

Corrected 3/19/13

SCHLUMBERGER

Survey Report

10-Jan-2013

Client..... Chevron USA Inc.
Field..... Salado Draw

Well..... Porter Brown 1H
API number..... 30 025-40802
Engineer..... H.Snell

Spud date..... 17-Nov-12
Last survey date..... 2-Jan-12
Total accepted surveys..... 80
MD of first survey..... 8499.00 ft
MD of last survey..... 13364.00 ft

County..... Lea
State..... New Mexico
Rig..... H&P 217

Latitude..... 32° 1' 21.255" N
Longitude..... 103° 36' 12.379" W

----- Survey calculation methods -----
Method for positions..... Minimum curvature
Method for DLS..... Lubinski

----- Depth reference -----
Permanent datum..... MSL
Depth reference..... Driller's Depth
GL above permanent..... 3203.00
KB above permanent..... 3228.00
DF above permanent..... 3229.00

----- Vertical section origin -----
Latitude (+N/-)..... 0.00 ft
Departure (+E/-)..... 0.00 ft

----- Grid Coordinates -----
NAD27 Texas State Plane, Central Zone, US Feet
X..... 372701.70 ft
Y..... 726210.70 ft

Azimuth from Vsect Origin to target: 359.56 degrees

MWD Survey Reference Criteria

-----Run1----- Calculation Date: 20-Dec-2012
Location G..... 998.94325 mgn Tolerance G..... 2.50 mgn
Location B..... 48324.6 nT Tolerance B..... 300.00 nT
Magnetic Dip: 59.913 degrees Tolerance Dip: 0.45 degrees

-----Run2----- Calculation Date: 28-Dec-2012
Location G..... 998.94325 mgn Tolerance G..... 2.50 mgn
Location B..... 48324.6 nT Tolerance B..... 300.00 nT
Magnetic Dip: 59.91 degrees Tolerance Dip: 0.45 degrees

BGGM Model: 2012

-----Run1-----
Magnetic dec (+E/-)..... 7.502 degrees
Grid Conv (+E/-)..... 0.392 degrees
Total Azim Corr (+E/-)..... 7.11 degrees

-----Run2-----
Magnetic dec (+E/-)..... 7.502 degrees
Grid Conv (+E/-)..... 0.392 degrees
Total Azim Corr (+E/-)..... 7.11 degrees

-----Survey Correction Index Description-----

0 = Uncorrected 1 = Sag Corrected
2 = DMAG Corrected 3 = Sag + DMAG Corrected

Survey List													
Seq	MD	Incl	Azim	Course	TVD	V Sec	N/-S	E/-W	Closure	at Azi	DLS	Tool	Correction
	(ft)	(deg)	(deg)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(deg)	(deg/100ft)		
1	0.00	0.00	0.00	-99.25	0.00	0.00	0.00	0.00	0	90.00	0.00	TIP	0
2	170.07	0.70	45.32	170.07	170.07	0.72	0.73	0.74	1.04	45.32	0.41	GyroTool	0
3	261.31	0.76	38.15	91.24	261.30	1.50	1.60	1.53	2.2	43.35	0.12	GyroTool	0
4	352.00	0.83	27.49	90.69	351.98	2.64	2.65	2.18	3.44	39.45	0.18	GyroTool	0
5	442.69	0.63	12.64	90.69	442.66	3.70	3.72	2.60	4.56	34.88	0.30	GyroTool	0
6	519.64	0.49	16.47	97.15	519.81	4.62	4.64	2.83	5.44	31.37	0.15	GyroTool	0
7	613.56	0.40	20.02	93.72	613.52	5.31	5.37	3.05	6.15	29.81	0.10	GyroTool	0
8	727.28	0.40	21.48	93.72	727.24	5.92	5.95	3.29	6.79	28.94	0.01	GyroTool	0
9	871.71	0.21	11.51	94.43	821.67	6.40	6.47	3.44	7.29	26.20	0.21	GyroTool	0
10	915.59	0.11	340.32	93.88	915.55	6.65	6.68	3.45	7.51	27.31	0.14	GyroTool	0
11	978.38	0.11	325.31	92.79	978.34	6.75	6.78	3.39	7.58	26.57	0.05	GyroTool	0
12	1072.52	0.10	308.03	94.14	1072.48	6.89	6.91	3.28	7.64	25.38	0.04	GyroTool	0

