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MS Directional Survey Data Certification

MS Directional Job Number: DDMO-171208
Survey Type: MWD
Operating Company: RKI Exploration & Production LLC
Well Name & Number: Tucker Draw 9-4 Federal COM 1H
Location: Eddy County, NM
API Number: 30-015-44477
Tie In Depth: 808' MD
Surveyed Depths: 986' – 18,772' MD
Projected TD Survey: 18,822' MD
Dates Performed: 12/04/2017 – 02/04/2018

**NM OIL CONSERVATION
ARTESIA DISTRICT**

APR 26 2018

RECEIVED

30-015-44477

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:

MWD Surveyor Name: Kyle Etheridge

Date: 03-05-2018

Email: ketheridge@msdir.com

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Company:	RKI Exploration & Production LLC
Well Name:	Tucker Draw 9-4 Federal COM 1H
Location:	Eddy County, NM
Rig:	H&P #556
Job Number:	DDMO-171208
API #:	30-015-44477

Magnetic Declination: 7.12 REFERENCED TO GRID NORTH

Vertical Section Azimuth: 353.85 Proposed Direction: 353.85

Survey Calculation Method: Minimum Curvature

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	18,822	85.3	1.9	11134.71	7970.11	-849.25	8015.22

#	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	808	0.90	92.40	807.96	-3.86	3.09		4.94	141.32		
1	986	1.40	127.30	985.93	-5.24	6.22	-5.87	8.13	130.11	0.47	0.28
2	1,081	1.70	128.30	1080.89	-6.81	8.25	-7.66	10.70	129.57	0.32	0.32
3	1,176	1.80	171.50	1175.85	-9.16	9.57	-10.13	13.25	133.75	1.36	0.11
4	1,271	3.10	195.10	1270.76	-13.12	9.12	-14.02	15.98	145.18	1.70	1.37
5	1,365	3.20	201.90	1364.62	-18.01	7.48	-18.70	19.50	157.43	0.41	0.11
6	1,460	4.20	201.90	1459.42	-23.69	5.20	-24.11	24.26	167.63	1.05	1.05
7	1,555	5.60	216.10	1554.08	-30.67	1.17	-30.62	30.69	177.82	1.94	1.47
8	1,650	7.30	229.10	1648.48	-38.37	-6.13	-37.49	38.85	189.07	2.35	1.79
