

# Occidental Petroleum

Project: Weld County, CO (UTM-NAD83)  
 Site: 4N-68W-13 SBJ 22-13HZ PAD  
 Well: SBJ 13-3HZ  
 Wellbore: Plan C  
 Design: FINAL

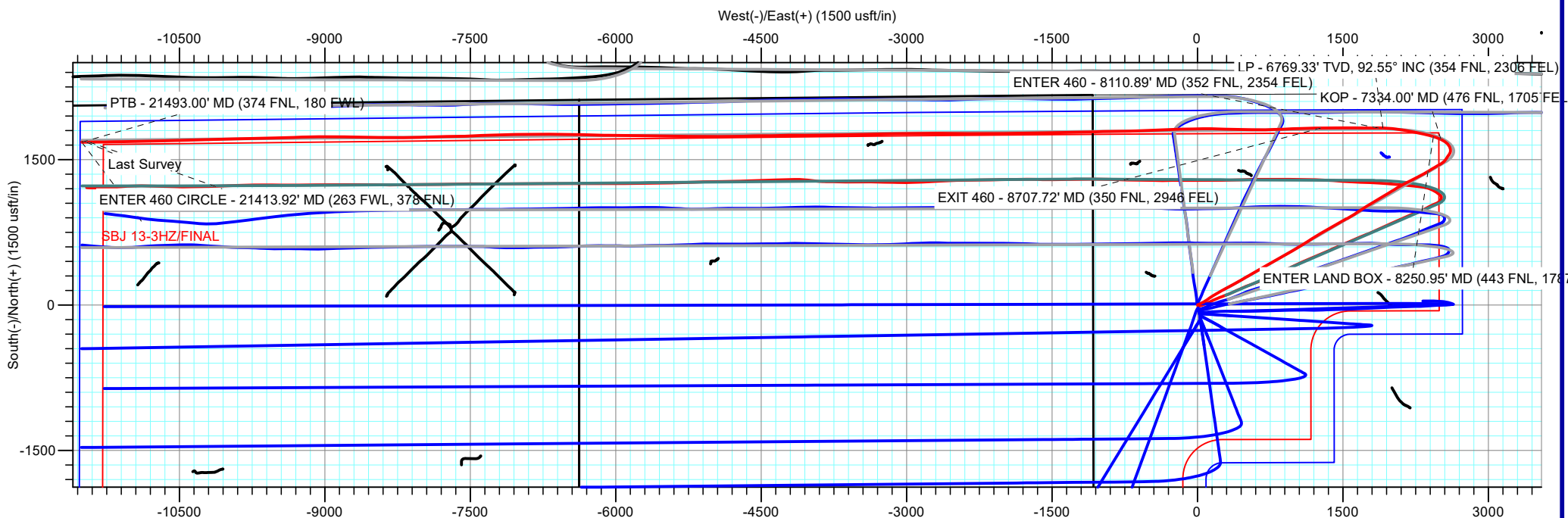
PROJECT DETAILS: Weld County, CO (UTM-NAD83)  
 Geodetic System: Universal Transverse Mercator (US Survey Feet)  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: Zone 13N (108 W to 102 W)



**ACTUAL LINE CALLS**  
**SHL: 2173' FNL, 1071' FWL**  
**HEEL: 354' FNL, 2306' FEL**  
**TOE: 374' FNL, 180' 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	VSe	Departure	Annotation	
7021.80	42.07	89.21	6732.68	6037.56	-6837.53	-1152.56	1658.08	460' Circle Heel Entry - 7155' MD - 1395' FNL/ 462' FEL	
7633.97	86.50	88.07	6999.98	6050.82	-6306.27	-621.14	2189.49	LP - 7767' MD - 1391' FNL/ 70' FWL	
8016.47	88.87	87.87	7013.36	6060.37	-5924.14	-238.91	2571.70	460' Circle Heel Exit - 8150' MD - 1380' FNL/ 458' FWL	
11074.65	90.68	89.72	7025.73	6104.43	-2867.44	2818.10	5629.62	460' Circle Toe Entry - 11208' MD - 1362' FNL/ 1788' FEL	
11992.70	89.57	87.71	7029.15	6131.50	-1950.03	3735.82	6547.55	460' Circle Toe Exit - 12126.70' MD - 1350' FNL/ 870' FEL	
12323.00	90.20	87.70	7030.16	6145.52	-1620.04	4066.00	6877.84	Last Survey	
12381.00	90.20	87.70	7029.96	6147.85	-1562.09	4123.98	6935.84	PTB - 12515' MD - 1330' FNL/ 427' FEL	