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13	1166.66	0.09	328.48	94.14	1166.62	7.00	7.02	3.17	7.7	24.32	0.04	GyroTool	0
14	1260.58	0.16	94.48	93.92	1260.54	7.05	7.07	3.27	7.79	24.78	0.24	GyroTool	0
15	1355.18	0.13	163.00	94.60	1355.14	6.93	6.96	3.43	7.76	26.22	0.17	GyroTool	0
16	1449.51	0.16	115.41	94.33	1449.47	6.77	6.80	3.58	7.69	27.75	0.13	GyroTool	0
17	1543.84	0.14	131.44	94.33	1543.80	6.64	6.67	3.78	7.67	29.57	0.05	GyroTool	0
18	1637.65	0.05	269.39	93.81	1637.61	6.56	6.59	3.83	7.62	30.15	0.19	GyroTool	0
19	1732.21	0.09	215.96	94.56	1732.17	6.50	6.53	3.74	7.53	29.82	0.08	GyroTool	0
20	1826.11	0.17	178.38	93.90	1826.07	6.30	6.33	3.70	7.34	30.33	0.12	GyroTool	0
21	1921.09	0.07	6.75	94.98	1921.05	6.22	6.25	3.72	7.27	30.73	0.25	GyroTool	0
22	2015.33	0.05	2.52	94.24	2015.29	6.32	6.35	3.72	7.36	30.40	0.02	GyroTool	0
23	2109.18	0.06	154.01	93.85	2109.14	6.32	6.34	3.75	7.37	30.57	0.11	GyroTool	0
24	2203.03	0.14	166.77	93.85	2202.99	6.16	6.19	3.80	7.26	31.52	0.09	GyroTool	0
25	2297.58	0.18	138.34	94.55	2297.54	5.94	5.97	3.92	7.14	33.31	0.09	GyroTool	0
26	2392.03	0.24	125.61	94.45	2391.99	5.71	5.74	4.18	7.1	36.06	0.08	GyroTool	0
27	2486.60	0.14	176.00	94.57	2486.56	5.48	5.51	4.35	7.02	38.29	0.20	GyroTool	0
28	2581.17	0.24	212.08	94.57	2581.13	5.19	5.23	4.25	6.74	39.13	0.16	GyroTool	0
29	2675.74	0.23	219.51	94.57	2675.70	4.88	4.91	4.03	6.35	39.34	0.03	GyroTool	0
30	2770.25	0.26	210.82	94.51	2770.21	4.55	4.58	3.80	5.95	39.64	0.05	GyroTool	0
31	2864.76	0.19	106.26	94.51	2864.71	4.32	4.35	3.84	5.8	41.38	0.38	GyroTool	0
32	2959.38	0.23	90.06	94.62	2959.33	4.28	4.31	4.18	6	44.10	0.08	GyroTool	0
33	3053.95	0.01	231.05	94.57	3053.90	4.27	4.30	4.36	6.13	45.37	0.25	GyroTool	0
34	3147.88	0.30	180.50	93.93	3147.83	4.02	4.05	4.35	5.95	47.03	0.31	GyroTool	0
35	3242.20	0.02	59.96	94.32	3242.15	3.78	3.81	4.36	5.8	48.84	0.33	GyroTool	0
36	3336.68	0.25	53.34	94.48	3336.63	3.91	3.95	4.54	6.02	49.03	0.24	GyroTool	0
37	3431.16	0.73	68.38	94.48	3431.11	4.25	4.29	5.27	6.79	50.84	0.52	GyroTool	0
38	3525.71	1.03	52.02	94.55	3525.65	4.98	5.03	6.50	8.22	52.23	0.41	GyroTool	0
39	3620.26	0.81	25.72	94.55	3620.19	6.10	6.16	7.46	9.67	50.44	0.50	GyroTool	0
40	3714.81	0.56	12.88	94.55	3714.73	7.15	7.21	7.85	10.66	47.43	0.31	GyroTool	0
41	3809.25	0.21	74.19	94.44	3809.17	7.65	7.71	8.12	11.2	46.48	0.52	GyroTool	0
42	3903.84	0.25	76.45	100.59	3903.76	7.75	7.81	8.51	11.55	47.45	0.04	GyroTool	0
43	4091.79	0.43	78.45	181.95	4091.70	7.97	8.04	9.57	12.5	49.95	0.10	GyroTool	0
44	4185.76	0.99	54.29	93.97	4185.67	8.50	8.59	10.57	13.62	50.92	0.66	GyroTool	0
45	4280.19	0.44	12.67	94.43	4280.09	9.33	9.42	11.31	14.72	50.23	0.77	GyroTool	0
46	4374.49	0.32	41.53	94.30	4374.39	9.88	9.97	11.57	15.27	49.25	0.24	GyroTool	0
47	4468.79	0.55	79.84	94.30	4468.68	10.15	10.24	12.19	15.92	49.95	0.38	GyroTool	0
48	4563.48	1.03	96.47	94.69	4563.36	10.12	10.23	13.48	16.92	52.81	0.56	GyroTool	0
49	4657.80	0.48	41.96	94.32	4657.68	10.31	10.42	14.59	17.93	54.45	0.90	GyroTool	0
50	4752.29	0.17	308.77	94.49	4752.17	10.69	10.81	14.74	18.28	53.75	0.55	GyroTool	0
51	4846.89	0.20	229.31	94.60	4846.77	10.68	10.79	14.51	18.08	53.36	0.25	GyroTool	0
52	4941.34	0.27	216.85	94.45	4941.21	10.39	10.50	14.25	17.7	53.61	0.09	GyroTool	0
53	5035.79	0.24	195.63	94.45	5035.66	10.02	10.13	14.06	17.33	54.22	0.10	GyroTool	0
54	5130.83	0.20	147.15	95.04	5130.70	9.69	9.80	14.10	17.17	55.19	0.19	GyroTool	0
55	5224.72	0.31	154.23	93.89	5224.59	9.33	9.44	14.30	17.13	56.58	0.12	GyroTool	0