9	1,744	7.80	242.20	1741.67	-45.25	-16.28	-43.25	48.09	199.79	1.90	0.53
10	1,839	9.10	271.40	1835.68	-48.08	-29.50	-44.64	56.41	211.54	4.66	1.37
11	1,934	9.50	279.50	1929.43	-46.60	-44.75	-41.54	64.60	223.84	1.44	0.42
12	2,028	9.20	279.50	2022.18	-44.08	-59.81	-37.42	74.30	233.61	0.32	-0.32
13	2,123	8.40	280.20	2116.07	-41.60	-74.13	-33.41	85.00	240.70	0.85	-0.84
14	2,218	7.90	278.00	2210.11	-39.46	-87.42	-29.87	95.92	245.71	0.62	-0.53
15	2,312	7.20	275.20	2303.29	-38.02	-99.69	-27.13	106.69	249.12	0.84	-0.74
16	2,407	7.40	276.50	2397.52	-36.79	-111.69	-24.62	117.60	251.77	0.27	0.21
17	2,502	7.90	281.50	2491.68	-34.80	-124.17	-21.30	128.95	254.34	0.88	0.53
18	2,597	7.50	283.00	2585.82	-32.10	-136.61	-17.28	140.33	256.78	0.47	-0.42
19	2,691	7.80	283.80	2678.98	-29.20	-148.78	-13.09	151.62	258.90	0.34	0.32
20	2,786	7.50	285.20	2773.14	-26.04	-161.02	-8.64	163.12	260.81	0.37	-0.32
21	2,881	7.90	284.10	2867.28	-22.82	-173.34	-4.12	174.84	262.50	0.45	0.42
22	2,975	7.60	283.20	2960.42	-19.83	-185.66	0.18	186.71	263.90	0.34	-0.32
23	3,070	7.60	278.40	3054.59	-17.48	-197.99	3.84	198.76	264.96	0.67	0.00
24	3,165	8.00	275.00	3148.71	-15.98	-210.79	6.69	211.39	265.66	0.64	0.42
25	3,259	6.60	270.70	3241.95	-15.35	-222.71	8.60	223.23	266.06	1.60	-1.49
26	3,354	6.70	271.10	3336.31	-15.17	-233.71	9.95	234.20	266.29	0.12	0.11
27	3,449	7.00	278.50	3430.63	-14.21	-244.97	12.12	245.38	266.68	0.98	0.32
28	3,544	7.10	280.00	3524.91	-12.34	-256.48	15.21	256.78	267.25	0.22	0.11
29	3,568	6.80	279.30	3548.74	-11.85	-259.34	16.00	259.61	267.38	1.30	-1.25
30	3,717	6.80	277.10	3696.69	-9.33	-276.80	20.38	276.96	268.07	0.17	0.00
31	3,812	8.40	276.40	3790.85	-7.86	-289.28	23.17	289.39	268.44	1.69	1.68
32	3,907	8.90	277.10	3884.77	-6.18	-303.47	26.36	303.53	268.83	0.54	0.53
33	4,002	8.80	277.40	3978.64	-4.34	-317.97	29.75	318.00	269.22	0.12	-0.11