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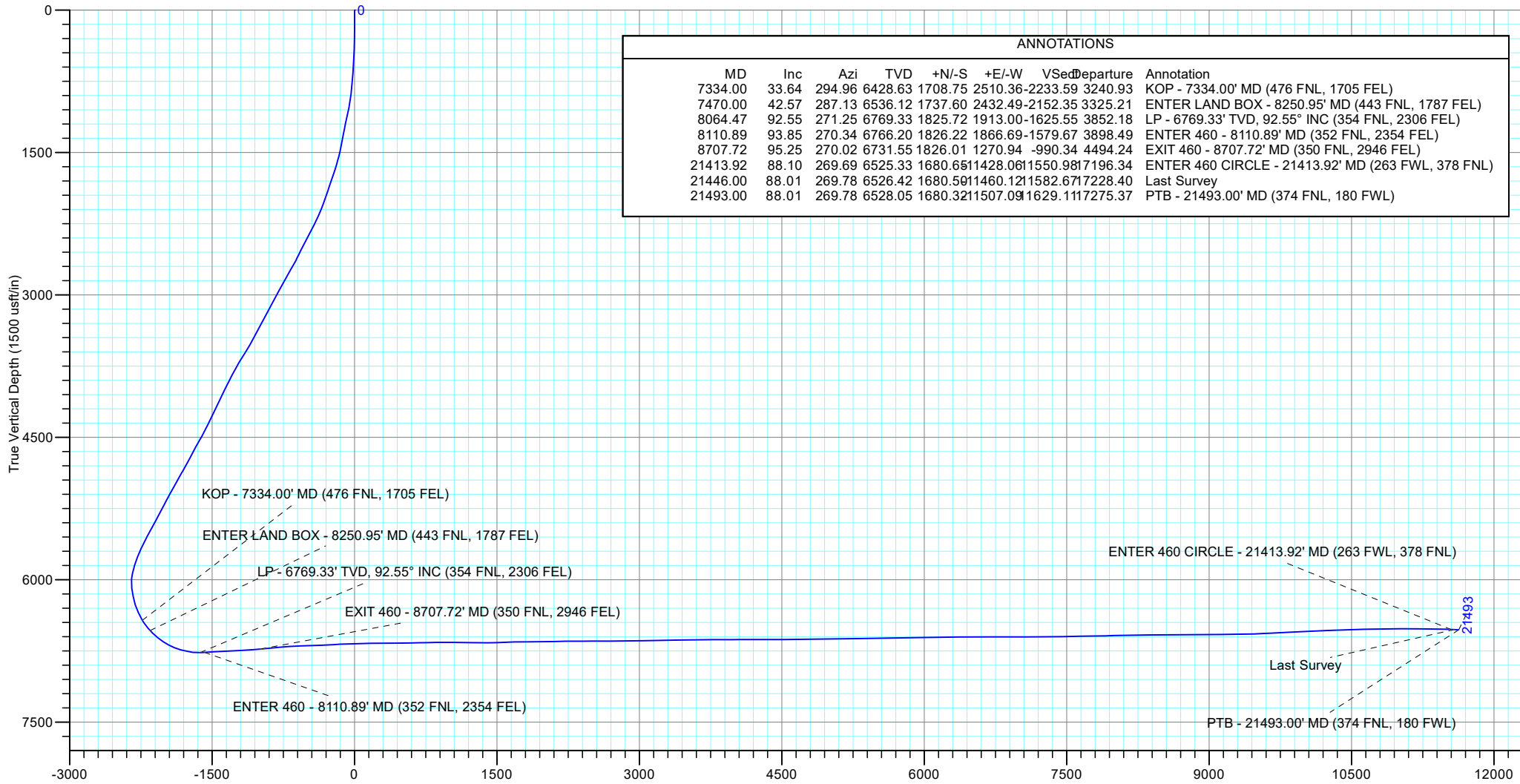
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ANNOTATIONS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation	
7334.00	33.64	294.96	6428.63	1708.75	2510.36	-2233.59	3240.93	KOP - 7334.00' MD (476 FNL, 1705 FEL)	
7470.00	42.57	287.13	6536.12	1737.60	2432.49	-2152.35	3325.21	ENTER LAND BOX - 8250.95' MD (443 FNL, 1787 FEL)	
8064.47	92.55	271.25	6769.33	1825.72	1913.00	-1625.55	3852.18	LP - 6769.33' TVD, 92.55° INC (354 FNL, 2306 FEL)	
8110.89	93.85	270.34	6766.20	1826.22	1866.69	-1579.67	3898.49	ENTER 460 - 8110.89' MD (352 FNL, 2354 FEL)	
8707.72	95.25	270.02	6731.55	1826.01	1270.94	-990.34	4494.24	EXIT 460 - 8707.72' MD (350 FNL, 2946 FEL)	
21413.92	88.10	269.69	6525.33	1680.65	11428.06	1550.98	7196.34	ENTER 460 CIRCLE - 21413.92' MD (263 FWL, 378 FNL)	
21446.00	88.01	269.78	6526.42	1680.50	11460.12	1582.67	7228.40	Last Survey	
21493.00	88.01	269.78	6528.05	1680.32	11507.09	1629.11	7275.37	PTB - 21493.00' MD (374 FNL, 180 FWL)	



# **Occidental Petroleum**

**Weld County, CO (UTM-NAD83)**

**4N-68W-13 SBJ 22-13HZ PAD**

**SBJ 13-3HZ**

**Plan C**

**Design: FINAL**

## **Standard Survey Report**

**17 December, 2021**



## Survey Report

<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well SBJ 13-3HZ
<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 13-3HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	EDM 5000.1 Single User Db

<b>Project</b>	Weld County, CO (UTM-NAD83)		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<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 13-3HZ					
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	14,641,475.44 usft	<b>Latitude:</b>	40.315087
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	1,652,435.94 usft	<b>Longitude:</b>	-104.956883
<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	51,858.90000000

<b>Design</b>	FINAL			
<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	278.41

<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	21,493.00	Survey #1 (Plan C)	APC_ISCWSA REV 2 MWD+	Fixed:v2:Rockies, crustal dec + 3-axis correction	

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)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5.89	0.03	309.74	5.89	0.00	0.00	0.00	0.50	0.50	0.00	
<b>SBJ 13-3HZ_LP</b>										
6.00	0.03	309.74	6.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>SBJ 13-3HZ_SHL</b>										
6.14	0.03	309.74	6.14	0.00	0.00	0.00	0.00	0.00	0.00	
<b>SBJ 13-3HZ_460' Circle2</b>										
11.16	0.06	309.74	11.16	0.00	0.00	0.00	0.53	0.53	0.00	
<b>SBJ 13-3HZ_Hardline Box</b>										
115.00	0.58	309.74	115.00	0.37	-0.45	0.50	0.50	0.50	0.00	



