

Results of Directional Survey

API number:	30-025-40709		
OGRID:		Operator:	DEVON ENERGY PRODUCTION COMPANY, LP
		Property:	CASWELL 23 FEDERAL # 3H

surface	ULSTR:	A	23	T 17S	R 32E
				385 FNL	260 FEL

BH Loc	ULSTR:	D	23	T 17S	R 32E
11425	MD	6736.9	TVD	398 FNL	328 FWL
					4952 FEL

Top Perf/OH	ULSTR:	A	23	T 17S	R 32E
7300	MD	6935.1	TVD	393 FNL	836 FEL

Bot Perf/OH	ULSTR:	D	23	T 17S	R 32E
11362	MD	6743.8	TVD	398 FNL	390 FWL
					4890 FEL

	MD	N/S	E/W	VD
	7285	-5.92	-561.26	6935.07
TOP PERFS/OH	7300	-7.72	-576.15	6935.08
	7317	-9.75	-593.03	6935.10
	11263	-12.37	-4531.26	6754.80
BOT PERFS/OH	11362	-12.75	-4629.65	6743.84
	11425	-12.99	-4692.26	6736.87

NEXT TO LAST	11263	-12.37	-4531.26	6754.80
LAST READING	11425	-12.99	-4692.26	6736.87
TD	11425	-12.99	-4692.26	6736.87

Surface Location	385	FN	260	FE
Projected BHL	398	FN	4952	FE
Location of				
Top Perfs/OH	393	FN	836	FE
Bottom Perfs/OH	398	FN	4890	FE

SUMMARY of Subsurface Locations

Surface Location	A-23-17S-32E	385	FN	260	FE	Vert. Depth
Top Perfs/OH	A-23-17S-32E	393	FN	836	FE	6935.08
Bottom Perfs/OH	D-23-17S-32E	398	FN	4890	FE	6743.84
Projected TD	D-23-17S-32E	398	FN	4952	FE	6736.87

APR 23 2013

HALLIBURTON

3950 Interwood South Pkwy Houston, TX 77032
Phone 281-986-4416 Fax 281-986-4499

HOBBS OCD

JAN 25 2013

RECEIVED

November 26, 2012

Devon Energy Production, Co
Attn: Judy Barnett
20 N. Broadway
Oklahoma City, Ok
73102

Final Survey for:
Well Name: Caswell 23 Federal 3H
County: Lea County, NM
Rig Name: Cactus 126
Sperry Job #: 9435383

Judy Barnett

Enclosed you will find the following survey information on the above referenced well:

- 0 Survey Report(s)
- 0 MWD End of Well Report(s)

2 Certified Letters for New Mexico NMOCD

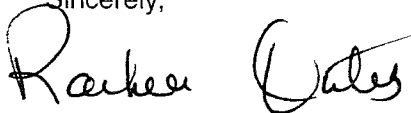
We appreciate the opportunity to serve you and welcome any comments or suggestions that you may have regarding our service. You may contact your local sales representative,

Ryan Annesley @ 405-231-1868

Should you have any questions or require additional information regarding the enclosed information, please do not hesitate to contact me at (281) 986-4400.

Once again, we thank you for your business.

Sincerely,



Rachell Ortiz
Sperry Drilling Services

SUR: A-23-17s-32e, 385/N & 260/E
BHL: D-23-17s-32e, 398/N & 4952/E
API # 30-025-40709

HALLIBURTON

14103 Interwood S. Parkway • Houston, TX 77032

PHONE 281.986.4400 • FAX 281.986.4499

State of New Mexico, Lea County

I, Chris Miller, certify that I am employed by Halliburton Energy Services, Inc. (AKA Sperry Drilling) and that on the dates of November 5, 2012 through November 18, 2012, I did conduct or supervise the taking of MWD directional surveys for the well Caswell 23 Federal 3H from a depth of 6343' MD to a depth of 11263' MD. This data is true, correct, complete and within the limitations of the tools as set forth by Halliburton Energy Services, Inc. (AKA Sperry Drilling). I am authorized and qualified to make this report and this survey was conducted at the request of Devon Energy, for the Caswell 23 Federal 3H API No. 30-025-40709 in Lea County, New Mexico. I have reviewed this report and find that it conforms to the principles and procedures as set forth by Halliburton Energy Services, Inc. (AKA Sperry Drilling).



