



Customer: **High Point Resources**
 Well Name: **Lion Creek 23-0362B**
 Location: **WELD COUNTY**

M.W.D. OPERATOR: K. Prestridge / C. Stokes
DIRECTIONAL DRILLERS: J. Talbert / J. O'Leary
Grid Correction: 8
Job #: CO1804006
Vertical Section 180.96

Minimum Curvature Calculation

No.	Survey Depth	INC	AZM	TVD	N-S	E-W	Vertical Section	DLS/100
TIE	1497	5.71	6.25	1494	68.68	7.05	-68.79	0.00
1	1655	7.16	352.00	1651	86.25	6.54	-86.34	1.36
2	1746	9.36	355.34	1741	99.24	5.15	-99.31	2.47
3	1837	12.26	9.76	1831	116.15	6.19	-116.23	4.33
4	1928	14.68	13.71	1919	136.88	10.56	-137.03	2.84
5	2019	18.51	14.68	2006	162.06	16.95	-162.32	4.22
6	2110	18.90	4.66	2093	190.73	21.81	-191.07	3.55
7	2201	19.52	356.66	2179	220.60	22.13	-220.94	2.97
8	2292	20.26	354.11	2264	251.45	19.62	-251.74	1.25
9	2383	20.79	352.18	2349	283.13	15.81	-283.35	0.94
10	2474	21.32	350.77	2434	315.46	10.96	-315.59	0.81
11	2565	21.67	348.84	2519	348.27	5.05	-348.30	0.87
12	2656	18.59	349.19	2604	379.01	-0.93	-378.93	3.39
13	2747	18.11	353.06	2691	407.30	-5.36	-407.14	1.44
14	2837	16.18	358.16	2777	433.72	-7.45	-433.53	2.72
15	2929	14.29	0.53	2866	457.89	-7.76	-457.69	2.16
16	3020	14.15	358.77	2954	480.24	-7.90	-480.03	0.50
17	3111	11.91	10.11	3042	500.61	-6.49	-500.42	3.72
18	3202	11.43	7.74	3132	518.79	-3.62	-518.65	0.75
19	3293	11.30	6.86	3221	536.57	-1.34	-536.47	0.24
20	3387	9.67	13.27	3313	553.40	1.58	-553.35	2.13
21	3481	9.58	11.16	3406	568.76	4.90	-568.76	0.39
22	3575	6.24	6.77	3499	581.51	7.02	-581.54	3.61
23	3669	6.15	3.34	3592	591.61	7.92	-591.66	0.41
24	3763	4.04	6.24	3686	599.93	8.57	-599.98	2.26
25	3857	2.07	15.56	3780	604.86	9.39	-604.93	2.15
26	3950	1.89	31.03	3873	607.79	10.63	-607.88	0.60
27	4045	0.79	326.52	3968	609.68	11.07	-609.77	1.80
28	4139	0.13	324.05	4062	610.31	10.65	-610.39	0.70
29	4233	0.35	203.29	4156	610.13	10.48	-610.21	0.46
30	4328	0.57	153.81	4251	609.44	10.57	-609.52	0.46
31	4422	1.32	113.56	4345	608.59	11.77	-608.69	1.02
32	4517	1.19	112.41	4440	607.77	13.68	-607.91	0.14
33	4611	1.54	97.21	4534	607.24	15.84	-607.42	0.53
34	4705	1.01	92.64	4628	607.04	17.92	-607.25	0.57
35	4799	1.10	94.84	4722	606.93	19.65	-607.17	0.10
36	4892	1.10	86.13	4815	606.92	21.43	-607.18	0.18
37	4986	1.49	98.26	4909	606.80	23.54	-607.11	0.50
38	5081	1.19	280.81	5004	606.81	23.79	-607.12	2.82
39	5176	1.01	275.63	5099	607.08	21.99	-607.35	0.22
40	5270	0.79	286.70	5193	607.34	20.54	-607.60	0.30
41	5364	0.57	325.29	5287	607.91	19.66	-608.15	0.53
42	5458	0.75	351.21	5381	608.91	19.30	-609.14	0.37
43	5551	0.84	349.89	5474	610.18	19.08	-610.41	0.10