Survey Report

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<b>Site:</b>	4N-68W-13 SBJ 22-13HZ PAD	<b>MD Reference:</b>	RKB = 20' @ 4879.00usft (PD 461)
<b>Well:</b>	SBJ 13-3HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	EDM 5000.1 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)	
215.00	1.12	45.85	214.99	1.37	-0.14	0.33	1.31	0.54	96.11	
315.00	1.65	56.21	314.96	2.85	1.76	-1.33	0.59	0.54	10.36	
415.00	2.47	71.98	414.90	4.32	5.01	-4.32	0.98	0.81	15.77	
515.00	3.08	73.49	514.78	5.75	9.63	-8.68	0.62	0.61	1.51	
615.00	3.91	66.62	614.59	7.86	15.33	-14.02	0.92	0.83	-6.87	
715.00	4.95	65.01	714.29	11.04	22.37	-20.52	1.05	1.05	-1.61	
815.00	6.51	63.59	813.79	15.38	31.36	-28.77	1.56	1.56	-1.42	
915.00	10.12	60.07	912.72	22.29	44.06	-40.33	3.65	3.61	-3.52	
1,015.00	13.47	60.81	1,010.60	32.36	61.84	-56.45	3.35	3.35	0.74	
1,115.00	16.00	58.94	1,107.30	45.16	83.82	-76.32	2.58	2.53	-1.87	
1,215.00	15.90	54.54	1,203.45	60.21	106.79	-96.84	1.21	-0.10	-4.40	
1,315.00	14.52	54.14	1,299.95	75.51	128.11	-115.69	1.39	-1.38	-0.40	
1,415.00	14.28	57.76	1,396.81	89.43	148.70	-134.03	0.93	-0.24	3.62	
1,515.00	15.80	59.72	1,493.38	102.87	170.89	-154.02	1.61	1.53	1.96	
1,615.00	20.21	59.59	1,588.46	118.49	197.56	-178.11	4.40	4.40	-0.13	
1,715.00	22.05	60.61	1,681.73	136.44	228.81	-206.40	1.88	1.84	1.02	
1,815.00	22.96	61.72	1,774.12	154.89	262.34	-236.87	1.00	0.91	1.11	
1,840.00	23.47	62.49	1,797.10	159.50	271.04	-244.82	2.39	2.06	3.08	
1,919.00	21.69	61.69	1,870.04	173.69	297.85	-269.26	2.29	-2.25	-1.01	
2,011.00	23.47	61.78	1,954.98	190.42	328.96	-297.59	1.94	1.93	0.10	
2,103.00	25.08	61.47	2,038.85	208.40	362.24	-327.88	1.76	1.75	-0.34	
2,196.00	28.15	60.05	2,121.98	228.77	398.57	-360.85	3.37	3.30	-1.53	
2,289.00	30.51	60.47	2,203.05	251.36	438.13	-396.68	2.55	2.54	0.45	
2,381.00	32.42	59.75	2,281.52	275.30	479.76	-434.36	2.12	2.08	-0.78	
2,473.00	34.79	60.97	2,358.14	300.46	524.02	-474.46	2.68	2.58	1.33	
2,565.00	34.18	60.30	2,433.98	326.00	569.41	-515.64	0.78	-0.66	-0.73	
2,657.00	32.13	59.74	2,510.99	351.14	613.00	-555.08	2.25	-2.23	-0.61	
2,750.00	32.35	58.65	2,589.66	376.54	655.61	-593.52	0.67	0.24	-1.17	
2,842.00	34.63	60.37	2,666.38	402.28	699.36	-633.04	2.68	2.48	1.87	
2,973.00	35.64	61.86	2,773.51	438.68	765.37	-693.02	1.01	0.77	1.14	
3,065.00	35.19	61.65	2,848.49	463.91	812.34	-735.79	0.51	-0.49	-0.23	
3,157.00	34.90	59.46	2,923.81	489.87	858.33	-777.50	1.40	-0.32	-2.38	
3,249.00	35.45	59.80	2,999.01	516.67	904.06	-818.82	0.63	0.60	0.37	
3,342.00	34.82	60.24	3,075.07	543.41	950.42	-860.77	0.73	-0.68	0.47	
3,434.00	34.64	58.59	3,150.68	570.08	995.54	-901.51	1.04	-0.20	-1.79	
3,526.00	34.10	58.84	3,226.62	597.05	1,039.92	-941.47	0.61	-0.59	0.27	
3,618.00	33.44	60.44	3,303.10	622.90	1,084.04	-981.34	1.20	-0.72	1.74	
3,710.00	34.93	56.50	3,379.21	649.95	1,128.06	-1,020.93	2.90	1.62	-4.28	
3,803.00	35.65	57.60	3,455.12	679.17	1,173.15	-1,061.26	1.03	0.77	1.18	
3,896.00	37.96	57.08	3,529.58	709.24	1,220.05	-1,103.26	2.51	2.48	-0.56	
3,988.00	38.71	61.19	3,601.75	738.48	1,269.02	-1,147.43	2.89	0.82	4.47	
4,082.00	37.98	60.32	3,675.48	766.97	1,319.90	-1,193.60	0.97	-0.78	-0.93	
4,175.00	35.39	58.87	3,750.05	795.07	1,367.82	-1,236.90	2.94	-2.78	-1.56	
4,268.00	33.91	60.54	3,826.56	821.75	1,413.47	-1,278.15	1.89	-1.59	1.80	