56	5318.61	0.27	131.85	93.89	5318.48	8.95	9.06	14.57	17.16	58.13	0.13	GyroTool	0
57	5412.50	0.26	121.42	93.80	5412.37	8.49	8.60	14.92	17.32	59.46	0.05	GyroTool	0
58	5507.05	0.35	113.28	94.55	5506.92	8.46	8.57	15.17	17.6	60.84	0.11	GyroTool	0
59	5601.60	0.36	120.43	94.55	5601.47	8.19	8.31	15.89	17.93	62.39	0.05	GyroTool	0
60	5790.01	0.35	121.30	188.41	5789.87	7.58	7.71	16.89	18.47	65.46	0.01	GyroTool	0
61	5884.40	0.32	134.66	94.39	5884.26	7.24	7.38	17.32	18.83	66.94	0.09	GyroTool	0
62	5978.60	0.19	153.00	94.20	5978.46	6.92	7.05	17.58	18.94	68.14	0.16	GyroTool	0
63	6073.23	0.14	187.07	94.63	6073.09	6.66	6.80	17.64	18.9	68.92	0.11	GyroTool	0
64	6167.14	0.11	172.63	93.91	6167.00	6.46	6.59	17.64	18.83	69.50	0.05	GyroTool	0
65	6259.74	0.15	186.74	92.60	6259.60	6.25	6.39	17.63	18.75	70.09	0.06	GyroTool	0
66	6356.25	0.14	191.48	96.51	6356.11	6.01	6.14	17.60	18.64	70.75	0.02	GyroTool	0
67	6450.76	0.09	185.23	94.51	6450.62	5.82	5.96	17.57	18.55	71.26	0.05	GyroTool	0
68	6545.27	0.15	232.94	94.51	6545.13	5.68	5.81	17.46	18.4	71.60	0.12	GyroTool	0
69	6639.59	0.20	270.74	94.32	6639.45	5.60	5.74	17.20	18.13	71.55	0.13	GyroTool	0
70	6733.91	0.23	315.04	94.32	6733.77	5.74	5.87	16.90	17.89	70.84	0.17	GyroTool	0
71	6827.86	0.29	333.00	93.95	6827.72	6.09	6.22	16.66	17.78	69.53	0.11	GyroTool	0
72	6922.32	0.20	297.30	94.46	6922.18	6.38	6.51	16.40	17.65	68.36	0.18	GyroTool	0
73	7017.08	0.20	285.76	94.76	7016.94	6.50	6.63	16.10	17.41	67.67	0.04	GyroTool	0
74	7110.90	0.38	253.10	93.82	7110.75	6.46	6.58	15.64	16.97	67.18	0.25	GyroTool	0
75	7205.36	0.40	268.42	94.46	7205.21	6.37	6.48	15.01	16.35	66.65	0.11	GyroTool	0
76	7299.82	0.55	265.43	94.46	7299.67	6.33	6.44	14.23	15.62	65.66	0.16	GyroTool	0
77	7394.14	0.42	251.12	94.32	7393.99	6.18	6.29	13.45	14.85	64.95	0.19	GyroTool	0
78	7488.55	0.66	226.14	94.41	7488.39	5.70	5.80	12.73	13.99	65.51	0.35	GyroTool	0
79	7582.96	0.87	218.75	94.41	7582.79	4.77	4.86	11.89	12.85	67.75	0.25	GyroTool	0
80	7677.51	1.25	211.70	94.55	7677.33	3.34	3.43	10.90	11.43	72.55	0.42	GyroTool	0
81	7771.94	1.23	211.21	94.43	7771.74	1.61	1.68	9.83	9.98	80.29	0.02	GyroTool	0
82	7866.15	0.70	196.42	94.21	7865.93	0.20	0.27	9.15	9.15	88.33	0.62	GyroTool	0
83	7960.54	0.94	198.82	94.39	7960.31	-1.09	-1.02	8.73	8.79	96.66	0.26	GyroTool	0
84	8055.40	1.87	217.31	94.86	8055.14	-3.04	-2.99	7.55	8.12	111.59	1.08	GyroTool	0
85	8150.07	2.12	223.68	94.67	8149.76	-5.52	-5.48	5.40	7.69	135.43	0.35	GyroTool	0
86	8244.74	1.77	216.43	94.67	8244.37	-7.95	-7.92	3.32	8.59	157.25	0.45	GyroTool	0
87	8339.54	1.50	205.44	94.80	8339.13	-10.24	-10.22	1.92	10.4	169.36	0.44	GyroTool	0
88	8434.49	1.20	181.90	94.95	8434.06	-12.35	-12.34	1.35	12.41	173.74	0.66	GyroTool	0
89	8499.00	7.41	357.44	64.51	8498.41	-8.86	-8.85	1.14	8.93	172.63	13.34	PowerPulse	0
90	8530.00	11.04	358.07	31.00	8529.01	-3.89	-3.89	0.96	4	166.19	11.73	PowerPulse	0
91	8562.00	12.96	358.65	32.00	8560.30	2.76	2.76	0.77	2.87	15.52	6.01	PowerPulse	0
92	8593.00	14.91	359.38	31.00	8590.39	10.27	10.23	0.64	10.25	3.60	6.30	PowerPulse	0
93	8675.00	18.90	359.54	32.00	8621.16	18.99	18.99	0.56	19	1.69	6.22	PowerPulse	0
94	8656.00	18.22	1.21	31.00	8650.72	28.34	28.34	0.63	28.35	1.27	4.57	PowerPulse	0
95	8688.00	20.17	0.58	32.00	8680.94	38.86	38.86	0.79	38.87	1.16	6.12	PowerPulse	0
96	8719.00	22.27	0.42	31.00	8709.84	50.07	50.08	0.88	50.09	1.01	6.80	PowerPulse	0
97	8750.00	24.26	359.99	31.00	8736.31	62.37	62.32	0.93	62.33	0.85	4.42	PowerPulse	0

