

9PT # 30-015-43300



SURVEY CALCULATION PROGRAM

Minimum Curvature

File:

OPERATOR:		Limerock Resources								Target Information				VS Referenced to Offset from Surface			
WELL:		Brainard 12L #1								TARGET KBTVD:		4600.00		NORTH/SOUTH:		0.00	
LOCATION:		Eddy County, New Mexico								TARGET INCL:		0.00		EAST/WEST:		0.00	
RIG:		United 33								TARGET AZM:		287.48		(Enter 0° N and 0° E for Surface)			
JOB NUMBER:		TX-17070															
SURVEY COMPANY						DIRECTIONAL COMPANY				PROPOSED DIRECTION:		287.48		Dec / Total Corr.(+/-):		7.30	
Accel Directional						Accel Directional				COMMENTS:							
Directional Drillers						COORDINATORS											
Cliff Tinkham						Chris Shipp											
Dylan Dowdell																	
Limerock Resources						Brainard 12L #1								Target Calculations			
		TRUE	TEMP	API	Course					Surface	CLOSURE		DLS/	BUR/	TVD AT 0°	ABOVE (+)	RIGHT(+)
SVY	MD	INC	AZM	°F	Gamma	Length	TVD	N-S	E-W	Vert Sect	DIST	DIR	100	100'	V. SEC.	BELOW (-)	LEFT(-)
Tie-In	0	0.0	0.0			N/A	0.00	0.00	0.00		0.00	0.00	N/A	N/A			
1	246	1.5	287.0			246	245.97	0.94	-3.08	3.22	3.22	287.00	0.61	0.61	#DIV/0!	#DIV/0!	-0.03
2	336	2.5	284.5			90	335.92	1.78	-6.11	6.36	6.36	286.23	1.12	1.11	#DIV/0!	#DIV/0!	-0.14
3	362	2.9	280.2			26	361.89	2.04	-7.30	7.58	7.58	285.58	1.72	1.54	#DIV/0!	#DIV/0!	-0.25
4	397	3.2	282.3			35	396.84	2.40	-9.13	9.43	9.44	284.73	0.91	0.86	#DIV/0!	#DIV/0!	-0.45
5	429	3.5	281.8			32	428.78	2.79	-10.96	11.29	11.31	284.29	0.94	0.94	#DIV/0!	#DIV/0!	-0.63
6	460	3.8	282.0			31	459.72	3.20	-12.89	13.25	13.28	283.93	0.97	0.97	#DIV/0!	#DIV/0!	-0.82
7	492	4.4	277.6			32	491.64	3.58	-15.14	15.52	15.56	283.30	2.12	1.88	#DIV/0!	#DIV/0!	-1.13
8	524	4.9	280.3			32	523.53	3.99	-17.70	18.08	18.15	282.69	1.71	1.56	#DIV/0!	#DIV/0!	-1.51
9	556	5.9	282.0			32	555.39	4.57	-20.66	21.08	21.16	282.48	3.16	3.13	#DIV/0!	#DIV/0!	-1.84
10	588	6.9	285.6			32	587.19	5.43	-24.12	24.64	24.72	282.69	3.37	3.13	#DIV/0!	#DIV/0!	-2.06
11	620	7.1	287.8			32	618.95	6.55	-27.85	28.53	28.61	283.24	1.05	0.62	#DIV/0!	#DIV/0!	-2.11
