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MS Directional Survey Data Certification

MS Directional Job Number: MSMO-57952
Survey Type: MWD
Operating Company: Kaiser-Francis Oil Co.
Well Name & Number: ~~Deer Lake Unit North #401H~~
Location: Lea County, NM
API Number: 30-025-44693
Tie In Depth: Surface
Surveyed Depths: 154' – 20,047' MD
Projected TD Survey: 20,113' MD
Dates Performed: 11/07/2018 – 12/24/2018

HOBBS OCD
APR 25 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: D. Scott
MWD Surveyor Name: Dereck Scott
Date: 01-16-2019
Email: dscott@msdir.com

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V09.04.02

Company:	Kaiser-Francis Oil Co.
Well Name:	Bell Lake Unit North #401H
Location:	Lea County, NM
Rig:	Cactus #171
Job Number:	MSMO-57952
API #:	30-025-44693

Magnetic Declination: 6.42 REFERENCED TO GRID NORTH ▼

Vertical Section Azimuth: 179.58 Proposed Direction: 179.58

Survey Calculation Method: Minimum Curvature

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	20,113	96.4	182.7	11944.42	-8315.33	112.31	8315.93

#	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	154	0.60	310.40	154.00	0.52	-0.61	-0.53	0.81	310.40	0.39	0.39
2	246	1.40	310.90	245.98	1.57	-1.83	-1.58	2.41	310.63	0.87	0.87
3	337	1.20	315.50	336.96	2.98	-3.34	-3.00	4.47	311.73	0.25	-0.22
4	430	1.00	297.40	429.94	4.05	-4.74	-4.08	6.23	310.48	0.43	-0.22
5	525	1.40	301.70	524.92	5.04	-6.46	-5.08	8.20	307.93	0.43	0.42
6	619	1.50	293.00	618.89	6.12	-8.57	-6.18	10.54	305.52	0.26	0.11
7	713	1.40	299.30	712.86	7.16	-10.71	-7.24	12.88	303.78	0.20	-0.11
8	807	1.40	278.60	806.83	7.90	-12.85	-7.99	15.08	301.59	0.54	0.00
9	901	1.20	276.90	900.81	8.19	-14.96	-8.30	17.05	298.70	0.22	-0.21
10	994	1.10	289.00	993.79	8.60	-16.77	-8.72	18.84	297.14	0.28	-0.11
11	1,088	0.80	283.50	1087.78	9.04	-18.26	-9.18	20.38	296.35	0.33	-0.32
12	1,181	0.80	283.20	1180.77	9.34	-19.52	-9.49	21.64	295.57	0.00	0.00
13	1,275	0.50	307.20	1274.76	9.74	-20.49	-9.89	22.69	295.43	0.42	-0.32
14	1,369	0.60	307.70	1368.76	10.29	-21.20	-10.44	23.57	295.88	0.11	0.11
15	1,463	0.40	308.20	1462.75	10.79	-21.85	-10.95	24.37	296.29	0.21	-0.21
16	1,556	1.70	312.10	1555.74	11.92	-23.13	-12.09	26.02	297.26	1.40	1.40
17	1,650	3.30	290.20	1649.65	13.79	-26.70	-13.98	30.05	297.31	1.95	1.70
18	1,744	3.90	293.40	1743.46	15.99	-32.18	-16.23	35.93	296.43	0.67	0.64
19	1,838	3.70	281.70	1837.26	17.88	-38.08	-18.15	42.07	295.15	0.85	-0.21
20	1,933	3.60	282.10	1932.06	19.12	-44.00	-19.45	47.98	293.49	0.11	-0.11
21	2,027	3.40	288.70	2025.89	20.64	-49.53	-21.00	53.65	292.62	0.48	-0.21
22	2,122	3.00	266.60	2120.74	21.39	-54.68	-21.79	58.71	291.37	1.36	-0.42
23	2,217	2.70	280.10	2215.63	21.64	-59.36	-22.07	63.18	290.03	0.77	-0.32
24	2,311	2.10	290.90	2309.54	22.64	-63.15	-23.10	67.08	289.72	0.80	-0.64
25	2,406	2.00	255.60	2404.49	22.85	-66.38	-23.33	70.20	288.99	1.31	-0.11
26	2,500	2.10	258.60	2498.43	22.10	-69.66	-22.61	73.08	287.60	0.16	0.11
27	2,595	1.40	266.60	2593.38	21.69	-72.52	-22.22	75.70	286.65	0.78	-0.74
28	2,689	1.00	276.70	2687.36	21.71	-74.48	-22.26	77.58	286.25	0.48	-0.43
29	2,784	0.70	301.40	2782.35	22.11	-75.80	-22.67	78.96	286.26	0.49	-0.32
30	2,879	0.50	359.00	2877.35	22.83	-76.30	-23.39	79.65	286.66	0.64	-0.21
31	2,973	0.50	75.40	2971.34	23.34	-75.91	-23.90	79.42	287.09	0.66	0.00
32	3,068	1.30	79.70	3066.33	23.64	-74.45	-24.19	78.12	287.62	0.84	0.84
33	3,162	2.30	76.50	3160.28	24.27	-71.57	-24.80	75.57	288.73	1.07	1.06

