



HOBBS OCD

APR 04 2016

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McElvain Energy, Inc.

Sec. 30 T18S R34E

EK 30 WCD Federal Com

EK 31 BS2 Federal Com 3H - Slot 31 BS2 3H

Wellbore #1

Plan: Design #1 29Jul15 kjs

Standard Planning Report - Geographic

13 August, 2015

APR 14 2016



Planning Report - Geographic

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well EK 31 BS2 Federal Com 3H - Slot 31 BS2 3H
Company:	McElvain Energy, Inc.	TVD Reference:	WELL @ 3884.0usft (Original Well Elev)
Project:	Sec. 30 T18S R34E	MD Reference:	WELL @ 3884.0usft (Original Well Elev)
Site:	EK 30 WCD Federal Com	North Reference:	Grid
Well:	EK 31 BS2 Federal Com 3H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 29Jul15 kjs		

Project	Sec. 30 T18S R34E, Lea County, NM		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	EK 30 WCD Federal Com		
Site Position:		Northing:	626,476.83 usft
From:	Map	Easting:	765,038.76 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 43' 12.413 N
		Longitude:	103° 36' 21.436 W
		Grid Convergence:	0.39 °

Well	EK 31 BS2 Federal Com 3H - Slot 31 BS2 3H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	Ground Level:
			3,864.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	07/29/15	7.13
			Dip Angle
			60.53
			Field Strength
			48,489

Design	Design #1 29Jul15 kjs		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			176.93

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,187.3	4.31	78.70	2,187.0	2.1	10.6	1.50	1.50	0.00	78.70	
9,483.9	4.31	78.70	9,463.0	109.6	548.3	0.00	0.00	0.00	0.00	
10,070.4	69.70	176.93	9,915.5	-200.8	590.0	12.00	11.15	16.75	99.78	
10,226.2	88.40	176.93	9,945.0	-352.9	598.2	12.00	12.00	0.00	0.00	
14,703.2	88.40	176.93	10,069.8	-4,821.7	837.9	0.00	0.00	0.00	0.00	TD / PBHL 31 BS2 3F
14,803.2	88.40	176.93	10,072.5	-4,921.5	843.3	0.00	0.00	0.00	0.00	



