

# Occidental Petroleum

Project: Weld County, CO (UTM-NAD83)  
 Site: 4N-68W-13 SBJ 22-13HZ PAD  
 Well: SBJ 13-6HZ  
 Wellbore: Plan C  
 Design: Surveys

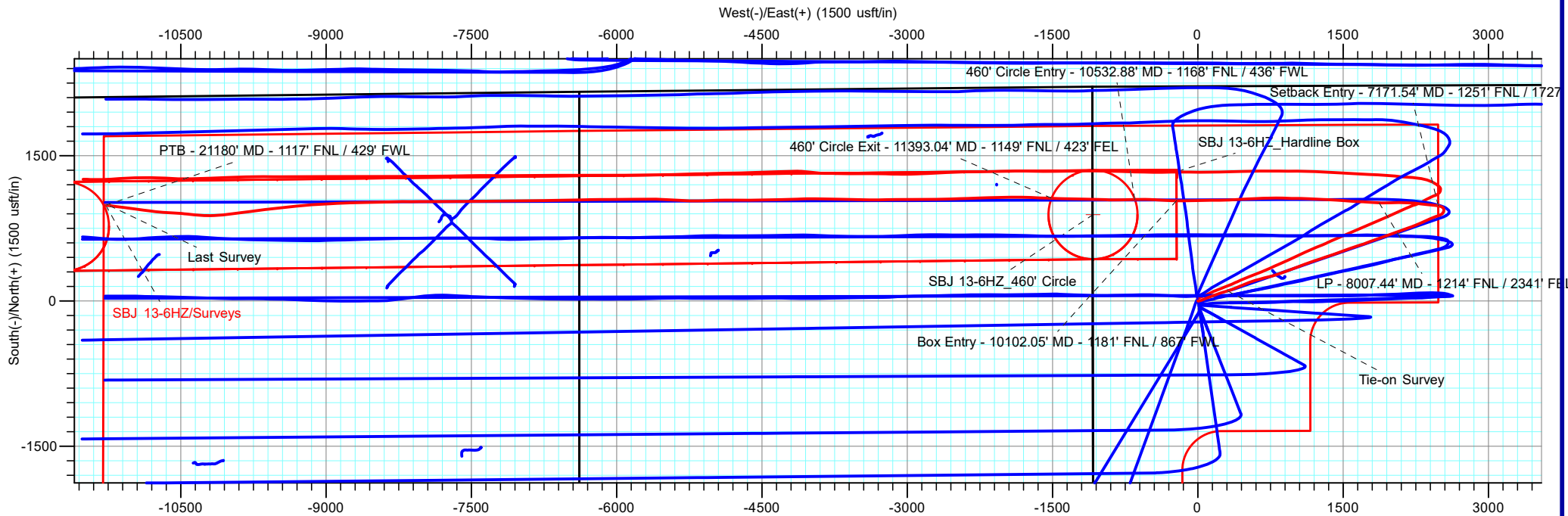
PROJECT DETAILS: Weld County, CO (UTM-NAD83)  
 Geodetic System: Universal Transverse Mercator (US Survey Feet)  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: Zone 13N (108 W to 102 W)



**ACTUAL LINE CALLS**  
**SHL: 2271' FNL, 1079' FWL**  
**LP: 1214' FNL, 2341' FEL**  
**TOE: 1117' FNL, 429' FWL**

**SHL: Sec 13-T4N-R68W**  
**LP: Sec 13-T4N-R68W**  
**BHL: Sec 15-T4N-R68W**

ANNOTATIONS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation	
7021.80	42.07	89.21	6732.68	6081.99	-6846.17	-1152.56	1658.08	460' Circle Heel Entry - 7155' MD - 1395' FNL / 462' FEL	
7633.97	86.50	88.07	6999.98	6095.25	-6314.91	-621.14	2189.49	LP - 7767' MD - 1391' FNL / 70' FWL	
8016.47	88.87	87.87	7013.36	6104.80	-5932.78	-238.91	2571.70	460' Circle Heel Exit - 8150' MD - 1380' FNL / 458' FWL	
11074.65	90.68	89.72	7025.73	6148.86	-2876.08	2818.10	5629.62	460' Circle Toe Entry - 11208' MD - 1362' FNL / 1788' FEL	
11992.70	89.57	87.71	7029.15	6175.93	-1958.67	3735.82	6547.55	460' Circle Toe Exit - 12126.70' MD - 1350' FNL / 870' FEL	
12323.00	90.20	87.70	7030.16	6189.95	-1628.68	4066.00	6877.84	Last Survey	
12381.00	90.20	87.70	7029.96	6192.28	-1570.73	4123.98	6935.84	PTB - 12515' MD - 1330' FNL / 427' FEL	



**TOTAL DIRECTIONAL SERVICES LLC**

Design: Surveys (SBJ 13-6HZ/Plan C)  
 4N-68W-13 SBJ 22-13HZ PAD  
 Created By: RDW Date: 1:01, December 17 2021  
 Approved: \_\_\_\_\_ Date: \_\_\_\_\_