V09.04.02

Company:	RKI Exploration & Production LLC
Well Name:	Tucker Draw 9-4 Federal COM 1H
Location:	Eddy County, NM
Rig:	H&P #556
Job Number:	DDMO-171208
API #:	30-015-44477

Magnetic Declination: 7.12 REFERENCED TO GRID NORTH

Vertical Section Azimuth: 353.85 Proposed Direction: 353.85

Survey Calculation Method: Minimum Curvature

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	18,822	85.3	1.9	11134.71	7970.11	-849.25	8015.22

#	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	4,096	8.70	278.50	4071.54	-2.36	-332.13	33.23	332.14	269.59	0.21	-0.11
35	4,191	8.60	279.50	4165.46	-0.13	-346.24	36.97	346.24	269.98	0.19	-0.11
36	4,286	8.70	279.70	4259.38	2.26	-360.33	40.85	360.33	270.36	0.11	0.11
37	4,381	8.60	279.80	4353.30	4.68	-374.41	44.76	374.44	270.72	0.11	-0.11
38	4,475	8.90	272.80	4446.21	6.23	-388.60	47.82	388.65	270.92	1.18	0.32
39	4,570	8.80	273.50	4540.08	7.03	-403.19	50.18	403.25	271.00	0.15	-0.11
40	4,665	8.80	273.10	4633.96	7.87	-417.70	52.57	417.77	271.08	0.06	0.00
41	4,759	8.80	274.00	4726.86	8.76	-432.05	54.99	432.14	271.16	0.15	0.00
42	4,854	8.80	273.60	4820.74	9.72	-446.55	57.50	446.66	271.25	0.06	0.00
43	4,949	8.80	274.40	4914.62	10.73	-461.05	60.07	461.18	271.33	0.13	0.00
44	5,044	8.70	273.80	5008.51	11.77	-475.47	62.64	475.61	271.42	0.14	-0.11
45	5,138	8.70	274.20	5101.43	12.76	-489.65	65.14	489.82	271.49	0.06	0.00
46	5,233	8.70	274.70	5195.34	13.87	-503.98	67.79	504.17	271.58	0.08	0.00
47	5,328	8.60	274.90	5289.26	15.07	-518.21	70.50	518.43	271.67	0.11	-0.11
48	5,422	8.40	275.70	5382.23	16.35	-532.05	73.26	532.30	271.76	0.25	-0.21
49	5,517	8.50	275.70	5476.19	17.74	-545.94	76.12	546.23	271.86	0.11	0.11
50	5,612	8.30	276.40	5570.18	19.20	-559.74	79.06	560.07	271.96	0.24	-0.21
51	5,706	9.20	270.40	5663.08	20.01	-574.00	81.39	574.35	272.00	1.36	0.96
52	5,801	9.00	270.70	5756.89	20.15	-589.02	83.14	589.37	271.96	0.22	-0.21
53	5,896	8.70	270.90	5850.76	20.36	-603.64	84.91	603.98	271.93	0.32	-0.32
54	5,990	8.30	272.70	5943.72	20.79	-617.52	86.82	617.87	271.93	0.51	-0.43
55	6,085	8.00	272.10	6037.76	21.35	-630.98	88.83	631.34	271.94	0.33	-0.32
56	6,180	8.70	264.90	6131.76	20.96	-644.74	89.91	645.08	271.86	1.32	0.74
57	6,275	8.40	264.00	6225.70	19.59	-658.80	90.06	659.09	271.70	0.35	-0.32
58	6,369	8.30	264.20	6318.71	18.19	-672.38	90.12	672.62	271.55	0.11	-0.11
59	6,464	8.90	267.50	6412.64	17.18	-686.54	90.63	686.75	271.43	0.82	0.63
60	6,559	8.40	269.40	6506.56	16.78	-700.82	91.77	701.02	271.37	0.61	-0.53
61	6,654	8.10	270.30	6600.57	16.74	-714.45	93.19	714.65	271.34	0.34	-0.32
62	6,748	7.80	269.60	6693.67	16.73	-727.45	94.57	727.64	271.32	0.34	-0.32
63	6,843	8.20	270.20	6787.75	16.71	-740.67	95.97	740.86	271.29	0.43	0.42
64	6,938	8.90	269.50	6881.69	16.67	-754.80	97.44	754.98	271.27	0.74	0.74
65	7,032	8.80	269.60	6974.57	16.56	-769.26	98.88	769.44	271.23	0.11	-0.11
66	7,127	8.60	269.70	7068.48	16.47	-783.63	100.33	783.80	271.20	0.21	-0.21
67	7,222	6.60	266.20	7162.64	16.07	-796.18	101.28	796.34	271.16	2.16	-2.11