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Well:	EK 31 BS2 Federal Com 3H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 29Jul15 kjs		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	623,207.90	765,620.60	32° 42' 40.030 N	103° 36' 14.889 W
200.0	0.00	0.00	200.0	0.0	0.0	623,207.90	765,620.60	32° 42' 40.030 N	103° 36' 14.889 W
400.0	0.00	0.00	400.0	0.0	0.0	623,207.90	765,620.60	32° 42' 40.030 N	103° 36' 14.889 W
600.0	0.00	0.00	600.0	0.0	0.0	623,207.90	765,620.60	32° 42' 40.030 N	103° 36' 14.889 W
800.0	0.00	0.00	800.0	0.0	0.0	623,207.90	765,620.60	32° 42' 40.030 N	103° 36' 14.889 W
1,000.0	0.00	0.00	1,000.0	0.0	0.0	623,207.90	765,620.60	32° 42' 40.030 N	103° 36' 14.889 W
1,200.0	0.00	0.00	1,200.0	0.0	0.0	623,207.90	765,620.60	32° 42' 40.030 N	103° 36' 14.889 W
1,400.0	0.00	0.00	1,400.0	0.0	0.0	623,207.90	765,620.60	32° 42' 40.030 N	103° 36' 14.889 W
1,600.0	0.00	0.00	1,600.0	0.0	0.0	623,207.90	765,620.60	32° 42' 40.030 N	103° 36' 14.889 W
1,684.0	0.00	0.00	1,684.0	0.0	0.0	623,207.90	765,620.60	32° 42' 40.030 N	103° 36' 14.889 W
Rustler									
1,744.0	0.00	0.00	1,744.0	0.0	0.0	623,207.90	765,620.60	32° 42' 40.030 N	103° 36' 14.889 W
Salt									
1,800.0	0.00	0.00	1,800.0	0.0	0.0	623,207.90	765,620.60	32° 42' 40.030 N	103° 36' 14.889 W
13 3/8"									
1,900.0	0.00	0.00	1,900.0	0.0	0.0	623,207.90	765,620.60	32° 42' 40.030 N	103° 36' 14.889 W
Start Build 1.50									
2,000.0	1.50	78.70	2,000.0	0.3	1.3	623,208.16	765,621.88	32° 42' 40.032 N	103° 36' 14.874 W
2,187.3	4.31	78.70	2,187.0	2.1	10.6	623,210.02	765,631.19	32° 42' 40.050 N	103° 36' 14.764 W
Hold 4.31 Inc, 78.7 Az									
2,200.0	4.31	78.70	2,199.7	2.3	11.5	623,210.21	765,632.12	32° 42' 40.052 N	103° 36' 14.754 W
2,400.0	4.31	78.70	2,399.1	5.2	26.3	623,213.15	765,646.86	32° 42' 40.080 N	103° 36' 14.581 W
2,600.0	4.31	78.70	2,598.6	8.2	41.0	623,216.10	765,661.60	32° 42' 40.108 N	103° 36' 14.408 W
2,800.0	4.31	78.70	2,798.0	11.1	55.7	623,219.04	765,676.34	32° 42' 40.136 N	103° 36' 14.235 W
3,000.0	4.31	78.70	2,997.4	14.1	70.5	623,221.99	765,691.08	32° 42' 40.164 N	103° 36' 14.063 W
3,200.0	4.31	78.70	3,196.9	17.0	85.2	623,224.93	765,705.81	32° 42' 40.192 N	103° 36' 13.890 W
3,261.9	4.31	78.70	3,258.6	17.9	89.8	623,225.85	765,710.38	32° 42' 40.201 N	103° 36' 13.836 W
Yates									
3,400.0	4.31	78.70	3,396.3	20.0	100.0	623,227.88	765,720.55	32° 42' 40.220 N	103° 36' 13.717 W
3,403.7	4.31	78.70	3,400.0	20.0	100.2	623,227.93	765,720.83	32° 42' 40.221 N	103° 36' 13.714 W
9 5/8"									
3,600.0	4.31	78.70	3,595.7	22.9	114.7	623,230.82	765,735.29	32° 42' 40.248 N	103° 36' 13.544 W
3,738.1	4.31	78.70	3,733.5	25.0	124.9	623,232.86	765,745.47	32° 42' 40.268 N	103° 36' 13.425 W
Seven Rivers									
3,800.0	4.31	78.70	3,795.2	25.9	129.4	623,233.77	765,750.03	32° 42' 40.277 N	103° 36' 13.372 W
4,000.0	4.31	78.70	3,994.6	28.8	144.2	623,236.72	765,764.77	32° 42' 40.305 N	103° 36' 13.199 W
4,200.0	4.31	78.70	4,194.0	31.8	158.9	623,239.66	765,779.50	32° 42' 40.333 N	103° 36' 13.026 W
4,400.0	4.31	78.70	4,393.5	34.7	173.6	623,242.61	765,794.24	32° 42' 40.361 N	103° 36' 12.854 W
4,439.9	4.31	78.70	4,433.3	35.3	176.6	623,243.19	765,797.18	32° 42' 40.367 N	103° 36' 12.819 W
Queen									
4,600.0	4.31	78.70	4,592.9	37.6	188.4	623,245.55	765,808.98	32° 42' 40.389 N	103° 36' 12.681 W
4,715.6	4.31	78.70	4,708.2	39.4	196.9	623,247.25	765,817.50	32° 42' 40.405 N	103° 36' 12.581 W
Penrose									
4,800.0	4.31	78.70	4,792.3	40.6	203.1	623,248.50	765,823.72	32° 42' 40.417 N	103° 36' 12.508 W
5,000.0	4.31	78.70	4,991.8	43.5	217.9	623,251.44	765,838.46	32° 42' 40.445 N	103° 36' 12.335 W
5,200.0	4.31	78.70	5,191.2	46.5	232.6	623,254.39	765,853.19	32° 42' 40.474 N	103° 36' 12.163 W
5,267.0	4.31	78.70	5,258.0	47.5	237.5	623,255.37	765,858.13	32° 42' 40.483 N	103° 36' 12.105 W
San Andres									
5,400.0	4.31	78.70	5,390.6	49.4	247.3	623,257.33	765,867.93	32° 42' 40.502 N	103° 36' 11.990 W
5,417.4	4.31	78.70	5,408.0	49.7	248.6	623,257.59	765,869.21	32° 42' 40.504 N	103° 36' 11.975 W
Delaware									



