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MS Directional Survey Data Certification

MS Directional Job Number: DDMO-171105
Survey Type: MWD
Operating Company: RKI Exploration & Production LLC
Well Name & Number: Tucker Draw 9-4 Federal COM 6H
Location: Eddy County, NM
→ API Number: 30-015-44479
Tie In Depth: Surface
Surveyed Depths: 154' – 18,604' MD
Projected TD Survey: 18,649' MD
Dates Performed: 11/26/2017 – 01/13/2018

I certify that the data is true, correct and complete and within the limitations of the tool set forth by MS Directional; that I am authorized and qualified to make this report and that I have reviewed this report and find it conforms to the principles and procedures as set forth by MS Directional.

Digitally signed by:

Paul Royar

MWD Surveyor Name: Paul Royar

Date: 02-26-2018

Email: proyar@msdir.com

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Company:		RKI Exploration & Production LLC										
Well Name:		Tucker Draw 9-4 Federal COM 6H										
Location:		Eddy County, NM										
Rig:		Orion Phoenix #10					Magnetic Declination:		6.88		REFERENCED TO GRID NORTH	
Job Number:		DDMO-171105										
API #:		30-015-44479										
Vertical Section Azimuth:				359.68			Proposed Direction:		359.68			
Survey Calculation Method:				Minimum Curvature								
PTB:	MD		INC		AZM	TVD	N/S	E/W		VS		
	18,649		88.38		358.1	10941.45	7982.89	-375.55		7984.86		
#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance Azm		DLS/ 100	BUR/ 100'	
TIE IN	0	0.00	0.00	0.00	0.00	0.00		0.00				
1	157	0.20	257.30	157.00	-0.06	-0.27	-0.06	0.27	257.30	0.13	0.13	
2	247	0.30	200.60	247.00	-0.32	-0.50	-0.31	0.59	237.94	0.28	0.11	
3	338	0.40	192.40	338.00	-0.85	-0.66	-0.84	1.07	217.68	0.12	0.11	
4	428	0.30	179.10	428.00	-1.39	-0.72	-1.39	1.57	207.34	0.14	-0.11	
5	518	0.40	164.50	517.99	-1.93	-0.63	-1.93	2.03	198.13	0.15	0.11	
6	609	0.60	186.40	608.99	-2.71	-0.60	-2.71	2.77	192.49	0.30	0.22	