Company:		RKI Exploration & Production LLC									
Well Name:		Tucker Draw 9-4 Federal COM 1H									
Location:		Eddy County, NM									
Rig:		H&P #556				Magnetic Declination:		7.12		REFERENCED TO GRID NORTH	
Job Number:		DDMO-171208									
API #:		30-015-44477									
Vertical Section Azimuth:		353.85				Proposed Direction:		353.85			
Survey Calculation Method:		Minimum Curvature									
PTB:	MD	INC		AZM		TVD	N/S	E/W		VS	
	18,822	85.3		1.9		11134.71	7970.11	-849.25		8015.22	
#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance Azm		DLS/ 100	BUR/ 100'
68	7,316	4.90	269.70	7256.16	15.69	-805.59	101.91	805.74	271.12	1.85	-1.81
69	7,411	3.20	275.00	7350.92	15.90	-812.28	102.83	812.44	271.12	1.83	-1.79
70	7,506	2.50	265.50	7445.80	15.97	-816.99	103.41	817.15	271.12	0.89	-0.74
71	7,600	2.50	263.10	7539.71	15.56	-821.07	103.44	821.22	271.09	0.11	0.00
72	7,695	2.10	247.80	7634.64	14.66	-824.74	102.93	824.87	271.02	0.77	-0.42
73	7,789	0.30	233.50	7728.61	13.86	-826.53	102.33	826.65	270.96	1.93	-1.91
74	7,884	0.40	282.70	7823.61	13.79	-827.05	102.31	827.17	270.95	0.32	0.11
75	7,978	1.10	255.80	7917.60	13.64	-828.25	102.29	828.36	270.94	0.81	0.74
76	8,073	0.20	320.80	8012.60	13.54	-829.24	102.30	829.35	270.94	1.09	-0.95
77	8,168	0.50	352.30	8107.60	14.08	-829.40	102.85	829.52	270.97	0.36	0.32
78	8,262	0.80	296.60	8201.59	14.78	-830.04	103.62	830.17	271.02	0.70	0.32
79	8,357	0.90	291.20	8296.58	15.35	-831.33	104.32	831.47	271.06	0.13	0.11
80	8,452	0.10	89.90	8391.58	15.62	-831.94	104.66	832.09	271.08	1.05	-0.84
81	8,546	0.70	153.60	8485.57	15.10	-831.60	104.11	831.74	271.04	0.70	0.64
82	8,641	1.00	155.80	8580.56	13.83	-831.01	102.78	831.12	270.95	0.32	0.32
83	8,736	1.20	211.40	8675.55	12.22	-831.19	101.20	831.27	270.84	1.10	0.21
84	8,831	1.40	216.10	8770.52	10.44	-832.39	99.55	832.45	270.72	0.24	0.21
85	8,925	0.70	170.30	8864.51	8.94	-832.97	98.13	833.02	270.62	1.11	-0.74
86	9,020	0.70	153.20	8959.50	7.85	-832.61	97.01	832.64	270.54	0.22	0.00
87	9,115	1.10	153.00	9054.49	6.52	-831.93	95.61	831.96	270.45	0.42	0.42
88	9,210	1.60	157.60	9149.46	4.48	-831.01	93.48	831.02	270.31	0.54	0.53
89	9,304	2.70	157.50	9243.40	1.22	-829.67	90.10	829.67	270.08	1.17	1.17
90	9,398	2.90	154.20	9337.28	-2.96	-827.78	85.74	827.79	269.79	0.27	0.21
91	9,493	1.50	177.90	9432.21	-6.37	-826.69	82.23	826.72	269.56	1.73	-1.47
92	9,587	0.80	179.10	9526.19	-8.25	-826.64	80.35	826.68	269.43	0.75	-0.74
93	9,682	1.60	348.20	9621.18	-7.62	-826.90	81.01	826.93	269.47	2.52	0.84
94	9,777	1.10	0.80	9716.16	-5.41	-827.16	83.24	827.17	269.63	0.61	-0.53
95	9,872	0.80	1.40	9811.14	-3.83	-827.13	84.80	827.14	269.73	0.32	-0.32
96	9,966	0.50	358.70	9905.14	-2.77	-827.12	85.86	827.12	269.81	0.32	-0.32
97	10,061	0.40	347.60	10000.14	-2.03	-827.20	86.60	827.20	269.86	0.14	-0.11
98	10,156	0.30	304.80	10095.13	-1.56	-827.48	87.09	827.48	269.89	0.29	-0.11
99	10,250	0.50	260.90	10189.13	-1.49	-828.08	87.23	828.08	269.90	0.37	0.21
100	10,345	0.70	259.80	10284.13	-1.66	-829.06	87.17	829.06	269.89	0.21	0.21
101	10,424	0.80	245.60	10363.12	-1.97	-830.04	86.96	830.04	269.86	0.27	0.13