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Well:	EK 31-BS2 Federal Com 3H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
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Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,457.5	4.31	78.70	5,448.0	50.3	251.6	623,258.18	765,872.17	32° 42' 40.510 N	103° 36' 11.940 W
1st Delaware Sand									
5,600.0	4.31	78.70	5,590.1	52.4	262.1	623,260.28	765,882.67	32° 42' 40.530 N	103° 36' 11.817 W
5,743.2	4.31	78.70	5,732.9	54.5	272.6	623,262.39	765,893.22	32° 42' 40.550 N	103° 36' 11.693 W
2nd Delaware Sand									
5,800.0	4.31	78.70	5,789.5	55.3	276.8	623,263.22	765,897.41	32° 42' 40.558 N	103° 36' 11.644 W
6,000.0	4.31	78.70	5,988.9	58.3	291.5	623,266.17	765,912.15	32° 42' 40.586 N	103° 36' 11.472 W
6,200.0	4.31	78.70	6,188.4	61.2	306.3	623,269.11	765,926.89	32° 42' 40.614 N	103° 36' 11.299 W
6,400.0	4.31	78.70	6,387.8	64.2	321.0	623,272.06	765,941.62	32° 42' 40.642 N	103° 36' 11.126 W
6,600.0	4.31	78.70	6,587.3	67.1	335.8	623,275.00	765,956.36	32° 42' 40.671 N	103° 36' 10.954 W
6,800.0	4.31	78.70	6,786.7	70.0	350.5	623,277.95	765,971.10	32° 42' 40.699 N	103° 36' 10.781 W
7,000.0	4.31	78.70	6,986.1	73.0	365.2	623,280.90	765,985.84	32° 42' 40.727 N	103° 36' 10.608 W
7,200.0	4.31	78.70	7,185.6	75.9	380.0	623,283.84	766,000.58	32° 42' 40.755 N	103° 36' 10.435 W
7,400.0	4.31	78.70	7,385.0	78.9	394.7	623,286.79	766,015.31	32° 42' 40.783 N	103° 36' 10.263 W
7,600.0	4.31	78.70	7,584.4	81.8	409.5	623,289.73	766,030.05	32° 42' 40.811 N	103° 36' 10.090 W
7,612.9	4.31	78.70	7,597.3	82.0	410.4	623,289.92	766,031.01	32° 42' 40.813 N	103° 36' 10.079 W
Bone Spring									
7,800.0	4.31	78.70	7,783.9	84.8	424.2	623,292.68	766,044.79	32° 42' 40.839 N	103° 36' 9.917 W
8,000.0	4.31	78.70	7,983.3	87.7	438.9	623,295.62	766,059.53	32° 42' 40.868 N	103° 36' 9.744 W
8,200.0	4.31	78.70	8,182.7	90.7	453.7	623,298.57	766,074.27	32° 42' 40.896 N	103° 36' 9.572 W
8,400.0	4.31	78.70	8,382.2	93.6	468.4	623,301.51	766,089.00	32° 42' 40.924 N	103° 36' 9.399 W
8,600.0	4.31	78.70	8,581.6	96.6	483.1	623,304.46	766,103.74	32° 42' 40.952 N	103° 36' 9.226 W
8,800.0	4.31	78.70	8,781.0	99.5	497.9	623,307.40	766,118.48	32° 42' 40.980 N	103° 36' 9.054 W
8,951.3	4.31	78.70	8,931.9	101.7	509.0	623,309.63	766,129.63	32° 42' 41.001 N	103° 36' 8.923 W
1st Bone Spring Sand									
9,000.0	4.31	78.70	8,980.5	102.4	512.6	623,310.35	766,133.22	32° 42' 41.008 N	103° 36' 8.881 W
9,200.0	4.31	78.70	9,179.9	105.4	527.4	623,313.29	766,147.96	32° 42' 41.036 N	103° 36' 8.708 W
9,400.0	4.31	78.70	9,379.3	108.3	542.1	623,316.24	766,162.69	32° 42' 41.065 N	103° 36' 8.535 W
9,483.9	4.31	78.70	9,463.0	109.6	548.3	623,317.48	766,168.88	32° 42' 41.076 N	103° 36' 8.463 W
KOP 12/100									
9,502.7	4.51	108.29	9,481.8	109.5	549.7	623,317.38	766,170.27	32° 42' 41.075 N	103° 36' 8.447 W
2nd Bone Spring Sand									
9,600.0	13.85	160.98	9,577.8	97.2	557.1	623,305.13	766,177.73	32° 42' 40.954 N	103° 36' 8.360 W
9,800.0	37.41	172.93	9,757.0	13.1	572.6	623,220.97	766,193.24	32° 42' 40.120 N	103° 36' 8.186 W
10,000.0	61.29	176.17	9,886.3	-136.9	586.2	623,070.98	766,206.77	32° 42' 38.635 N	103° 36' 8.039 W
10,067.7	69.38	176.90	9,914.6	-198.3	589.9	623,009.63	766,210.46	32° 42' 38.028 N	103° 36' 8.001 W
POP 31 BS2 3H									
10,070.3	69.69	176.93	9,915.5	-200.7	590.0	623,007.19	766,210.60	32° 42' 38.003 N	103° 36' 8.000 W
TOP TARGET WINDOW									
10,070.4	69.70	176.93	9,915.5	-200.8	590.0	623,007.14	766,210.60	32° 42' 38.003 N	103° 36' 8.000 W
POP									
10,200.0	85.26	176.93	9,943.5	-326.8	596.8	622,881.15	766,217.36	32° 42' 36.756 N	103° 36' 7.931 W
10,211.3	86.61	176.93	9,944.3	-338.0	597.4	622,869.90	766,217.96	32° 42' 36.644 N	103° 36' 7.925 W
TARGET CENTER LINE									
10,226.2	88.40	176.93	9,945.0	-352.9	598.2	622,855.02	766,218.76	32° 42' 36.497 N	103° 36' 7.916 W
Landing Pt 88.4 Inc. 176.93 Az									
10,400.0	88.40	176.93	9,949.8	-526.4	607.5	622,681.55	766,228.07	32° 42' 34.780 N	103° 36' 7.822 W
10,600.0	88.40	176.93	9,955.4	-726.0	618.2	622,481.91	766,238.78	32° 42' 32.804 N	103° 36' 7.712 W
10,800.0	88.40	176.93	9,961.0	-925.6	628.9	622,282.28	766,249.49	32° 42' 30.828 N	103° 36' 7.603 W
11,000.0	88.40	176.93	9,966.5	-1,125.3	639.6	622,082.64	766,260.20	32° 42' 28.852 N	103° 36' 7.494 W
11,200.0	88.40	176.93	9,972.1	-1,324.9	650.3	621,883.00	766,270.91	32° 42' 26.876 N	103° 36' 7.385 W
11,400.0	88.40	176.93	9,977.7	-1,524.5	661.0	621,683.37	766,281.61	32° 42' 24.900 N	103° 36' 7.275 W