7	699	0.70	174.90	698.98	-3.72	-0.60	-3.72	3.77	189.20	0.18	0.11	
8	789	0.40	188.10	788.98	-4.58	-0.60	-4.58	4.62	187.44	0.36	-0.33	
9	879	0.40	160.40	878.98	-5.19	-0.54	-5.19	5.22	185.91	0.21	0.00	
10	969	0.60	225.20	968.98	-5.82	-0.77	-5.81	5.87	187.51	0.62	0.22	
11	1,063	0.90	256.40	1062.97	-6.34	-1.83	-6.33	6.60	196.13	0.53	0.32	
12	1,152	0.70	147.20	1151.96	-6.96	-2.22	-6.95	7.31	197.68	1.47	-0.22	
13	1,243	1.30	134.30	1242.95	-8.15	-1.18	-8.14	8.23	188.23	0.70	0.66	
14	1,332	1.40	125.10	1331.92	-9.48	0.43	-9.48	9.49	177.38	0.27	0.11	
15	1,423	0.40	119.30	1422.91	-10.27	1.62	-10.28	10.40	171.04	1.10	-1.10	
16	1,512	0.10	129.10	1511.91	-10.47	1.95	-10.49	10.65	169.45	0.34	-0.34	
17	1,601	0.40	93.50	1600.91	-10.54	2.32	-10.56	10.79	167.58	0.36	0.34	
18	1,691	1.00	93.70	1690.90	-10.61	3.42	-10.63	11.15	162.14	0.67	0.67	
19	1,786	0.30	164.50	1785.90	-10.91	4.31	-10.93	11.73	158.42	0.99	-0.74	
20	1,881	0.50	215.60	1880.89	-11.48	4.14	-11.50	12.20	160.18	0.41	0.21	
21	1,975	0.90	193.60	1974.89	-12.53	3.73	-12.55	13.08	163.44	0.51	0.43	
22	2,070	1.20	255.00	2069.87	-13.52	2.59	-13.53	13.76	169.16	1.16	0.32	
23	2,165	2.90	265.50	2164.81	-13.96	-0.77	-13.96	13.98	183.15	1.83	1.79	
24	2,260	3.60	267.70	2259.66	-14.27	-6.14	-14.24	15.54	203.29	0.75	0.74	
25	2,355	4.70	272.70	2354.41	-14.21	-13.01	-14.13	19.26	222.49	1.22	1.16	
26	2,450	5.30	274.20	2449.04	-13.70	-21.28	-13.58	25.31	237.22	0.65	0.63	
27	2,545	4.90	274.20	2543.67	-13.08	-29.70	-12.92	32.45	246.22	0.42	-0.42	
28	2,640	4.60	273.70	2638.34	-12.54	-37.55	-12.33	39.58	251.53	0.32	-0.32	
29	2,734	4.00	275.10	2732.08	-12.01	-44.57	-11.76	46.16	254.93	0.65	-0.64	
30	2,829	5.10	280.40	2826.78	-10.95	-52.03	-10.66	53.17	258.12	1.24	1.16	
31	2,923	5.40	283.40	2920.38	-9.17	-60.44	-8.83	61.13	261.37	0.43	0.32	
32	3,019	4.00	282.20	3016.06	-7.41	-68.11	-7.03	68.51	263.79	1.46	-1.46	
33	3,114	4.70	273.70	3110.78	-6.46	-75.23	-6.04	75.51	265.09	1.00	0.74	

