



Job Number: 0317509425
 Company: Sage Energy
 Lease/Well: Sagebrush, Well #1-H
 Location: Lea County
 Rig Name: Key # 38
 RKB: 18'
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA
 Declination: 8.19° Degrees East To Grid
 Grid:
 File name: D:\2003SU-1\SAGEEN-1\SAGEBR1H.SVY
 Date/Time: 07-May-03 / 16:24
 Curve Name: Surface To 8,700' M.D.

SUR: E-6-17s-35e, 2286/N & 660/W
 BHL: D-6-17s-35e, 780/N & 700/W
 API # 30-025-36166

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane .00
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead



Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	Direction Deg	Dogleg Severity Deg/100
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	.13	35.64	100.00	.09	.07	.09	.11	35.64	.13
200.00	.14	291.81	200.00	.23	.02	.23	.23	4.67	.21
300.00	.29	60.98	300.00	.40	.13	.40	.42	17.66	.39
400.00	.49	112.37	400.00	.36	.74	.36	.83	64.29	.38
500.00	.45	91.22	499.99	.19	1.53	.19	1.54	83.04	.18
600.00	.28	97.50	599.99	.15	2.17	.15	2.17	86.13	.17
700.00	.49	116.21	699.99	-.07	2.79	-.07	2.79	91.52	.24
800.00	.39	78.16	799.99	-.19	3.51	-.19	3.51	93.15	.30
900.00	.05	152.00	899.99	-.16	3.86	-.16	3.87	92.40	.38

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
1000.00	.19	75.96	999.99	-.16	4.04	-.16	4.05	92.27	.18
1100.00	.11	281.26	1099.99	-.10	4.11	-.10	4.11	91.41	.29
1200.00	.07	146.34	1199.99	-.13	4.05	-.13	4.05	91.88	.17
1300.00	.33	244.47	1299.99	-.31	3.82	-.31	3.84	94.61	.35
1400.00	.41	251.96	1399.98	-.54	3.22	-.54	3.27	99.56	.09
1500.00	.22	227.90	1499.98	-.78	2.74	-.78	2.85	105.93	.23
1600.00	.24	262.82	1599.98	-.94		-.94	2.57	111.41	.14
1700.00	.18	202.85	1699.98	-1.11	2.12	-1.11	2.39	117.58	.22
1800.00	.23	253.03	1799.98	-1.31	1.87	-1.31	2.28	125.06	.18
1900.00	.16	173.27	1899.98	-1.51	1.69	-1.51	2.27	131.70	.26
2000.00	.17	197.58	1999.98	-1.79	1.67	-1.79	2.44	137.05	.07
2100.00	.39	3.01	2099.98	-1.59	1.67	-1.59	2.31	133.69	.56
2200.00	.27	3.12	2199.98	-1.07	1.86	-1.07	2.15	119.92	.21
2300.00	.12	17.23	2299.98	-.81	1.94	-.81	2.10	112.68	.28
2400.00	.22	63.71	2399.98	-.65	2.04	-.65	2.14	107.63	.28
2500.00	.13	109.63	2499.98	-.60	2.32	-.60	2.39	104.53	.16
2600.00	.30	109.58	2599.97	-.63	2.68	-.63	2.76	103.25	.18
2700.00	.32		2699.97	-.42	3.13	-.42	3.16	97.62	.24
2800.00	.42		2799.97	-.30	3.68	-.30	3.69	94.67	.39
2900.00	.66		2899.97	-.60		-.60	4.61	97.49	.25
3000.00	.60	85.14	2999.96	-.77	5.63	-.77	5.68	97.80	.30
3100.00	.65	82.25	3099.96	-.65	6.71	-.65	6.74	95.53	.06
3200.00	.83	84.80	3199.95	-.51	7.99	-.51	8.01	93.63	.18
3300.00	.50	72.85	3299.94	-.31	9.13	-.31	9.14	91.97	.36
3400.00	.78	52.18	3399.93	.23	10.09	.23	10.09	88.68	.36
3500.00	.61	60.16	3499.93	.91	11.09	.91	11.12	85.28	.20
3600.00	.64	31.12	3599.92	1.66	11.84	1.66	11.95	82.03	.31
3700.00	.64	26.99	3699.91	2.63	12.38	2.63	12.66	77.99	.05