V09.04.02

Company:	Kaiser-Francis Oil Co.		
Well Name:	Bell Lake Unit North #401H		
Location:	Lea County, NM		
Rig:	Cactus #171	Magnetic Declination:	6.42
Job Number:	MSMO-57952		REFERENCED TO GRID NORTH
API #:	30-025-44693		

Vertical Section Azimuth:	179.58	Proposed Direction:	179.58
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Survey Calculation Method:	Minimum Curvature
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PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	20,113	96.4	182.7	11944.42	-8315.33	112.31	8315.93

#	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	3,257	1.40	111.30	3255.24	24.29	-68.64	-24.80	72.81	289.49	1.47	-0.95
35	3,352	1.20	202.20	3350.22	22.95	-67.93	-23.45	71.70	288.67	1.96	-0.21
36	3,447	0.80	210.90	3445.21	21.46	-68.65	-21.96	71.92	287.36	0.45	-0.42
37	3,541	0.40	95.00	3539.20	20.87	-68.66	-21.37	71.76	286.91	1.11	-0.43
38	3,636	1.70	68.00	3634.18	21.37	-67.02	-21.86	70.34	287.69	1.43	1.37
39	3,730	1.70	99.10	3728.15	21.67	-64.35	-22.14	67.90	288.61	0.97	0.00
40	3,825	2.20	192.80	3823.11	19.67	-63.36	-20.13	66.34	287.25	3.02	0.53
41	3,920	3.50	213.60	3917.99	15.48	-65.37	-15.95	67.18	283.32	1.73	1.37
42	4,014	4.50	218.80	4011.76	10.21	-69.27	-10.72	70.02	278.39	1.13	1.06
43	4,108	3.20	211.00	4105.55	5.09	-72.93	-5.62	73.11	273.99	1.49	-1.38
44	4,203	2.60	228.80	4200.43	1.40	-75.92	-1.95	75.93	271.05	1.13	-0.63
45	4,297	5.30	231.70	4294.20	-2.70	-80.93	2.11	80.98	268.09	2.88	2.87
46	4,391	9.50	245.70	4387.40	-8.58	-91.41	7.91	91.82	264.63	4.83	4.47
47	4,486	8.40	248.30	4481.24	-14.38	-105.01	13.61	105.99	262.20	1.23	-1.16
48	4,580	4.00	241.40	4574.67	-18.49	-114.27	17.65	115.75	260.81	4.74	-4.68
49	4,674	1.00	240.70	4668.57	-20.46	-117.86	19.59	119.63	260.15	3.19	-3.19
50	4,769	1.00	333.70	4763.56	-20.12	-118.95	19.25	120.64	260.40	1.53	0.00
51	4,864	2.30	14.30	4858.52	-17.53	-118.85	16.66	120.14	261.61	1.76	1.37
52	4,959	2.40	19.70	4953.44	-13.81	-117.71	12.95	118.52	263.31	0.26	0.11
53	5,053	2.00	23.10	5047.37	-10.45	-116.40	9.60	116.87	264.87	0.45	-0.43
54	5,148	1.50	25.50	5142.33	-7.80	-115.22	6.96	115.48	266.13	0.53	-0.53
55	5,242	1.20	17.10	5236.30	-5.75	-114.40	4.91	114.54	267.12	0.38	-0.32
56	5,337	1.20	19.40	5331.28	-3.86	-113.77	3.03	113.84	268.06	0.05	0.00
57	5,432	1.20	24.00	5426.26	-2.01	-113.04	1.19	113.06	268.98	0.10	0.00
58	5,526	1.10	23.90	5520.24	-0.29	-112.27	-0.53	112.27	269.85	0.11	-0.11
59	5,621	1.30	31.40	5615.22	1.46	-111.34	-2.28	111.35	270.75	0.27	0.21
60	5,715	1.10	43.60	5709.20	3.03	-110.16	-3.83	110.21	271.57	0.34	-0.21
61	5,810	1.10	43.00	5804.18	4.35	-108.91	-5.15	109.00	272.29	0.01	0.00
62	5,905	1.10	46.40	5899.17	5.65	-107.63	-6.44	107.78	273.00	0.07	0.00
63	5,999	1.10	50.60	5993.15	6.84	-106.28	-7.62	106.50	273.69	0.09	0.00
64	6,094	1.10	60.00	6088.13	7.88	-104.79	-8.65	105.08	274.30	0.19	0.00
65	6,189	0.90	53.30	6183.12	8.78	-103.40	-9.54	103.77	274.85	0.24	-0.21
66	6,283	0.90	51.30	6277.10	9.68	-102.23	-10.43	102.69	275.41	0.03	0.00
67	6,378	1.00	51.00	6372.09	10.67	-101.00	-11.41	101.57	276.03	0.11	0.11