Company:		RKI Exploration & Production LLC										
Well Name:		Tucker Draw 9-4 Federal COM 6H										
Location:		Eddy County, NM										
Rig:		Orion Phoenix #10					Magnetic Declination:		6.88		REFERENCED TO GRID NORTH	
Job Number:		DDMO-171105										
API #:		30-015-44479										
Vertical Section Azimuth:			359.68			Proposed Direction:		359.68				
Survey Calculation Method:			Minimum Curvature									
PTB:	MD		INC		AZM	TVD	N/S	E/W		VS		
	18,649		88.38		358.1	10941.45	7982.89	-375.55		7984.86		
#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance Azm		DLS/ 100	BUR/ 100'	
34	3,209	6.50	271.70	3205.33	-6.05	-84.49	-5.58	84.70 265.90		1.91	1.89	
35	3,304	6.10	266.90	3299.75	-6.17	-94.90	-5.64	95.10 266.28		0.70	-0.42	
36	3,398	5.90	267.90	3393.24	-6.61	-104.72	-6.03	104.93 266.39		0.24	-0.21	
37	3,493	6.10	271.70	3487.72	-6.64	-114.64	-6.00	114.84 266.68		0.47	0.21	
38	3,588	5.30	270.20	3582.25	-6.48	-124.08	-5.78	124.25 267.01		0.86	-0.84	
39	3,700	4.11	270.92	3693.87	-6.39	-133.26	-5.65	133.42 267.25		1.06	-1.06	
40	3,795	5.48	287.73	3788.54	-4.96	-140.99	-4.17	141.07 267.99		2.05	1.44	
41	3,889	6.15	289.89	3882.05	-1.88	-150.00	-1.04	150.01 269.28		0.75	0.71	
42	3,984	5.98	288.87	3976.52	1.45	-159.47	2.34	159.47 270.52		0.21	-0.18	
43	4,079	5.87	289.60	4071.02	4.68	-168.72	5.63	168.79 271.59		0.14	-0.12	
44	4,173	5.61	286.35	4164.54	7.59	-177.66	8.58	177.82 272.45		0.44	-0.28	
45	4,268	5.68	287.22	4259.08	10.29	-186.61	11.33	186.89 273.16		0.12	0.07	
46	4,363	5.58	286.47	4353.63	12.99	-195.53	14.08	195.96 273.80		0.13	-0.11	
47	4,458	6.56	276.85	4448.09	14.95	-205.35	16.09	205.89 274.16		1.48	1.03	
48	4,553	6.49	275.07	4542.48	16.07	-216.08	17.27	216.68 274.25		0.23	-0.07	
49	4,648	6.51	273.83	4636.87	16.90	-226.80	18.17	227.43 274.26		0.15	0.02	
50	4,743	6.50	273.11	4731.26	17.55	-237.54	18.88	238.19 274.23		0.09	-0.01	
51	4,838	6.55	273.19	4825.64	18.15	-248.32	19.53	248.99 274.18		0.05	0.05	
52	4,932	6.65	273.70	4919.02	18.80	-259.11	20.24	259.79 274.15		0.12	0.11	
53	5,028	6.41	274.01	5014.40	19.53	-270.00	21.04	270.71 274.14		0.25	-0.25	
54	5,123	6.25	274.85	5108.82	20.34	-280.44	21.90	281.18 274.15		0.19	-0.17	
55	5,218	6.00	273.27	5203.27	21.06	-290.55	22.68	291.32 274.15		0.32	-0.26	
56	5,313	4.09	262.92	5297.90	20.92	-298.87	22.59	299.60 274.00		2.22	-2.01	
57	5,408	1.55	248.78	5392.78	20.04	-303.43	21.74	304.10 273.78		2.75	-2.67	
58	5,502	1.23	234.13	5486.75	18.99	-305.44	20.69	306.03 273.56		0.51	-0.34	
59	5,597	0.55	121.92	5581.75	18.15	-305.88	19.86	306.41 273.40		1.61	-0.72	
60	5,692	0.61	111.37	5676.74	17.73	-305.02	19.43	305.53 273.33		0.13	0.06	
61	5,787	0.59	121.94	5771.74	17.28	-304.13	18.98	304.62 273.25		0.12	-0.02	
62	5,882	0.90	135.11	5866.73	16.50	-303.19	18.19	303.64 273.11		0.37	0.33	
63	5,976	0.83	114.78	5960.72	15.69	-302.05	17.37	302.46 272.97		0.33	-0.07	
64	6,071	1.06	129.11	6055.70	14.84	-300.74	16.52	301.11 272.83		0.35	0.24	
65	6,166	0.40	5.22	6150.70	14.62	-300.03	16.30	300.39 272.79		1.40	-0.69	
66	6,261	0.37	337.17	6245.70	15.23	-300.12	16.91	300.51 272.91		0.20	-0.03	
67	6,356	0.41	299.83	6340.70	15.68	-300.54	17.36	300.94 272.99		0.27	0.04	