Field Engineer

**Devon Energy
Caswell 23 Federal 3H
Lea County, NM
Cactus 126
API# 30-025-40709**

HOBBS OCD

JAN 25 2013

RECEIVED

**Nov. 5, 2012 – Nov 18, 2012
HD-MJ-0009435383**

**Sperry Drilling
Survey Report**

Submitted by Chris Miller
3950 Interwood S. Pkwy Houston, TX 77032
Ph: 281.986.4400

HALLIBURTON

**Drilling and Formation
Evaluation**

Survey Report for Devon Energy

Rig	:	Cactus 126
Well Name	:	Caswell 23 Federal 3H
Field Name	:	Maljamar West, Paddock
Country	:	USA
Job Number	:	HD-XX-0009435383
Job Start Date	:	05-Nov-12
API Number	:	30-025-40709

DIRECTIONAL SURVEY DATA

Tie-in

0.00

0.00

0.00

0.00

0.00 N

0.00 E

Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (%/100)
68.00	0.07	32.06	68.00	0.04 N	0.02 E	-0.02	0.10
163.00	0.29	27.25	163.00	0.30 N	0.16 E	-0.16	0.23
258.00	0.22	73.46	258.00	0.56 N	0.45 E	-0.45	0.22
353.00	0.31	17.34	353.00	0.86 N	0.70 E	-0.70	0.28
448.00	0.33	12.74	448.00	1.37 N	0.84 E	-0.84	0.03
543.00	0.24	16.14	543.00	1.83 N	0.95 E	-0.96	0.10
638.00	0.22	96.79	637.99	2.00 N	1.19 E	-1.19	0.31
733.00	0.28	108.37	732.99	1.91 N	1.59 E	-1.59	0.08
828.00	0.22	89.30	827.99	1.84 N	1.99 E	-2.00	0.11
923.00	0.27	46.02	922.99	1.99 N	2.34 E	-2.34	0.20
1018.00	0.27	44.92	1,017.99	2.31 N	2.65 E	-2.66	0.01
1113.00	0.30	116.68	1,112.99	2.35 N	3.04 E	-3.04	0.35
1208.00	0.36	118.21	1,207.99	2.10 N	3.52 E	-3.53	0.06
1303.00	0.08	253.82	1,302.99	1.94 N	3.72 E	-3.72	0.44
1398.00	0.60	124.16	1,397.99	1.64 N	4.07 E	-4.07	0.69
1493.00	0.15	357.12	1,492.99	1.49 N	4.47 E	-4.48	0.74
1588.00	0.12	64.35	1,587.98	1.66 N	4.56 E	-4.56	0.16
1683.00	0.21	41.02	1,682.98	1.83 N	4.76 E	-4.77	0.12
1778.00	0.18	61.95	1,777.98	2.03 N	5.01 E	-5.01	0.08
1873.00	0.32	128.60	1,872.98	1.94 N	5.35 E	-5.35	0.31
1968.00	0.38	109.93	1,967.98	1.66 N	5.85 E	-5.85	0.13
2063.00	0.28	126.37	2,062.98	1.42 N	6.33 E	-6.34	0.14
2158.00	0.68	83.21	2,157.98	1.35 N	7.08 E	-7.08	0.54
2253.00	0.86	66.30	2,252.97	1.70 N	8.29 E	-8.30	0.30
2348.00	0.93	33.99	2,347.96	2.63 N	9.38 E	-9.38	0.53
2443.00	1.00	46.49	2,442.94	3.84 N	10.41 E	-10.42	0.23
2538.00	0.96	63.20	2,537.93	4.77 N	11.72 E	-11.73	0.30
2633.00	0.92	64.67	2,632.92	5.45 N	13.12 E	-13.13	0.05
2728.00	0.86	81.05	2,727.91	5.89 N	14.51 E	-14.53	0.27
2823.00	0.97	92.24	2,822.89	5.97 N	16.02 E	-16.04	0.22
2918.00	0.75	100.60	2,917.88	5.82 N	17.43 E	-17.45	0.27
3013.00	0.65	80.61	3,012.88	5.80 N	18.58 E	-18.59	0.28
3108.00	0.75	36.42	3,107.87	6.38 N	19.48 E	-19.49	0.56
3203.00	0.72	52.21	3,202.86	7.25 N	20.32 E	-20.34	0.21
3298.00	0.77	59.16	3,297.85	7.94 N	21.34 E	-21.36	0.11
3393.00	0.79	71.10	3,392.85	8.48 N	22.51 E	-22.53	0.17
3488.00	0.81	23.34	3,487.84	9.31 N	23.39 E	-23.42	0.68
3583.00	0.67	74.60	3,582.83	10.07 N	24.19 E	-24.22	0.69
3678.00	0.73	72.19	3,677.82	10.41 N	25.31 E	-25.33	0.07
3773.00	0.73	45.05	3,772.82	11.02 N	26.31 E	-26.34	0.36
3868.00	0.84	35.19	3,867.81	12.02 N	27.14 E	-27.17	0.18