## Survey Report

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<b>Design:</b>	FINAL	<b>Database:</b>	EDM 5000.1 Single User Db

Survey										
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4,362.00	32.83	59.89	3,905.06	847.43	1,458.34	-1,318.79	1.21	-1.15	-0.69	
4,455.00	33.07	60.93	3,983.10	872.40	1,502.33	-1,358.65	0.66	0.26	1.12	
4,548.00	30.97	65.08	4,061.96	894.82	1,546.21	-1,398.79	3.27	-2.26	4.46	
4,641.00	31.16	57.73	4,141.65	917.76	1,588.27	-1,437.05	4.08	0.20	-7.90	
4,734.00	32.02	56.08	4,220.87	944.36	1,629.08	-1,473.52	1.31	0.92	-1.77	
4,826.00	32.56	56.29	4,298.64	971.71	1,669.91	-1,509.92	0.60	0.59	0.23	
4,918.00	33.09	58.62	4,375.95	998.53	1,711.95	-1,547.59	1.49	0.58	2.53	
5,010.00	35.11	58.47	4,452.13	1,025.45	1,755.94	-1,587.17	2.20	2.20	-0.16	
5,103.00	36.16	60.10	4,527.72	1,053.11	1,802.53	-1,629.21	1.52	1.13	1.75	
5,196.00	36.25	56.36	4,602.77	1,082.02	1,849.21	-1,671.17	2.38	0.10	-4.02	
5,288.00	34.44	59.14	4,677.81	1,110.44	1,894.19	-1,711.51	2.63	-1.97	3.02	
5,381.00	34.46	59.32	4,754.50	1,137.35	1,939.40	-1,752.30	0.11	0.02	0.19	
5,474.00	35.63	60.63	4,830.64	1,164.07	1,985.63	-1,794.13	1.50	1.26	1.41	
5,567.00	37.22	57.27	4,905.48	1,192.56	2,032.91	-1,836.73	2.74	1.71	-3.61	
5,661.00	35.30	59.26	4,981.27	1,221.82	2,080.18	-1,879.21	2.40	-2.04	2.12	
5,754.00	34.54	63.93	5,057.54	1,247.15	2,126.96	-1,921.79	2.99	-0.82	5.02	
5,847.00	32.60	63.25	5,135.03	1,270.01	2,173.02	-1,964.02	2.12	-2.09	-0.73	
5,941.00	33.74	61.55	5,213.71	1,293.85	2,218.59	-2,005.61	1.57	1.21	-1.81	
6,034.00	33.50	63.84	5,291.16	1,317.47	2,264.33	-2,047.41	1.39	-0.26	2.46	
6,127.00	33.86	61.11	5,368.55	1,341.30	2,310.06	-2,089.16	1.67	0.39	-2.94	
6,221.00	34.30	61.32	5,446.41	1,366.66	2,356.22	-2,131.12	0.48	0.47	0.22	
6,315.00	34.73	57.92	5,523.87	1,393.60	2,402.15	-2,172.62	2.10	0.46	-3.62	
6,408.00	31.15	60.10	5,601.91	1,419.67	2,445.46	-2,211.65	4.05	-3.85	2.34	
6,501.00	31.32	60.58	5,681.43	1,443.53	2,487.37	-2,249.62	0.32	0.18	0.52	
6,595.00	29.84	54.50	5,762.37	1,469.12	2,527.70	-2,285.78	3.65	-1.57	-6.47	
6,687.00	32.01	34.12	5,841.51	1,502.69	2,560.11	-2,312.93	11.58	2.36	-22.15	
6,780.00	32.41	34.88	5,920.19	1,543.54	2,588.18	-2,334.73	0.61	0.43	0.82	
6,872.00	19.49	17.35	6,002.86	1,578.62	2,606.97	-2,348.19	16.20	-14.04	-19.05	
6,964.00	17.79	347.65	6,090.22	1,607.06	2,608.54	-2,345.59	10.37	-1.85	-32.28	
7,057.00	20.07	331.60	6,178.25	1,635.00	2,597.90	-2,330.98	6.09	2.45	-17.26	
7,149.00	21.39	319.41	6,264.33	1,661.64	2,579.47	-2,308.85	4.90	1.43	-13.25	
7,242.00	26.99	303.87	6,349.22	1,686.32	2,550.86	-2,276.94	9.07	6.02	-16.71	
7,334.00	33.64	294.96	6,428.63	1,708.75	2,510.36	-2,233.59	8.71	7.23	-9.68	
<b>KOP - 7334.00' MD (476 FNL, 1705 FEL)</b>										
7,426.00	38.93	288.68	6,502.79	1,728.78	2,459.82	-2,180.67	7.02	5.75	-6.83	
7,470.00	42.57	287.13	6,536.12	1,737.60	2,432.49	-2,152.35	8.59	8.28	-3.52	
<b>ENTER LAND BOX - 8250.95' MD (443 FNL, 1787 FEL)</b>										
7,518.00	46.57	285.67	6,570.31	1,747.09	2,400.18	-2,118.99	8.59	8.32	-3.04	
7,611.00	53.92	282.06	6,629.75	1,764.09	2,330.81	-2,047.88	8.45	7.90	-3.88	
7,705.00	59.48	280.16	6,681.34	1,779.18	2,253.74	-1,969.43	6.15	5.91	-2.02	
7,798.00	69.43	281.66	6,721.40	1,795.09	2,171.46	-1,885.72	10.80	10.70	1.61	
7,892.00	77.09	278.38	6,748.46	1,810.68	2,082.89	-1,795.82	8.81	8.15	-3.49	
7,984.00	81.76	275.11	6,765.34	1,821.28	1,993.11	-1,705.45	6.16	5.08	-3.55	