# Occidental Petroleum

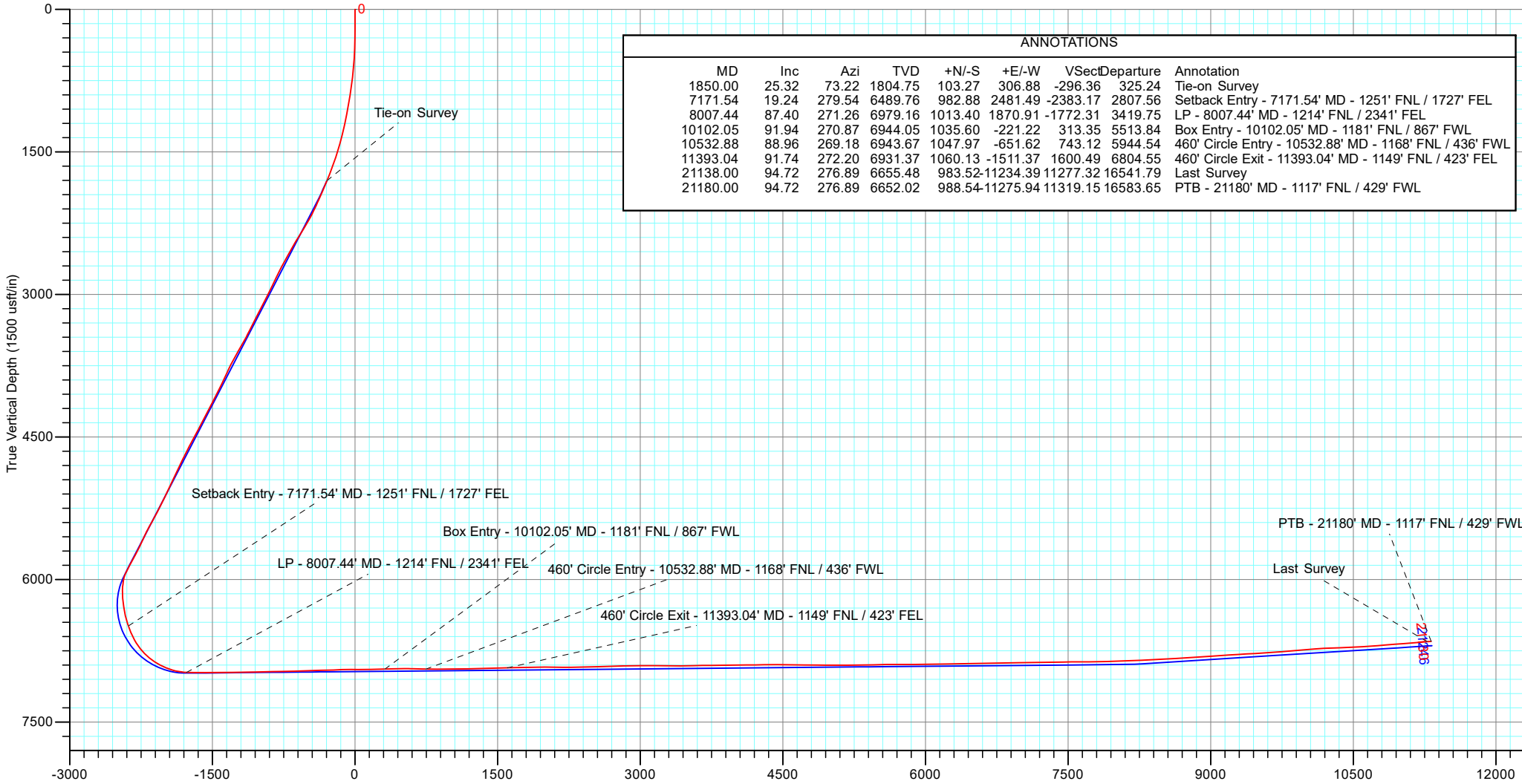
Project: Weld County, CO (UTM-NAD83)  
 Site: 4N-68W-13 SBJ 22-13HZ PAD  
 Well: SBJ 13-6HZ  
 Wellbore: Plan C  
 Design: Surveys

PROJECT DETAILS: Weld County, CO (UTM-NAD83)

Geodetic System: Universal Transverse Mercator (US Survey Feet)  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: Zone 13N (108 W to 102 W)



**ACTUAL LINE CALLS**  
**SHL: 2271' FNL, 1079' FWL**  
**LP: 1214' FNL, 2341' FEL**  
**TOE: 1117' FNL, 429' FWL**



ANNOTATIONS								
MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
1850.00	25.32	73.22	1804.75	103.27	306.88	-296.36	325.24	Tie-on Survey
7171.54	19.24	279.54	6489.76	982.88	2481.49	-2383.17	2807.56	Setback Entry - 7171.54' MD - 1251' FNL / 1727' FEL
8007.44	87.40	271.26	6979.16	1013.40	1870.91	-1772.31	3419.75	LP - 8007.44' MD - 1214' FNL / 2341' FEL
10102.05	91.94	270.87	6944.05	1035.60	-221.22	313.35	5513.84	Box Entry - 10102.05' MD - 1181' FNL / 867' FWL
10532.88	88.96	269.18	6943.67	1047.97	-651.62	743.12	5944.54	460' Circle Entry - 10532.88' MD - 1168' FNL / 436' FWL
11393.04	91.74	272.20	6931.37	1060.13	-1511.37	1600.49	6804.55	460' Circle Exit - 11393.04' MD - 1149' FNL / 423' FEL
21138.00	94.72	276.89	6655.48	983.52	-11234.39	11277.32	16541.79	Last Survey
21180.00	94.72	276.89	6652.02	988.54	-11275.94	11319.15	16583.65	PTB - 21180' MD - 1117' FNL / 429' FWL



**TOTAL DIRECTIONAL SERVICES LLC**

Design: Surveys (SBJ 13-6HZ/Plan C)  
 4N-68W-13 SBJ 22-13HZ PAD  
 Created By: RDW Date: 0:42, December 17 2021  
 Approved: \_\_\_\_\_ Date: \_\_\_\_\_



# Occidental Petroleum

Weld County, CO (UTM-NAD83)  
4N-68W-13 SBJ 22-13HZ PAD  
SBJ 13-6HZ

Plan C

Design: Surveys

## Standard Survey Report

17 December, 2021





# Survey Report



<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well SBJ 13-6HZ
<b>Project:</b>	Weld County, CO (UTM-NAD83)	<b>TVD Reference:</b>	RKB = 20' @ 4879.00usft (PD 461)
<b>Site:</b>	4N-68W-13 SBJ 22-13HZ PAD	<b>MD Reference:</b>	RKB = 20' @ 4879.00usft (PD 461)
<b>Well:</b>	SBJ 13-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	EDM 5000.16 Single User Db