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Well Name:		Tucker Draw 9-4 Federal COM 6H												
Location:		Eddy County, NM												
Rig:		Orion Phoenix #10					Magnetic Declination:		6.88		REFERENCED TO GRID NORTH			
Job Number:		DDMO-171105												
API #:		30-015-44479												
Vertical Section Azimuth:					359.68		Proposed Direction:		359.68					
Survey Calculation Method:					Minimum Curvature									
PTB:	MD		INC		AZM		TVD		N/S		E/W		VS	
	18,649		88.38		358.1		10941.45		7982.89		-375.55		7984.86	
#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure		DLS/ 100	BUR/ 100'			
								Distance	Azm					
68	6,450	0.37	303.13	6434.69	16.02	-301.08	17.70	301.51	273.05	0.05	-0.04			
69	6,545	0.30	258.54	6529.69	16.14	-301.58	17.82	302.01	273.06	0.28	-0.07			
70	6,639	0.27	236.08	6623.69	15.96	-302.01	17.65	302.43	273.03	0.12	-0.03			
71	6,734	0.07	261.48	6718.69	15.83	-302.25	17.52	302.66	273.00	0.22	-0.21			
72	6,829	0.14	188.75	6813.69	15.71	-302.33	17.39	302.73	272.97	0.14	0.07			
73	6,924	0.41	194.76	6908.69	15.26	-302.43	16.95	302.81	272.89	0.29	0.28			
74	7,018	0.55	178.71	7002.69	14.49	-302.50	16.18	302.85	272.74	0.21	0.15			
75	7,113	0.43	210.80	7097.68	13.73	-302.68	15.42	302.99	272.60	0.31	-0.13			
76	7,208	0.51	208.15	7192.68	13.05	-303.06	14.74	303.34	272.46	0.09	0.08			
77	7,303	0.83	196.51	7287.67	12.01	-303.45	13.71	303.69	272.27	0.36	0.34			
78	7,398	0.86	189.40	7382.66	10.65	-303.77	12.35	303.95	272.01	0.11	0.03			
79	7,493	0.88	218.65	7477.65	9.38	-304.34	11.08	304.48	271.76	0.46	0.02			
80	7,588	0.78	213.26	7572.64	8.27	-305.15	9.97	305.26	271.55	0.13	-0.11			
81	7,683	0.77	216.52	7667.63	7.21	-305.88	8.92	305.97	271.35	0.05	-0.01			
82	7,778	0.70	208.28	7762.63	6.19	-306.54	7.90	306.60	271.16	0.13	-0.07			
83	7,873	0.58	195.75	7857.62	5.22	-306.94	6.93	306.99	270.97	0.19	-0.13			
84	7,967	0.59	181.62	7951.61	4.27	-307.09	5.99	307.12	270.80	0.15	0.01			
85	8,062	0.83	160.47	8046.61	3.14	-306.87	4.85	306.89	270.59	0.37	0.25			
86	8,157	0.77	160.51	8141.60	1.89	-306.43	3.60	306.43	270.35	0.06	-0.06			
87	8,252	0.75	18.92	8236.59	1.87	-306.01	3.58	306.02	270.35	1.51	-0.02			
88	8,346	1.03	7.50	8330.58	3.29	-305.70	5.00	305.72	270.62	0.35	0.30			
89	8,441	1.14	28.06	8425.57	4.97	-305.15	6.68	305.19	270.93	0.42	0.12			
90	8,536	0.97	51.40	8520.55	6.31	-304.07	8.01	304.14	271.19	0.48	-0.18			
91	8,631	0.70	53.35	8615.54	7.16	-302.98	8.85	303.06	271.35	0.29	-0.28			
92	8,725	0.49	76.75	8709.54	7.59	-302.13	9.28	302.22	271.44	0.34	-0.22			
93	8,820	0.16	117.19	8804.53	7.62	-301.61	9.31	301.71	271.45	0.40	-0.35			
94	8,915	0.57	178.02	8899.53	7.09	-301.48	8.77	301.56	271.35	0.54	0.43			
95	9,010	0.49	221.57	8994.53	6.31	-301.73	8.00	301.80	271.20	0.42	-0.08			
96	9,105	0.26	288.96	9089.53	6.08	-302.21	7.77	302.27	271.15	0.48	-0.24			
97	9,200	0.42	260.24	9184.53	6.09	-302.75	7.78	302.81	271.15	0.24	0.17			
98	9,295	0.28	208.41	9279.52	5.83	-303.21	7.52	303.26	271.10	0.35	-0.15			
99	9,390	0.04	145.67	9374.52	5.60	-303.30	7.29	303.35	271.06	0.28	-0.25			
100	9,485	0.52	183.00	9469.52	5.14	-303.30	6.83	303.35	270.97	0.51	0.51			
101	9,580	0.82	24.53	9564.52	5.33	-303.04	7.02	303.09	271.01	1.39	0.32			