DIRECTIONAL SURVEY DATA

Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (%/100)
3963.00	0.72	32.10	3,962.80	13.09 N	27.86 E	-27.89	0.13
4058.00	0.88	48.16	4,057.79	14.08 N	28.72 E	-28.76	0.29
4153.00	0.82	67.66	4,152.78	14.83 N	29.89 E	-29.93	0.31
4248.00	0.86	69.36	4,247.77	15.34 N	31.19 E	-31.23	0.05
4343.00	0.92	56.88	4,342.76	16.01 N	32.49 E	-32.53	0.21
4438.00	1.11	59.75	4,437.74	16.89 N	33.93 E	-33.97	0.21
4533.00	0.91	41.96	4,532.73	17.91 N	35.23 E	-35.27	0.39
4628.00	0.98	38.71	4,627.71	19.11 N	36.24 E	-36.29	0.09
4723.00	0.97	48.57	4,722.70	20.27 N	37.35 E	-37.40	0.18
4818.00	1.00	44.40	4,817.69	21.40 N	38.53 E	-38.59	0.08
4913.00	1.03	59.75	4,912.67	22.42 N	39.85 E	-39.91	0.29
5008.00	1.05	60.87	5,007.66	23.27 N	41.35 E	-41.41	0.03
5103.00	1.06	67.10	5,102.64	24.04 N	42.92 E	-42.98	0.12
5198.00	1.23	61.43	5,197.62	24.87 N	44.62 E	-44.69	0.21
5293.00	1.12	49.18	5,292.60	25.96 N	46.22 E	-46.29	0.29
5388.00	1.21	59.85	5,387.58	27.07 N	47.79 E	-47.86	0.25
5483.00	1.05	51.63	5,482.56	28.12 N	49.34 E	-49.41	0.24
5578.00	0.98	56.34	5,577.55	29.11 N	50.70 E	-50.77	0.11
5673.00	0.81	52.44	5,672.54	29.97 N	51.91 E	-51.99	0.19
5768.00	0.79	68.36	5,767.53	30.62 N	53.05 E	-53.13	0.23
5863.00	0.68	40.94	5,862.52	31.29 N	54.03 E	-54.11	0.38
5958.00	0.82	34.29	5,957.51	32.27 N	54.78 E	-54.86	0.17
6053.00	0.79	39.10	6,052.50	33.34 N	55.57 E	-55.66	0.08
6148.00	0.76	69.94	6,147.49	34.07 N	56.58 E	-56.67	0.43
6243.00	0.41	96.33	6,242.49	34.25 N	57.51 E	-57.60	0.46
6343.00	0.76	9.71	6,342.49	34.86 N	57.98 E	-58.07	0.84
6374.00	1.93	302.63	6,373.48	35.35 N	57.57 E	-57.66	5.74
6406.00	5.62	278.19	6,405.40	35.86 N	55.56 E	-55.66	12.33
6438.00	9.87	271.37	6,437.11	36.15 N	51.27 E	-51.36	13.54
6469.00	15.29	268.35	6,467.35	36.10 N	44.52 E	-44.62	17.63
6501.00	19.19	266.83	6,497.91	35.68 N	35.05 E	-35.14	12.26
6532.00	22.67	265.60	6,526.86	34.94 N	24.00 E	-24.09	11.31
6564.00	27.15	266.44	6,555.87	34.01 N	10.56 E	-10.65	14.05
6595.00	30.58	266.32	6,583.02	33.07 N	4.38 W	4.29	11.07
6627.00	33.34	266.70	6,610.16	32.04 N	21.28 W	21.20	8.64
6659.00	35.34	267.12	6,636.58	31.07 N	39.31 W	39.23	6.29
6690.00	37.44	267.60	6,661.53	30.22 N	57.68 W	57.60	6.84
6722.00	39.76	268.17	6,686.54	29.49 N	77.63 W	77.56	7.32
6753.00	42.87	269.32	6,709.82	29.05 N	98.09 W	98.01	10.32
6784.00	45.09	270.03	6,732.13	28.93 N	119.61 W	119.54	7.33
6816.00	47.33	270.41	6,754.27	29.02 N	142.71 W	142.64	7.05
6847.00	49.83	270.45	6,774.78	29.19 N	165.95 W	165.88	8.07
6879.00	51.79	269.87	6,795.00	29.26 N	190.75 W	190.68	6.30
6911.00	53.44	268.50	6,814.43	28.89 N	216.18 W	216.10	6.17
6942.00	55.64	267.16	6,832.42	27.93 N	241.41 W	241.33	7.93