<b>Project</b>	Weld County, CO (UTM-NAD83)		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Fee	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

<b>Site</b>	4N-68W-13 SBJ 22-13HZ PAD		
<b>Site Position:</b>		<b>Northing:</b>	14,641,145.55 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,652,517.50 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "
		<b>Latitude:</b>	40.314181
		<b>Longitude:</b>	-104.956591

<b>Well</b>	SBJ 13-6HZ					
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	14,641,431.01 usft	<b>Latitude:</b>	40.314965
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	1,652,444.60 usft	<b>Longitude:</b>	-104.956852
<b>Position Uncertainty</b>		3.28 usft	<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	4,859.00 usft
<b>Grid Convergence:</b>		0.03 °				

<b>Wellbore</b>	Plan C				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IFR	10/6/2021	7.86	66.48	51,858.50

<b>Design</b>	Surveys				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	275.15	

<b>Survey Program</b>	<b>Date</b>	12/17/2021			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
115.00	1,850.00	Survey #1 (Plan C)	APC_ISCWSA REV 2 MM Fixed:v2:crustal field declination		
2,014.00	21,180.00	Survey #2 (Plan C)	APC_ISCWSA REV 2 MM Fixed:v2:Rockies, crustal dec + 3-axis correction		

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
115.00	0.21	345.15	115.00	0.20	-0.05	0.07	0.18	0.18	0.00	
215.00	0.31	16.77	215.00	0.63	-0.02	0.08	0.17	0.10	31.62	
315.00	1.10	80.13	314.99	1.05	1.00	-0.90	1.00	0.79	63.36	
415.00	2.57	87.37	414.94	1.32	4.19	-4.05	1.49	1.48	7.24	
515.00	3.24	87.19	514.81	1.56	9.25	-9.07	0.66	0.66	-0.18	
615.00	4.68	80.63	614.57	2.36	16.09	-15.82	1.51	1.45	-6.57	
715.00	6.82	76.55	714.06	4.41	25.90	-25.40	2.18	2.14	-4.08	
815.00	9.03	69.47	813.10	8.54	39.02	-38.10	2.41	2.21	-7.08	



# Survey Report



<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well SBJ 13-6HZ
<b>Project:</b>	Weld County, CO (UTM-NAD83)	<b>TVD Reference:</b>	RKB = 20' @ 4879.00usft (PD 461)
<b>Site:</b>	4N-68W-13 SBJ 22-13HZ PAD	<b>MD Reference:</b>	RKB = 20' @ 4879.00usft (PD 461)
<b>Well:</b>	SBJ 13-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	EDM 5000.16 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
915.00	10.17	69.07	911.70	14.45	54.62	-53.10	1.14	1.14	-0.41	
1,015.00	11.38	68.95	1,009.93	21.14	72.07	-69.88	1.22	1.22	-0.11	
1,115.00	12.29	66.49	1,107.81	28.94	91.04	-88.08	1.04	0.91	-2.46	
1,215.00	13.52	66.37	1,205.28	37.87	111.52	-107.66	1.23	1.23	-0.12	
1,315.00	15.63	68.34	1,302.05	47.53	134.75	-129.93	2.16	2.11	1.96	
1,415.00	16.67	70.62	1,398.11	57.26	160.80	-155.00	1.22	1.04	2.28	
1,515.00	18.52	71.63	1,493.42	67.03	189.41	-182.62	1.88	1.85	1.02	
1,615.00	19.29	72.59	1,588.03	76.98	220.24	-212.44	0.83	0.77	0.96	
1,715.00	22.22	72.92	1,681.53	87.48	254.08	-245.20	2.94	2.93	0.33	
1,815.00	25.17	73.66	1,773.09	99.01	292.57	-282.50	2.96	2.95	0.74	
1,850.00	25.32	73.22	1,804.75	103.27	306.88	-296.36	0.69	0.43	-1.26	
Tie-on Survey										
2,014.00	24.87	66.64	1,953.30	127.07	372.13	-359.21	1.72	-0.27	-4.01	
2,106.00	27.11	68.89	2,035.99	142.30	409.45	-395.01	2.66	2.43	2.45	
2,200.00	29.35	66.18	2,118.81	159.32	450.51	-434.38	2.75	2.38	-2.88	
2,292.00	31.09	67.37	2,198.30	177.56	493.07	-475.12	2.00	1.89	1.29	
2,384.00	33.79	70.91	2,275.94	195.07	539.18	-519.48	3.59	2.93	3.85	
2,476.00	33.64	74.92	2,352.48	210.07	587.97	-566.72	2.42	-0.16	4.36	
2,568.00	32.98	74.40	2,429.37	223.44	636.69	-614.05	0.78	-0.72	-0.57	
2,660.00	30.58	73.64	2,507.57	236.76	683.27	-659.24	2.64	-2.61	-0.83	
2,753.00	30.56	76.45	2,587.64	248.97	728.96	-703.65	1.54	-0.02	3.02	
2,846.00	30.57	76.43	2,667.72	260.06	774.93	-748.44	0.02	0.01	-0.02	
2,938.00	28.48	70.91	2,747.79	272.72	818.41	-790.61	3.73	-2.27	-6.00	
3,030.00	28.06	70.23	2,828.81	287.22	859.51	-830.23	0.58	-0.46	-0.74	
3,122.00	28.82	69.00	2,909.71	302.48	900.57	-869.76	1.04	0.83	-1.34	
3,214.00	29.34	67.93	2,990.11	318.90	942.16	-909.71	0.80	0.57	-1.16	
3,307.00	29.30	68.98	3,071.20	335.62	984.52	-950.39	0.55	-0.04	1.13	
3,434.00	29.93	70.63	3,181.61	357.28	1,043.42	-1,007.11	0.81	0.50	1.30	
3,526.00	29.29	71.10	3,261.60	372.18	1,086.36	-1,048.54	0.74	-0.70	0.51	
3,618.00	28.46	71.17	3,342.16	386.54	1,128.40	-1,089.12	0.90	-0.90	0.08	
3,710.00	30.11	69.23	3,422.40	401.80	1,170.73	-1,129.90	2.07	1.79	-2.11	
3,803.00	32.16	70.75	3,502.00	418.24	1,215.91	-1,173.43	2.36	2.20	1.63	
3,896.00	31.63	70.74	3,580.96	434.44	1,262.30	-1,218.18	0.57	-0.57	-0.01	
3,988.00	30.98	69.88	3,659.56	450.55	1,307.31	-1,261.55	0.86	-0.71	-0.93	
4,082.00	29.83	72.98	3,740.64	465.71	1,352.39	-1,305.09	2.07	-1.22	3.30	
4,175.00	26.17	72.26	3,822.74	478.74	1,394.05	-1,345.41	3.95	-3.94	-0.77	
4,268.00	27.03	71.05	3,905.90	491.85	1,433.57	-1,383.60	1.09	0.92	-1.30	
4,361.00	28.65	68.55	3,988.13	506.86	1,474.31	-1,422.82	2.15	1.74	-2.69	
4,455.00	28.77	70.72	4,070.58	522.57	1,516.64	-1,463.57	1.12	0.13	2.31	
4,548.00	31.51	69.53	4,151.00	538.47	1,560.54	-1,505.87	3.02	2.95	-1.28	
4,641.00	29.87	72.84	4,230.98	553.80	1,605.45	-1,549.21	2.53	-1.76	3.56	
4,734.00	29.39	70.91	4,311.82	568.10	1,649.14	-1,591.44	1.15	-0.52	-2.08	
4,826.00	28.34	71.76	4,392.38	582.32	1,691.21	-1,632.07	1.23	-1.14	0.92	