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
3800.00	.29	56.03	3799.91	3.27	12.84	3.27	13.25	75.70	.41
3900.00	.37	31.56	3899.91	3.69	13.22	3.69	13.73	74.41	.16
4000.00	.31	22.66	3999.91	4.21	13.49	4.21	14.14	72.66	.08
4100.00	.44	321.72	4099.91	4.76	13.36	4.76	14.18	70.37	.40
4200.00	.43	336.84	4199.90	5.41	12.98	5.41	14.06	67.36	.11
4300.00	.55	307.25	4299.90	6.05	12.45	6.05	13.84	64.09	.28
4400.00	.57	325.76	4399.90	6.75	11.78	6.75	13.58	60.20	.18
4500.00	.51	297.90	4499.89	7.37	11.11	7.37	13.33	56.45	.27
4600.00	.63	323.07	4599.89	8.02	10.39	8.02	13.12	52.34	.27
4700.00	.76	304.42	4699.88	8.83	9.51	8.83	12.98	47.12	.26
4800.00	.62	298.29	4799.87	9.46	8.49	9.46	12.71	41.89	.16
4900.00	.83	304.08	4899.86	10.12	7.41	10.12	12.55	36.20	.22
5000.00	.82	310.58	4999.85	11.00	6.27	11.00	12.66	29.68	.09
5100.00	.40	308.71	5099.85	11.68	5.45	11.68	12.89	25.02	.42
5200.00	.57	327.74	5199.84	12.32	4.91	12.32	13.26	21.74	.23
5300.00	.67	311.95	5299.84	13.13	4.21	13.13	13.79	17.79	.20
5400.00	.65	319.99	5399.83	13.95	3.41	13.95	14.37	13.74	.09
5500.00	.39	329.49	5499.83	14.68	2.88	14.68	14.96	11.08	.27
5600.00	.44	339.47	5599.82	15.34	2.57	15.34	15.55	9.51	.09
5700.00	.45	343.42	5699.82	16.07	2.32	16.07	16.24	8.22	.03
5800.00	.60	339.02	5799.82	16.94	2.02	16.94	17.06	6.81	.16
5900.00	.86	340.37	5899.81	18.13	1.58	18.13	18.20	4.99	.26
6000.00	.84	333.30	5999.80	19.49	1.00	19.49	19.52	2.94	.11
6100.00	.94	337.46	6099.79	20.91	.36	20.91	20.91	.98	.12
6200.00	.54	355.16	6199.78	22.13	.00	22.13	22.13	.01	.46
6300.00	.39	358.96	6299.77	22.94	-.04	22.94	22.94	359.89	.15
6400.00	.74	353.24	6399.77	23.92	-.13	23.92	23.92	359.70	.35
6500.00	.57	15.09	6499.76	25.05	-.07	25.05	25.05	359.83	.30