SURVEY CALCULATION PROGRAM

1/15/19 14:11

VD9.04.02

Company:	Kaiser-Francis Oil Co.		
Well Name:	Bell Lake Unit North #401H		
Location:	Lea County, NM		
Rig:	Cactus #171	Magnetic Declination:	6.42
Job Number:	MSMO-57952		
API #:	30-025-44693		
Vertical Section Azimuth:	179.58	Proposed Direction:	179.58
Survey Calculation Method:	Minimum Curvature		

REFERENCED TO GRID NORTH

Survey Calculation Method:

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS				
	20,113	96.4	182.7	11944.42	-8315.33	112.31	8315.93				
#	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	6,472	1.00	57.10	6466.08	11.63	-99.68	-12.36	100.35	276.66	0.11	0.00
69	6,567	0.90	57.90	6561.06	12.48	-98.35	-13.20	99.14	277.23	0.11	-0.11
70	6,660	1.00	55.00	6654.05	13.33	-97.07	-14.05	97.98	277.82	0.12	0.11
71	6,754	1.00	54.20	6748.04	14.28	-95.73	-14.99	96.79	278.49	0.01	0.00
72	6,849	1.00	57.10	6843.02	15.22	-94.36	-15.91	95.58	279.16	0.05	0.00
73	6,944	1.00	68.10	6938.01	15.98	-92.90	-16.66	94.26	279.76	0.20	0.00
74	7,038	1.10	71.00	7031.99	16.58	-91.28	-17.25	92.77	280.29	0.12	0.11
75	7,133	1.10	70.30	7126.97	17.18	-89.56	-17.84	91.19	280.86	0.01	0.00
76	7,227	1.10	76.10	7220.96	17.70	-87.84	-18.35	89.60	281.40	0.12	0.00
77	7,322	1.10	79.60	7315.94	18.09	-86.05	-18.72	87.93	281.87	0.07	0.00
78	7,416	1.20	82.30	7409.92	18.38	-84.19	-19.00	86.17	282.32	0.12	0.11
79	7,511	1.30	79.00	7504.90	18.72	-82.15	-19.32	84.25	282.84	0.13	0.11
80	7,606	1.20	80.50	7599.88	19.09	-80.11	-19.68	82.35	283.40	0.11	-0.11
81	7,701	1.20	85.60	7694.85	19.33	-78.13	-19.90	80.49	283.90	0.11	0.00
82	7,795	1.40	91.40	7788.83	19.38	-76.01	-19.94	78.44	284.30	0.25	0.21
83	7,890	1.40	99.30	7883.80	19.16	-73.70	-19.70	76.15	284.58	0.20	0.00
84	7,985	1.60	100.40	7978.77	18.74	-71.25	-19.26	73.67	284.73	0.21	0.21