98	8782.00	26.79	359.06	32.00	8767.19	76.10	76.11	0.81	76.11	0.61	8.01	PowerPulse	0
99	8813.00	29.39	358.42	31.00	8794.54	90.69	90.70	0.48	90.7	0.30	8.46	PowerPulse	0
100	8845.00	31.72	358.10	32.00	8827.09	106.96	106.96	-0.01	106.96	359.89	7.28	PowerPulse	0
101	8876.00	34.08	358.13	31.00	8848.12	123.79	123.79	-0.57	123.79	359.74	7.64	PowerPulse	0
102	8908.00	35.98	357.80	32.00	8874.32	142.15	142.14	-1.22	142.15	359.51	5.96	PowerPulse	0
103	8939.00	38.12	357.76	31.00	8899.06	160.82	160.81	-1.95	160.82	359.31	6.89	PowerPulse	0
104	8971.00	40.65	358.15	32.00	8923.79	181.11	181.10	-2.67	181.12	359.16	7.95	PowerPulse	0
105	9002.00	42.92	358.90	31.00	8946.91	201.76	201.74	-3.20	201.77	359.09	7.49	PowerPulse	0
106	9034.00	44.88	359.12	32.00	8969.96	223.95	223.93	-3.58	223.95	359.08	6.14	PowerPulse	0
107	9065.00	46.94	359.45	31.00	8991.53	246.21	246.19	-3.86	246.22	359.10	6.71	PowerPulse	0
108	9097.00	49.09	359.83	32.00	9012.94	269.99	269.97	-4.00	270	359.15	6.76	PowerPulse	0
109	9128.00	51.29	358.67	31.00	9032.78	293.80	293.78	-4.32	293.81	359.16	7.65	PowerPulse	0
110	9159.00	54.09	359.12	31.00	9051.57	318.46	318.43	-4.79	318.47	359.14	9.11	PowerPulse	0
111	9191.00	56.74	358.90	32.00	9069.74	344.80	344.77	-5.25	344.81	359.13	8.30	PowerPulse	0
112	9222.00	60.22	358.29	31.00	9085.94	371.27	371.18	-5.90	371.23	359.09	11.35	PowerPulse	0
113	9254.00	63.08	358.30	32.00	9101.13	399.37	399.33	-6.74	399.38	359.03	8.96	PowerPulse	0
114	9285.00	64.80	358.81	31.00	9114.75	427.21	427.17	-7.44	427.23	359.00	5.72	PowerPulse	0
115	9317.00	67.50	359.30	32.00	9127.69	456.47	456.43	-7.92	456.5	359.01	8.56	PowerPulse	0
116	9348.00	70.26	358.91	31.00	9138.06	485.39	485.34	-8.37	485.41	359.01	9.00	PowerPulse	0
117	9380.00	72.47	359.11	32.00	9149.09	515.71	515.65	-8.89	515.73	359.01	6.92	PowerPulse	0
118	9412.00	74.41	358.80	31.00	9158.21	546.38	546.32	-9.45	546.4	359.01	6.12	PowerPulse	0
119	9443.00	76.90	359.47	31.00	9165.89	576.41	576.35	-9.90	576.43	359.02	8.31	PowerPulse	0
120	9475.00	79.40	359.88	32.00	9172.46	607.72	607.66	-10.08	607.75	359.05	7.90	PowerPulse	0
121	9506.00	81.64	359.67	31.00	9177.57	638.30	638.24	-10.20	638.32	359.08	7.28	PowerPulse	0
122	9538.00	84.25	0.35	32.00	9181.49	670.05	669.99	-10.20	670.07	359.13	8.43	PowerPulse	0
123	9570.00	86.56	0.15	32.00	9184.05	701.94	701.89	-10.06	701.96	359.18	7.25	PowerPulse	0
124	9601.00	88.82	0.49	31.00	9185.84	732.89	732.83	-8.88	732.9	359.23	1.36	PowerPulse	0
125	9633.00	87.62	0.25	32.00	9187.40	764.85	764.80	-9.68	764.86	359.28	2.62	PowerPulse	0
126	9664.00	88.94	0.38	31.00	9188.32	795.83	795.78	-9.51	795.84	359.37	4.27	PowerPulse	0
127	9696.00	89.94	358.48	32.00	9188.64	827.83	827.78	-9.54	827.83	359.34	4.20	PowerPulse	0
128	9728.00	90.03	359.81	32.00	9188.64	859.83	859.78	-9.74	859.83	359.35	1.06	PowerPulse	0
129	9758.00	90.23	359.54	30.00	9188.58	889.83	889.78	-9.91	889.83	359.36	1.12	PowerPulse	0
130	9855.00	89.26	0.50	97.00	9189.01	986.82	986.77	-9.88	986.82	359.43	1.41	Telescope	0
131	9949.00	89.00	359.78	94.00	9190.45	1080.80	1080.76	-9.64	1080.8	359.49	0.81	Telescope	0
132	10044.00	88.65	358.42	95.00	9192.39	1175.78	1175.73	-11.13	1175.78	359.46	1.48	Telescope	0
133	10139.00	90.17	356.03	95.00	9193.37	1270.71	1270.63	-15.06	1270.72	359.32	2.31	Telescope	0
134	10232.00	90.32	355.44	93.00	9192.87	1363.54	1363.42	-21.13	1363.59	359.10	1.51	Telescope	0
135	10326.00	90.49	355.81	94.00	9192.31	1457.37	1457.14	-28.50	1457.42	358.88	0.43	Telescope	0
136	10421.00	91.00	357.12	95.00	9191.08	1552.17	1551.95	-34.36	1552.33	358.73	1.49	Telescope	0
137	10515.00	90.61	357.40	94.00	9189.74	1646.09	1645.84	-38.85	1646.29	358.65	0.50	Telescope	0
138	10609.00	90.74	357.36	94.00	9188.61	1740.01	1739.73	-43.14	1740.27	358.58	0.13	Telescope	0
139	10703.00	90.57	357.61	94.00	9187.53	1833.94	1833.63	-47.26	1834.24	358.52	0.32	Telescope	0
140	10798.00	90.72	357.42	95.00	9186.46	1928.88	1928.54	-51.38	1929.22	358.47	0.25	Telescope	0
141	10893.00	90.72	358.30	95.00	9185.28	2023.83	2023.46	-54.93	2024.21	358.45	0.93	Telescope	0
142	10988.00	90.40	358.22	93.00	9184.37	2116.80	2116.42	-57.74	2117.2	358.44	0.35	Telescope	0
143	11081.00	90.43	358.55	95.00	9183.68	2211.78	2211.38	-60.42	2212.2	358.43	0.35	Telescope	0
144	11175.00	90.46	359.66	94.00	9182.95	2305.77	2305.36	-61.89	2306.19	358.46	1.18	Telescope	0
145	11270.00	90.37	359.89	95.00	9182.26	2400.76	2400.36	-62.26	2401.16	358.51	0.26	Telescope	0
146	11364.00	90.40	0.86	94.00	9181.63	2494.75	2494.35	-61.65	2495.11	358.58	1.03	Telescope	0
147	11459.00	90.20	1.16	95.00	9181.13	2589.72	2589.34	-59.97	2590.03	358.67	0.38	Telescope	0
148	11553.00	90.63	0.46	94.00	9180.45	2683.69	2683.32	-58.65	2683.96	358.75	0.88	Telescope	0
149	11647.00	91.38	0.65	94.00	9178.80	2777.67	2777.30	-57.74	2777.9	358.81	0.82	Telescope	0
150	11741.00	90.57	1.20	94.00	9177.21	2871.62	2871.28	-56.22	2871.83	358.88	1.04	Telescope	0
151	11836.00	90.46	0.81	95.00	9176.35	2966.59	2966.26	-54.56	2966.76	358.95	0.43	Telescope	0
152	11930.00	90.03	0.60	94.00	9175.95	3060.57	3060.25	-53.40	3060.72	359.00	0.51	Telescope	0
153	12024.00	89.86	0.50	94.00	9176.05	3154.56	3154.25	-52.50	3154.68	359.05	0.21	Telescope	0
154	12119.00	90.09	0.66	95.00	9176.09	3249.54	3249.24	-51.54	3249.65	359.09	0.30	Telescope	0
155	12213.00	90.06	359.81	94.00	9175.98	3343.53	3343.24	-51.15	3343.63	359.12	0.90	Telescope	0
156	12308.00	90.09	0.93	95.00	9175.86	3438.52	3438.24	-50.53	3438.61	359.16	1.18	Telescope	0
157	12402.00	89.89	0.66	94.00	9175.88	3532.50	3532.23	-49.27	3532.57	359.20	0.36	Telescope	0
158	12497.00	89.94	0.83	95.00	9176.02	3627.48	3627.22	-47.98	3627.54	359.24	0.19	Telescope	0
159	12591.00	90.00	0.12	94.00	9176.07	3721.47	3721.21	-47.20	3721.51	359.27	0.75	Telescope	0
160	12685.00	89.80	359.65	94.00	9176.23	3815.46	3815.21	-47.38	3815.53	359.29	0.55	Telescope	0
161	12780.00	90.03	358.60	95.00	9176.38	3910.46	3910.20	-48.84	3910.51	359.28	1.13	Telescope	0
162	12874.00	90.06	358.04	94.00	9176.31	4004.44	4004.16	-51.60	4004.49	359.76	0.59	Telescope	0
163	12969.00	90.26	358.00	95.00	9176.05	4098.40	4099.10	-54.89	4099.47	359.23	0.22	Telescope	0
164	13063.00	90.34	357.18	94.00	9175.55	4193.35	4193.02	-58.84	4193.43	359.20	0.87	Telescope	0
165	13158.00	90.49	357.05	95.00	9174.86	4288.26	4287.89	-63.62	4288.37	359.15	0.21	Telescope	0
166	13253.00	90.63	357.09	95.00	9173.94	4383.16	4382.77	-68.48	4383.3	359.10	0.15	Telescope	0
167	13348.00	91.09	358.20	95.00	9172.51	4478.10	4477.67	-72.38	4478.26	359.07	1.27	Telescope	0
168	13364.00	90.83	358.42	16.00	9172.74	4494.09	4493.66	-72.85	4494.25	359.07	2.10	Telescope	0
169	13468.00	90.83	358.42	104.00	9170.74	4598.06	4597.61	-75.72	4598.23	359.06	0.00	Proj	0