DIRECTIONAL SURVEY DATA

Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (%/100)
6974.00	57.97	266.29	6,849.93	26.40 N	268.14 W	268.07	7.64
7005.00	60.61	265.15	6,865.76	24.41 N	294.71 W	294.65	9.09
7037.00	64.09	264.09	6,880.61	21.74 N	322.93 W	322.87	11.24
7068.00	67.50	263.35	6,893.32	18.65 N	351.03 W	350.98	11.21
7100.00	71.15	263.76	6,904.62	15.29 N	380.77 W	380.73	11.50
7131.00	74.56	263.49	6,913.75	12.00 N	410.21 W	410.18	11.03
7162.00	77.87	263.53	6,921.14	8.60 N	440.12 W	440.09	10.65
7194.00	80.70	263.54	6,927.09	5.06 N	471.36 W	471.34	8.86
7226.00	83.91	263.38	6,931.37	1.44 N	502.86 W	502.85	10.06
7254.00	86.36	262.54	6,933.74	1.98 S	530.54 W	530.55	9.22
7285.00	88.73	262.83	6,935.07	5.92 S	561.26 W	561.28	7.72
7317.00	91.17	263.40	6,935.10	9.75 S	593.03 W	593.05	7.82
7349.00	92.13	264.69	6,934.18	13.07 S	624.84 W	624.87	5.03
7380.00	92.31	267.65	6,932.98	15.14 S	655.75 W	655.78	9.55
7412.00	92.07	268.85	6,931.76	16.12 S	687.71 W	687.75	3.82
7475.00	90.80	270.39	6,930.18	16.54 S	750.68 W	750.72	3.16
7507.00	90.15	271.31	6,929.91	16.07 S	782.68 W	782.72	3.53
7539.00	90.31	271.53	6,929.78	15.27 S	814.67 W	814.70	0.83
7570.00	90.31	271.51	6,929.62	14.45 S	845.66 W	845.69	0.06
7665.00	90.28	272.16	6,929.13	11.40 S	940.61 W	940.63	0.68
7759.00	90.58	271.40	6,928.42	8.49 S	1,034.56 W	1034.58	0.88
7854.00	91.17	270.08	6,926.97	7.27 S	1,129.54 W	1129.55	1.52
7948.00	91.30	269.53	6,924.95	7.59 S	1,223.51 W	1223.53	0.60
8044.00	91.08	269.78	6,922.96	8.17 S	1,319.49 W	1319.51	0.34
8138.00	91.14	270.18	6,921.14	8.20 S	1,413.47 W	1413.49	0.43
8233.00	90.93	269.93	6,919.42	8.11 S	1,508.46 W	1508.47	0.34
8327.00	90.92	269.79	6,917.91	8.34 S	1,602.44 W	1602.46	0.15
8421.00	91.26	270.15	6,916.12	8.39 S	1,696.43 W	1696.44	0.53
8516.00	91.11	269.74	6,914.15	8.49 S	1,791.41 W	1791.42	0.46
8611.00	91.23	269.65	6,912.21	8.99 S	1,886.39 W	1886.40	0.16