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
6600.00	.74	359.53	6599.76	26.17	.05	26.17	26.17	.11	.24
6700.00	.37	338.56	6699.75	27.12	-.07	27.12	27.12	359.85	.42
6800.00	.71	343.51	6799.75	28.01	-.37	28.01	28.02	359.25	.34
6900.00	.69	335.31	6899.74	29.15	-.79	29.15	29.17	358.44	.10
7000.00	.70	326.99	6999.73	30.21	-1.38	30.21	30.24	357.39	.10
7100.00	.64	337.13	7099.73	31.24	-1.93	31.24	31.30	356.47	.13
7200.00	.41	316.51	7199.72	32.01	-2.39	32.01	32.10	355.73	.29
7300.00	.69	324.87	7299.72	32.77	-2.98	32.77	32.90	354.80	.29
7400.00	.25	309.43	7399.71	33.40	-3.50	33.40	33.58	354.02	.45
7500.00	.66	306.97	7499.71	33.88	-4.13	33.88	34.13	353.06	.41
7600.00	.47	288.21	7599.70	34.36	-4.98	34.36	34.72	351.76	.26
7700.00	.27	294.46	7699.70	34.58	-5.58	34.58	35.03	350.83	.20
7800.00	.61	310.84	7799.70	35.03	-6.20	35.03	35.57	349.97	.36
7900.00	.56	287.74	7899.69	35.53	-7.07	35.53	36.22	348.75	.24
8000.00	.71	293.72	7999.69	35.92	-8.10	35.92	36.83	347.30	.16
8100.00	.52	278.53	8099.68	36.24	-9.11	36.24	37.37	345.88	.25
8200.00	.76	292.92	8199.68	36.57	-10.17	36.57	37.95	344.45	.29
8300.00	.64	272.28	8299.67	36.85	-11.34	36.85	38.55	342.89	.28
8400.00	.54	264.58	8399.66	36.82	-12.37	36.82	38.85	341.43	.13
8500.00	.30	273.01	8499.66	36.79	-13.10	36.79	39.06	340.40	.25
8600.00	.49	298.19	8599.66	37.01	-13.74	37.01	39.48	339.63	.25
Last Survey Depth Recorded									
8700.00	.40	258.54	8699.66	37.14	-14.46	37.14	39.86	338.73	.31

MULTI-SHOT

SURVEY CALCULATION REPORT

Minimum Curvature Method

Operator: Sage Energy Services
 Lease Name: Sagebrush #1-H
 Job Number: 328420071
 Comments: Tie in: Gyro Multi-Shot Inc.
 Survey Company: Multi-Shot

Target KBTVD: 8880 Feet
 Target Angle: 89.14 Degrees
 Vertical Section Plane: 360.00 Degrees
 Declination Corrected to Grid: 8.64 Degrees
 Bit to Survey Offset: 36 Feet

Survey Number	Measured Depth-ft	Drift (Deg.)	Azimuth (Deg.)	Course Length	TVD (Ft.)	Vertical Section	+N/-S (Ft.)	+E/-W (Ft.)	Closure Distance	Closure Direction	BUR	DLS	KBTVD	+Above -Below Target	+Right -Left of Line
T/I	8,700	0.4	258.5	N/A	8,699.7	37.1	37.1	-14.5	39.9	338.7	N/A	N/A	8,699.1	180.9	-14.5
1	8,739	14.3	350.8	39	8,738.3	41.9	41.9	-15.4	44.6	339.9	35.6	36.7	8,737.6	142.4	-15.4
2	8,771	27.8	345.7	32	8,768.1	53.1	53.1	-17.9	56.0	341.4	42.2	42.5	8,767.3	112.7	-17.9
3	8,803	39.9	354.1	32	8,794.6	70.6	70.6	-20.8	73.6	343.6	37.8	40.5	8,793.5	86.5	-20.8
4	8,834	52.3	358.2	31	8,816.1	92.8	92.8	-22.2	95.4	346.6	40.0	41.1	8,814.7	65.3	-22.2
5	8,863	64.0	358.4	29	8,831.3	117.4	117.4	-22.9	119.6	349.0	40.3	40.3	8,829.6	50.4	-22.9
6	8,895	73.3	359.8	32	8,843.0	147.2	147.2	-23.4	149.0	351.0	29.1	29.3	8,840.8	39.2	-23.4
7	8,927	79.4	1.4	32	8,850.5	178.3	178.3	-23.0	179.7	352.6	19.1	19.7	8,847.8	32.2	-23.0
8	8,958	81.0	2.0	31	8,855.8	208.8	208.8	-22.1	210.0	354.0	5.2	5.5	8,852.7	27.3	-22.1
9	8,990	80.8	2.2	32	8,860.9	240.4	240.4	-21.0	241.3	355.0	-0.6	0.9	8,857.2	22.8	-21.0
10	9,021	80.6	1.4	31	8,865.9	270.9	270.9	-20.0	271.7	355.8	-0.6	2.6	8,861.8	18.2	-20.0
11	9,053	80.6	1.3	32	8,871.1	302.5	302.5	-19.3	303.1	356.4	0.0	0.3	8,866.5	13.5	-19.3
12	9,084	80.2	1.2	31	8,876.3	333.1	333.1	-18.6	333.6	356.8	-1.3	1.3	8,871.3	8.7	-18.6
13	9,116	82.4	2.3	32	8,881.1	364.7	364.7	-17.6	365.1	357.2	6.9	7.7	8,875.6	4.4	-17.6
14	9,148	87.6	2.4	32	8,883.9	396.5	396.5	-16.3	396.9	357.6	16.3	16.3	8,877.9	2.1	-16.3
15	9,179	87.4	2.8	31	8,885.2	427.5	427.5	-14.9	427.7	358.0	-0.6	1.4	8,878.8	1.2	-14.9
16	9,242	90.0	3.3	63	8,886.7	490.3	490.3	-11.6	490.5	358.6	4.1	4.2	8,879.3	0.7	-11.6
17	9,305	90.5	3.7	63	8,886.4	553.2	553.2	-7.7	553.3	359.2	0.8	1.0	8,878.1	1.9	-7.7
18	9,368	88.8	3.1	63	8,886.8	616.1	616.1	-4.0	616.1	359.6	-2.7	2.9	8,877.5	2.5	-4.0
19	9,431	89.2	1.8	63	8,887.9	679.0	679.0	-1.3	679.0	359.9	0.6	2.2	8,877.7	2.3	-1.3
20	9,494	88.8	3.0	63	8,889.0	742.0	742.0	1.3	742.0	0.1	-0.6	2.0	8,877.8	2.2	1.3