CHEVRON

WC

Lea County, NM

Porter Brown #1H

VH - Job #32K12121526

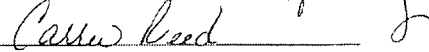
Survey: Gyro

SDI Standard Survey Report

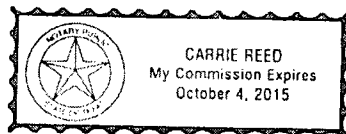
This survey is correct to the best of my knowledge and is supported by actual field data.



Notarized this date 8th of January, 2013.



Notary Signature
County of Midland
State of Texas



Scientific Drilling International, Inc.
SDI Standard Survey Report



Company: CHEVRON	Local Co-ordinate Reference: Well Porter Brown #1H
Project: WC	TVD Reference: WELL @ 0.00usft (Original Well Elev)
Site: Lea County, NM	MD Reference: WELL @ 0.00usft (Original Well Elev)
Well: Porter Brown #1H	North Reference: Grd
Wellbore: VH - Job #32K12121526	Survey Calculation Method: Minimum Curvature
Design: VH - Job #32K12121526	Database: EDM-Regulatory

Project: WC	System Datum: Mean Sea Level
Map System: US State Plane 1927 (Exact solution)	
Geo Datum: NAD 1927 (NADCON CONUS)	
Map Zone: New Mexico East 3001	

Site: Lea County, NM	
Site Position:	Northing: 372,701.77 usft
From: Lat/Long	Easting: 726,210.62 usft
Position Uncertainty: 0.00 usft	Slot Radius: 13-3/16"
	Latitude: 32° 1' 21.256 N
	Longitude: 103° 36' 12.380 W
	Grid Convergence: 0.39 "

Well: Porter Brown #1H, Directional (Pathfinder)	
Well Position	Northing: 372,701.77 usft
+N-S 0.00 usft	Latitude: 32° 1' 21.256 N
+E-W 0.00 usft	Easting: 726,210.62 usft
Position Uncertainty 0.00 usft	Longitude: 103° 36' 12.380 W
	Ground Level: 0.00 usft

Wellbore VH - Job #32K12121526	
Magnetics	
Model Name IGRF2010	Sample Date 12/18/12
Declination 7.40	Dip Angle 59.96
	Field Strength 48.366 nT

Design VH - Job #32K12121526	
Audit Notes:	
Version: 1.0	Phase: ACTUAL
	Tie On Depth: 0.00
Vertical Section:	
Depth From (TVD)	+N-S
(usft)	(usft)
0.00	0.00
	+E-W
	(usft)
	0.00
	Direction
	(°)
	359.56