8705.00	91.57	269.13	6,909.91	10.00 S	1,980.35 W	1980.37	0.66
8800.00	91.97	268.86	6,906.97	11.66 S	2,075.29 W	2075.31	0.50
8894.00	92.31	268.48	6,903.46	13.84 S	2,169.20 W	2169.23	0.54
8989.00	92.37	269.61	6,899.58	15.42 S	2,264.11 W	2264.14	1.19
9083.00	92.75	270.75	6,895.38	15.13 S	2,358.01 W	2358.04	1.28
9178.00	92.77	270.98	6,890.81	13.69 S	2,452.89 W	2452.92	0.24
9273.00	91.88	271.43	6,886.95	11.70 S	2,547.79 W	2547.81	1.04
9368.00	91.63	271.39	6,884.04	9.36 S	2,642.71 W	2642.73	0.27
9463.00	91.39	271.07	6,881.53	7.33 S	2,737.66 W	2737.67	0.43
9557.00	94.22	271.09	6,876.93	5.56 S	2,831.52 W	2831.53	3.02
9652.00	94.69	272.33	6,869.55	2.74 S	2,926.19 W	2926.19	1.39
9747.00	89.45	272.85	6,866.12	1.55 N	3,021.00 W	3020.98	5.55
9841.00	91.05	271.75	6,865.71	5.32 N	3,114.92 W	3114.89	2.07
9936.00	90.53	270.61	6,864.41	7.28 N	3,209.88 W	3209.85	1.31
10031.00	90.49	269.58	6,863.56	7.44 N	3,304.88 W	3304.85	1.09

DIRECTIONAL SURVEY DATA

Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (°/100)
10126.00	91.88	269.18	6,861.59	6.41 N	3,399.85 W	3399.82	1.52
10220.00	93.73	267.57	6,856.99	3.75 N	3,493.69 W	3493.67	2.60
10315.00	94.90	266.65	6,849.84	1.03 S	3,588.30 W	3588.29	1.57
10409.00	96.18	267.33	6,840.76	5.94 S	3,681.73 W	3681.73	1.54
10505.00	96.63	268.14	6,830.05	9.70 S	3,777.06 W	3777.07	0.96
10599.00	95.97	269.39	6,819.73	11.71 S	3,870.46 W	3870.48	1.49
10695.00	95.42	269.85	6,810.20	12.35 S	3,965.99 W	3966.01	0.75
10790.00	95.28	269.97	6,801.35	12.50 S	4,060.57 W	4060.59	0.20
10885.00	95.48	270.19	6,792.44	12.36 S	4,155.15 W	4155.17	0.32
10978.00	95.55	270.92	6,783.50	11.46 S	4,247.72 W	4247.73	0.78
11073.00	95.53	269.82	6,774.33	10.85 S	4,342.27 W	4342.29	1.15
11168.00	95.86	269.28	6,764.91	11.59 S	4,436.80 W	4436.82	0.67
11263.00	96.36	269.78	6,754.80	12.37 S	4,531.26 W	4531.27	0.74
11425.00	96.36	269.78	6,736.87	12.99 S	4,692.26 W	4692.28	0.00

