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MS Directional Survey Data Certification

MS Directional Job Number: MSMO-66379
Survey Type: MWD
Operating Company: Kaiser-Francis Oil Co.
Well Name & Number: Bell Lake Unit South #401H
Location: Eddy County, NM
API Number: 30-025-45521
Tie In Depth: Surface
Surveyed Depths: 152'– 12,589' MD
Projected TD Survey: 12,638' MD
Dates Performed: 06/05/2019 – 06/21/2019

HOBBS CCD

AUG 29 2019

RECEIVED

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: Dereck Scott

Date: 08-26-2019

Email: Dereck.Scott@msdir.com

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Company: Kaiser-Francis Oil Co.
Well Name: Bell Lake Unit South #401H
Location: Eddy County, NM
Rlg: Cactus #171 **Magnetic Declination:** 6.18 REFERENCED TO GRID NORTH
Job Number: MSMO-66379
API #: 30-025-45521

Vertical Section Azimuth: 178.98 **Proposed Direction:** 178.98

Survey Calculation Method: Minimum Curvature

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	12,638	90.28	173	12049.93	-1305.31	51.48	1306.02

#	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	152	0.63	217.91	152.00	-0.66	-0.51	0.65	0.84	217.91	0.41	0.41
2	245	0.47	248.61	244.99	-1.20	-1.18	1.18	1.69	224.54	0.35	-0.17
3	339	0.26	232.99	338.99	-1.47	-1.71	1.44	2.26	229.33	0.25	-0.22
4	432	0.27	173.18	431.99	-1.82	-1.85	1.78	2.60	225.61	0.28	0.01
5	526	0.32	158.61	525.99	-2.28	-1.73	2.25	2.86	217.23	0.10	0.05
6	619	0.41	145.56	618.99	-2.80	-1.45	2.77	3.15	207.40	0.13	0.10
7	713	0.57	131.14	712.98	-3.38	-0.91	3.36	3.50	195.02	0.21	0.17
8	807	0.35	98.24	806.98	-3.73	-0.27	3.72	3.74	184.16	0.36	-0.23
9	901	0.45	73.75	900.98	-3.67	0.37	3.67	3.69	174.28	0.21	0.11
10	994	0.57	121.24	993.98	-3.81	1.11	3.82	3.96	163.69	0.46	0.13
11	1,088	0.40	104.58	1087.97	-4.13	1.83	4.16	4.52	156.09	0.23	-0.18
12	1,182	0.03	141.74	1181.97	-4.23	2.16	4.27	4.75	152.92	0.40	-0.39
13	1,276	0.12	299.68	1275.97	-4.20	2.09	4.24	4.70	153.52	0.16	0.10
14	1,359	0.32	170.64	1358.97	-4.39	2.06	4.42	4.85	154.90	0.49	0.24
15	1,454	0.25	77.12	1453.97	-4.60	2.30	4.64	5.15	153.45	0.44	-0.07
16	1,549	1.16	355.21	1548.96	-3.60	2.42	3.64	4.34	146.06	1.21	0.96
17	1,643	1.64	345.23	1642.93	-1.35	2.00	1.39	2.41	124.03	0.57	0.51
18	1,738	1.32	288.15	1737.91	0.30	0.61	-0.29	0.69	63.60	1.52	-0.34
19	1,833	0.64	275.12	1832.89	0.69	-0.95	-0.71	1.18	305.98	0.75	-0.72
20	1,927	0.22	48.43	1926.89	0.86	-1.34	-0.88	1.59	302.63	0.86	-0.45
21	2,022	0.40	359.60	2021.89	1.31	-1.21	-1.33	1.78	317.36	0.32	0.19
22	2,117	0.46	17.94	2116.89	2.01	-1.09	-2.03	2.28	331.42	0.16	0.06
23	2,211	0.19	68.18	2210.89	2.42	-0.83	-2.44	2.56	341.05	0.39	-0.29
24	2,306	0.73	335.95	2305.88	3.03	-0.93	-3.05	3.17	342.92	0.80	0.57
25	2,401	0.63	355.64	2400.88	4.11	-1.22	-4.13	4.29	343.47	0.27	-0.11
26	2,495	1.15	358.97	2494.87	5.57	-1.28	-5.59	5.71	347.10	0.56	0.55
27	2,590	0.69	342.72	2589.85	7.07	-1.46	-7.09	7.22	348.31	0.55	-0.48
28	2,685	1.17	336.42	2684.84	8.50	-2.02	-8.54	8.74	346.63	0.52	0.51
29	2,779	1.08	325.98	2778.82	10.11	-2.90	-10.16	10.52	344.00	0.24	-0.10
30	2,873	1.49	339.86	2872.80	12.00	-3.82	-12.06	12.59	342.35	0.54	0.44
31	2,968	0.68	14.63	2967.78	13.70	-4.10	-13.77	14.30	343.35	1.06	-0.85
32	3,063	0.25	338.62	3062.78	14.44	-4.03	-14.51	14.99	344.40	0.53	-0.45
33	3,158	1.16	355.21	3157.77	15.59	-4.19	-15.66	16.14	344.96	0.97	0.96