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Grid Correction: 8

Job #: CO1804006

Minimum Curvature Calculation

Vertical Section 180.96

No.	Survey Depth	INC	AZM	TVD	N-S	E-W	Vertical Section	DLS/100
44	5646	0.97	24.52	5569	611.60	19.29	-611.83	0.58
45	5740	0.48	282.39	5663	612.40	19.24	-612.64	1.24
46	5833	1.19	153.99	5756	611.62	19.28	-611.85	1.65
47	5927	2.42	184.75	5850	608.76	19.55	-609.00	1.62
48	6021	1.80	198.28	5943	605.39	18.92	-605.61	0.84
49	6116	1.58	196.09	6038	602.71	18.09	-602.92	0.24
50	6210	1.41	199.43	6132	600.37	17.34	-600.58	0.20
51	6304	0.70	223.07	6226	598.86	16.57	-599.05	0.87
52	6397	0.53	243.90	6319	598.26	15.79	-598.44	0.30
53	6491	0.79	251.81	6413	597.87	14.79	-598.03	0.29
54	6585	0.84	209.36	6507	597.06	13.83	-597.21	0.63
55	6679	0.66	145.90	6601	596.01	13.80	-596.16	0.85
56	6773	1.01	153.37	6695	594.83	14.47	-594.98	0.39
57	6867	1.23	141.07	6789	593.30	15.48	-593.47	0.35
58	6960	1.23	148.54	6882	591.67	16.63	-591.86	0.17
59	7055	1.45	152.67	6977	589.73	17.71	-589.94	0.25
60	7148	1.19	133.16	7070	588.03	18.96	-588.26	0.55
61	7243	7.21	180.09	7165	581.39	19.67	-581.63	6.80
62	7337	15.34	188.88	7257	563.17	17.74	-563.38	8.82
63	7431	24.26	179.30	7345	531.50	16.05	-531.69	10.07
64	7524	33.98	177.10	7427	486.33	17.60	-486.56	10.51
65	7618	42.95	179.30	7500	427.96	19.32	-428.21	9.65
66	7712	51.38	180.71	7564	359.09	19.26	-359.36	9.03
67	7806	61.67	180.71	7616	280.79	18.29	-281.06	10.95
68	7900	70.99	183.34	7653	194.86	15.18	-195.08	10.24
69	7993	80.57	180.44	7676	104.87	12.26	-105.06	10.73
70	8030	83.56	177.80	7681	68.24	12.83	-68.44	10.73
71	8100	88.40	177.01	7686	-1.50	15.99	1.23	7.01
72	8193	89.19	177.54	7688	-94.38	20.41	94.02	1.02
73	8287	90.33	178.16	7689	-188.31	23.93	187.88	1.38
74	8381	90.24	177.19	7688	-282.23	27.75	281.72	1.04
75	8475	91.03	178.68	7687	-376.16	31.13	375.58	1.79
76	8568	91.60	179.47	7685	-469.12	32.64	468.50	1.05
77	8662	91.96	179.91	7682	-563.07	33.14	562.43	0.60
78	8757	93.36	180.71	7678	-657.97	32.63	657.32	1.70
79	8851	92.00	182.02	7673	-751.83	30.39	751.21	2.01
80	8945	91.38	182.46	7670	-845.72	26.72	845.15	0.81
81	9039	89.49	179.56	7670	-939.69	25.07	939.13	3.68
82	9132	91.91	181.67	7669	-1032.66	24.07	1032.11	3.45
83	9226	92.00	179.83	7665	-1126.60	22.84	1126.05	1.96
84	9319	92.18	180.79	7662	-1219.53	22.34	1218.98	1.05
85	9413	90.24	181.32	7660	-1313.49	20.60	1312.96	2.14
86	9507	90.59	182.38	7659	-1407.44	17.57	1406.94	1.19