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V09.04.02

Company:		RKI Exploration & Production LLC												
Well Name:		Tucker Draw 9-4 Federal COM 1H												
Location:		Eddy County, NM												
Rig:		H&P #556					Magnetic Declination:		7.12		REFERENCED TO GRID NORTH			
Job Number:		DDMO-171208												
API #:		30-015-44477												
Vertical Section Azimuth:					353.85		Proposed Direction:		353.85					
Survey Calculation Method:					Minimum Curvature									
PTB:	MD		INC		AZM		TVD		N/S		E/W		VS	
	18,822		85.3		1.9		11134.71		7970.11		-849.25		8015.22	
#	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	10,533	6.00	358.20	10471.93	3.41	-830.91	92.41	830.92	270.24	5.83	4.77			
103	10,628	17.50	17.10	10564.81	22.10	-826.85	110.55	827.15	271.53	12.61	12.11			
104	10,722	25.30	17.00	10652.26	54.86	-816.81	142.06	818.65	273.84	8.30	8.30			
105	10,817	32.20	11.50	10735.51	99.14	-805.81	184.90	811.89	277.01	7.77	7.26			
106	10,912	37.00	3.80	10813.73	152.53	-798.87	237.23	813.30	280.81	6.83	5.05			
107	11,006	43.30	358.50	10885.56	213.05	-797.83	297.30	825.79	284.95	7.62	6.70			
108	11,101	51.50	355.40	10949.82	282.80	-801.67	367.06	850.09	289.43	8.96	8.63			
109	11,133	54.50	355.20	10969.07	308.27	-803.77	392.60	860.86	290.98	9.39	9.38			
110	11,164	57.20	354.40	10986.47	333.81	-806.10	418.25	872.48	292.49	8.97	8.71			
111	11,196	59.80	355.20	11003.19	360.98	-808.57	445.53	885.49	294.06	8.40	8.12			
112	11,227	63.20	356.10	11017.98	388.14	-810.63	472.75	898.76	295.59	11.26	10.97			
113	11,259	66.70	356.90	11031.53	417.07	-812.40	501.71	913.20	297.18	11.17	10.94			
114	11,290	70.00	357.30	11042.96	445.85	-813.85	530.47	927.97	298.71	10.71	10.65			
115	11,322	72.50	357.80	11053.25	476.12	-815.15	560.70	944.01	300.29	7.95	7.81			
116	11,354	76.00	359.00	11061.94	506.90	-816.00	591.40	960.63	301.85	11.52	10.94			
117	11,385	78.70	0.50	11068.72	537.14	-816.13	621.48	977.03	303.35	9.91	8.71			
118	11,417	82.10	0.90	11074.06	568.69	-815.75	652.81	994.41	304.88	10.70	10.63			
119	11,440	84.10	0.70	11076.82	591.52	-815.43	675.47	1007.38	305.96	8.74	8.70			
120	11,513	91.30	1.10	11079.75	664.40	-814.28	747.81	1050.95	309.21	9.88	9.86			
121	11,607	89.70	0.60	11078.93	758.38	-812.89	841.10	1111.73	313.01	1.78	-1.70			
122	11,701	90.60	1.30	11078.68	852.37	-811.33	934.38	1176.77	316.41	1.21	0.96			
123	11,795	91.10	0.90	11077.29	946.34	-809.53	1027.62	1245.35	319.46	0.68	0.53			
124	11,889	89.60	359.60	11076.72	1040.33	-809.12	1121.03	1317.94	322.13	2.11	-1.60			
125	11,983	90.10	359.40	11076.96	1134.33	-809.94	1214.57	1393.81	324.47	0.57	0.53			
126	12,077	90.20	359.10	11076.72	1228.32	-811.17	1308.15	1471.99	326.56	0.34	0.11			
127	12,172	89.50	357.90	11076.96	1323.28	-813.65	1402.84	1553.42	328.41	1.46	-0.74			
128	12,266	89.90	358.50	11077.46	1417.24	-816.61	1496.56	1635.67	330.05	0.77	0.43			
129	12,360	88.50	358.00	11078.77	1511.18	-819.48	1590.28	1719.07	331.53	1.58	-1.49			
130	12,455	89.70	358.30	11080.26	1606.12	-822.54	1684.99	1804.49	332.88	1.30	1.26			
131	12,549	89.40	357.80	11081.00	1700.06	-825.74	1778.74	1889.99	334.09	0.62	-0.32			
132	12,644	90.50	358.20	11081.08	1795.00	-829.06	1873.49	1977.21	335.21	1.23	1.16			
133	12,738	89.20	0.06	11081.33	1888.98	-830.48	1967.08	2063.48	336.27	2.41	-1.38			
134	12,832	90.80	0.73	11081.33	1982.98	-829.84	2060.47	2149.61	337.29	1.85	1.70			
135	12,927	92.90	1.90	11078.26	2077.90	-827.66	2154.61	2236.66	338.28	2.53	2.21			