# Survey Report



<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well SBJ 13-6HZ
<b>Project:</b>	Weld County, CO (UTM-NAD83)	<b>TVD Reference:</b>	RKB = 20' @ 4879.00usft (PD 461)
<b>Site:</b>	4N-68W-13 SBJ 22-13HZ PAD	<b>MD Reference:</b>	RKB = 20' @ 4879.00usft (PD 461)
<b>Well:</b>	SBJ 13-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	EDM 5000.16 Single User Db

## Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,918.00	30.40	69.87	4,472.56	597.16	1,733.81	-1,673.16	2.46	2.24	-2.05	
5,010.00	31.97	68.60	4,551.26	614.06	1,778.35	-1,716.00	1.85	1.71	-1.38	
5,103.00	30.07	70.89	4,630.96	630.68	1,823.29	-1,759.27	2.40	-2.04	2.46	
5,196.00	29.22	70.59	4,711.79	645.85	1,866.72	-1,801.16	0.93	-0.91	-0.32	
5,288.00	26.41	72.55	4,793.15	659.45	1,907.43	-1,840.48	3.21	-3.05	2.13	
5,381.00	26.95	69.87	4,876.25	672.90	1,946.95	-1,878.63	1.42	0.58	-2.88	
5,473.00	26.67	70.07	4,958.36	687.12	1,985.93	-1,916.18	0.32	-0.30	0.22	
5,567.00	28.45	70.75	5,041.69	701.69	2,026.91	-1,955.68	1.92	1.89	0.72	
5,661.00	27.88	70.03	5,124.56	716.58	2,068.70	-1,995.97	0.71	-0.61	-0.77	
5,754.00	29.17	70.39	5,206.27	731.61	2,110.49	-2,036.24	1.40	1.39	0.39	
5,847.00	30.37	69.16	5,287.00	747.58	2,153.81	-2,077.95	1.45	1.29	-1.32	
5,941.00	31.42	70.43	5,367.66	764.25	2,199.11	-2,121.57	1.31	1.12	1.35	
6,034.00	31.29	68.84	5,447.08	781.08	2,244.47	-2,165.23	0.90	-0.14	-1.71	
6,126.00	29.12	66.51	5,526.59	798.63	2,287.29	-2,206.30	2.68	-2.36	-2.53	
6,220.00	28.17	64.14	5,609.08	817.43	2,328.23	-2,245.39	1.58	-1.01	-2.52	
6,315.00	29.31	65.29	5,692.38	836.93	2,369.54	-2,284.78	1.33	1.20	1.21	
6,408.00	30.61	68.89	5,772.96	854.98	2,412.31	-2,325.76	2.39	1.40	3.87	
6,501.00	32.32	71.66	5,852.28	871.33	2,458.00	-2,369.80	2.41	1.84	2.98	
6,595.00	27.71	65.09	5,933.68	888.45	2,501.71	-2,411.79	6.02	-4.90	-6.99	
6,687.00	17.03	34.40	6,018.91	908.70	2,528.89	-2,437.04	16.85	-11.61	-33.36	
6,780.00	12.93	13.54	6,108.79	930.08	2,539.03	-2,445.22	7.22	-4.41	-22.43	
6,872.00	10.35	340.03	6,198.99	947.88	2,538.62	-2,443.21	7.73	-2.80	-36.42	
6,964.00	12.06	318.23	6,289.27	962.82	2,529.39	-2,432.67	4.93	1.86	-23.70	
7,057.00	13.46	293.78	6,380.04	974.44	2,513.00	-2,415.31	5.95	1.51	-26.29	
7,149.00	18.70	280.98	6,468.44	981.57	2,488.70	-2,390.46	6.84	5.70	-13.91	
7,171.54	19.24	279.54	6,489.76	982.88	2,481.49	-2,383.17	3.16	2.38	-6.39	
<b>Setback Entry - 7171.54' MD - 1251' FNL / 1727' FEL</b>										
7,242.00	20.98	275.51	6,555.92	986.01	2,457.48	-2,358.98	3.16	2.47	-5.72	
7,334.00	30.77	277.82	6,638.60	990.81	2,417.68	-2,318.90	10.70	10.64	2.51	
7,426.00	36.15	271.63	6,715.35	994.79	2,367.19	-2,268.26	6.92	5.85	-6.73	
7,518.00	44.59	279.30	6,785.42	1,000.79	2,308.05	-2,208.82	10.63	9.17	8.34	
7,610.00	54.98	275.40	6,844.75	1,009.58	2,238.47	-2,138.73	11.74	11.29	-4.24	
7,705.00	59.47	271.40	6,896.18	1,014.25	2,158.78	-2,058.94	5.90	4.73	-4.21	
7,798.00	69.98	270.21	6,935.83	1,015.39	2,074.81	-1,975.21	11.36	11.30	-1.28	
7,892.00	75.69	268.33	6,963.57	1,014.22	1,985.04	-1,885.91	6.37	6.07	-2.00	
7,984.00	86.37	270.22	6,977.89	1,013.09	1,894.31	-1,795.65	11.78	11.61	2.05	
8,007.44	87.40	271.26	6,979.16	1,013.40	1,870.91	-1,772.31	6.26	4.40	4.45	
<b>LP - 8007.44' MD - 1214' FNL / 2341' FEL</b>										
8,077.00	90.47	274.35	6,980.46	1,016.80	1,801.46	-1,702.84	6.26	4.41	4.44	
8,169.00	90.51	273.22	6,979.67	1,022.88	1,709.67	-1,610.87	1.23	0.04	-1.23	
8,263.00	89.29	273.63	6,979.83	1,028.49	1,615.84	-1,516.92	1.37	-1.30	0.44	
8,356.00	90.57	274.62	6,979.95	1,035.18	1,523.08	-1,423.93	1.74	1.38	1.06	
8,449.00	91.10	272.66	6,978.59	1,041.08	1,430.28	-1,330.98	2.18	0.57	-2.11	
8,541.00	90.82	272.55	6,977.05	1,045.27	1,338.39	-1,239.09	0.33	-0.30	-0.12	