Survey Program	Date 01/08/13
From (usft)	To (usft)
170.07	12,177.84
Survey (Wellbore)	Tool Name
Gyro (VH - Job #32K12121526)	Keeper
	Description
	Keeper Gyro

Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170.07	0.70	45.32	170.07	0.73	0.74	45.32	1.04
261.31	0.76	38.15	261.30	1.60	1.51	43.35	2.20
352.00	0.83	27.49	351.98	2.65	2.18	39.45	3.44
442.89	0.63	12.64	442.66	3.72	2.60	34.88	4.54
539.84	0.49	16.47	539.81	4.64	2.83	31.37	5.44
633.56	0.40	20.02	633.52	5.33	3.06	29.81	6.15
727.28	0.40	21.48	727.24	5.95	3.29	28.94	6.79
821.71	0.21	11.51	821.67	6.42	3.44	28.20	7.29
915.59	0.11	340.32	915.55	6.68	3.45	27.31	7.51
978.38	0.11	325.31	978.34	6.78	3.39	26.57	7.58
1,072.52	0.10	308.03	1,072.48	6.91	3.28	25.38	7.64

Scientific Drilling International, Inc.
SDI Standard Survey Report



Company: CHEVRON
Project: WC
Site: Lea County, NM
Well: Porter Brown #1H
Wellbore: VH - Job #32K12121526
Design: VH - Job #32K12121526

Local Co-ordinate Reference: Well Porter Brown #1H
TVD Reference: WELL @ 0.00usft (Original Well Elev)
MD Reference: WELL @ 0.00usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM-Regulatory

Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,166.66	0.09	328.48	1,166.62	7.02	3.17	24.32	7.70
1,260.58	0.16	94.48	1,260.54	7.07	3.27	24.78	7.79
1,355.18	0.13	163.00	1,355.14	6.96	3.43	26.22	7.76
1,449.51	0.16	115.41	1,449.47	6.80	3.58	27.75	7.69
1,543.84	0.14	131.44	1,543.80	6.67	3.78	29.57	7.67
1,637.65	0.05	269.39	1,637.61	6.59	3.83	30.15	7.62
1,732.21	0.09	215.96	1,732.17	6.53	3.74	29.82	7.53
1,826.11	0.17	178.38	1,826.07	6.33	3.70	30.33	7.34
1,921.09	0.07	6.75	1,921.05	6.25	3.72	30.73	7.27
2,015.33	0.05	2.52	2,015.29	6.35	3.72	30.40	7.36
2,109.18	0.06	154.01	2,109.14	6.34	3.75	30.57	7.37
2,203.03	0.14	166.77	2,202.99	6.19	3.80	31.52	7.26
2,297.58	0.18	138.34	2,297.54	5.97	3.92	33.31	7.14
2,392.03	0.24	125.61	2,391.99	5.74	4.18	36.06	7.10
2,486.60	0.14	176.00	2,486.56	5.51	4.35	38.29	7.02
2,581.17	0.24	212.08	2,581.13	5.23	4.25	39.13	6.74
2,675.74	0.23	219.51	2,675.70	4.91	4.03	39.34	6.35
2,770.25	0.26	210.82	2,770.21	4.58	3.80	38.64	5.95
2,864.76	0.19	106.26	2,864.71	4.35	3.84	41.38	5.80
2,959.38	0.23	90.06	2,959.33	4.31	4.18	44.10	6.00
3,053.95	0.01	231.05	3,053.90	4.30	4.36	45.37	6.13
3,147.88	0.30	180.50	3,147.83	4.05	4.35	47.03	5.95
3,242.20	0.02	59.96	3,242.15	3.81	4.36	46.84	5.80
3,336.68	0.25	53.34	3,336.63	3.95	4.54	49.03	6.02
3,431.16	0.73	68.38	3,431.11	4.29	5.27	50.84	6.79
3,525.71	1.03	52.02	3,525.65	5.03	6.50	52.23	8.22
3,620.26	0.81	25.72	3,620.19	6.16	7.46	50.44	9.67
3,714.81	0.56	12.88	3,714.73	7.21	7.85	47.43	10.66
3,809.25	0.21	74.19	3,809.17	7.71	8.12	46.48	11.20
3,909.84	0.25	76.45	3,909.76	7.81	8.51	47.45	11.55
4,091.79	0.43	78.45	4,091.70	8.04	9.57	49.95	12.50
4,185.76	0.99	54.29	4,185.67	8.59	10.57	50.92	13.62
4,280.19	0.44	12.67	4,280.09	9.42	11.31	50.23	14.72
4,374.49	0.32	41.53	4,374.39	9.97	11.57	49.25	15.27
4,468.79	0.55	79.86	4,468.68	10.24	12.19	49.95	15.92
4,563.48	1.03	96.47	4,563.36	10.23	13.48	52.81	16.92
4,657.80	0.48	41.96	4,657.68	10.42	14.59	54.45	17.93
4,752.29	0.17	308.77	4,752.17	10.81	14.74	53.75	18.28
4,846.89	0.20	229.31	4,846.77	10.79	14.51	53.36	18.08
4,941.34	0.27	216.85	4,941.21	10.50	14.25	53.61	17.70
5,035.79	0.24	195.63	5,035.66	10.13	14.06	54.22	17.33
5,130.83	0.20	147.15	5,130.70	9.80	14.10	55.19	17.17
5,224.72	0.31	154.23	5,224.59	9.44	14.30	56.58	17.13
5,318.61	0.27	131.85	5,318.48	9.06	14.57	58.13	17.16

Scientific Drilling International, Inc.
SDI Standard Survey Report



Company: CHEVRON
Project: WC
Site: Lea County, NM
Well: Porter Brown #1H
Wellbore: VH - Job #32K12121526
Design: VH - Job #32K12121526

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well Porter Brown #1H
WELL @ 0.00usft (Original Well Elev)
WELL @ 0.00usft (Original Well Elev)
Grid
Minimum Curvature
EDM-Regulatory