12	652	7.2	289.5			32	650.70	7.83	-31.62	32.52	32.58	283.90	0.73	0.31	#DIV/0!	#DIV/0!	-2.03
13	684	8.2	290.7			32	682.41	9.30	-35.65	36.80	36.84	284.63	3.16	3.13	#DIV/0!	#DIV/0!	-1.83
14	716	9.0	292.2			32	714.05	11.06	-40.10	41.57	41.60	285.41	2.60	2.50	#DIV/0!	#DIV/0!	-1.50
15	747	9.9	294.1			31	744.63	13.06	-44.78	46.64	46.65	286.26	3.07	2.90	#DIV/0!	#DIV/0!	-0.99
16	779	10.9	294.2			32	776.11	15.42	-50.05	52.37	52.37	287.13	3.13	3.13	#DIV/0!	#DIV/0!	-0.32
17	812	11.8	294.3			33	808.46	18.09	-55.97	58.82	58.82	287.91	2.73	2.73	#DIV/0!	#DIV/0!	0.44
18	844	12.7	294.3			32	839.73	20.89	-62.16	65.56	65.58	288.57	2.81	2.81	#DIV/0!	#DIV/0!	1.25
19	876	13.5	294.5			32	870.90	23.88	-68.76	72.76	72.79	289.15	2.50	2.50	#DIV/0!	#DIV/0!	2.12
20	908	14.5	294.4			32	901.95	27.09	-75.81	80.45	80.51	289.66	3.13	3.13	#DIV/0!	#DIV/0!	3.06
21	939	15.4	294.8			31	931.90	30.42	-83.08	88.38	88.48	290.11	2.92	2.90	#DIV/0!	#DIV/0!	4.06
22	971	16.5	294.4			32	962.67	34.08	-91.08	97.11	97.24	290.51	3.45	3.44	#DIV/0!	#DIV/0!	5.14
23	1,003	17.5	294.2			32	993.27	37.93	-99.61	106.40	106.58	290.84	3.13	3.13	#DIV/0!	#DIV/0!	6.26
24	1,035	18.9	294.4			32	1023.67	42.04	-108.71	116.32	116.56	291.14	4.38	4.38	#DIV/0!	#DIV/0!	7.44
25	1,067	20.7	293.9			32	1053.77	46.47	-118.61	127.09	127.38	291.40	5.65	5.63	#DIV/0!	#DIV/0!	8.70
26	1,099	21.8	293.6			32	1083.60	51.14	-129.22	138.62	138.97	291.59	3.45	3.44	#DIV/0!	#DIV/0!	9.97
27	1,131	21.9	292.7			32	1113.30	55.82	-140.17	150.47	150.88	291.71	1.09	0.31	#DIV/0!	#DIV/0!	11.14
28	1,163	22.1	292.8			32	1142.97	60.46	-151.23	162.40	162.86	291.79	0.64	0.63	#DIV/0!	#DIV/0!	12.24
29	1,194	22.3	292.4			31	1171.67	64.96	-162.04	174.07	174.58	291.85	0.81	0.65	#DIV/0!	#DIV/0!	13.29
30	1,290	22.8	294.0			96	1260.33	79.47	-195.87	210.70	211.38	292.08	0.82	0.52	#DIV/0!	#DIV/0!	16.96
31	1,354	23.3	291.2			64	1319.22	89.09	-219.00	235.65	236.43	292.14	1.88	0.78	#DIV/0!	#DIV/0!	19.19
32	1,418	23.8	286.0			64	1377.90	97.23	-243.22	261.19	261.93	291.79	3.34	0.78	#DIV/0!	#DIV/0!	19.68