# Survey Report



<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well SBJ 13-6HZ
<b>Project:</b>	Weld County, CO (UTM-NAD83)	<b>TVD Reference:</b>	RKB = 20' @ 4879.00usft (PD 461)
<b>Site:</b>	4N-68W-13 SBJ 22-13HZ PAD	<b>MD Reference:</b>	RKB = 20' @ 4879.00usft (PD 461)
<b>Well:</b>	SBJ 13-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	EDM 5000.16 Single User Db

## Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
8,633.00	90.75	273.08	6,975.79	1,049.78	1,246.51	-1,147.17	0.58	-0.08	0.58	
8,726.00	91.24	273.94	6,974.17	1,055.48	1,153.70	-1,054.22	1.06	0.53	0.92	
8,819.00	91.28	270.30	6,972.13	1,058.91	1,060.80	-961.39	3.91	0.04	-3.91	
8,912.00	91.18	270.78	6,970.13	1,059.79	967.83	-868.72	0.53	-0.11	0.52	
9,004.00	90.66	271.52	6,968.66	1,061.64	875.86	-776.95	0.98	-0.57	0.80	
9,097.00	91.97	269.26	6,966.52	1,062.27	782.89	-684.31	2.81	1.41	-2.43	
9,190.00	91.52	268.44	6,963.69	1,060.40	689.96	-591.91	1.01	-0.48	-0.88	
9,281.00	91.75	268.12	6,961.09	1,057.67	599.04	-501.60	0.43	0.25	-0.35	
9,374.00	91.56	266.09	6,958.41	1,052.98	506.20	-409.56	2.19	-0.20	-2.18	
9,466.00	91.14	266.12	6,956.24	1,046.73	414.44	-318.73	0.46	-0.46	0.03	
9,560.00	92.66	268.58	6,953.12	1,042.39	320.60	-225.67	3.08	1.62	2.62	
9,652.00	92.04	268.64	6,949.35	1,040.16	228.70	-134.34	0.68	-0.67	0.07	
9,745.00	90.40	270.00	6,947.37	1,039.05	135.74	-41.85	2.29	-1.76	1.46	
9,839.00	89.89	268.65	6,947.13	1,037.95	41.75	51.66	1.54	-0.54	-1.44	
9,932.00	90.08	268.35	6,947.16	1,035.51	-51.22	144.03	0.38	0.20	-0.32	
10,025.00	91.17	270.57	6,946.14	1,034.64	-144.21	236.56	2.66	1.17	2.39	
10,102.05	91.94	270.87	6,944.05	1,035.60	-221.22	313.35	1.07	1.00	0.39	
<b>Box Entry - 10102.05' MD - 1181' FNL / 867' FWL</b>										
10,118.00	92.10	270.93	6,943.49	1,035.85	-237.16	329.25	1.07	1.00	0.39	
10,213.00	91.85	272.75	6,940.21	1,038.90	-332.05	424.03	1.93	-0.26	1.92	
10,306.00	90.06	273.63	6,938.66	1,044.08	-424.89	516.96	2.14	-1.92	0.95	
10,398.00	88.42	270.90	6,939.88	1,047.71	-516.80	608.82	3.46	-1.78	-2.97	
10,491.00	88.19	269.85	6,942.64	1,048.32	-609.75	701.46	1.16	-0.25	-1.13	
10,532.88	88.96	269.18	6,943.67	1,047.97	-651.62	743.12	2.45	1.85	-1.60	
<b>460' Circle Entry - 10532.88' MD - 1168' FNL / 436' FWL</b>										
10,584.00	89.91	268.36	6,944.18	1,046.87	-702.72	793.92	2.45	1.85	-1.60	
10,676.00	89.97	269.01	6,944.27	1,044.76	-794.70	885.33	0.71	0.07	0.71	
10,770.00	90.69	270.31	6,943.73	1,044.20	-888.69	978.90	1.58	0.77	1.38	
10,862.00	91.85	272.35	6,941.69	1,046.33	-980.64	1,070.66	2.55	1.26	2.22	
10,956.00	91.07	271.26	6,939.30	1,049.29	-1,074.56	1,164.47	1.43	-0.83	-1.16	
11,048.00	90.74	271.41	6,937.84	1,051.44	-1,166.52	1,256.25	0.39	-0.36	0.16	
11,140.00	90.79	271.39	6,936.62	1,053.68	-1,258.49	1,348.05	0.06	0.05	-0.02	
11,234.00	90.76	270.73	6,935.34	1,055.42	-1,352.46	1,441.80	0.70	-0.03	-0.70	
11,328.00	91.70	272.06	6,933.33	1,057.71	-1,446.41	1,535.57	1.73	1.00	1.41	
11,393.04	91.74	272.20	6,931.37	1,060.13	-1,511.37	1,600.49	0.23	0.07	0.22	
<b>460' Circle Exit - 11393.04' MD - 1149' FNL / 423' FEL</b>										
11,420.00	91.76	272.26	6,930.55	1,061.18	-1,538.30	1,627.40	0.23	0.07	0.22	
11,512.00	92.57	271.85	6,927.07	1,064.47	-1,630.17	1,719.20	0.99	0.88	-0.45	
11,604.00	91.56	272.43	6,923.76	1,067.91	-1,722.05	1,811.02	1.27	-1.10	0.63	
11,698.00	90.45	270.94	6,922.11	1,070.67	-1,815.99	1,904.82	1.98	-1.18	-1.59	
11,790.00	89.44	269.80	6,922.20	1,071.26	-1,907.98	1,996.50	1.66	-1.10	-1.24	
11,884.00	88.98	268.92	6,923.49	1,070.21	-2,001.97	2,090.01	1.06	-0.49	-0.94	
11,976.00	89.66	268.18	6,924.59	1,067.89	-2,093.93	2,181.39	1.09	0.74	-0.80	
12,069.00	90.77	267.88	6,924.24	1,064.69	-2,186.87	2,273.67	1.24	1.19	-0.32	