MULTI-SHOT

SURVEY CALCULATION REPORT Minimum Curvature Method

Operator: Sage Energy Services
Lease Name: Sagebrush #1-H
Job Number: 328420071
Comments: Tie in: Gyro Multi-Shot Inc.
Survey Company: Multi-Shot

Target KBTVD: 8880 Feet
Target Angle: 89.14 Degrees
Vertical Section Plane: 360.00 Degrees
Declination Corrected to Grid: 8.64 Degrees
Bit to Survey Offset: 36 Feet

Survey Number	Measured Depth-ft	Drift (Deg.)	Azimuth (Deg.)	Course	FVD (Ft.)	Vertical Section	+N/-S (Ft.)	+E/-W (Ft.)	Closure Distance	Closure Direction	BUR	DLS	KBTVD	+Above -Below Target	+Right -Left of Line
21	9,557	88.6	0.4	63	8,890.4	804.9	804.9	3.2	804.9	0.2	-0.3	4.1	8,878.3	1.7	3.2
22	9,621	88.9	0.1	64	8,891.8	868.9	868.9	3.5	868.9	0.2	0.5	0.7	8,878.8	1.2	3.5
23	9,683	89.8	1.9	62	8,892.5	930.9	930.9	4.6	930.9	0.3	1.5	3.2	8,878.5	1.5	4.6
24	9,747	89.3	2.6	64	8,893.0	994.8	994.8	7.1	994.8	0.4	-0.8	1.3	8,878.1	1.9	7.1
25	9,778	86.8	2.7	31	8,894.1	1,025.8	1,025.8	8.5	1,025.8	0.5	-8.1	8.1	8,878.7	1.3	8.5
26	9,810	85.3	3.4	32	8,896.3	1,057.6	1,057.6	10.2	1,057.7	0.6	-4.7	5.2	8,880.4	-0.4	10.2
27	9,841	85.7	3.4	31	8,898.7	1,088.5	1,088.5	12.1	1,088.6	0.6	1.3	1.3	8,882.4	-2.4	12.1
28	9,904	85.5	1.5	63	8,903.5	1,151.2	1,151.2	14.7	1,151.3	0.7	-0.3	3.0	8,886.3	-6.3	14.7
TD	9,968	85.5	1.5	64	8,908.6	1,215.0	1,215.0	16.4	1,215.1	0.8	0.0	0.0	8,890.3	-10.3	16.4