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	18,649		88.38		358.1		10941.45		7982.89		-375.55		7984.86	
#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance	Azm	DLS/ 100	BUR/ 100'			
102	9,675	0.42	8.41	9659.51	6.29	-302.71	7.98	302.78	271.19	0.46	-0.42			
103	9,770	0.64	266.08	9754.51	6.60	-303.19	8.29	303.26	271.25	0.88	0.23			
104	9,865	1.21	251.48	9849.50	6.24	-304.67	7.94	304.73	271.17	0.64	0.60			
105	9,959	1.24	251.73	9943.48	5.61	-306.58	7.32	306.63	271.05	0.03	0.03			
106	10,055	1.30	243.37	10039.45	4.80	-308.54	6.52	308.57	270.89	0.20	0.06			
107	10,150	1.50	253.76	10134.43	3.96	-310.69	5.70	310.72	270.73	0.34	0.21			
108	10,235	1.38	250.57	10219.40	3.31	-312.73	5.06	312.74	270.61	0.17	-0.14			
109	10,330	4.17	354.06	10314.31	6.37	-314.16	8.12	314.23	271.16	4.93	2.94			
110	10,424	11.04	1.13	10407.43	18.78	-314.34	20.54	314.90	273.42	7.36	7.31			
111	10,519	19.67	2.68	10498.95	43.90	-313.41	45.65	316.47	277.97	9.09	9.08			
112	10,614	28.87	2.02	10585.46	82.87	-311.85	84.61	322.67	284.88	9.69	9.68			
113	10,709	38.15	1.48	10664.59	135.24	-310.28	136.97	338.47	293.55	9.77	9.77			
114	10,803	45.18	2.11	10734.77	197.65	-308.30	199.37	366.22	302.66	7.49	7.48			
115	10,898	52.30	4.55	10797.38	268.89	-304.07	270.58	405.91	311.49	7.74	7.49			
116	10,992	60.95	5.51	10849.04	347.00	-297.17	348.66	456.86	319.42	9.24	9.20			
117	11,087	68.98	3.02	10889.22	432.77	-290.83	434.38	521.41	326.10	8.78	8.45			
118	11,182	77.25	359.30	10916.80	523.56	-289.06	525.16	598.05	331.10	9.48	8.71			
119	11,276	92.38	359.48	10925.27	616.89	-290.05	618.50	681.68	334.82	16.10	16.10			
120	11,406	95.05	358.19	10916.84	746.58	-292.68	748.20	801.90	338.59	2.28	2.05			
121	11,501	90.40	356.71	10912.33	841.35	-296.91	842.99	892.20	340.56	5.14	-4.89			
122	11,596	87.18	354.12	10914.33	936.00	-304.50	937.69	984.29	341.98	4.35	-3.39			
123	11,690	87.56	355.03	10918.65	1029.48	-313.37	1031.22	1076.12	343.07	1.05	0.40			
124	11,785	88.53	357.67	10921.89	1124.23	-319.42	1125.99	1168.72	344.14	2.96	1.02			
125	11,880	90.30	358.39	10922.86	1219.16	-322.68	1220.94	1261.14	345.18	2.01	1.86			
126	11,975	90.86	358.41	10921.90	1314.12	-325.34	1315.91	1353.79	346.09	0.59	0.59			
127	12,069	91.73	359.59	10919.77	1408.08	-326.98	1409.88	1445.54	346.93	1.56	0.93			
128	12,164	91.31	0.83	10917.25	1503.04	-326.63	1504.84	1538.12	347.74	1.38	-0.44			
129	12,259	88.50	359.34	10917.41	1598.03	-326.49	1599.83	1631.04	348.45	3.35	-2.96			
130	12,353	88.81	358.52	10919.62	1691.98	-328.24	1693.79	1723.53	349.02	0.93	0.33			
131	12,448	88.85	357.57	10921.56	1786.91	-331.48	1788.73	1817.39	349.49	1.00	0.04			
132	12,542	88.57	356.36	10923.67	1880.75	-336.46	1882.60	1910.61	349.86	1.32	-0.30			
133	12,637	87.48	356.52	10926.95	1975.51	-342.35	1977.39	2004.96	350.17	1.16	-1.15			
134	12,732	89.64	358.13	10929.33	2070.37	-346.78	2072.27	2099.21	350.49	2.84	2.27			
135	12,827	89.78	0.14	10929.82	2165.35	-348.22	2167.26	2193.17	350.86	2.12	0.15			