# Survey Report



<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well SBJ 13-6HZ
<b>Project:</b>	Weld County, CO (UTM-NAD83)	<b>TVD Reference:</b>	RKB = 20' @ 4879.00usft (PD 461)
<b>Site:</b>	4N-68W-13 SBJ 22-13HZ PAD	<b>MD Reference:</b>	RKB = 20' @ 4879.00usft (PD 461)
<b>Well:</b>	SBJ 13-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	EDM 5000.16 Single User Db

## Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,161.00	91.33	268.71	6,922.55	1,061.95	-2,278.82	2,365.00	1.09	0.61	0.90
12,254.00	91.28	268.39	6,920.43	1,059.60	-2,371.76	2,457.36	0.35	-0.05	-0.34
12,347.00	91.26	267.81	6,918.37	1,056.52	-2,464.69	2,549.63	0.62	-0.02	-0.62
12,440.00	92.22	268.31	6,915.55	1,053.37	-2,557.59	2,641.87	1.16	1.03	0.54
12,532.00	92.19	268.20	6,912.01	1,050.57	-2,649.48	2,733.14	0.12	-0.03	-0.12
12,624.00	90.98	269.96	6,909.46	1,049.09	-2,741.43	2,824.58	2.32	-1.32	1.91
12,717.00	90.90	269.69	6,907.94	1,048.81	-2,834.42	2,917.17	0.30	-0.09	-0.29
12,810.00	90.84	269.72	6,906.53	1,048.33	-2,927.40	3,009.74	0.07	-0.06	0.03
12,902.00	89.74	269.31	6,906.06	1,047.55	-3,019.40	3,101.29	1.28	-1.20	-0.45
12,994.00	89.19	269.50	6,906.92	1,046.60	-3,111.39	3,192.82	0.63	-0.60	0.21
13,086.00	88.96	269.18	6,908.40	1,045.54	-3,203.37	3,284.34	0.43	-0.25	-0.35
13,180.00	89.85	269.53	6,909.38	1,044.48	-3,297.36	3,377.85	1.02	0.95	0.37
13,272.00	91.00	270.95	6,908.70	1,044.86	-3,389.35	3,469.51	1.99	1.25	1.54
13,366.00	91.29	270.89	6,906.82	1,046.37	-3,483.32	3,563.23	0.32	0.31	-0.06
13,459.00	90.17	271.09	6,905.63	1,047.98	-3,576.30	3,655.98	1.22	-1.20	0.22
13,554.00	90.22	271.01	6,905.31	1,049.72	-3,671.28	3,750.73	0.10	0.05	-0.08
13,646.00	91.15	271.21	6,904.21	1,051.50	-3,763.25	3,842.50	1.03	1.01	0.22
13,739.00	91.06	271.32	6,902.42	1,053.56	-3,856.21	3,935.26	0.15	-0.10	0.12
13,832.00	90.94	270.45	6,900.80	1,054.99	-3,949.19	4,027.99	0.94	-0.13	-0.94
13,925.00	90.87	268.58	6,899.33	1,054.20	-4,042.17	4,120.53	2.01	-0.08	-2.01
14,017.00	90.03	268.56	6,898.60	1,051.91	-4,134.14	4,211.92	0.91	-0.91	-0.02
14,109.00	90.26	268.66	6,898.37	1,049.68	-4,226.11	4,303.32	0.27	0.25	0.11
14,203.00	90.06	267.18	6,898.11	1,046.27	-4,320.04	4,396.56	1.59	-0.21	-1.57
14,295.00	90.22	269.03	6,897.88	1,043.22	-4,411.99	4,487.87	2.02	0.17	2.01
14,387.00	89.46	270.09	6,898.14	1,042.52	-4,503.99	4,579.42	1.42	-0.83	1.15
14,479.00	89.33	269.19	6,899.11	1,041.94	-4,595.98	4,670.99	0.99	-0.14	-0.98
14,572.00	89.39	270.47	6,900.15	1,041.66	-4,688.97	4,763.58	1.38	0.06	1.38
14,666.00	89.27	269.93	6,901.25	1,041.99	-4,782.96	4,857.23	0.59	-0.13	-0.57
14,758.00	89.79	269.42	6,902.00	1,041.47	-4,874.96	4,948.80	0.79	0.57	-0.55
14,852.00	90.02	268.10	6,902.16	1,039.44	-4,968.93	5,042.22	1.43	0.24	-1.40
14,944.00	90.08	267.81	6,902.08	1,036.15	-5,060.87	5,133.49	0.32	0.07	-0.32
15,036.00	90.18	268.80	6,901.87	1,033.43	-5,152.83	5,224.83	1.08	0.11	1.08
15,129.00	91.26	272.12	6,900.70	1,034.18	-5,245.81	5,317.50	3.75	1.16	3.57
15,222.00	91.13	273.17	6,898.76	1,038.47	-5,338.69	5,410.39	1.14	-0.14	1.13
15,314.00	90.96	272.42	6,897.08	1,042.95	-5,430.56	5,502.29	0.84	-0.18	-0.82
15,406.00	91.11	273.77	6,895.42	1,047.92	-5,522.41	5,594.22	1.48	0.16	1.47
15,499.00	90.10	270.76	6,894.44	1,051.59	-5,615.32	5,687.08	3.41	-1.09	-3.24
15,591.00	90.16	269.26	6,894.23	1,051.61	-5,707.32	5,778.71	1.63	0.07	-1.63
15,686.00	89.99	268.85	6,894.11	1,050.04	-5,802.30	5,873.17	0.47	-0.18	-0.43
15,778.00	90.13	269.49	6,894.01	1,048.71	-5,894.29	5,964.67	0.71	0.15	0.70
15,872.00	91.09	269.65	6,893.01	1,048.01	-5,988.28	6,058.22	1.04	1.02	0.17
15,965.00	91.12	270.17	6,891.22	1,047.86	-6,081.27	6,150.81	0.56	0.03	0.56
16,059.00	91.10	269.32	6,889.40	1,047.44	-6,175.25	6,244.37	0.90	-0.02	-0.90