SURVEY FOOTER

SURVEY CALCULATED USING THE LONG COLLAR METHOD
 TIE ON SURVEY ASSUMED VERTICAL AT SURFACE
 SURVEYS FROM 68' MD TO 6243' MD PROVIDED BY VAUGHN ENERGY SERVICES.
 SURVEYS FROM 6343' MD TO 11263' MD PROVIDED BY SPERRY DRILLING.
 SURVEY AT 11263' MD HAS BEEN PROJECTED TO TD AT 11425' MD.

DIRECTIONAL SURVEY DATA NOTES

- Calculation based on minimum curvature method.
- Survey coordinates relative to well system reference point.
- TVD values given relative to drilling measurement point.
- Vertical section relative to well head.
- Vertical section is computed along a direction of 269.85 degrees (Grid)
- A total correction of 7.31 deg from Magnetic north to Grid north has been applied
- Horizontal displacement is relative to the well head.
- Horizontal displacement (closure) at 11,425.00 feet is 4,692.28 feet along 269.84 degrees (Grid)

WARRANTY

HALLIBURTON ENERGY SERVICES, INC. WILL USE ITS BEST EFFORTS TO FURNISH CUSTOMERS WITH ACCURATE INFORMATION AND INTERPRETATIONS THAT ARE PART OF, AND INCIDENT TO, THE SERVICES PROVIDED. HOWEVER, HALLIBURTON ENERGY SERVICES, INC. CANNOT AND DOES NOT WARRANT THE ACCURACY OR CORRECTNESS OF SUCH INFORMATION AND INTERPRETATIONS. UNDER NO CIRCUMSTANCES SHOULD ANY SUCH INFORMATION OR INTERPRETATION BE RELIED UPON AS THE SOLE BASIS FOR ANY DRILLING, COMPLETION, PRODUCTION, OR FINANCIAL DECISION OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING VENTURE, DRILLING RIG OR ITS CREW OR ANY THIRD PARTY. THE CUSTOMER HAS FULL RESPONSIBILITY FOR ALL DRILLING, COMPLETION, AND PRODUCTION OPERATION. HALLIBURTON ENERGY SERVICES, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE SERVICES RENDERED. IN NO EVENT WILL HALLIBURTON ENERGY SERVICES, INC. SERVICES BE LIABLE FOR FAILURE TO OBTAIN ANY PARTICULAR RESULTS OR FOR ANY DAMAGES, INCLUDING, BUT NOT LIMITED TO, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, RESULTING FROM THE USE OF ANY INFORMATION OR INTERPRETATION PROVIDED BY HALLIBURTON ENERGY SERVICES, INC.



PO Box 261021
Corpus Christi, Texas 78426
(361) 767-0602 • (800) 606-GYRO • Fax (361) 767-0612

November 15, 2012

Devon Energy Production Company
333 West Sheridan Ave
Oklahoma City, Oklahoma 73102-5010

Attn: Patti Riechers

SUR: A-23-17s-32e, 385/N & 260/E
BHL: D-23-17s-32e, 398/N & 4952/E
API # 30-025-40709

Re: **Caswell 23 Federal No. 003H**

Please find enclosed a copy of the survey from 0" to 6.243" ran on the above referenced well.

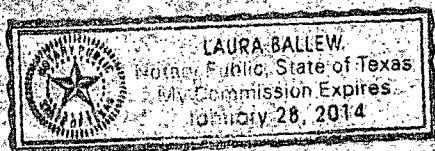
If I can be of any further service, please do not hesitate to call me at 800-606-4976.