85	8,080	1.70	98.90	8073.73	18.28	-68.55	-18.78	70.95	284.93	0.11	0.11
86	8,175	1.80	96.20	8168.69	17.90	-65.68	-18.38	68.07	285.25	0.14	0.11
87	8,269	2.10	100.20	8262.63	17.44	-62.52	-17.89	64.90	285.58	0.35	0.32
88	8,363	2.10	103.90	8356.57	16.72	-59.15	-17.15	61.47	285.78	0.14	0.00
89	8,457	2.10	105.70	8450.51	15.84	-55.82	-16.25	58.02	285.84	0.07	0.00
90	8,551	2.30	103.90	8544.44	14.92	-52.33	-15.30	54.41	285.91	0.23	0.21
91	8,646	2.50	107.20	8639.35	13.85	-48.50	-14.20	50.44	285.93	0.26	0.21
92	8,740	2.60	106.20	8733.26	12.65	-44.49	-12.97	46.26	285.87	0.12	0.11
93	8,835	3.10	104.30	8828.14	11.41	-39.94	-11.70	41.53	285.95	0.54	0.53
94	8,930	2.80	103.60	8923.02	10.23	-35.19	-10.49	36.65	286.21	0.32	-0.32
95	9,025	1.80	98.30	9017.94	9.47	-31.46	-9.70	32.85	286.75	1.08	-1.05
96	9,119	2.70	90.10	9111.87	9.25	-27.78	-9.46	29.28	288.42	1.01	0.96
97	9,213	2.20	110.40	9205.78	8.62	-23.88	-8.79	25.39	289.85	1.06	-0.53
98	9,307	1.90	116.00	9299.72	7.31	-20.79	-7.46	22.03	289.37	0.38	-0.32
99	9,401	2.30	94.90	9393.66	6.46	-17.51	-6.59	18.66	290.26	0.92	0.43
100	9,495	2.40	99.50	9487.58	5.98	-13.69	-6.08	14.94	293.59	0.23	0.11
101	9,589	2.00	97.30	9581.51	5.44	-10.12	-5.52	11.49	298.28	0.43	-0.43

Page 3

V09.04.02

Company:	Kaiser-Francis Oil Co.		
Well Name:	Bell Lake Unit North #401H		
Location:	Lea County, NM		
Rlg:	Cactus #171	Magnetic Declination:	6.42
Job Number:	MSMO-57952		
API #:	30-025-44693		

REFERENCED TO GRID NORTH

Vertical Section Azimuth:	179.58	Proposed Direction:	179.58
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Survey Calculation Method:	Minimum Curvature
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PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	20,113	96.4	182.7	11944.42	-8315.33	112.31	8315.93