# Survey Report



<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well SBJ 13-6HZ
<b>Project:</b>	Weld County, CO (UTM-NAD83)	<b>TVD Reference:</b>	RKB = 20' @ 4879.00usft (PD 461)
<b>Site:</b>	4N-68W-13 SBJ 22-13HZ PAD	<b>MD Reference:</b>	RKB = 20' @ 4879.00usft (PD 461)
<b>Well:</b>	SBJ 13-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	EDM 5000.16 Single User Db

## Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,151.00	90.95	268.86	6,887.75	1,045.98	-6,267.22	6,335.84	0.53	-0.16	-0.50
16,243.00	90.98	268.80	6,886.20	1,044.10	-6,359.19	6,427.27	0.07	0.03	-0.07
16,335.00	91.02	269.46	6,884.60	1,042.70	-6,451.16	6,518.75	0.72	0.04	0.72
16,429.00	90.99	268.90	6,882.95	1,041.36	-6,545.14	6,612.22	0.60	-0.03	-0.60
16,522.00	90.89	268.77	6,881.42	1,039.47	-6,638.11	6,704.65	0.18	-0.11	-0.14
16,615.00	90.85	268.47	6,880.01	1,037.23	-6,731.07	6,797.03	0.33	-0.04	-0.32
16,709.00	90.97	268.78	6,878.52	1,034.97	-6,825.03	6,890.41	0.35	0.13	0.33
16,802.00	91.10	270.12	6,876.84	1,034.08	-6,918.01	6,982.93	1.45	0.14	1.44
16,894.00	91.09	269.57	6,875.08	1,033.83	-7,009.99	7,074.52	0.60	-0.01	-0.60
16,988.00	90.89	268.90	6,873.45	1,032.58	-7,103.97	7,168.00	0.74	-0.21	-0.71
17,080.00	90.90	268.85	6,872.02	1,030.77	-7,195.94	7,259.44	0.06	0.01	-0.05
17,172.00	91.20	270.21	6,870.33	1,030.02	-7,287.92	7,350.98	1.51	0.33	1.48
17,266.00	90.55	270.12	6,868.90	1,030.29	-7,381.91	7,444.61	0.70	-0.69	-0.10
17,358.00	90.08	269.29	6,868.39	1,029.81	-7,473.90	7,536.19	1.04	-0.51	-0.90
17,450.00	90.12	269.78	6,868.23	1,029.07	-7,565.90	7,627.75	0.53	0.04	0.53
17,542.00	91.10	269.12	6,867.25	1,028.18	-7,657.89	7,719.29	1.28	1.07	-0.72
17,635.00	90.94	269.16	6,865.59	1,026.79	-7,750.86	7,811.76	0.18	-0.17	0.04
17,727.00	91.03	270.21	6,864.01	1,026.28	-7,842.85	7,903.33	1.15	0.10	1.14
17,819.00	91.84	269.77	6,861.71	1,026.27	-7,934.82	7,994.93	1.00	0.88	-0.48
17,911.00	91.91	269.39	6,858.70	1,025.59	-8,026.77	8,086.44	0.42	0.08	-0.41
18,004.00	92.29	270.34	6,855.29	1,025.37	-8,119.70	8,178.98	1.10	0.41	1.02
18,097.00	93.72	269.88	6,850.41	1,025.55	-8,212.57	8,271.49	1.62	1.54	-0.49
18,191.00	93.32	268.09	6,844.64	1,023.89	-8,306.37	8,364.77	1.95	-0.43	-1.90
18,285.00	92.96	268.71	6,839.49	1,021.27	-8,400.20	8,457.98	0.76	-0.38	0.66
18,377.00	93.16	268.68	6,834.58	1,019.18	-8,492.04	8,549.26	0.22	0.22	-0.03
18,470.00	92.57	269.07	6,829.93	1,017.35	-8,584.91	8,641.59	0.76	-0.63	0.42
18,564.00	92.89	268.55	6,825.46	1,015.40	-8,678.78	8,734.91	0.65	0.34	-0.55
18,657.00	92.99	267.51	6,820.69	1,012.21	-8,771.60	8,827.06	1.12	0.11	-1.12
18,750.00	93.19	267.06	6,815.67	1,007.81	-8,864.36	8,919.05	0.53	0.22	-0.48
18,844.00	94.09	267.10	6,809.71	1,003.03	-8,958.05	9,011.93	0.96	0.96	0.04
18,938.00	94.99	267.37	6,802.27	998.51	-9,051.64	9,104.74	1.00	0.96	0.29
19,030.00	94.17	265.75	6,794.92	993.01	-9,143.18	9,195.42	1.97	-0.89	-1.76
19,123.00	93.08	264.74	6,789.04	985.32	-9,235.67	9,286.84	1.60	-1.17	-1.09
19,216.00	93.08	264.39	6,784.04	976.52	-9,328.12	9,378.13	0.38	0.00	-0.38
19,309.00	93.31	264.13	6,778.86	967.23	-9,420.51	9,469.31	0.37	0.25	-0.28
19,403.00	93.72	263.71	6,773.10	957.30	-9,513.81	9,561.34	0.62	0.44	-0.45
19,497.00	93.72	262.62	6,767.00	946.13	-9,606.94	9,653.09	1.16	0.00	-1.16
19,590.00	94.33	263.05	6,760.47	934.56	-9,698.98	9,743.72	0.80	0.66	0.46
19,684.00	94.55	262.41	6,753.19	922.70	-9,791.95	9,835.25	0.72	0.23	-0.68
19,777.00	94.62	263.05	6,745.76	910.97	-9,883.91	9,925.78	0.69	0.08	0.69
19,866.00	95.11	262.19	6,738.21	899.58	-9,971.85	10,012.34	1.11	0.55	-0.97
19,959.00	94.21	264.21	6,730.65	888.61	-10,063.88	10,103.02	2.37	-0.97	2.17
20,051.00	92.21	267.33	6,725.50	881.84	-10,155.47	10,193.63	4.02	-2.17	3.39