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
5,412.50	0.26	121.42	5,412.37	8.80	14.92	59.46	17.32
5,507.05	0.35	113.28	5,506.92	8.57	15.37	60.84	17.60
5,601.60	0.36	120.43	5,601.47	8.31	15.89	62.39	17.93
5,790.01	0.35	121.30	5,789.87	7.71	16.89	65.46	18.57
5,884.40	0.32	134.66	5,884.26	7.38	17.32	66.94	18.83
5,978.60	0.19	153.00	5,978.46	7.05	17.58	68.14	18.94
6,073.23	0.14	187.07	6,073.09	6.80	17.64	68.92	18.90
6,167.14	0.11	172.63	6,167.00	6.59	17.64	69.50	18.83
6,259.74	0.15	186.74	6,259.60	6.39	17.63	70.09	18.75
6,356.25	0.14	191.48	6,356.11	6.14	17.60	70.75	18.64
6,450.76	0.09	185.23	6,450.62	5.96	17.57	71.26	18.55
6,545.27	0.15	232.94	6,545.13	5.81	17.46	71.60	18.40
6,639.59	0.20	270.74	6,639.45	5.74	17.20	71.55	18.13
6,733.91	0.23	315.04	6,733.77	5.87	16.90	70.84	17.89
6,827.86	0.29	333.00	6,827.72	6.22	16.66	69.53	17.78
6,922.32	0.20	287.30	6,922.18	6.51	16.40	68.36	17.65
7,017.08	0.20	285.76	7,016.94	6.63	16.10	67.62	17.41
7,110.90	0.38	253.10	7,110.75	6.58	15.64	67.18	16.97
7,205.36	0.40	268.42	7,205.21	6.48	15.01	66.65	16.35
7,299.82	0.55	265.43	7,299.67	6.44	14.23	65.66	15.62
7,394.14	0.42	251.12	7,393.99	6.29	13.45	64.95	14.85
7,488.55	0.66	226.14	7,488.39	5.80	12.73	65.51	13.99
7,582.96	0.87	218.75	7,582.79	4.86	11.89	67.75	12.85
7,677.51	1.25	211.70	7,677.33	3.43	10.90	72.55	11.43
7,771.94	1.23	211.21	7,771.74	1.88	9.83	80.29	9.98
7,866.15	0.70	196.42	7,865.93	0.27	9.15	88.33	9.15
7,960.54	0.94	198.82	7,960.31	-1.02	8.73	96.66	8.79
8,055.40	1.87	217.31	8,055.14	-2.99	7.55	111.59	8.12
8,150.07	2.12	223.68	8,149.76	-5.48	5.40	135.43	7.69
8,244.74	1.77	216.43	8,244.37	-7.92	3.32	157.25	8.59
8,339.54	1.50	205.44	8,339.13	-10.22	1.92	169.36	10.40
8,434.49	1.20	181.90	8,434.06	-12.34	1.35	173.74	12.41
8,529.07	1.25	148.46	8,528.62	-14.21	1.86	172.54	14.33
8,623.65	2.58	102.66	8,623.15	-15.55	4.48	163.94	16.19
8,718.31	1.99	107.40	8,717.73	-16.51	8.12	153.80	18.40
8,813.20	1.99	125.53	8,812.56	-17.96	11.04	148.43	21.08
8,907.97	1.87	91.62	8,907.28	-18.96	13.92	143.71	23.52
9,002.74	1.38	152.35	9,002.02	-20.02	16.00	141.37	25.62
9,097.15	0.99	170.79	9,096.41	-21.83	16.66	142.66	27.46
9,191.36	0.81	178.12	9,190.61	-23.30	16.81	144.19	28.73
9,285.98	1.14	213.72	9,285.22	-24.75	16.31	146.62	29.64
9,380.08	0.65	208.91	9,379.30	-26.00	15.53	149.15	30.28
9,474.18	0.73	149.52	9,473.40	-26.98	15.58	150.00	31.15
9,568.28	1.00	133.93	9,567.49	-28.07	16.47	149.59	32.54

Scientific Drilling International, Inc.
SDI Standard Survey Report



Company: CHEVRON
Project: WC
Site: Lea County, NM
Well: Porter Brown #1H
Wellbore: VH - Job #32K12121526
Design: VH - Job #32K12121526

Local Co-ordinate Reference: Well Porter Brown #1H
TVD Reference: WELL @ 0.00usft (Original Well Elev)
MD Reference: WELL @ 0.00usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM-Regulatory

Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
9.662.87	0.98	120.18	9.662.06	-29.04	17.78	148.55	34.05
9.757.46	0.66	119.89	9.756.64	-29.72	18.94	147.50	35.24
9.851.85	0.68	135.65	9.851.03	-30.39	19.80	146.92	36.27
9.946.24	0.72	159.47	9.945.41	-31.35	20.40	146.95	37.40
10.024.03	0.83	145.53	10.023.19	-32.27	20.89	147.09	38.44
10.135.83	0.99	153.05	10.134.98	-33.80	21.78	147.20	40.21
10.230.36	0.82	155.24	10.229.50	-35.14	22.44	147.44	41.70
10.323.88	0.74	168.42	10.323.01	-36.34	22.84	147.85	42.92
10.418.31	0.40	148.31	10.417.44	-37.22	23.14	148.14	43.82
10.512.50	0.74	137.60	10.511.62	-37.95	23.72	147.99	44.75
10.606.78	0.67	124.96	10.605.89	-38.71	24.58	147.59	45.86
10.700.91	0.68	131.78	10.700.02	-39.40	25.45	147.14	46.91
10.889.61	2.53	150.57	10.888.64	-43.78	28.33	147.09	52.14
10.983.96	3.09	169.85	10.982.87	-48.09	29.80	148.22	56.58
11.078.31	3.28	165.53	11.077.08	-53.21	30.92	149.84	61.54
11.172.44	3.11	158.07	11.171.06	-58.19	32.55	150.78	66.67
11.266.57	2.50	151.02	11.265.08	-62.35	34.50	151.04	71.26
11.361.07	2.69	125.16	11.359.49	-65.43	37.31	150.31	75.32
11.455.29	1.92	118.64	11.453.63	-67.46	40.50	149.02	78.69
11.549.64	1.61	108.51	11.547.93	-68.64	43.15	147.85	81.07
11.644.28	1.71	92.39	11.642.53	-69.12	45.82	146.46	82.93
11.738.92	1.11	74.04	11.737.15	-68.93	48.11	145.08	84.06
11.833.96	0.96	60.98	11.832.17	-68.29	49.69	143.96	84.45
11.928.18	0.80	77.94	11.926.38	-67.77	51.03	143.02	84.83
12.022.40	0.84	87.12	12.020.59	-67.59	52.36	142.24	85.50
12.114.86	1.18	102.41	12.113.04	-67.77	53.97	141.47	86.63
12.177.84	1.37	102.96	12.176.00	-68.07	55.33	140.89	87.72