Survey Report

<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well SBJ 13-3HZ
<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 13-3HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	EDM 5000.1 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)	
8,063.16	92.37	271.31	6,769.39	1,825.69	1,914.31	-1,626.85	14.24	13.41	-4.80	
<b>SBJ 13-3HZ LP</b>										
8,064.47	92.55	271.25	6,769.33	1,825.72	1,913.00	-1,625.55	14.24	13.41	-4.78	
<b>LP - 6769.33' TVD, 92.55° INC (354 FNL, 2306 FEL)</b>										
8,077.00	94.23	270.65	6,768.59	1,825.93	1,900.49	-1,613.15	14.24	13.41	-4.79	
8,110.89	93.85	270.34	6,766.20	1,826.22	1,866.69	-1,579.67	1.43	-1.11	-0.91	
<b>ENTER 460 - 8110.89' MD (352 FNL, 2354 FEL)</b>										
8,170.00	93.20	269.80	6,762.57	1,826.29	1,807.69	-1,521.29	1.43	-1.11	-0.91	
8,263.00	92.92	270.36	6,757.60	1,826.42	1,714.83	-1,429.40	0.67	-0.30	0.60	
8,356.00	93.24	270.92	6,752.61	1,827.46	1,621.97	-1,337.39	0.69	0.34	0.60	
8,449.00	92.26	269.29	6,748.14	1,827.63	1,529.08	-1,245.48	2.04	-1.05	-1.75	
8,541.00	92.89	269.87	6,744.01	1,826.95	1,437.17	-1,154.66	0.93	0.68	0.63	
8,633.00	94.62	269.41	6,737.98	1,826.38	1,345.38	-1,063.93	1.95	1.88	-0.50	
8,707.72	95.25	270.02	6,731.55	1,826.01	1,270.94	-990.34	1.18	0.85	0.82	
<b>EXIT 460 - 8707.72' MD (350 FNL, 2946 FEL)</b>										
8,726.00	95.41	270.17	6,729.86	1,826.04	1,252.74	-972.33	1.18	0.85	0.82	
8,819.00	95.32	267.92	6,721.16	1,824.49	1,160.16	-880.98	2.41	-0.10	-2.42	
8,912.00	95.65	267.68	6,712.27	1,820.94	1,067.66	-789.99	0.44	0.35	-0.26	
9,004.00	94.05	268.22	6,704.49	1,817.66	976.05	-699.84	1.83	-1.74	0.59	
9,097.00	91.59	267.69	6,699.92	1,814.35	883.23	-608.50	2.71	-2.65	-0.57	
9,190.00	91.58	267.50	6,697.34	1,810.45	790.34	-517.19	0.20	-0.01	-0.20	
9,281.00	92.21	269.69	6,694.33	1,808.22	699.43	-427.58	2.50	0.69	2.41	
9,374.00	91.99	270.68	6,690.93	1,808.52	606.49	-335.59	1.09	-0.24	1.06	
9,466.00	93.52	270.96	6,686.50	1,809.83	514.61	-244.51	1.69	1.66	0.30	
9,560.00	93.35	270.81	6,680.87	1,811.28	420.79	-151.48	0.24	-0.18	-0.16	
9,652.00	91.54	271.69	6,676.95	1,813.29	328.90	-60.29	2.19	-1.97	0.96	
9,746.00	92.05	271.38	6,674.00	1,815.80	234.98	32.99	0.63	0.54	-0.33	
9,839.00	90.73	270.78	6,671.75	1,817.55	142.03	125.20	1.56	-1.42	-0.65	
9,932.00	90.71	269.36	6,670.58	1,817.67	49.04	217.21	1.53	-0.02	-1.53	
10,025.00	90.70	269.38	6,669.43	1,816.65	-43.95	309.05	0.02	-0.01	0.02	
10,119.00	90.27	268.25	6,668.64	1,814.70	-137.93	401.73	1.29	-0.46	-1.20	
10,213.00	90.66	268.46	6,667.88	1,812.00	-231.88	494.28	0.47	0.41	0.22	
10,306.00	90.94	268.10	6,666.58	1,809.21	-324.83	585.83	0.49	0.30	-0.39	
10,398.00	91.05	267.06	6,664.98	1,805.33	-416.73	676.17	1.14	0.12	-1.13	
10,491.00	91.03	267.79	6,663.29	1,801.15	-509.63	767.45	0.79	-0.02	0.78	
10,584.00	91.20	267.44	6,661.48	1,797.28	-602.53	858.79	0.42	0.18	-0.38	
10,676.00	89.68	268.55	6,660.77	1,794.06	-694.46	949.27	2.05	-1.65	1.21	
10,770.00	89.87	269.66	6,661.14	1,792.59	-788.45	1,042.03	1.20	0.20	1.18	
10,862.00	89.25	269.20	6,661.85	1,791.68	-880.44	1,132.90	0.84	-0.67	-0.50	
10,956.00	88.19	268.11	6,663.95	1,789.47	-974.39	1,225.52	1.62	-1.13	-1.16	
11,048.00	89.55	267.89	6,665.76	1,786.26	-1,066.31	1,315.99	1.50	1.48	-0.24	
11,140.00	90.52	268.72	6,665.71	1,783.54	-1,158.27	1,406.56	1.39	1.05	0.90	
11,234.00	92.26	267.65	6,663.43	1,780.57	-1,252.19	1,499.03	2.17	1.85	-1.14	
11,328.00	92.33	270.01	6,659.66	1,778.65	-1,346.09	1,591.64	2.51	0.07	2.51	