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11,600.0	88.40	176.93	9,983.3	-1,724.2	671.7	621,483.73	766,292.32	32° 42' 22.924 N	103° 36' 7.166 W
11,800.0	88.40	176.93	9,988.8	-1,923.8	682.4	621,284.10	766,303.03	32° 42' 20.948 N	103° 36' 7.057 W
12,000.0	88.40	176.93	9,994.4	-2,123.4	693.1	621,084.46	766,313.74	32° 42' 18.972 N	103° 36' 6.948 W
12,200.0	88.40	176.93	10,000.0	-2,323.1	703.9	620,884.83	766,324.45	32° 42' 16.996 N	103° 36' 6.838 W
12,400.0	88.40	176.93	10,005.6	-2,522.7	714.6	620,685.19	766,335.16	32° 42' 15.020 N	103° 36' 6.729 W
12,600.0	88.40	176.93	10,011.1	-2,722.3	725.3	620,485.56	766,345.87	32° 42' 13.044 N	103° 36' 6.620 W
12,800.0	88.40	176.93	10,016.7	-2,922.0	736.0	620,285.92	766,356.58	32° 42' 11.068 N	103° 36' 6.511 W
13,000.0	88.40	176.93	10,022.3	-3,121.6	746.7	620,086.29	766,367.29	32° 42' 9.092 N	103° 36' 6.402 W
13,200.0	88.40	176.93	10,027.9	-3,321.3	757.4	619,886.65	766,378.00	32° 42' 7.116 N	103° 36' 6.292 W
13,400.0	88.40	176.93	10,033.4	-3,520.9	768.1	619,687.02	766,388.71	32° 42' 5.140 N	103° 36' 6.183 W
13,600.0	88.40	176.93	10,039.0	-3,720.5	778.8	619,487.38	766,399.42	32° 42' 3.164 N	103° 36' 6.074 W
13,800.0	88.40	176.93	10,044.6	-3,920.2	789.5	619,287.75	766,410.13	32° 42' 1.188 N	103° 36' 5.965 W
14,000.0	88.40	176.93	10,050.2	-4,119.8	800.2	619,088.11	766,420.84	32° 41' 59.212 N	103° 36' 5.856 W
14,200.0	88.40	176.93	10,055.7	-4,319.4	811.0	618,888.48	766,431.55	32° 41' 57.236 N	103° 36' 5.746 W
14,400.0	88.40	176.93	10,061.3	-4,519.1	821.7	618,688.84	766,442.26	32° 41' 55.260 N	103° 36' 5.637 W
14,600.0	88.40	176.93	10,066.9	-4,718.7	832.4	618,489.21	766,452.97	32° 41' 53.284 N	103° 36' 5.528 W
14,703.2	88.40	176.93	10,069.8	-4,821.7	837.9	618,386.20	766,458.50	32° 41' 52.264 N	103° 36' 5.472 W
Start 100.0 hold at 14703.2 MD - TD / PBHL 31 BS2 3H									
14,800.0	88.40	176.93	10,072.5	-4,918.3	843.1	618,289.57	766,463.68	32° 41' 51.308 N	103° 36' 5.419 W
14,803.2	88.40	176.93	10,072.5	-4,921.5	843.3	618,286.39	766,463.85	32° 41' 51.276 N	103° 36' 5.417 W
TD at 14803.2									