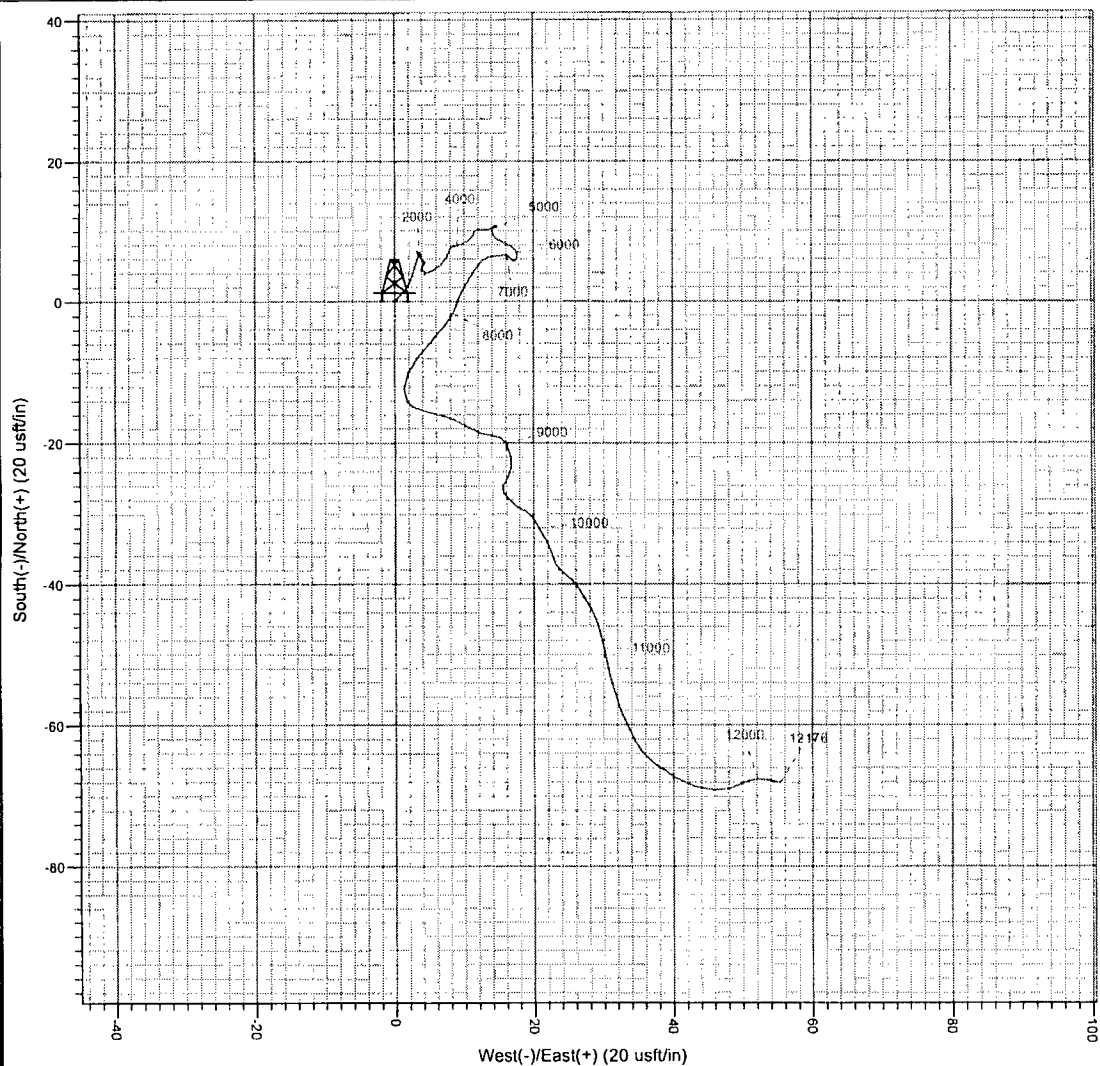


Scientific Drilling

Project: WC
Lea County, NM
Well: Porter Brown #1H
Wellbore: VH - Job #32K12121526
Design: VH - Job #32K12121526

WELL DETAILS: Porter Brown #1H
WELL @ 0.00usft (Original Well Elev)
Ground Level: 0.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	372701.77	726210.62	32° 1' 21.256 N	103° 36' 12.380 W	



PROJECT DETAILS: WC		SITE DETAILS: Lea County, NM	
Geodetic System: US State Plane 1927 (Exact solution)	Site Centre Latitude: 32° 1' 21.256 N	Longitude: 103° 36' 12.380 W	
Datum: NAD 1927 (NADCON CONUS)		Positional Uncertainty: 0.00	
Ellipsoid: Clarke 1866		Convergence: 0.39	
Zone: New Mexico East 3001		Local North: Grid	
System Datum: Mean Sea Level			