## Survey Report

<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well SBJ 13-3HZ
<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 13-3HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	EDM 5000.1 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)	
11,420.00	91.80	270.02	6,656.35	1,778.67	-1,438.03	1,682.60	0.58	-0.58	0.01	
11,512.00	90.32	269.84	6,654.65	1,778.56	-1,530.01	1,773.58	1.62	-1.61	-0.20	
11,604.00	89.70	268.68	6,654.63	1,777.37	-1,622.00	1,864.41	1.43	-0.67	-1.26	
11,698.00	90.47	268.11	6,654.49	1,774.74	-1,715.96	1,956.97	1.02	0.82	-0.61	
11,790.00	91.20	268.35	6,653.15	1,771.90	-1,807.91	2,047.52	0.84	0.79	0.26	
11,882.00	91.69	269.22	6,650.83	1,769.95	-1,899.86	2,138.19	1.09	0.53	0.95	
11,974.00	90.46	269.37	6,649.10	1,768.82	-1,991.83	2,229.01	1.35	-1.34	0.16	
12,067.00	90.28	269.95	6,648.50	1,768.26	-2,084.83	2,320.93	0.65	-0.19	0.62	
12,159.00	90.26	269.91	6,648.07	1,768.15	-2,176.83	2,411.92	0.05	-0.02	-0.04	
12,252.00	90.18	270.28	6,647.71	1,768.31	-2,269.83	2,503.95	0.41	-0.09	0.40	
12,344.00	89.98	270.48	6,647.58	1,768.92	-2,361.83	2,595.04	0.31	-0.22	0.22	
12,437.00	90.50	270.11	6,647.20	1,769.40	-2,454.82	2,687.11	0.69	0.56	-0.40	
12,529.00	90.10	270.67	6,646.71	1,770.02	-2,546.82	2,778.21	0.75	-0.43	0.61	
12,622.00	90.88	270.62	6,645.92	1,771.07	-2,639.81	2,870.36	0.84	0.84	-0.05	
12,715.00	90.99	269.42	6,644.40	1,771.10	-2,732.79	2,962.35	1.30	0.12	-1.29	
12,807.00	90.91	269.02	6,642.88	1,769.85	-2,824.77	3,053.16	0.44	-0.09	-0.43	
12,899.00	90.74	269.22	6,641.55	1,768.44	-2,916.75	3,143.94	0.29	-0.18	0.22	
12,992.00	90.91	269.55	6,640.21	1,767.44	-3,009.74	3,235.78	0.40	0.18	0.35	
13,084.00	90.86	269.61	6,638.79	1,766.76	-3,101.72	3,326.68	0.08	-0.05	0.07	
13,177.00	90.87	268.92	6,637.39	1,765.57	-3,194.71	3,418.49	0.74	0.01	-0.74	
13,270.00	91.02	268.96	6,635.85	1,763.85	-3,287.68	3,510.21	0.17	0.16	0.04	
13,364.00	91.15	268.30	6,634.07	1,761.60	-3,381.63	3,602.83	0.72	0.14	-0.70	
13,457.00	90.95	268.57	6,632.37	1,759.06	-3,474.58	3,694.41	0.36	-0.22	0.29	
13,552.00	89.96	269.08	6,631.61	1,757.12	-3,569.56	3,788.08	1.17	-1.04	0.54	
13,645.00	89.83	269.03	6,631.78	1,755.58	-3,662.54	3,879.84	0.15	-0.14	-0.05	
13,738.00	90.43	268.76	6,631.57	1,753.79	-3,755.53	3,971.56	0.71	0.65	-0.29	
13,831.00	90.18	269.89	6,631.08	1,752.69	-3,848.52	4,063.39	1.24	-0.27	1.22	
13,923.00	90.35	269.96	6,630.65	1,752.57	-3,940.52	4,154.39	0.20	0.18	0.08	
14,016.00	89.79	269.89	6,630.54	1,752.45	-4,033.52	4,246.37	0.61	-0.60	-0.08	
14,108.00	89.78	269.35	6,630.88	1,751.84	-4,125.51	4,337.29	0.59	-0.01	-0.59	
14,201.00	90.34	268.82	6,630.79	1,750.36	-4,218.50	4,429.06	0.83	0.60	-0.57	
14,294.00	90.02	269.12	6,630.49	1,748.68	-4,311.48	4,520.80	0.47	-0.34	0.32	
14,386.00	90.71	268.75	6,629.91	1,746.97	-4,403.47	4,611.54	0.85	0.75	-0.40	
14,478.00	90.71	269.42	6,628.77	1,745.51	-4,495.45	4,702.32	0.73	0.00	0.73	
14,571.00	90.98	269.24	6,627.40	1,744.42	-4,588.43	4,794.15	0.35	0.29	-0.19	
14,665.00	89.96	268.39	6,626.63	1,742.47	-4,682.40	4,886.83	1.41	-1.09	-0.90	
14,757.00	90.96	268.90	6,625.89	1,740.30	-4,774.37	4,977.49	1.22	1.09	0.55	
14,850.00	91.07	269.38	6,624.24	1,738.90	-4,867.35	5,069.26	0.53	0.12	0.52	
14,943.00	91.06	269.26	6,622.51	1,737.80	-4,960.33	5,161.08	0.13	-0.01	-0.13	
15,035.00	90.87	270.11	6,620.96	1,737.29	-5,052.31	5,252.00	0.95	-0.21	0.92	
15,127.00	90.62	270.82	6,619.77	1,738.04	-5,144.30	5,343.11	0.82	-0.27	0.77	
15,221.00	90.97	271.10	6,618.46	1,739.61	-5,238.28	5,436.31	0.48	0.37	0.30	
15,313.00	90.63	271.29	6,617.18	1,741.53	-5,330.25	5,527.57	0.42	-0.37	0.21	
15,405.00	90.96	270.26	6,615.90	1,742.78	-5,422.23	5,618.75	1.18	0.36	-1.12	