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Grid Correction: 8

Job #: CO1804006

Minimum Curvature Calculation

Vertical Section 180.96

No.	Survey Depth	INC	AZM	TVD	N-S	E-W	Vertical Section	DLS/100
87	9601	89.85	180.00	7659	-1501.41	15.62	1500.93	2.65
88	9695	89.98	180.35	7659	-1595.41	15.33	1594.92	0.40
89	9789	90.37	181.76	7659	-1689.39	13.60	1688.92	1.56
90	9883	90.02	181.23	7659	-1783.36	11.15	1782.91	0.68
91	9977	90.37	179.83	7658	-1877.35	10.28	1876.91	1.54
92	10068	90.15	179.91	7658	-1968.35	10.49	1967.89	0.26
93	10159	90.20	181.41	7658	-2059.34	9.44	2058.89	1.65
94	10250	90.20	181.06	7657	-2150.32	7.48	2149.89	0.38
95	10341	90.51	183.43	7657	-2241.24	3.91	2240.85	2.63
96	10432	90.64	182.73	7656	-2332.10	-0.99	2331.79	0.78
97	10523	90.02	180.88	7655	-2423.05	-3.85	2422.77	2.14
98	10614	90.33	181.67	7655	-2514.03	-5.88	2513.77	0.93
99	10705	90.15	183.25	7655	-2604.94	-9.78	2604.73	1.75
100	10,796	90.11	182.90	7654	-2695.81	-14.67	2695.67	0.39
101	10,888	90.02	182.29	7654	-2787.71	-18.83	2787.63	0.67
102	10,979	90.37	182.90	7654	-2878.62	-22.95	2878.59	0.77
103	11,070	90.51	179.83	7653	-2969.58	-25.12	2969.58	3.38
104	11,160	89.32	181.32	7653	-3059.57	-26.02	3059.57	2.12
105	11,251	90.95	185.28	7653	-3150.40	-31.26	3150.48	4.71
106	11,343	90.59	184.13	7652	-3242.08	-38.80	3242.27	1.31
107	11,434	90.33	182.64	7651	-3332.91	-44.18	3333.18	1.66
108	11,525	90.24	181.50	7651	-3423.85	-47.46	3424.16	1.26
109	11,616	90.15	183.08	7650	-3514.78	-51.10	3515.13	1.74
110	11,706	90.07	182.11	7650	-3604.68	-55.17	3605.10	1.08
111	11,797	90.42	182.02	7650	-3695.62	-58.45	3696.08	0.40
112	11,888	90.33	181.06	7649	-3786.59	-60.90	3787.07	1.06
113	11,979	90.24	180.09	7649	-3877.58	-61.81	3878.07	1.07
114	12,070	89.67	179.83	7649	-3968.58	-61.75	3969.05	0.69
115	12,162	89.80	181.41	7649	-4060.57	-62.74	4061.05	1.72
116	12,253	90.86	181.50	7649	-4151.54	-65.06	4152.04	1.17
117	12,344	90.20	180.53	7648	-4242.52	-66.67	4243.03	1.29
118	12434	90.02	182.02	7648	-4332.49	-68.67	4333.03	1.67
119	12525	90.42	182.46	7647	-4423.42	-72.23	4424.01	0.65
120	12616	90.29	182.90	7647	-4514.32	-76.48	4514.96	0.50
121	12707	90.37	183.61	7646	-4605.17	-81.65	4605.89	0.79
122	12798	90.15	184.84	7646	-4695.92	-88.35	4696.74	1.37
123	12889	89.58	183.08	7646	-4786.70	-94.64	4787.61	2.03
124	12980	90.02	182.81	7646	-4877.58	-99.31	4878.55	0.57
125	13071	91.12	180.35	7646	-4968.53	-101.82	4969.54	2.96
126	13162	92.35	180.00	7643	-5059.49	-102.10	5060.48	1.41
127	13254	93.10	179.83	7638	-5151.38	-101.96	5152.36	0.84
128	13344	91.87	181.41	7635	-5241.29	-102.94	5242.27	2.22
129	13435	88.92	181.14	7634	-5332.25	-104.96	5333.26	3.26



