midland
State of Texas



SDI
SDI Survey Report

Company:	Chevron	Local Co-ordinate Reference:	Well 247
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	RKB @ 4021.0usft (H&P #356)
Site:	VGSAU	MD Reference:	RKB @ 4021.0usft (H&P #356)
Well:	247	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH - Job #321013-MPD-1019	Database:	EDM-Regulatory

Project	Lea County, NM (NAD27 NME), Lea County, New Mexico		
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		VGSAU				
Site Position:		Northing:	648,111.80 usft	Latitude:	32° 46' 44.855 N	
From:	Map	Easting:	749,201.60 usft	Longitude:	103° 31' 21.086 W	
Position Uncertainty:		0.0 usft	Slot Radius:	0"	Grid Convergence:	0.44 °

Well	247					
Well Position	+N/-S	0.0 usft	Northing:	648,111.80 usft	Latitude:	32° 46' 44.855 N
	+E/-W	0.0 usft	Easting:	749,201.60 usft	Longitude:	103° 31' 21.086 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	4,003.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2012	9/4/2013			

Design	OH - Job #321013-MPD-1019			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	0.00

Survey Program	Date	11/7/2013			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
125.2	3,123.0	SDI Gyro #1 (OH)	SDI Gyro	Gyroscopic Survey	
3,249.0	5,180.0	SDI MWD#1 (OH)	SDI MWD	MWD Survey	

Survey									
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00		0.0
125.2	0.39	226.02	125.2	-0.3	-0.3	226.02			0.4
156.4	0.51	227.57	156.4	-0.5	-0.5	226.34			0.7
250.0	0.42	226.00	250.0	-1.0	-1.0	226.62			1.4
342.1	0.44	216.76	342.1	-1.5	-1.5	224.88			2.1
433.6	0.40	240.08	433.6	-1.9	-2.0	225.58			2.8
524.6	0.46	234.55	524.6	-2.3	-2.6	227.85			3.4
602.6	0.56	240.13	602.6	-2.7	-3.1	229.48			4.1
692.8	0.69	248.04	692.8	-3.1	-4.0	232.35			5.1
783.0	0.97	245.37	783.0	-3.6	-5.2	235.23			6.4
873.2	1.69	250.63	873.1	-4.4	-7.2	238.55			8.4

SDI
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Site:	VGSAU	MD Reference:	RKB @ 4021.0usft (H&P #356)
Well:	247	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH - Job #321013-MPD-1019	Database:	EDM-Regulatory

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)	
963.4	2.34	248.41	963.3	-5.5	-10.1	241.50	11.5	
1,053.5	3.35	245.82	1,053.3	-7.3	-14.3	243.00	16.0	
1,143.5	4.36	243.38	1,143.1	-9.9	-19.7	243.40	22.0	
1,233.6	5.24	249.31	1,232.9	-12.9	-26.6	244.22	29.6	
1,323.9	5.42	248.75	1,322.7	-15.9	-34.4	245.28	37.9	
1,413.7	5.23	252.70	1,412.2	-18.6	-42.3	246.25	46.2	
1,503.9	3.28	252.00	1,502.1	-20.6	-48.7	247.03	52.9	
1,593.9	2.57	252.27	1,592.0	-22.0	-53.1	247.44	57.5	
1,683.6	1.88	250.31	1,681.6	-23.2	-56.4	247.67	60.9	
1,773.8	1.66	248.59	1,771.8	-24.1	-59.0	247.75	63.7	
1,864.1	1.69	255.61	1,862.1	-24.9	-61.5	247.92	66.3	
1,954.4	1.44	258.04	1,952.3	-25.5	-63.9	248.24	68.8	
2,044.5	1.40	255.28	2,042.4	-26.0	-66.0	248.50	71.0	
2,134.4	1.26	260.83	2,132.3	-26.5	-68.1	248.77	73.0	
2,224.8	0.73	277.49	2,222.6	-26.5	-69.6	249.14	74.5	
2,315.0	0.54	308.64	2,312.8	-26.2	-70.5	249.63	75.2	
2,405.2	0.50	327.19	2,403.0	-25.6	-71.1	250.19	75.6	
2,495.3	0.53	358.48	2,493.1	-24.9	-71.3	250.79	75.5	
2,612.3	0.81	29.14	2,610.2	-23.6	-70.9	251.60	74.7	
2,675.7	1.10	46.28	2,673.5	-22.8	-70.3	252.04	73.9	
2,765.6	1.32	49.10	2,763.4	-21.5	-68.9	252.66	72.1	
2,855.7	1.30	45.85	2,853.5	-20.1	-67.3	253.37	70.3	
2,946.1	1.30	45.48	2,943.9	-18.7	-65.9	254.17	68.5	
3,036.1	1.23	42.19	3,033.9	-17.2	-64.5	255.03	66.8	
3,123.0	1.09	45.45	3,120.7	-16.0	-63.3	255.83	65.3	
3,249.0	1.25	46.01	3,246.7	-14.2	-61.4	257.00	63.1	
3,339.0	2.35	20.29	3,336.7	-11.8	-60.1	258.92	61.2	
3,429.0	5.36	1.30	3,426.4	-5.8	-59.4	264.39	59.6	
3,519.0	7.28	356.37	3,515.9	4.1	-59.6	273.90	59.8	
3,609.0	8.79	357.23	3,605.0	16.6	-60.3	285.41	62.6	
3,699.0	10.11	354.51	3,693.8	31.4	-61.4	297.05	68.9	
3,790.0	12.84	359.17	3,783.0	49.4	-62.3	308.42	79.5	
3,880.0	15.23	2.88	3,870.3	71.2	-61.9	319.02	94.3	
3,970.0	16.22	5.64	3,956.9	95.5	-60.0	327.86	112.8	
4,015.0	16.59	7.08	4,000.1	108.2	-58.6	331.54	123.0	
4,060.0	17.51	9.03	4,043.1	121.2	-56.8	334.91	133.9	
4,150.0	19.77	11.82	4,128.4	149.5	-51.5	340.98	158.1	
4,240.0	20.43	13.84	4,212.9	179.7	-44.7	346.04	185.1	
4,331.0	20.58	16.83	4,298.1	210.4	-36.2	350.23	213.5	
4,421.0	20.58	17.19	4,382.4	240.6	-27.0	353.61	242.1	
4,511.0	20.49	17.54	4,466.7	270.8	-17.5	356.29	271.3	
4,601.0	21.04	16.90	4,550.8	301.3	-8.1	358.46	301.4	
4,692.0	20.12	17.19	4,636.0	331.8	1.3	0.22	331.8	
4,782.0	19.93	17.41	4,720.6	361.3	10.4	1.65	361.4	