#	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	2.50	74.70	9675.44	5.78	-6.51	-5.82	8.71	311.57	1.07	0.53
103	9,778	1.60	53.90	9770.38	7.11	-3.44	-7.13	7.90	334.14	1.21	-0.95
104	9,873	1.30	61.50	9865.35	8.40	-1.43	-8.41	8.52	350.37	0.37	-0.32
105	9,968	1.70	19.60	9960.32	10.24	-0.01	-10.24	10.24	359.97	1.20	0.42
106	10,062	2.00	46.30	10054.27	12.69	1.65	-12.68	12.80	7.40	0.96	0.32
107	10,157	1.50	71.60	10149.23	14.23	4.03	-14.20	14.79	15.80	0.96	-0.53
108	10,251	1.90	77.00	10243.19	14.97	6.71	-14.92	16.40	24.16	0.46	0.43
109	10,345	2.70	75.20	10337.11	15.88	10.37	-15.81	18.97	33.14	0.85	0.85
110	10,440	2.60	115.10	10432.02	15.54	14.49	-15.43	21.24	42.99	1.91	-0.11
111	10,535	3.10	124.50	10526.90	13.17	18.55	-13.03	22.75	54.63	0.72	0.53
112	10,629	3.50	122.00	10620.74	10.21	23.08	-10.04	25.24	66.14	0.45	0.43
113	10,723	3.90	146.90	10714.55	6.01	27.26	-5.81	27.92	77.56	1.75	0.43
114	10,818	4.00	174.30	10809.34	0.01	29.36	0.21	29.36	89.98	1.97	0.11
115	10,912	3.80	172.80	10903.12	-6.34	30.07	6.57	30.73	101.91	0.24	-0.21
116	11,006	3.70	158.40	10996.92	-12.26	31.58	12.49	33.87	111.21	1.00	-0.11
117	11,100	3.30	152.70	11090.74	-17.48	33.94	17.73	38.17	117.25	0.56	-0.43
118	11,256	3.50	126.80	11246.48	-24.32	39.81	24.61	46.65	121.42	0.98	0.13
119	11,351	4.60	118.10	11341.24	-27.85	45.49	28.19	53.34	121.48	1.32	1.16
120	11,446	6.10	113.60	11435.82	-31.67	53.48	32.06	62.15	120.63	1.64	1.58
121	11,493	10.00	121.90	11482.35	-34.83	59.23	35.26	68.71	120.45	8.64	8.30
122	11,542	12.20	130.20	11530.44	-40.42	66.80	40.91	78.08	121.18	5.54	4.49
123	11,589	13.20	140.50	11576.29	-47.76	74.01	48.31	88.08	122.84	5.26	2.13
124	11,637	16.70	145.10	11622.66	-57.65	81.44	58.25	99.78	125.30	7.69	7.29
125	11,684	22.10	145.20	11666.98	-70.46	90.36	71.12	114.58	127.95	11.49	11.49
126	11,732	28.00	144.10	11710.44	-87.02	102.13	87.76	134.17	130.43	12.33	12.29
127	11,779	35.10	150.90	11750.48	-107.79	115.19	108.64	157.76	133.10	16.88	15.11
128	11,827	40.60	153.70	11788.37	-133.88	128.83	134.82	185.80	136.10	12.00	11.46
129	11,874	43.60	157.90	11823.25	-162.61	141.71	163.65	215.70	138.93	8.75	6.38
130	11,922	46.70	159.30	11857.10	-194.30	154.12	195.42	248.00	141.58	6.78	6.46
131	11,969	50.70	161.00	11888.11	-227.50	166.09	228.72	281.68	143.87	8.93	8.51
132	12,017	54.90	161.90	11917.13	-263.75	178.24	265.05	318.33	145.95	8.88	8.75
133	12,064	59.30	165.20	11942.65	-301.58	189.38	302.96	356.12	147.87	11.06	9.36
134	12,112	66.10	173.10	11964.68	-343.42	197.31	344.86	396.07	150.12	20.35	14.17
135	12,159	73.50	180.60	11980.92	-387.40	199.66	388.85	435.82	152.73	21.72	15.74

V09.04.02

Company:	Kaiser-Francis Oil Co.		
Well Name:	Bell Lake Unit North #401H		
Location:	Lea County, NM		
Rig:	Cactus #171	Magnetic Declination:	6.42
Job Number:	MSMO-57952		
API #:	30-025-44693		

REFERENCED TO GRID NORTH

Vertical Section Azimuth:	179.58	Proposed Direction:	179.58
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Survey Calculation Method:	Minimum Curvature
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PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	20,113	96.4	182.7	11944.42	-8315.33	112.31	8315.93