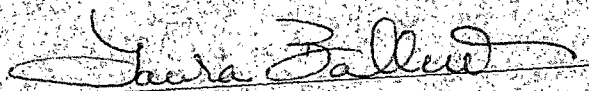
Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 19th day of November, A.D. 2012, by Keith Havelka.




Laura Ballew
Notary Public, State of Texas



Company: Devon Energy Production Company

Lease/Well: Caswell 23 Federal/No. 003H

Rig Name: Cactus 126

State/County: New Mexico/Lea

Latitude: 32.83, Longitude: -103.73

GRID North is 0.33 Degrees East of True North

VS-Azi: 0.00 Degrees



Depth Reference : RKB = 25 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: caswell23fed3-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 11/15/2012 / 13:57

Vaughn Energy Services

Midland, Texas

Office 432-563-5444

Surveyor: Troy Hardin

Caswell 23 Federal No. 003H / API 30-025-40709

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
68.00	0.07	32.06	68.00	0.03	0.02	0.03	0.04	32.06	0.10
163.00	0.29	27.25	163.00	0.29	0.16	0.29	0.33	28.61	0.23
258.00	0.22	73.46	258.00	0.56	0.44	0.56	0.71	38.61	0.22
353.00	0.31	17.34	353.00	0.86	0.70	0.86	1.10	39.18	
448.00	0.33	12.74	448.00	1.37	0.83	1.37	1.60	31.40	0.03
543.00	0.24	16.14	543.00	1.82	0.95	1.82	2.06	27.51	0.09
638.00	0.22	96.79	637.99	2.00	1.19	2.00	2.32	30.69	0.31
733.00	0.28	108.37	732.99	1.90	1.58	1.90	2.48	39.79	0.08
828.00	0.22	89.30	827.99	1.83	1.99	1.83	2.70	47.36	0.11
923.00	0.27	46.02	922.99	1.99	2.34	1.99	3.07	49.55	0.20
1018.00	0.27	44.92	1017.99	2.31	2.66	2.31	3.52	49.03	0.01
1113.00	0.30	116.68	1112.99	2.36	3.04	2.36	3.85	52.24	0.36
1208.00	0.36	118.21	1207.99	2.10	3.53	2.10	4.11	59.21	0.06
1303.00	0.08	253.82	1302.99	1.94	3.73	1.94	4.21	62.47	0.44
1398.00	0.60	124.16	1397.99	1.65	4.08	1.65	4.40	68.03	0.69
1493.00	0.15	357.12	1492.98	1.49	4.49	1.49	4.73	71.67	0.74
1588.00	0.12	64.35	1587.98	1.65	4.57	1.65	4.86	70.14	0.16
1683.00	0.21	41.02	1682.98	1.83	4.78	1.83	5.11	69.08	0.11