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Company:		RKI Exploration & Production LLC									
Well Name:		Tucker Draw 9-4 Federal COM 1H									
Location:		Eddy County, NM									
Rig:		H&P #556				Magnetic Declination:		7.12		REFERENCED TO GRID NORTH	
Job Number:		DDMO-171208									
API #:		30-015-44477									
Vertical Section Azimuth:		353.85				Proposed Direction:		353.85			
Survey Calculation Method:		Minimum Curvature									
PTB:	MD	INC		AZM		TVD	N/S	E/W	VS		
	18,822	85.3		1.9		11134.71	7970.11	-849.25	8015.22		
#	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	13,021	88.20	0.00	11077.36	2171.85	-826.10	2247.85	2323.65	339.17	5.39	-5.00
137	13,115	89.00	359.50	11079.66	2265.82	-826.51	2341.32	2411.86	339.96	1.00	0.85
138	13,209	88.60	359.60	11081.62	2359.79	-827.25	2434.84	2500.59	340.68	0.44	-0.43
139	13,304	88.70	0.30	11083.86	2454.77	-827.33	2529.27	2590.44	341.37	0.74	0.11
140	13,399	88.60	0.10	11086.10	2549.74	-827.00	2623.66	2680.50	342.03	0.24	-0.11
141	13,493	88.80	0.40	11088.23	2643.72	-826.59	2717.05	2769.92	342.64	0.38	0.21
142	13,588	90.10	0.60	11089.15	2738.71	-825.76	2811.41	2860.49	343.22	1.38	1.37
143	13,682	88.30	359.90	11090.46	2832.69	-825.35	2904.81	2950.48	343.76	2.05	-1.91
144	13,776	88.50	0.70	11093.08	2926.65	-824.86	2998.18	3040.67	344.26	0.88	0.21
145	13,871	88.80	0.10	11095.32	3021.62	-824.20	3092.53	3132.01	344.74	0.71	0.32
146	13,965	89.90	0.00	11096.39	3115.62	-824.11	3185.97	3222.77	345.18	1.18	1.17
147	14,059	90.00	0.60	11096.47	3209.61	-823.62	3279.38	3313.60	345.61	0.65	0.11
148	14,153	88.50	359.80	11097.70	3303.60	-823.29	3372.79	3404.64	346.01	1.81	-1.60
149	14,247	89.10	359.90	11099.67	3397.58	-823.54	3466.25	3495.96	346.37	0.65	0.64
150	14,342	90.30	0.40	11100.17	3492.58	-823.29	3560.68	3588.30	346.74	1.37	1.26
151	14,435	90.40	1.10	11099.60	3585.57	-822.07	3653.00	3678.60	347.09	0.76	0.11
152	14,530	89.70	1.70	11099.51	3680.54	-819.75	3747.18	3770.72	347.44	0.97	-0.74
153	14,624	90.00	0.80	11099.76	3774.51	-817.70	3840.39	3862.07	347.78	1.01	0.32
154	14,717	89.30	0.00	11100.33	3867.51	-817.05	3932.78	3952.87	348.07	1.14	-0.75
155	14,811	88.70	359.20	11101.97	3961.49	-817.71	4026.29	4045.00	348.34	1.06	-0.64
156	14,904	88.30	358.80	11104.40	4054.44	-819.33	4118.89	4136.40	348.58	0.61	-0.43
157	14,998	89.20	359.30	11106.45	4148.41	-820.89	4212.48	4228.85	348.81	1.10	0.96
158	15,093	88.20	358.40	11108.61	4243.36	-822.80	4307.09	4322.40	349.03	1.42	-1.05
159	15,187	89.50	358.80	11110.50	4337.31	-825.09	4400.74	4415.09	349.23	1.45	1.38
160	15,281	89.30	358.40	11111.48	4431.28	-827.39	4494.41	4507.86	349.42	0.48	-0.21
161	15,376	89.70	357.80	11112.31	4526.22	-830.54	4589.15	4601.79	349.60	0.76	0.42
162	15,469	91.90	358.70	11111.01	4619.16	-833.38	4681.86	4693.74	349.77	2.56	2.37
163	15,563	91.30	1.40	11108.39	4713.12	-833.29	4775.26	4786.21	349.97	2.94	-0.64
164	15,656	91.30	1.60	11106.28	4806.06	-830.86	4867.41	4877.35	350.19	0.21	0.00
165	15,750	90.70	0.60	11104.64	4900.03	-829.06	4960.65	4969.67	350.40	1.24	-0.64
166	15,845	90.70	1.00	11103.47	4995.01	-827.73	5054.94	5063.13	350.59	0.42	0.00
167	15,939	90.90	0.80	11102.16	5088.99	-826.25	5148.22	5155.63	350.78	0.30	0.21
168	16,032	89.80	0.50	11101.59	5181.98	-825.20	5240.56	5247.27	350.95	1.23	-1.18
169	16,127	90.40	1.30	11101.43	5276.97	-823.71	5334.84	5340.87	351.13	1.05	0.63