#	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	12,207	79.40	183.10	11992.17	-434.01	198.14	435.45	477.10	155.46	13.29	12.29
137	12,254	87.00	184.70	11997.73	-480.54	194.97	481.95	518.58	157.92	16.52	16.17
138	12,335	90.60	185.20	11999.42	-561.20	187.98	562.57	591.85	161.48	4.49	4.44
139	12,430	91.30	183.60	11997.85	-655.91	180.69	657.21	680.34	164.60	1.84	0.74
140	12,525	90.20	185.90	11996.60	-750.56	172.83	751.81	770.20	167.03	2.68	-1.16
141	12,620	89.30	184.40	11997.02	-845.18	164.30	846.36	861.00	169.00	1.84	-0.95
142	12,716	89.00	183.60	11998.44	-940.93	157.60	942.06	954.04	170.49	0.89	-0.31
143	12,811	89.20	184.00	11999.94	-1035.71	151.31	1036.79	1046.70	171.69	0.47	0.21
144	12,906	89.40	183.60	12001.10	-1130.49	145.01	1131.53	1139.76	172.69	0.47	0.21
145	13,001	88.80	182.10	12002.59	-1225.36	140.29	1226.36	1233.37	173.47	1.70	-0.63
146	13,096	89.00	183.10	12004.41	-1320.24	135.98	1321.21	1327.23	174.12	1.07	0.21
147	13,192	88.70	181.60	12006.34	-1416.14	132.04	1417.07	1422.28	174.67	1.59	-0.31
148	13,287	88.40	181.80	12008.74	-1511.07	129.23	1511.98	1516.58	175.11	0.38	-0.32
149	13,382	90.10	181.90	12009.99	-1606.01	126.16	1606.89	1610.96	175.51	1.79	1.79
150	13,477	90.60	182.60	12009.41	-1700.93	122.43	1701.78	1705.33	175.88	0.91	0.53
151	13,572	91.30	183.80	12007.83	-1795.77	117.13	1796.58	1799.58	176.27	1.46	0.74
152	13,667	89.20	185.00	12007.42	-1890.48	109.84	1891.24	1893.67	176.67	2.55	-2.21
153	13,762	87.40	183.80	12010.23	-1985.15	102.56	1985.85	1987.80	177.04	2.28	-1.89
154	13,857	87.20	182.50	12014.71	-2079.90	97.34	2080.56	2082.18	177.32	1.38	-0.21
155	13,953	84.50	183.00	12021.66	-2175.53	92.75	2176.15	2177.51	177.56	2.86	-2.81
156	14,048	83.30	181.90	12031.75	-2269.90	88.71	2270.49	2271.64	177.76	1.71	-1.26
157	14,143	83.20	181.20	12042.92	-2364.21	86.16	2364.78	2365.78	177.91	0.74	-0.11
158	14,238	83.70	181.80	12053.75	-2458.56	83.69	2459.10	2459.98	178.05	0.82	0.53
159	14,334	85.10	181.40	12063.12	-2554.06	81.02	2554.58	2555.34	178.18	1.52	1.46
160	14,429	84.30	178.90	12071.90	-2648.64	80.77	2649.17	2649.88	178.25	2.75	-0.84
161	14,524	85.00	179.60	12080.76	-2743.22	82.01	2743.75	2744.45	178.29	1.04	0.74
162	14,619	86.80	178.90	12087.55	-2837.97	83.25	2838.50	2839.19	178.32	2.03	1.89
163	14,714	89.50	179.20	12090.62	-2932.89	84.82	2933.44	2934.12	178.34	2.86	2.84
164	14,810	88.90	180.40	12091.96	-3028.88	85.16	3029.42	3030.08	178.39	1.40	-0.62
165	14,905	84.60	181.10	12097.34	-3123.70	83.92	3124.23	3124.82	178.46	4.59	-4.53
166	15,000	83.30	180.40	12107.35	-3218.16	82.68	3218.68	3219.22	178.53	1.55	-1.37
167	15,095	88.20	180.30	12114.39	-3312.87	82.10	3313.38	3313.88	178.58	5.16	5.16
168	15,190	89.70	180.10	12116.13	-3407.85	81.77	3408.35	3408.83	178.63	1.59	1.58
169	15,285	86.30	180.00	12119.45	-3502.77	81.69	3503.28	3503.73	178.66	3.58	-3.58