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1778.00	0.18	61.95	1777.98	2.03	5.02	2.03	5.42	68.02	0.08
1873.00	0.32	128.60	1872.98	1.93	5.36	1.93	5.70	70.21	0.32
1968.00	0.38	109.93	1967.98	1.66	5.87	1.66	6.10	74.26	0.14
2063.00	0.28	126.37	2062.98	1.41	6.36	1.41	6.51	77.53	0.14
2158.00	0.68	83.21	2157.98	1.33	7.11	1.33	7.24	79.37	0.54
2253.00	0.86	66.30	2252.97	1.69	8.33	1.69	8.50	78.55	0.30
2348.00	0.93	33.99	2347.96	2.61	9.41	2.61	9.76	74.50	0.53
2443.00	1.00	46.49	2442.94	3.82	10.44	3.82	11.12	69.91	0.23
2538.00	0.96	63.20	2537.93	4.75	11.75	4.75	12.68	68.00	0.30
2633.00	0.92	64.67	2632.92	5.44	13.16	5.44	14.24	67.55	
2728.00	0.86	81.05	2727.91	5.87	14.56	5.87	15.70	68.02	0.22
2823.00	0.97	92.24	2822.89	5.95	16.07	5.95	17.14	69.67	0.22
2918.00	0.75	100.60	2917.88	5.81	17.49	5.81	18.43	71.63	0.27
3013.00	0.65	80.61	3012.88	5.78	18.63	5.78	19.51	72.76	0.28
3108.00	0.75	36.42	3107.87	6.37	19.53	6.37	20.54	71.94	0.56
3203.00	0.72	52.21	3202.86	7.23	20.37	7.23	21.62	70.45	0.21
3298.00	0.77	59.16	3297.85	7.93	21.39	7.93	22.81	69.66	0.11
3393.00	0.79	71.10	3392.84	8.47	22.56	8.47	24.10	69.42	0.17
3488.00	0.81	23.34	3487.84	9.30	23.45	9.30	25.23	68.36	0.69
3583.00	0.67	74.60	3582.83	10.07	24.26	10.07	26.26	67.45	0.69
3678.00	0.73	72.19	3677.82	10.40	25.37	10.40	27.42	67.70	0.06
3773.00	0.73	45.05	3772.81	11.02	26.37	11.02	28.58	67.33	0.36
3868.00	0.84	35.19	3867.81	12.02	27.20	12.02	29.74	66.17	0.18
3963.00	0.72	32.10	3962.80	13.09	27.92	13.09	30.84	64.87	0.13
4058.00	0.88	48.16	4057.79	14.09	28.78	14.09	32.05	63.92	
4153.00	0.82	67.66	4152.78	14.83	29.96	14.83	33.43	63.66	0.21
4248.00	0.86	69.36	4247.77	15.35	31.26	15.35	34.82	63.85	0.05
4343.00	0.92	56.88	4342.76	16.01	32.56	16.01	36.28	63.81	0.21
4438.00	1.11	59.75	4437.74	16.89	33.99	16.89	37.95	63.58	0.21
4533.00	0.91	41.96	4532.73	17.91	35.29	17.91	39.57	63.09	0.39
4628.00	0.98	38.71	4627.71	19.11	36.30	19.11	41.02	62.24	0.09
4723.00	0.97	48.57	4722.70	20.27	37.40	20.27	42.54	61.55	0.18
4818.00	1.00	44.40	4817.69	21.39	38.59	21.39	44.12	61.00	0.08
4913.00	1.03	59.75	4912.67	22.41	39.90	22.41	45.76	60.68	0.29
5008.00	1.05	60.87	5007.66	23.26	41.39	23.26	47.48	60.67	0.03
5103.00	1.06	67.10	5102.64	24.03	42.96	24.03	49.22	60.78	0.12
5198.00	1.23	61.43	5197.62	24.86	44.67	24.86	51.12	60.91	0.21
5293.00	1.12	49.18	5292.60	25.95	46.27	25.95	53.06	60.71	0.29
5388.00	1.21	59.85	5387.58	27.06	47.84	27.06	54.97	60.50	0.25

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5483.00	1.05	51.63	5482.56	28.11	49.39	28.11	56.83	60.36	0.24
5578.00	0.98	56.34	5577.55	29.10	50.75	29.10	58.50	60.17	0.11
5673.00	0.81	52.44	5672.54	29.96	51.96	29.96	59.97	60.03	0.20
5768.00	0.79	68.36	5767.53	30.60	53.09	30.60	61.28	60.04	0.23
5863.00	0.68	40.94	5862.52	31.27	54.07	31.27	62.46	59.96	0.38
5958.00	0.82	34.29	5957.51	32.25	54.81	32.25	63.60	59.53	0.17
6053.00	0.79	39.10	6052.50	33.32	55.61	33.32	64.83	59.07	0.08
6148.00	0.76	69.94	6147.49	34.04	56.62	34.04	66.06	58.98	0.44
6243.00	0.41	96.33	6242.49	34.22	57.55	34.22	66.96	59.26	0.46



Vaughn Energy Services
Midland, Texas
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Caswell 23 Federal No. 003H / API 30-025-40709