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Vertical Section 180.96

Minimum Curvature Calculation

No.	Survey Depth	INC	AZM	TVD	N-S	E-W	Vertical Section	DLS/ 100
130	13527	89.93	180.97	7635	-5424.23	-106.65	5425.25	1.11
131	13618	87.82	180.79	7637	-5515.20	-108.05	5516.23	2.33
132	13709	87.91	180.35	7640	-5606.13	-108.96	5607.16	0.49
133	13800	87.56	180.09	7644	-5697.06	-109.31	5698.09	0.48
134	13890	88.62	180.35	7647	-5787.01	-109.65	5788.03	1.21
135	13981	89.98	180.53	7648	-5878.00	-110.35	5879.01	1.51
136	14072	91.03	180.00	7647	-5968.99	-110.77	5970.00	1.29
137	14163	88.97	179.39	7647	-6059.98	-110.29	6060.98	2.36
138	14254	90.11	180.88	7648	-6150.98	-110.50	6151.96	2.06
139	14344	90.64	181.94	7647	-6240.94	-112.71	6241.95	1.32
140	14434	89.05	179.04	7647	-6330.93	-113.48	6331.94	3.67
141	14525	89.76	179.56	7648	-6421.92	-112.37	6422.89	0.97
142	14615	91.38	180.35	7647	-6511.91	-112.30	6512.87	2.00
143	14705	89.32	179.30	7647	-6601.90	-112.03	6602.85	2.57
144	14796	89.10	179.30	7648	-6692.88	-110.92	6693.80	0.24
145	14888	90.29	181.41	7649	-6784.87	-111.49	6785.78	2.63
146	14979	89.98	180.53	7648	-6875.86	-113.03	6876.78	1.03
147	15070	90.02	179.91	7648	-6966.86	-113.38	6967.78	0.68
148	15161	90.07	179.91	7648	-7057.86	-113.23	7058.76	0.05
149	15252	89.98	179.21	7648	-7148.86	-112.53	7149.73	0.78
150	15342	89.89	181.58	7648	-7238.85	-113.15	7239.72	2.64
151	15434	90.33	183.69	7648	-7330.74	-117.38	7331.68	2.34
152	15528	89.85	180.35	7648	-7424.67	-120.70	7425.65	3.59
153	15622	90.33	181.50	7648	-7518.66	-122.21	7519.64	1.33
154	15717	92.13	181.50	7646	-7613.60	-124.70	7614.61	1.89
155	15810	90.51	181.23	7644	-7706.55	-126.91	7707.58	1.77
156	15905	90.95	180.88	7642	-7801.52	-128.66	7802.58	0.59
157	15998	91.87	180.62	7640	-7894.48	-129.88	7895.55	1.03
158	16092	89.93	181.14	7639	-7988.46	-131.32	7989.53	2.14
159	16186	90.86	181.32	7638	-8082.43	-133.34	8083.53	1.01
160	16280	88.44	180.71	7639	-8176.41	-135.01	8177.52	2.65
161	16374	88.53	180.62	7641	-8270.37	-136.10	8271.48	0.14
161	16467	89.01	181.32	7643	-8363.33	-137.67	8364.46	0.91
162	16561	88.97	181.06	7645	-8457.30	-139.62	8458.44	0.28
163	16655	90.86	182.20	7645	-8551.25	-142.30	8552.43	2.35
164	16749	91.82	182.20	7643	-8645.16	-145.90	8646.38	1.02
165	16844	90.42	180.53	7641	-8740.11	-148.17	8741.36	2.29
166	16938	91.03	180.79	7640	-8834.09	-149.25	8835.35	0.71
167	17032	88.40	180.62	7640	-8928.08	-150.41	8929.34	2.80
168	17126	87.78	180.62	7643	-9022.02	-151.42	9023.28	0.66
169	17220	87.08	180.09	7647	-9115.92	-152.00	9117.18	0.93
170	17314	89.19	180.18	7651	-9209.87	-152.23	9211.12	2.25
171	17409	88.66	180.35	7652	-9304.85	-152.66	9306.09	0.59



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Vertical Section *180.96*

Minimum Curvature Calculation

No.	Survey Depth	INC	AZM	TVD	N-S	E-W	Vertical Section	DLS/100
172	17502	89.76	181.32	7654	-9397.83	-154.02	9399.08	1.58
173	17596	89.93	180.71	7654	-9491.81	-155.69	9493.08	0.67
174	17690	90.29	180.27	7654	-9585.81	-156.49	9587.08	0.60
175	17784	90.81	179.65	7653	-9679.80	-156.42	9681.06	0.86
176	17878	90.24	178.77	7652	-9773.79	-155.13	9775.01	1.12
177	17973	90.55	177.80	7651	-9868.74	-152.28	9869.90	1.07
178	18051	90.55	177.45	7650	-9946.67	-149.05	9947.77	0.45
179	18096	90.55	180.96	7650	-9991.66	-148.43	9992.74	7.80