V09.04.02

Company:	Kaiser-Francis Oil Co.		
Well Name:	Bell Lake Unit North #401H		
Location:	Lea County, NM		
Rig:	Cactus #171	Magnetic Declination:	6.42
Job Number:	MSMO-57952		
API #:	30-025-44693		

REFERENCED TO GRID NORTH

Vertical Section Azimuth:	179.58	Proposed Direction:	179.58
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Survey Calculation Method:	Minimum Curvature
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PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	20,113	96.4	182.7	11944.42	-8315.33	112.31	8315.93

#	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	15,381	86.80	181.10	12125.22	-3598.59	80.77	3599.09	3599.50	178.71	1.26	0.52
171	15,476	85.40	181.10	12131.69	-3693.35	78.95	3693.83	3694.20	178.78	1.47	-1.47
172	15,571	83.80	180.00	12140.63	-3787.92	78.04	3788.39	3788.73	178.82	2.04	-1.68
173	15,666	83.30	178.30	12151.30	-3882.31	79.44	3882.79	3883.12	178.83	1.85	-0.53
174	15,761	85.00	177.20	12160.98	-3976.74	83.15	3977.24	3977.61	178.80	2.13	1.79
175	15,856	87.60	178.20	12167.11	-4071.45	86.95	4071.98	4072.38	178.78	2.93	2.74
176	15,952	87.80	180.70	12170.96	-4167.36	87.88	4167.90	4168.29	178.79	2.61	0.21
177	16,047	91.10	182.40	12171.88	-4262.31	85.31	4262.82	4263.16	178.85	3.91	3.47
178	16,142	91.70	182.60	12169.56	-4357.19	81.16	4357.67	4357.94	178.93	0.67	0.63
179	16,237	92.10	179.30	12166.40	-4452.11	79.59	4452.57	4452.82	178.98	3.50	0.42
180	16,333	89.80	178.20	12164.81	-4548.07	81.68	4548.54	4548.80	178.97	2.66	-2.40
181	16,428	88.90	177.40	12165.89	-4642.99	85.33	4643.49	4643.77	178.95	1.27	-0.95
182	16,523	91.80	179.20	12165.31	-4737.93	88.15	4738.45	4738.75	178.93	3.59	3.05
183	16,618	91.90	178.60	12162.24	-4832.86	89.97	4833.39	4833.70	178.93	0.64	0.11
184	16,713	91.20	177.50	12159.67	-4927.77	93.20	4928.32	4928.65	178.92	1.37	-0.74
185	16,809	90.90	178.80	12157.91	-5023.70	96.30	5024.27	5024.63	178.90	1.39	-0.31
186	16,904	91.00	180.00	12156.34	-5118.68	97.30	5119.26	5119.61	178.91	1.27	0.11
187	16,999	91.40	180.40	12154.35	-5213.66	96.96	5214.23	5214.56	178.93	0.60	0.42
188	17,094	90.30	177.50	12152.94	-5308.62	98.70	5309.20	5309.54	178.93	3.26	-1.16
189	17,189	88.40	177.80	12154.02	-5403.53	102.60	5404.14	5404.51	178.91	2.02	-2.00
190	17,284	87.90	177.80	12157.08	-5498.41	106.24	5499.04	5499.44	178.89	0.53	-0.53
191	17,380	93.50	177.50	12155.91	-5594.29	110.18	5594.94	5595.37	178.87	5.84	5.83
192	17,475	95.30	177.80	12148.62	-5688.92	114.06	5689.61	5690.07	178.85	1.92	1.89
193	17,570	88.40	176.60	12145.56	-5783.70	118.70	5784.42	5784.92	178.82	7.37	-7.26
194	17,665	94.90	177.50	12142.83	-5878.48	123.59	5879.23	5879.78	178.80	6.91	6.84
195	17,760	96.80	178.10	12133.14	-5972.91	127.21	5973.69	5974.27	178.78	2.10	2.00
196	17,855	97.80	180.60	12121.07	-6067.13	128.29	6067.91	6068.49	178.79	2.81	1.05
197	17,950	96.30	179.40	12109.41	-6161.41	128.29	6162.18	6162.74	178.81	2.02	-1.58
198	18,045	95.30	180.60	12099.81	-6255.92	128.29	6256.69	6257.23	178.83	1.64	-1.05
199	18,140	93.10	178.80	12092.85	-6350.65	128.78	6351.42	6351.96	178.84	2.99	-2.32
200	18,236	90.50	179.50	12089.84	-6446.58	130.21	6447.37	6447.90	178.84	2.80	-2.71
201	18,331	94.30	179.20	12085.86	-6541.48	131.28	6542.26	6542.79	178.85	4.01	4.00
202	18,426	94.40	180.00	12078.65	-6636.20	131.94	6636.99	6637.51	178.86	0.85	0.11
203	18,521	90.00	179.50	12075.01	-6731.11	132.36	6731.90	6732.41	178.87	4.66	-4.63