Company:		RKI Exploration & Production LLC										
Well Name:		Tucker Draw 9-4 Federal COM 1H										
Location:		Eddy County, NM										
Rig:		H&P #556					Magnetic Declination:		7.12		REFERENCED TO GRID NORTH	
Job Number:		DDMO-171208										
API #:		30-015-44477										
Vertical Section Azimuth:				353.85		Proposed Direction:		353.85				
Survey Calculation Method:				Minimum Curvature								
PTB:	MD	INC	AZM	TVD	N/S	E/W	VS					
	18,822	85.3	1.9	11134.71	7970.11	-849.25	8015.22					
#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance Azm		DLS/ 100	BUR/ 100'	
170	16,220	90.40	359.20	11100.78	5369.96	-823.30	5427.26	5432.71	351.28	2.26	0.00	
171	16,315	90.10	358.10	11100.36	5464.93	-825.54	5521.92	5526.93	351.41	1.20	-0.32	
172	16,409	92.30	359.70	11098.40	5558.88	-827.34	5615.53	5620.11	351.53	2.89	2.34	
173	16,503	89.20	359.30	11097.17	5652.86	-828.16	5709.05	5713.20	351.67	3.33	-3.30	
174	16,597	90.70	358.90	11097.25	5746.85	-829.64	5802.65	5806.42	351.79	1.65	1.60	
175	16,692	89.90	358.90	11096.75	5841.83	-831.46	5897.28	5900.70	351.90	0.84	-0.84	
176	16,786	89.50	357.30	11097.24	5935.77	-834.58	5991.02	5994.16	352.00	1.75	-0.43	
177	16,879	89.20	357.30	11098.30	6028.66	-838.96	6083.84	6086.76	352.08	0.32	-0.32	
178	16,973	90.60	358.60	11098.46	6122.60	-842.32	6177.60	6180.27	352.17	2.03	1.49	
179	17,067	90.90	359.40	11097.23	6216.57	-843.96	6271.21	6273.60	352.27	0.91	0.32	
180	17,162	90.60	359.90	11095.99	6311.56	-844.54	6365.72	6367.82	352.38	0.61	-0.32	
181	17,256	88.10	358.90	11097.05	6405.54	-845.53	6459.26	6461.11	352.48	2.86	-2.66	
182	17,349	88.60	359.70	11099.73	6498.50	-846.66	6551.80	6553.42	352.58	1.01	0.54	
183	17,444	87.70	359.20	11102.80	6593.44	-847.58	6646.30	6647.70	352.67	1.08	-0.95	
184	17,538	89.20	359.40	11105.34	6687.40	-848.72	6739.84	6741.04	352.77	1.61	1.60	
185	17,631	91.70	357.90	11104.61	6780.36	-850.91	6832.50	6833.54	352.85	3.13	2.69	
186	17,725	90.20	357.10	11103.05	6874.25	-855.01	6926.29	6927.22	352.91	1.81	-1.60	
187	17,820	89.70	359.70	11103.14	6969.21	-857.67	7020.98	7021.78	352.98	2.79	-0.53	
188	17,914	88.80	359.30	11104.37	7063.19	-858.49	7114.52	7115.17	353.07	1.05	-0.96	
189	18,008	89.80	359.50	11105.51	7157.18	-859.47	7208.07	7208.60	353.15	1.08	1.06	
190	18,102	88.90	0.10	11106.58	7251.17	-859.80	7301.55	7301.97	353.24	1.15	-0.96	
191	18,196	88.80	359.50	11108.47	7345.15	-860.13	7395.03	7395.34	353.32	0.65	-0.11	
192	18,290	89.60	0.30	11109.78	7439.14	-860.29	7488.49	7488.72	353.40	1.20	0.85	
193	18,384	90.00	0.90	11110.11	7533.14	-859.31	7581.84	7581.99	353.49	0.77	0.43	
194	18,478	89.10	0.60	11110.85	7627.12	-858.08	7675.16	7675.24	353.58	1.01	-0.96	
195	18,572	86.10	1.10	11114.78	7721.02	-856.68	7768.36	7768.40	353.67	3.24	-3.19	
196	18,665	85.30	1.90	11121.75	7813.72	-854.26	7860.27	7860.28	353.76	1.21	-0.86	
197	18,759	85.20	1.70	11129.54	7907.36	-851.31	7953.05	7953.05	353.86	0.24	-0.11	
198	18,772	85.30	1.90	11130.62	7920.30	-850.91	7965.88	7965.88	353.87	1.72	0.77	
PTB:	18,822	85.30	1.90	11134.71	7970.11	-849.25	8015.22	8015.23	353.92	0.00	0.00	