Company:	Kaiser-Francis Oil Co.		
Well Name:	Bell Lake Unit South #401H		
Location:	Eddy County, NM		
Rig:	Cactus #171	Magnetic Declination:	6.18
Job Number:	MSMO-66379		
API #:	30-025-45521		

REFERENCED TO GRID NORTH

Vertical Section Azimuth:	178.98	Proposed Direction:	178.98
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Survey Calculation Method:	Minimum Curvature
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PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	12,638	90.28	173	12049.93	-1305.31	51.48	1306.02

#	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	3,252	1.26	0.83	3251.75	17.57	-4.25	-17.65	18.08	346.40	0.16	0.11
35	3,347	1.95	341.56	3346.71	20.15	-4.75	-20.23	20.70	346.74	0.91	0.73
36	3,442	1.41	341.87	3441.67	22.79	-5.62	-22.89	23.48	346.14	0.57	-0.57
37	3,536	0.41	55.05	3535.66	24.09	-5.71	-24.18	24.75	346.67	1.44	-1.06
38	3,631	1.26	73.03	3630.65	24.59	-4.43	-24.66	24.98	349.79	0.93	0.89
39	3,726	1.83	80.51	3725.61	25.14	-1.93	-25.17	25.22	355.60	0.64	0.60
40	3,821	3.84	72.86	3820.49	26.33	2.60	-26.28	26.46	5.64	2.15	2.12
41	3,915	0.73	100.44	3914.41	27.15	6.20	-27.03	27.85	12.86	3.42	-3.31
42	4,010	2.18	190.05	4009.38	25.26	6.48	-25.14	26.08	14.39	2.41	1.53
43	4,105	2.96	201.01	4104.29	21.19	5.28	-21.09	21.84	14.00	0.97	0.82
44	4,199	2.77	198.75	4198.17	16.77	3.68	-16.71	17.17	12.39	0.24	-0.20
45	4,294	2.34	194.88	4293.07	12.73	2.45	-12.68	12.96	10.89	0.49	-0.45
46	4,389	2.93	149.00	4387.98	8.77	3.20	-8.71	9.34	20.05	2.24	0.62
47	4,484	5.92	132.26	4482.69	3.39	8.08	-3.25	8.76	67.22	3.40	3.15
48	4,578	7.80	131.99	4576.02	-4.14	16.41	4.43	16.92	104.15	2.00	2.00
49	4,672	7.56	144.18	4669.18	-13.42	24.77	13.86	28.17	118.45	1.75	-0.26
50	4,767	8.96	149.17	4763.19	-24.84	32.22	25.41	40.68	127.63	1.65	1.47
51	4,862	10.47	150.47	4856.83	-38.70	40.26	39.41	55.85	133.87	1.61	1.59
52	4,956	10.07	146.48	4949.32	-52.98	49.01	53.85	72.18	137.23	0.87	-0.43
53	5,050	8.31	152.49	5042.11	-65.86	56.69	66.86	86.90	139.28	2.13	-1.87
54	5,145	7.46	176.00	5136.24	-78.11	60.29	79.17	98.67	142.34	3.48	-0.89
55	5,239	7.42	201.58	5229.47	-89.84	58.48	90.87	107.20	146.94	3.50	-0.04
56	5,334	7.16	206.18	5323.71	-100.86	53.61	101.80	114.22	152.01	0.67	-0.27
57	5,429	9.02	205.20	5417.76	-112.91	47.83	113.74	122.62	157.04	1.96	1.96
58	5,524	10.88	203.24	5511.33	-127.89	41.12	128.60	134.34	162.17	1.99	1.96
59	5,618	10.86	202.27	5603.64	-144.24	34.27	144.82	148.25	166.64	0.20	-0.02
60	5,713	10.04	200.64	5697.06	-160.27	27.96	160.74	162.69	170.11	0.92	-0.86
61	5,807	10.28	203.83	5789.59	-175.61	21.68	175.97	176.94	172.96	0.65	0.26
62	5,902	10.96	203.60	5882.96	-191.64	14.64	191.87	192.20	175.63	0.72	0.72
63	5,996	11.02	201.18	5975.24	-208.20	7.81	208.31	208.35	177.85	0.49	0.06
64	6,091	10.01	200.41	6068.64	-224.41	1.65	224.40	224.41	179.58	1.07	-1.06
65	6,185	9.48	198.85	6161.28	-239.39	-3.70	239.29	239.42	180.88	0.63	-0.56
66	6,280	10.35	202.70	6254.87	-254.67	-9.52	254.46	254.85	182.14	1.15	0.92
67	6,374	9.78	203.26	6347.42	-269.79	-15.93	269.47	270.26	183.38	0.62	-0.61