V09.04.02

Company:	Kaiser-Francis Oil Co.		
Well Name:	Bell Lake Unit North #401H		
Location:	Lea County, NM		
Rig:	Cactus #171	Magnetic Declination:	6.42
Job Number:	MSMO-57952		REFERENCED TO GRID NORTH
API #:	30-025-44693		

Vertical Section Azimuth:	179.58	Proposed Direction:	179.58
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Survey Calculation Method:	Minimum Curvature
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PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	20,113	96.4	182.7	11944.42	-8315.33	112.31	8315.93

#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance	Azm	DLS/ 100	BUR/ 100'
204	18,616	89.60	178.30	12075.34	-6826.09	134.18	6826.89	6827.40	178.87	1.33	-0.42
205	18,715	91.90	178.60	12074.04	-6925.03	136.86	6925.85	6926.39	178.87	2.34	2.32
206	18,810	92.80	179.30	12070.15	-7019.94	138.60	7020.76	7021.31	178.87	1.20	0.95
207	18,905	94.20	178.80	12064.35	-7114.74	140.17	7115.58	7116.12	178.87	1.56	1.47
208	19,000	94.00	179.70	12057.56	-7209.49	141.41	7210.33	7210.88	178.88	0.97	-0.21
209	19,095	94.30	179.70	12050.68	-7304.24	141.91	7305.09	7305.62	178.89	0.32	0.32
210	19,191	94.50	179.90	12043.32	-7399.96	142.24	7400.80	7401.32	178.90	0.29	0.21
211	19,286	96.00	179.00	12034.62	-7494.55	143.15	7495.40	7495.92	178.91	1.84	1.58
212	19,381	96.40	178.00	12024.36	-7588.96	145.62	7589.83	7590.36	178.90	1.13	0.42
213	19,476	98.00	179.90	12012.46	-7683.19	147.35	7684.06	7684.60	178.90	2.60	1.68
214	19,571	97.00	180.90	12000.06	-7777.37	146.69	7778.24	7778.76	178.92	1.48	-1.05
215	19,666	96.20	183.30	11989.14	-7871.67	143.23	7872.51	7872.97	178.96	2.65	-0.84
216	19,762	95.70	184.00	11979.18	-7966.96	137.15	7967.75	7968.14	179.01	0.89	-0.52
217	19,857	96.10	184.30	11969.42	-8061.21	130.32	8061.95	8062.26	179.07	0.53	0.42
218	19,952	95.00	184.70	11960.23	-8155.47	122.90	8156.15	8156.40	179.14	1.23	-1.16
219	20,047	95.70	183.70	11951.37	-8249.80	115.97	8250.43	8250.61	179.19	1.28	0.74
PTB:	20,113	96.40	182.70	11944.42	-8315.33	112.31	8315.93	8316.09	179.23	1.84	1.06