MULTI-SHOT

SURVEY CALCULATION REPORT

Minimum Curvature Method

Operator: Sage Energy Services
 Lease Name: Sagebrush #1-H ST#01
 Job Number: 328420071
 Comments: Tie in: Multi-Shot MWD
 Survey Company: Multi-Shot

Target KBTVD: 8880 Feet
 Target Angle: 89.14 Degrees
 Vertical Section Plane: 360.00 Degrees
 Declination Corrected to Grid: 8.64 Degrees
 Bit to Survey Offset: 36 Feet

Survey Number	Measured Depth-ft	Drift (Deg.)	Azimuth (Deg.)	Course Length	TVD (Ft.)	Vertical Section	+N/-S (Ft.)	+E/-W (Ft.)	Closure Distance	Closure Direction	BUR	DLS	KBTVD	+Above -Below Target	+Right -Left of Line
T/I	9,494	88.8	3.0	N/A	8,889.0	742.0	742.0	1.3	742.0	0.1	N/A	N/A	8,877.9	2.1	1.3
1	9,558	87.5	5.7	64	8,891.1	805.8	805.8	6.1	805.8	0.4	-2.0	4.7	8,879.0	1.0	6.1
2	9,589	93.8	6.8	31	8,890.7	836.6	836.6	9.5	836.6	0.7	20.3	20.6	8,878.2	1.8	9.5
3	9,621	93.9	7.1	32	8,888.6	868.3	868.3	13.4	868.4	0.9	0.3	1.0	8,875.5	4.5	13.4
4	9,652	91.0	7.4	31	8,887.2	899.0	899.0	17.3	899.1	1.1	-9.4	9.4	8,873.7	6.3	17.3
5	9,715	92.8	5.2	63	8,885.2	961.5	961.5	24.2	961.8	1.4	2.9	4.5	8,870.7	9.3	24.2
6	9,778	91.1	3.4	63	8,883.0	1,024.3	1,024.3	28.9	1,024.7	1.6	-2.7	3.9	8,867.6	12.4	28.9
7	9,841	89.4	2.9	63	8,882.7	1,087.2	1,087.2	32.4	1,087.7	1.7	-2.7	2.8	8,866.4	13.6	32.4
8	9,904	89.9	3.2	63	8,883.1	1,150.1	1,150.1	35.7	1,150.7	1.8	0.8	0.9	8,865.9	14.1	35.7
9	9,935	89.5	4.2	31	8,883.3	1,181.1	1,181.1	37.7	1,181.7	1.8	-1.3	3.5	8,865.6	14.4	37.7
10	9,966	89.3	3.0	31	8,883.6	1,212.0	1,212.0	39.7	1,212.6	1.9	-0.6	3.9	8,865.4	14.6	39.7
11	9,998	89.2	2.0	32	8,884.0	1,244.0	1,244.0	41.1	1,244.6	1.9	-0.3	3.1	8,865.4	14.6	41.1
12	10,029	90.4	2.2	31	8,884.1	1,274.9	1,274.9	42.2	1,275.6	1.9	3.9	3.9	8,865.0	15.0	42.2
13	10,092	90.5	1.5	63	8,883.6	1,337.9	1,337.9	44.2	1,338.6	1.9	0.2	1.1	8,863.6	16.4	44.2
14	10,122	88.4	0.5	30	8,883.9	1,367.9	1,367.9	44.8	1,368.6	1.9	-7.0	7.8	8,863.4	16.6	44.8
15	10,154	89.6	359.1	32	8,884.5	1,399.9	1,399.9	44.7	1,400.6	1.8	3.7	5.8	8,863.5	16.5	44.7
16	10,185	91.9	357.7	31	8,884.1	1,430.9	1,430.9	43.8	1,431.5	1.8	7.4	8.7	8,862.6	17.4	43.8
17	10,216	90.0	356.9	31	8,883.6	1,461.8	1,461.8	42.3	1,462.4	1.7	-6.1	6.6	8,861.6	18.4	42.3
Bit	10,260	90.0	356.9	44	8,883.6	1,505.8	1,505.8	40.0	1,506.3	1.5	0.0	0.0	8,861.0	19.0	40.0