Company:		RKI Exploration & Production LLC										
Well Name:		Tucker Draw 9-4 Federal COM 6H										
Location:		Eddy County, NM										
Rig:		Orion Phoenix #10					Magnetic Declination:		6.88		REFERENCED TO GRID NORTH	
Job Number:		DDMO-171105										
API #:		30-015-44479										
Vertical Section Azimuth:		359.68					Proposed Direction:		359.68			
Survey Calculation Method:		Minimum Curvature										
PTB:	MD		INC		AZM	TVD	N/S	E/W		VS		
	18,649		88.38		358.1	10941.45	7982.89	-375.55		7984.86		
#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance Azm		DLS/ 100	BUR/ 100'	
136	12,922	90.67	359.68	10929.44	2260.35	-348.37	2262.26	2287.04	351.24	1.05	0.94	
137	13,016	91.93	1.52	10927.31	2354.31	-347.38	2356.22	2379.80	351.61	2.37	1.34	
138	13,111	90.99	1.64	10924.89	2449.25	-344.76	2451.13	2473.39	351.99	1.00	-0.99	
139	13,206	90.01	1.83	10924.06	2544.20	-341.89	2546.07	2567.07	352.35	1.05	-1.03	
140	13,301	89.38	0.88	10924.57	2639.17	-339.64	2641.02	2660.93	352.67	1.20	-0.66	
141	13,396	94.91	2.32	10921.01	2734.02	-336.99	2735.86	2754.72	352.97	6.01	5.82	
142	13,490	89.39	1.72	10917.49	2827.86	-333.69	2829.68	2847.48	353.27	5.91	-5.87	
143	13,585	89.94	1.39	10918.04	2922.83	-331.11	2924.63	2941.52	353.54	0.68	0.58	
144	13,680	91.09	1.86	10917.19	3017.78	-328.41	3019.57	3035.60	353.79	1.31	1.21	
145	13,775	88.52	0.62	10917.51	3112.75	-326.36	3114.52	3129.81	354.01	3.00	-2.71	
146	13,869	87.92	359.80	10920.43	3206.70	-326.01	3208.47	3223.23	354.19	1.08	-0.64	
147	13,964	90.45	0.29	10921.78	3301.69	-325.94	3303.45	3317.73	354.36	2.71	2.66	
148	14,059	89.90	359.59	10921.49	3396.68	-326.04	3398.45	3412.30	354.52	0.94	-0.58	
149	14,153	89.74	358.75	10921.79	3490.67	-327.40	3492.45	3505.99	354.64	0.91	-0.17	
150	14,248	90.26	358.30	10921.79	3585.64	-329.85	3587.43	3600.78	354.74	0.72	0.55	
151	14,343	90.04	358.40	10921.54	3680.60	-332.58	3682.40	3695.60	354.84	0.25	-0.23	
152	14,438	84.72	358.30	10925.88	3775.43	-335.31	3777.24	3790.29	354.92	5.60	-5.60	
153	14,533	89.89	359.21	10930.34	3870.27	-337.37	3872.09	3884.94	355.02	5.53	5.44	
154	14,627	89.64	358.49	10930.73	3964.25	-339.26	3966.08	3978.74	355.11	0.81	-0.27	
155	14,721	94.07	0.49	10927.69	4058.17	-340.10	4060.00	4072.39	355.21	5.17	4.71	
156	14,816	93.61	1.93	10921.33	4152.93	-338.09	4154.75	4166.67	355.35	1.59	-0.48	
157	14,911	92.13	1.45	10916.57	4247.77	-335.30	4249.57	4260.98	355.49	1.64	-1.56	
158	15,005	89.76	1.38	10915.02	4341.72	-332.98	4343.51	4354.47	355.61	2.52	-2.52	
159	15,100	87.55	0.45	10917.25	4436.67	-331.46	4438.45	4449.04	355.73	2.52	-2.33	
160	15,194	86.42	0.22	10922.19	4530.54	-330.91	4532.32	4542.61	355.82	1.23	-1.20	
161	15,288	87.53	0.35	10927.15	4624.40	-330.44	4626.18	4636.20	355.91	1.19	1.18	
162	15,382	89.02	359.89	10929.98	4718.36	-330.25	4720.13	4729.90	356.00	1.66	1.59	
163	15,476	88.32	359.42	10932.16	4812.33	-330.81	4814.10	4823.69	356.07	0.90	-0.74	
164	15,571	88.09	358.71	10935.14	4907.27	-332.36	4909.05	4918.51	356.13	0.79	-0.24	
165	15,666	90.64	359.15	10936.19	5002.24	-334.14	5004.03	5013.39	356.18	2.72	2.68	
166	15,760	89.17	359.66	10936.35	5096.23	-335.11	5098.03	5107.24	356.24	1.66	-1.56	
167	15,855	90.98	359.98	10936.22	5191.23	-335.41	5193.02	5202.05	356.30	1.93	1.91	
168	15,949	89.08	359.16	10936.18	5285.22	-336.12	5287.02	5295.90	356.36	2.20	-2.02	
169	16,044	91.93	1.82	10935.34	5380.20	-335.30	5381.98	5390.63	356.43	4.10	3.00	