## Survey Report

<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well SBJ 13-3HZ
<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 13-3HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	EDM 5000.1 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)
15,498.00	90.96	270.06	6,614.34	1,743.04	-5,515.22	5,710.78	0.22	0.00	-0.22
15,590.00	91.21	271.08	6,612.60	1,743.95	-5,607.19	5,801.90	1.14	0.27	1.11
15,685.00	90.90	271.09	6,610.85	1,745.75	-5,702.16	5,896.11	0.33	-0.33	0.01
15,777.00	90.97	271.07	6,609.35	1,747.48	-5,794.13	5,987.34	0.08	0.08	-0.02
15,871.00	90.87	270.54	6,607.84	1,748.81	-5,888.11	6,080.51	0.57	-0.11	-0.56
15,964.00	90.73	270.83	6,606.54	1,749.92	-5,981.09	6,172.65	0.35	-0.15	0.31
16,057.00	91.05	270.15	6,605.10	1,750.71	-6,074.08	6,264.76	0.81	0.34	-0.73
16,150.00	90.04	271.65	6,604.21	1,752.17	-6,167.06	6,356.95	1.94	-1.09	1.61
16,242.00	90.00	271.55	6,604.18	1,754.74	-6,259.02	6,448.30	0.12	-0.04	-0.11
16,334.00	90.11	271.24	6,604.09	1,756.98	-6,351.00	6,539.61	0.36	0.12	-0.34
16,428.00	90.08	271.46	6,603.94	1,759.20	-6,444.97	6,632.90	0.24	-0.03	0.23
16,521.00	90.05	270.25	6,603.83	1,760.58	-6,537.96	6,725.09	1.30	-0.03	-1.30
16,614.00	90.06	270.27	6,603.74	1,761.01	-6,630.96	6,817.16	0.02	0.01	0.02
16,707.00	90.06	269.59	6,603.64	1,760.89	-6,723.96	6,909.14	0.73	0.00	-0.73
16,800.00	90.12	270.21	6,603.50	1,760.73	-6,816.96	7,001.12	0.67	0.06	0.67
16,893.00	90.13	270.20	6,603.30	1,761.06	-6,909.95	7,093.17	0.02	0.01	-0.01
16,987.00	90.12	269.46	6,603.09	1,760.78	-7,003.95	7,186.11	0.79	-0.01	-0.79
17,079.00	90.82	269.06	6,602.34	1,759.60	-7,095.94	7,276.94	0.88	0.76	-0.43
17,171.00	90.95	267.31	6,600.91	1,756.68	-7,187.88	7,367.47	1.91	0.14	-1.90
17,264.00	90.88	266.92	6,599.43	1,752.00	-7,280.75	7,458.65	0.43	-0.08	-0.42
17,356.00	90.87	268.22	6,598.02	1,748.10	-7,372.66	7,549.00	1.41	-0.01	1.41
17,448.00	90.99	267.80	6,596.53	1,744.91	-7,464.59	7,639.48	0.47	0.13	-0.46
17,540.00	91.14	268.99	6,594.82	1,742.33	-7,556.53	7,730.06	1.30	0.16	1.29
17,634.00	91.13	268.92	6,592.96	1,740.62	-7,650.50	7,822.77	0.08	-0.01	-0.07
17,726.00	91.17	268.24	6,591.11	1,738.34	-7,742.45	7,913.40	0.74	0.04	-0.74
17,818.00	91.32	269.01	6,589.11	1,736.13	-7,834.40	8,004.04	0.85	0.16	0.84
17,910.00	91.29	268.35	6,587.02	1,734.01	-7,926.36	8,094.69	0.72	-0.03	-0.72
18,002.00	91.35	268.62	6,584.90	1,731.58	-8,018.30	8,185.29	0.30	0.07	0.29
18,095.00	90.81	268.64	6,583.15	1,729.36	-8,111.25	8,276.93	0.58	-0.58	0.02
18,189.00	90.22	270.10	6,582.30	1,728.32	-8,205.24	8,369.75	1.68	-0.63	1.55
18,284.00	90.02	269.51	6,582.10	1,728.00	-8,300.24	8,463.68	0.66	-0.21	-0.62
18,376.00	90.02	269.86	6,582.07	1,727.49	-8,392.24	8,554.62	0.38	0.00	0.38
18,469.00	90.17	270.62	6,581.92	1,727.88	-8,485.24	8,646.68	0.83	0.16	0.82
18,563.00	90.14	270.71	6,581.66	1,728.98	-8,579.23	8,739.82	0.10	-0.03	0.10
18,656.00	90.38	271.63	6,581.24	1,730.87	-8,672.21	8,832.08	1.02	0.26	0.99
18,748.00	91.06	271.63	6,580.08	1,733.49	-8,764.17	8,923.43	0.74	0.74	0.00
18,843.00	90.99	271.22	6,578.38	1,735.85	-8,859.12	9,017.71	0.44	-0.07	-0.43
18,936.00	91.14	270.14	6,576.66	1,736.96	-8,952.10	9,109.84	1.17	0.16	-1.16
19,028.00	90.50	269.89	6,575.34	1,736.98	-9,044.09	9,200.85	0.75	-0.70	-0.27
19,122.00	90.55	268.34	6,574.48	1,735.53	-9,138.07	9,293.61	1.65	0.05	-1.65
19,215.00	90.59	267.24	6,573.55	1,731.94	-9,230.99	9,385.01	1.18	0.04	-1.18
19,308.00	91.57	269.01	6,571.80	1,728.90	-9,323.92	9,476.50	2.18	1.05	1.90
19,402.00	92.88	268.45	6,568.15	1,726.82	-9,417.83	9,569.09	1.52	1.39	-0.60