V09.04.02

Company:	Kaiser-Francis Oil Co.		
Well Name:	Bell Lake Unit South #401H		
Location:	Eddy County, NM		
Rig:	Cactus #171	Magnetic Declination:	6.18
Job Number:	MSMO-66379		
API #:	30-025-45521		

REFERENCED TO GRID NORTH

Vertical Section Azimuth:	178.98	Proposed Direction:	178.98
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Survey Calculation Method:	Minimum Curvature
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PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	12,638	90.28	173	12049.93	-1305.31	51.48	1306.02

#	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	6,469	10.34	203.16	6440.96	-285.04	-22.47	284.60	285.93	184.51	0.59	0.59
69	6,563	10.68	200.40	6533.38	-300.96	-28.82	300.40	302.34	185.47	0.65	0.36
70	6,658	11.06	201.34	6626.68	-317.70	-35.21	317.03	319.65	186.32	0.44	0.40
71	6,753	10.77	198.86	6719.96	-334.59	-41.39	333.80	337.14	187.05	0.58	-0.31
72	6,847	9.87	197.13	6812.44	-350.60	-46.60	349.72	353.68	187.57	1.01	-0.96
73	6,942	9.83	197.89	6906.04	-366.10	-51.49	365.12	369.70	188.01	0.14	-0.04
74	7,037	10.50	198.35	6999.55	-382.03	-56.71	380.96	386.22	188.44	0.71	0.71
75	7,131	10.49	201.07	7091.97	-398.15	-62.48	396.97	403.02	188.92	0.53	-0.01
76	7,225	10.38	198.80	7184.42	-414.15	-68.29	412.87	419.74	189.36	0.45	-0.12
77	7,320	10.40	200.29	7277.86	-430.29	-74.02	428.91	436.61	189.76	0.28	0.02
78	7,414	8.68	196.90	7370.56	-445.04	-79.02	443.56	452.00	190.07	1.92	-1.83
79	7,508	8.15	197.34	7463.55	-458.19	-83.07	456.63	465.66	190.28	0.57	-0.56
80	7,603	6.27	189.74	7557.79	-469.73	-85.96	468.12	477.53	190.37	2.21	-1.98
81	7,698	4.49	188.17	7652.37	-478.52	-87.36	476.89	486.43	190.35	1.88	-1.87
82	7,792	3.26	191.27	7746.15	-484.79	-88.41	483.14	492.78	190.34	1.33	-1.31
83	7,887	2.49	189.10	7841.03	-489.47	-89.26	487.81	497.55	190.34	0.82	-0.81
84	7,981	2.21	212.97	7934.96	-493.01	-90.57	491.32	501.26	190.41	1.07	-0.30
85	8,076	0.83	196.13	8029.92	-495.21	-91.76	493.50	503.64	190.50	1.51	-1.45
86	8,171	1.70	175.31	8124.90	-497.27	-91.84	495.56	505.68	190.46	1.02	0.92
87	8,265	1.29	172.95	8218.87	-499.71	-91.59	498.00	508.04	190.39	0.44	-0.44
88	8,359	0.41	254.24	8312.86	-500.85	-91.79	499.14	509.19	190.38	1.38	-0.94
89	8,454	0.47	332.28	8407.85	-500.60	-92.29	498.88	509.04	190.45	0.59	0.06
90	8,549	0.20	3.83	8502.85	-500.09	-92.46	498.37	508.57	190.48	0.33	-0.28
91	8,643	0.36	146.76	8596.85	-500.17	-92.29	498.45	508.62	190.45	0.57	0.17
92	8,737	0.37	152.79	8690.85	-500.69	-91.99	498.97	509.07	190.41	0.04	0.01
93	8,832	0.80	96.01	8785.85	-501.03	-91.19	499.33	509.26	190.32	0.71	0.45
94	8,927	1.14	90.04	8880.83	-501.10	-89.59	499.43	509.05	190.14	0.37	0.36
95	9,021	0.61	111.18	8974.82	-501.29	-88.18	499.64	508.98	189.98	0.65	-0.56
96	9,116	0.77	140.96	9069.81	-501.96	-87.31	500.33	509.50	189.87	0.41	0.17
97	9,211	1.27	126.64	9164.80	-503.09	-86.06	501.48	510.40	189.71	0.59	0.53
98	9,305	1.25	155.94	9258.78	-504.65	-84.81	503.06	511.72	189.54	0.68	-0.02
99	9,400	1.97	211.97	9353.74	-506.98	-85.25	505.38	514.10	189.55	1.73	0.76
100	9,494	1.52	147.85	9447.71	-509.40	-85.44	507.80	516.52	189.52	2.01	-0.48
101	9,589	2.33	145.59	9542.65	-512.06	-83.68	510.49	518.86	189.28	0.86	0.85