33	1,515	24.0	281.3			97	1466.59	106.49	-281.38	300.37	300.86	290.73	1.97	0.21	#DIV/0!	#DIV/0!	17.05
34	1,579	24.2	280.5			64	1525.01	111.43	-307.04	326.33	326.64	289.95	0.60	0.31	#DIV/0!	#DIV/0!	14.05
35	1,642	23.3	282.1			63	1582.68	116.39	-331.92	351.56	351.74	289.32	1.76	-1.43	#DIV/0!	#DIV/0!	11.32
36	1,706	23.1	283.5			64	1641.50	121.98	-356.51	376.68	376.80	288.89	0.92	-0.31	#DIV/0!	#DIV/0!	9.26
37	1,771	22.1	283.2			65	1701.51	127.75	-380.81	401.60	401.67	288.54	1.55	-1.54	#DIV/0!	#DIV/0!	7.46
38	1,835	21.1	281.9			64	1761.01	132.87	-403.81	425.07	425.10	288.21	1.73	-1.56	#DIV/0!	#DIV/0!	5.44
39	1,866	19.8	281.3			31	1790.06	135.05	-414.41	435.84	435.86	288.05	4.25	-4.19	#DIV/0!	#DIV/0!	4.34
40	1,898	17.7	281.3			32	1820.36	137.07	-424.50	446.07	446.08	287.89	6.56	-6.56	#DIV/0!	#DIV/0!	3.23
41	1,930	15.8	283.5			32	1851.00	139.04	-433.51	455.25	455.26	287.78	6.26	-5.94	#DIV/0!	#DIV/0!	2.40
42	1,962	14.2	284.8			32	1881.91	141.06	-441.54	463.52	463.52	287.72	5.11	-5.00	#DIV/0!	#DIV/0!	1.92
43	1,994	12.6	284.8			32	1913.04	142.95	-448.71	470.93	470.93	287.67	5.00	-5.00	#DIV/0!	#DIV/0!	1.57
44	2,026	11.3	283.5			32	1944.34	144.57	-455.13	477.54	477.54	287.62	4.15	-4.06	#DIV/0!	#DIV/0!	1.19
45	2,058	10.2	284.3			32	1975.78	146.01	-460.93	483.50	483.50	287.58	3.47	-3.44	#DIV/0!	#DIV/0!	0.81
46	2,090	9.1	289.4			32	2007.33	147.55	-466.06	488.86	488.86	287.57	4.35	-3.44	#DIV/0!	#DIV/0!	0.74
47	2,122	8.5	292.4			32	2038.95	149.29	-470.63	493.74	493.74	287.60	2.36	-1.88	#DIV/0!	#DIV/0!	1.03
48	2,154	8.2	293.4			32	2070.61	151.10	-474.91	498.37	498.37	287.65	1.04	-0.94	#DIV/0!	#DIV/0!	1.47
49	2,187	7.3	294.4			33	2103.31	152.90	-478.98	502.79	502.79	287.70	2.76	-2.73	#DIV/0!	#DIV/0!	1.96
50	2,218	6.5	288.2			31	2134.09	154.26	-482.44	506.50	506.50	287.73	3.52	-2.58	#DIV/0!	#DIV/0!	2.22
51	2,250	5.6	275.6			32	2165.91	154.98	-485.72	509.84	509.84	287.70	5.00	-2.81	#DIV/0!	#DIV/0!	1.92
52	2,282	4.7	267.5			32	2197.78	155.07	-488.58	512.60	512.60	287.61	3.61	-2.81	#DIV/0!	#DIV/0!	1.15