# Survey Report



<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well SBJ 13-6HZ
<b>Project:</b>	Weld County, CO (UTM-NAD83)	<b>TVD Reference:</b>	RKB = 20' @ 4879.00usft (PD 461)
<b>Site:</b>	4N-68W-13 SBJ 22-13HZ PAD	<b>MD Reference:</b>	RKB = 20' @ 4879.00usft (PD 461)
<b>Well:</b>	SBJ 13-6HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	EDM 5000.16 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
20,144.00	92.24	272.40	6,721.89	881.62	-10,248.37	10,286.14	5.45	0.03	5.45	
20,236.00	92.06	275.66	6,718.44	888.08	-10,340.07	10,378.04	3.55	-0.20	3.54	
20,329.00	92.19	275.59	6,714.99	897.19	-10,432.56	10,470.97	0.16	0.14	-0.08	
20,421.00	93.46	273.98	6,710.45	904.85	-10,524.12	10,562.85	2.23	1.38	-1.75	
20,515.00	94.40	273.48	6,704.01	910.95	-10,617.70	10,656.60	1.13	1.00	-0.53	
20,606.00	94.90	274.69	6,696.63	917.41	-10,708.17	10,747.29	1.43	0.55	1.33	
20,698.00	94.87	277.35	6,688.80	927.03	-10,799.32	10,838.93	2.88	-0.03	2.89	
20,791.00	93.79	277.18	6,681.78	938.75	-10,891.31	10,931.60	1.18	-1.16	-0.18	
20,884.00	93.83	278.17	6,675.60	951.15	-10,983.27	11,024.31	1.06	0.04	1.06	
20,978.00	94.65	277.28	6,668.65	963.75	-11,076.16	11,117.95	1.29	0.87	-0.95	
21,071.00	94.76	277.13	6,661.02	975.37	-11,168.11	11,210.58	0.20	0.12	-0.16	
21,138.00	94.72	276.89	6,655.48	983.52	-11,234.39	11,277.32	0.36	-0.06	-0.36	
<b>Last Survey</b>										
21,180.00	94.72	276.89	6,652.02	988.54	-11,275.94	11,319.15	0.00	0.00	0.00	
<b>PTB - 21180' MD - 1117' FNL / 429' FWL</b>										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
1,850.00	1,804.75	103.27	306.88	Tie-on Survey	
7,171.54	6,489.76	982.88	2,481.49	Setback Entry - 7171.54' MD - 1251' FNL / 1727' FEL	
8,007.44	6,979.16	1,013.40	1,870.91	LP - 8007.44' MD - 1214' FNL / 2341' FEL	
10,102.05	6,944.05	1,035.60	-221.22	Box Entry - 10102.05' MD - 1181' FNL / 867' FWL	
10,532.88	6,943.67	1,047.97	-651.62	460' Circle Entry - 10532.88' MD - 1168' FNL / 436' FWL	
11,393.04	6,931.37	1,060.13	-1,511.37	460' Circle Exit - 11393.04' MD - 1149' FNL / 423' FEL	
21,138.00	6,655.48	983.52	-11,234.39	Last Survey	
21,180.00	6,652.02	988.54	-11,275.94	PTB - 21180' MD - 1117' FNL / 429' FWL	

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------