V09.04.02

Company:	Kaiser-Francis Oil Co.		
Well Name:	Bell Lake Unit South #401H		
Location:	Eddy County, NM		
Rlg:	Cactus #171	Magnetic Declination:	6.18
Job Number:	MSMO-66379		
API #:	30-025-45521		

REFERENCED TO GRID NORTH

Vertical Section Azimuth:	178.98	Proposed Direction:	178.98
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Survey Calculation Method:	Minimum Curvature
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PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	12,638	90.28	173	12049.93	-1305.31	51.48	1306.02

#	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	9,683	0.99	234.10	9636.62	-514.12	-83.26	512.55	520.81	189.20	2.67	-1.43
103	9,778	1.71	289.25	9731.60	-514.13	-85.26	512.53	521.15	189.42	1.48	0.76
104	9,872	1.28	248.26	9825.57	-514.06	-87.56	512.42	521.46	189.67	1.19	-0.46
105	9,967	2.91	241.39	9920.50	-515.60	-90.67	513.91	523.52	189.97	1.73	1.72
106	10,061	3.40	245.90	10014.36	-517.89	-95.30	516.11	526.58	190.43	0.58	0.52
107	10,156	2.55	239.65	10109.23	-520.10	-99.70	518.25	529.57	190.85	0.96	-0.89
108	10,251	1.80	225.13	10204.16	-522.22	-102.58	520.32	532.20	191.11	0.97	-0.79
109	10,345	2.15	165.15	10298.12	-524.97	-103.18	523.05	535.01	191.12	2.12	0.37
110	10,440	2.79	166.69	10393.03	-528.94	-102.19	527.04	538.72	190.93	0.68	0.67
111	10,535	1.23	218.45	10487.97	-531.99	-102.29	530.09	541.74	190.88	2.37	-1.64
112	10,629	1.68	262.65	10581.95	-532.96	-104.28	531.02	543.06	191.07	1.25	0.48
113	10,724	1.37	253.24	10676.91	-533.46	-106.75	531.48	544.04	191.32	0.42	-0.33
114	10,818	0.60	264.95	10770.90	-533.83	-108.32	531.82	544.71	191.47	0.84	-0.82
115	10,913	0.94	277.13	10865.89	-533.78	-109.59	531.74	544.91	191.60	0.40	0.36
116	11,007	0.88	264.03	10959.88	-533.76	-111.07	531.70	545.19	191.75	0.23	-0.06
117	11,102	0.79	288.81	11054.87	-533.62	-112.41	531.54	545.33	191.90	0.39	-0.09
118	11,196	0.73	307.69	11148.86	-533.05	-113.50	530.94	545.00	192.02	0.27	-0.06
119	11,291	1.33	303.41	11243.84	-532.07	-114.90	529.94	544.34	192.19	0.64	0.63
120	11,318	1.48	305.08	11270.84	-531.70	-115.45	529.56	544.09	192.25	0.58	0.56
121	11,395	0.78	276.31	11347.82	-531.07	-116.78	528.90	543.76	192.40	1.14	-0.91
122	11,442	0.79	250.51	11394.82	-531.14	-117.41	528.97	543.96	192.46	0.75	0.02
123	11,490	1.38	158.79	11442.81	-531.79	-117.51	529.61	544.62	192.46	3.36	1.23
124	11,537	2.87	126.96	11489.78	-533.03	-116.36	530.87	545.58	192.31	3.93	3.17