SURVEY CALCULATION PROGRAM

Minimum Curvature

File:

OPERATOR: Limerock Resources							Target Information					VS Referenced to Offset from Surface					
WELL: Brainard 12L #1							TARGET KBTVD:		4600.00			NORTH/SOUTH:		0.00			
LOCATION: Eddy County, New Mexico							TARGET INCL:		0.00			EAST/WEST:		0.00			
RIG: United 33							TARGET AZM:		287.48			(Enter 0' N and 0' E for Surface)					
JOB NUMBER: TX-17070																	
SURVEY COMPANY				DIRECTIONAL COMPANY				PROPOSED DIRECTION:			287.48		Dec / Total Corr.(+/-): 7.30				
Accel Directional				Accel Directional				COMMENTS:									
Directional Drillers				COORDINATORS													
Cliff Tinkham				Chris Shipp													
Dylan Dowdell																	
Limerock Resources				Brainard 12L #1									Target Calculations				
		TRUE	TEMP	API	Course			Surface	CLOSURE	DLS/	BUR/	TVD AT 0'	ABOVE (+)	RIGHT(+)			
SVY	MD	INC	AZM	°F	Gamma	Length	TVD	N-S	E-W	Vert Sect	DIST	DIR	100	100'	V. SEC.	BELOW (-)	LEFT(-)
53	2,314	3.3	270.2			32	2229.70	155.02	-490.81	514.71	514.71	287.53	4.41	-4.38	#DIV/0!	#DIV/0!	0.43
54	2,345	1.8	288.6			31	2260.67	155.18	-492.17	516.05	516.05	287.50	5.45	-4.84	#DIV/0!	#DIV/0!	0.18
55	2,378	0.9	331.4			33	2293.66	155.57	-492.78	516.75	516.75	287.52	3.92	-2.73	#DIV/0!	#DIV/0!	0.37
56	2,473	1.0	332.3			95	2388.65	156.96	-493.52	517.88	517.88	287.64	0.11	0.11	#DIV/0!	#DIV/0!	1.47
57	2,569	1.1	320.1			96	2484.63	158.41	-494.50	519.25	519.26	287.76	0.25	0.10	#DIV/0!	#DIV/0!	2.56
58	2,672	1.1	332.0			103	2587.61	160.04	-495.60	520.79	520.80	287.90	0.22	0.00	#DIV/0!	#DIV/0!	3.78
59	2,768	1.3	333.3			96	2683.59	161.82	-496.52	522.20	522.23	288.05	0.21	0.21	#DIV/0!	#DIV/0!	5.21
60	2,864	0.4	49.3			96	2779.58	163.02	-496.76	522.79	522.82	288.17	1.32	-0.94	#DIV/0!	#DIV/0!	6.27
61	2,960	0.4	125.5			96	2875.58	163.04	-496.23	522.29	522.33	288.19	0.51	0.00	#DIV/0!	#DIV/0!	6.46
62	3,056	0.4	132.1			96	2971.58	162.62	-495.71	521.67	521.70	288.16	0.05	0.00	#DIV/0!	#DIV/0!	6.21
63	3,151	0.4	143.6			95	3066.58	162.13	-495.27	521.10	521.13	288.13	0.08	0.00	#DIV/0!	#DIV/0!	5.88
64	3,247	0.4	145.9			96	3162.57	161.58	-494.88	520.56	520.59	288.08	0.02	0.00	#DIV/0!	#DIV/0!	5.47
65	3,343	0.5	132.9			96	3258.57	161.02	-494.39	519.92	519.95	288.04	0.15	0.10	#DIV/0!	#DIV/0!	5.08
66	3,439	0.4	135.8			96	3354.57	160.50	-493.85	519.25	519.27	288.00	0.11	-0.10	#DIV/0!	#DIV/0!	4.75
67	3,535	0.3	138.0			96	3450.57	160.07	-493.45	518.74	518.76	287.97	0.11	-0.10	#DIV/0!	#DIV/0!	4.46
68	3,631	0.3	16.1			96	3546.57	160.12	-493.21	518.53	518.55	287.99	0.55	0.00	#DIV/0!	#DIV/0!	4.58
69	3,727	0.4	357.3			96	3642.56	160.70	-493.15	518.65	518.68	288.05	0.16	0.10	#DIV/0!	#DIV/0!	5.15
70	3,823	0.2	37.4			96	3738.56	161.17	-493.07	518.71	518.74	288.10	0.29	-0.21	#DIV/0!	#DIV/0!	5.62
71	3,919	0.3	40.2			96	3834.56	161.49	-492.80	518.55	518.59	288.14	0.10	0.10	#DIV/0!	#DIV/0!	6.01
72	4,015	0.4	44.2			96	3930.56	161.92	-492.41	518.31	518.35	288.20	0.11	0.10	#DIV/0!	#DIV/0!	6.54
73	4,110	0.4	38.3			95	4025.56	162.42	-491.97	518.04	518.09	288.27	0.04	0.00	#DIV/0!	#DIV/0!	7.15
74	4,205	0.4	46.1			95	4120.56	162.91	-491.53	517.76	517.82	288.34	0.06	0.00	#DIV/0!	#DIV/0!	7.75
75	4,301	0.4	32.3			96	4216.55	163.43	-491.11	517.52	517.58	288.41	0.10	0.00	#DIV/0!	#DIV/0!	8.37
76	4,397	0.4	352.0			96	4312.55	164.04	-490.97	517.58	517.65	288.48	0.29	0.00	#DIV/0!	#DIV/0!	8.99
77	4,451	0.5	337.5			54	4366.55	164.45	-491.09	517.81	517.89	288.51	0.28	0.19	#DIV/0!	#DIV/0!	9.34
PTB	4,500	0.5	337.5			49	4415.55	164.84	-491.25	518.08	518.17	288.55	0.00	0.00	#DIV/0!	#DIV/0!	9.67