Design Targets									
Target Name	hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude
POP 31 BS2 3H	- plan misses target center by 6.1usft at 10068.1usft MD (9914.7 TVD, -198.7 N, 589.9 E)	0.00	0.00	9,909.0	-200.8	590.0	623,007.10	766,210.60	32° 42' 38.002 N
	- Point								103° 36' 8.000 W
TD / PBHL 31 BS2 3H	- plan hits target center	0.00	359.60	10,069.8	-4,821.7	837.9	618,386.20	766,458.50	32° 41' 52.264 N
	- Point								103° 36' 5.472 W

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,800.0	1,800.0	13 3/8"	13-3/8	17-1/2	
3,403.7	3,400.0	9 5/8"	9-5/8	12-1/4	



Planning Report - Geographic

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well EK 31 BS2 Federal Com 3H - Slot 31 BS2 3H
Company:	McElvain Energy, Inc.	TVD Reference:	WELL @ 3884.0usft (Original Well Elev)
Project:	Sec. 30 T18S.R34E	MD Reference:	WELL @ 3884.0usft (Original Well Elev)
Site:	EK 30 WCD Federal Com	North Reference:	Grid
Well:	EK 31 BS2 Federal Com 3H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1: 29Jul15 kjs		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,684.0	1,684.0	Rustler		1.60	176.93	
1,744.0	1,744.0	Salt		1.60	176.93	
3,261.9	3,258.6	Yates		1.60	176.93	
3,738.1	3,733.5	Seven Rivers		1.60	176.93	
4,439.9	4,433.3	Queen		1.60	176.93	
4,715.6	4,708.2	Penrose		1.60	176.93	
5,267.0	5,258.0	San Andres		1.60	176.93	
5,417.4	5,408.0	Delaware		1.60	176.93	
5,457.5	5,448.0	1st Delaware Sand		1.60	176.93	
5,743.2	5,732.9	2nd Delaware Sand		1.60	176.93	
7,612.9	7,597.3	Bone Spring		1.60	176.93	
8,951.3	8,931.9	1st Bone Spring Sand		1.60	176.93	
9,502.7	9,481.8	2nd Bone Spring Sand		1.60	176.93	
10,070.3	9,915.5	TOP TARGET WINDOW		1.60	176.93	
10,211.3	9,944.3	TARGET CENTER LINE		1.60	176.93	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,900.0	1,900.0	0.0	0.0	Start Build 1.50	
2,187.3	2,187.0	2.1	10.6	Hold 4.31 Inc, 78.7 Az	
9,483.9	9,463.0	109.6	548.3	KOP 12/100	
10,070.4	9,915.5	-200.8	590.0	POP	
10,226.2	9,945.0	-352.9	598.2	Landing Pt 88.4 Inc, 176.93 Az	
14,703.2	10,069.8	-4,821.7	837.9	Start 100.0 hold at 14703.2 MD	
14,803.2	10,072.5	-4,921.5	843.3	TD at 14803.2	