SURVEY CALCULATION PROGRAM

2/26/18 14:25

Company:		RKI Exploration & Production LLC	
Well Name:		Tucker Draw 9-4 Federal COM 6H	
Location:		Eddy County, NM	
Rig:		Orion Phoenix #10	
Job Number:		DDMO-171105	
API #:		30-015-44479	
Vertical Section Azimuth:		359.68	
Survey Calculation Method:		Minimum Curvature	
PTB:	MD	INC	AZM
	18,649	88.38	358.1
#	Depth	Inc	Azm
	Feet	Degrees	Degrees
			TVD
			Feet
			N/S
			Feet
			Surf Sec
			Distance
			Azm
			DLS/
			BUR/

170	16.139	90.54	1.24	10933.29	5475.14	-332.77	5476.91	5485.24	356.52	1.59	-1.46
171	16.234	91.08	0.01	10931.95	5570.12	-331.73	5571.88	5579.99	356.59	1.41	0.57
172	16.329	90.62	0.72	10930.54	5665.11	-331.13	5666.87	5674.77	356.65	0.89	-0.48
173	16.424	88.09	359.85	10931.61	5760.09	-330.65	5761.85	5769.57	356.71	2.82	-2.66
174	16.518	88.63	359.57	10934.30	5854.05	-331.13	5855.81	5863.41	356.76	0.65	0.57
175	16.613	88.97	359.83	10936.29	5949.03	-331.63	5950.79	5958.26	356.81	0.45	0.36
176	16.707	90.21	0.56	10936.96	6043.02	-331.31	6044.78	6052.10	356.86	1.53	1.32
177	16.802	91.49	1.16	10935.55	6138.00	-329.88	6139.75	6146.86	356.92	1.49	1.35
178	16.904	98.32	2.90	10926.83	6239.50	-326.29	6241.22	6248.02	357.01	6.91	6.70
179	16.999	89.00	1.36	10920.78	6334.13	-322.78	6335.84	6342.35	357.08	9.94	-9.81
180	17.031	88.29	0.87	10921.53	6366.12	-322.16	6367.82	6374.26	357.10	2.70	-2.22
181	17.062	88.91	0.30	10922.29	6397.10	-321.84	6398.80	6405.20	357.12	2.72	2.00
182	17.094	88.69	358.98	10922.96	6429.10	-322.04	6430.79	6437.16	357.13	4.18	-0.69
183	17.141	88.20	358.67	10924.24	6476.07	-323.00	6477.77	6484.12	357.14	1.23	-1.04
184	17.188	87.98	358.67	10925.80	6523.03	-324.09	6524.74	6531.08	357.16	0.47	-0.47
185	17.283	88.38	358.98	10928.82	6617.96	-326.04	6619.68	6625.99	357.18	0.53	0.42
186	17.377	88.51	357.48	10931.37	6711.88	-328.94	6713.61	6719.94	357.19	1.60	0.14
187	17.471	90.28	356.78	10932.36	6805.75	-333.65	6807.51	6813.93	357.19	2.02	1.88
188	17.566	90.10	359.20	10932.05	6900.69	-336.98	6902.46	6908.91	357.20	2.55	-0.19
189	17.661	90.10	358.49	10931.88	6995.67	-338.90	6997.45	7003.87	357.23	0.75	0.00
190	17.756	89.88	358.19	10931.90	7090.63	-341.65	7092.42	7098.85	357.24	0.39	-0.23
191	17.851	89.79	358.19	10932.17	7185.58	-344.65	7187.39	7193.84	357.25	0.09	-0.09
192	17.945	89.31	357.48	10932.91	7279.51	-348.20	7281.34	7287.83	357.26	0.91	-0.51
193	18.040	88.91	356.86	10934.39	7374.38	-352.89	7376.24	7382.82	357.26	0.78	-0.42
194	18.135	89.31	357.96	10935.86	7469.27	-357.18	7471.15	7477.80	357.26	1.23	0.42
195	18.229	89.62	357.96	10936.74	7563.21	-360.53	7565.10	7571.79	357.27	0.33	0.33
196	18.324	89.70	358.27	10937.30	7658.15	-363.65	7660.06	7666.78	357.28	0.34	0.08
197	18.418	89.48	357.17	10937.98	7752.07	-367.39	7754.00	7760.77	357.29	1.19	-0.23
198	18.513	89.70	358.27	10938.66	7846.99	-371.17	7848.95	7855.77	357.29	1.18	0.23
199	18.604	88.38	358.10	10940.18	7937.93	-374.05	7939.90	7946.74	357.30	1.46	-1.45
PTB:	18.649	88.38	358.10	10941.45	7982.89	-375.55	7984.86	7991.72	357.31	0.00	0.00