125	11,584	5.26	112.71	11536.66	-534.56	-113.44	532.46	546.47	191.98	5.48	5.09
126	11,631	8.80	115.67	11583.30	-536.95	-108.21	534.94	547.75	191.39	7.57	7.53
127	11,679	15.46	116.00	11630.20	-541.35	-99.14	539.50	550.36	190.38	13.88	13.88
128	11,726	22.94	123.73	11674.56	-549.20	-85.87	547.58	555.87	188.89	16.78	15.91
129	11,774	30.16	137.11	11717.51	-563.26	-69.85	561.93	567.57	187.07	19.45	15.04
130	11,821	38.48	147.43	11756.32	-584.29	-53.90	583.24	586.77	185.27	21.55	17.70
131	11,868	43.18	156.41	11791.91	-611.39	-39.57	610.59	612.67	183.70	15.98	10.00
132	11,915	48.38	166.30	11824.72	-643.25	-28.95	642.64	643.90	182.58	18.68	11.06
133	11,963	52.40	174.93	11855.35	-679.68	-23.01	679.16	680.07	181.94	16.17	8.37
134	12,012	53.58	175.79	11884.84	-718.68	-19.85	718.21	718.95	181.58	2.79	2.41
135	12,070	58.24	171.98	11917.35	-766.41	-14.69	766.02	766.55	181.10	9.70	8.03

V09.04.02

Company:	Kaiser-Francis Oil Co.		
Well Name:	Bell Lake Unit South #401H		
Location:	Eddy County, NM		
Rig:	Cactus #171	Magnetic Declination:	6.18
Job Number:	MSMO-66379		
API #:	30-025-45521		

REFERENCED TO GRID NORTH

Vertical Section Azimuth:	178.98	Proposed Direction:	178.98
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Survey Calculation Method:	Minimum Curvature
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PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	12,638	90.28	173	12049.93	-1305.31	51.48	1306.02

#	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	12,117	60.15	170.48	11941.42	-806.30	-8.53	806.02	806.35	180.61	4.90	4.06
137	12,164	61.64	171.21	11964.28	-846.84	-2.00	846.67	846.84	180.14	3.45	3.17
138	12,211	66.09	173.19	11984.98	-888.63	3.71	888.56	888.64	179.76	10.19	9.47
139	12,258	72.32	175.12	12001.66	-932.32	8.17	932.32	932.36	179.50	13.80	13.26
140	12,305	76.46	174.03	12014.31	-977.37	12.45	977.44	977.45	179.27	9.09	8.81
141	12,353	79.08	172.97	12024.47	-1023.98	17.76	1024.13	1024.13	179.01	5.87	5.46
142	12,400	81.60	172.74	12032.36	-1069.95	23.52	1070.20	1070.21	178.74	5.38	5.36
143	12,447	83.00	173.04	12038.66	-1116.16	29.29	1116.51	1116.55	178.50	3.05	2.98
144	12,494	83.94	172.93	12044.00	-1162.51	34.99	1162.95	1163.04	178.28	2.01	2.00
145	12,542	85.47	173.62	12048.43	-1209.97	40.59	1210.51	1210.65	178.08	3.49	3.19
146	12,589	90.28	173.66	12050.17	-1256.64	45.79	1257.26	1257.47	177.91	10.23	10.23
PTB:	12,638	90.28	173.00	12049.93	-1305.31	51.48	1306.02	1306.32	177.74	1.35	0.00