SDI

SDI Survey Report

Company:	Chevron	Local Co-ordinate Reference:	Well 247
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	RKB @ 4021.0usft (H&P #356)
Site:	VGSAU	MD Reference:	RKB @ 4021.0usft (H&P #356)
Well:	247	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH - Job #321013-MPD-1019	Database:	EDM-Regulatory

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
4,872.0	19.78	17.28	4,805.2	390.4	19.5	2.87	390.9
4,962.0	19.60	18.24	4,889.9	419.3	28.8	3.93	420.3
5,052.0	19.54	17.69	4,974.7	448.0	38.1	4.86	449.6
Final MWD Survey							
5,180.0	19.54	17.69	5,095.4	488.8	51.1	5.97	491.4
Final Projection to Bit							

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
5,052.0	4,974.7	448.0	38.1	Final MWD Survey	
5,180.0	5,095.4	488.8	51.1	Final Projection to Bit	



Lea County New Mexico (NAD27)
VGSAU (247wi) 247wi
Plan #2
H&P #356



Ground Level: 4003.0 RKB @ 4021.0usft (H&P #356)

0.0 Northing 0.0 Easting 648111.80 749201.60 Latitude 32° 46' 44.855 N Longitude 103° 31' 21.086 W

SECTION DETAILS

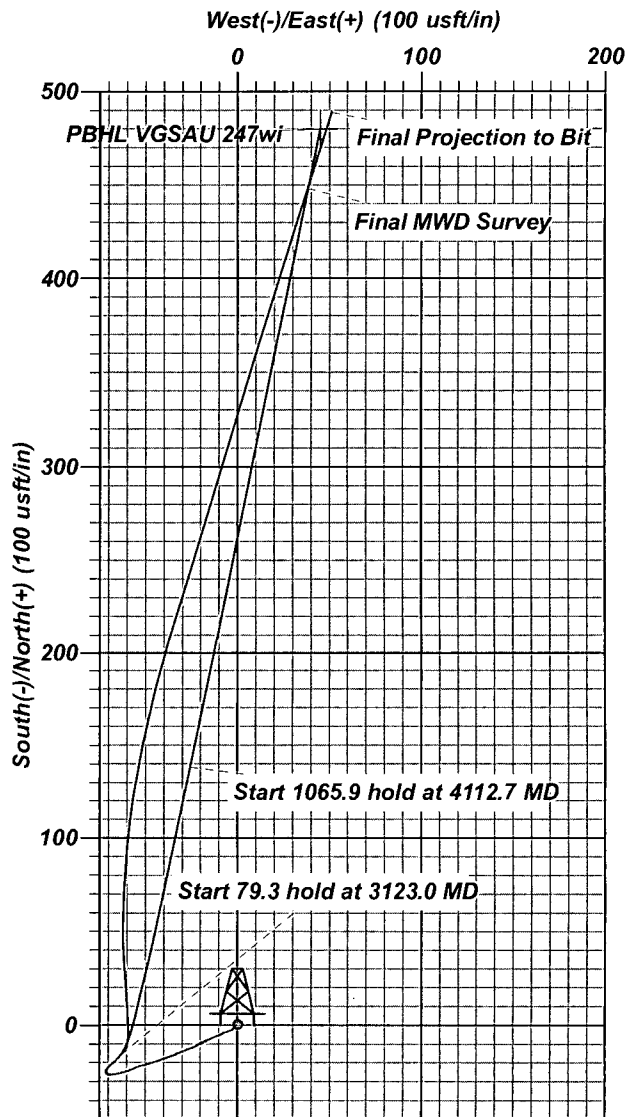
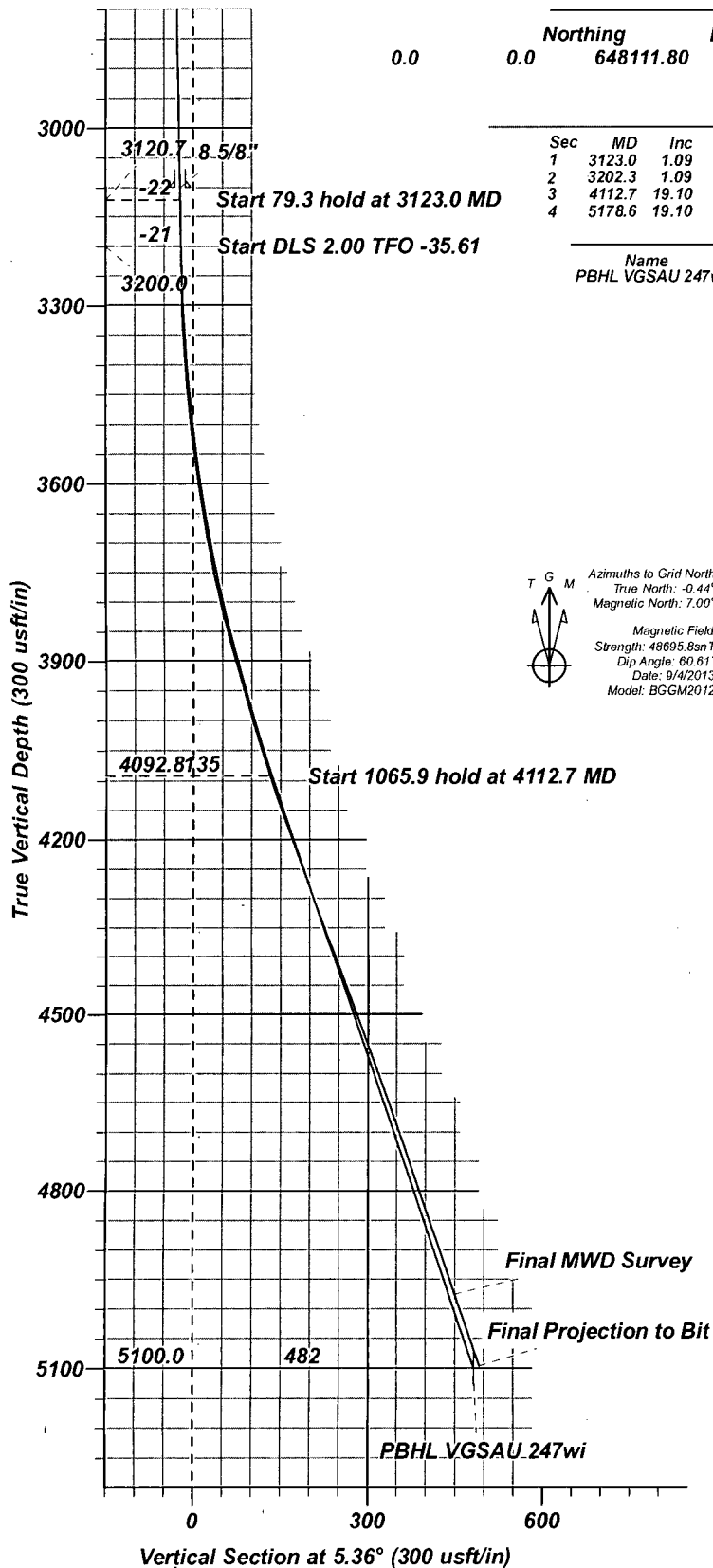
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	3123.0	1.09	45.45	3120.7	-16.0	-63.3	0.00	0.00	-21.8	
2	3202.3	1.09	45.45	3200.0	-14.9	-62.2	0.00	0.00	-20.7	
3	4112.7	19.10	11.67	4092.8	138.3	-25.6	2.00	-35.61	135.4	
4	5178.6	19.10	11.67	5100.0	480.0	45.0	0.00	0.00	482.1	PBHL VGSAU 247wi

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL VGSAU 247wi	5100.0	480.0	45.0	648591.80	749246.60

Azimuths to Grid North
True North: -0.44°
Magnetic North: 7.00°

Magnetic Field
Strength: 48695.8snT
Dip Angle: 60.61°
Date: 9/4/2013
Model: BGGM2012



James Dunn
11:34, October 07 2013
Well Planner
Scientific Drilling Midland District