## Survey Report

<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well SBJ 13-3HZ
<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 13-3HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Plan C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	EDM 5000.1 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)	
19,496.00	92.71	268.65	6,563.57	1,724.44	-9,511.68	9,661.59	0.28	-0.18	0.21	
19,589.00	92.86	268.88	6,559.05	1,722.44	-9,604.55	9,753.17	0.30	0.16	0.25	
19,683.00	92.84	268.35	6,554.37	1,720.17	-9,698.41	9,845.68	0.56	-0.02	-0.56	
19,775.00	92.75	268.04	6,549.89	1,717.28	-9,790.25	9,936.12	0.35	-0.10	-0.34	
19,868.00	92.60	268.34	6,545.55	1,714.34	-9,883.11	10,027.55	0.36	-0.16	0.32	
19,961.00	92.44	268.85	6,541.46	1,712.07	-9,975.99	10,119.10	0.57	-0.17	0.55	
20,053.00	92.23	268.25	6,537.71	1,709.74	-10,067.88	10,209.66	0.69	-0.23	-0.65	
20,146.00	92.13	268.35	6,534.17	1,706.98	-10,160.77	10,301.15	0.15	-0.11	0.11	
20,238.00	91.98	269.14	6,530.87	1,704.97	-10,252.69	10,391.79	0.87	-0.16	0.86	
20,331.00	91.83	268.63	6,527.78	1,703.16	-10,345.62	10,483.46	0.57	-0.16	-0.55	
20,423.00	91.66	268.21	6,524.98	1,700.62	-10,437.54	10,574.02	0.49	-0.18	-0.46	
20,516.00	91.41	268.08	6,522.49	1,697.61	-10,530.46	10,665.50	0.30	-0.27	-0.14	
20,608.00	91.15	268.55	6,520.43	1,694.91	-10,622.40	10,756.06	0.58	-0.28	0.51	
20,700.00	90.70	268.99	6,518.95	1,692.94	-10,714.36	10,846.74	0.68	-0.49	0.48	
20,793.00	90.48	269.04	6,517.99	1,691.34	-10,807.35	10,938.49	0.24	-0.24	0.05	
20,885.00	90.02	268.20	6,517.59	1,689.12	-10,899.32	11,029.15	1.04	-0.50	-0.91	
20,980.00	89.90	268.53	6,517.66	1,686.41	-10,994.28	11,122.70	0.37	-0.13	0.35	
21,073.00	89.55	269.17	6,518.10	1,684.54	-11,087.26	11,214.41	0.78	-0.38	0.69	
21,166.00	89.19	268.78	6,519.12	1,682.88	-11,180.24	11,306.14	0.57	-0.39	-0.42	
21,260.00	88.66	269.75	6,520.89	1,681.68	-11,274.21	11,398.93	1.18	-0.56	1.03	
21,352.00	88.26	269.51	6,523.36	1,681.08	-11,366.18	11,489.82	0.51	-0.43	-0.26	
21,413.92	88.10	269.69	6,525.33	1,680.65	-11,428.06	11,550.98	0.39	-0.27	0.29	
<b>ENTER 460 CIRCLE - 21413.92' MD (263 FWL, 378 FNL)</b>										
21,446.00	88.01	269.78	6,526.42	1,680.50	-11,460.12	11,582.67	0.39	-0.27	0.29	
<b>Last Survey - SBJ 13-3HZ_460' Circle</b>										
21,492.37	88.01	269.78	6,528.03	1,680.32	-11,506.46	11,628.49	0.00	0.00	0.00	
<b>SBJ 13-3HZ BHL</b>										
21,493.00	88.01	269.78	6,528.05	1,680.32	-11,507.10	11,629.11	0.00	0.00	0.00	
<b>PTB - 21493.00' MD (374 FNL, 180 FWL) - SBJ 13-3HZ_BHL</b>										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
7,334.00	6,428.63	1,708.75	2,510.36	KOP - 7334.00' MD (476 FNL, 1705 FEL)	
7,470.00	6,536.12	1,737.60	2,432.49	ENTER LAND BOX - 8250.95' MD (443 FNL, 1787 FEL)	
8,064.47	6,769.33	1,825.72	1,913.00	LP - 6769.33' TVD, 92.55° INC (354 FNL, 2306 FEL)	
8,110.89	6,766.20	1,826.22	1,866.69	ENTER 460 - 8110.89' MD (352 FNL, 2354 FEL)	
8,707.72	6,731.55	1,826.01	1,270.94	EXIT 460 - 8707.72' MD (350 FNL, 2946 FEL)	
21,413.92	6,525.33	1,680.65	-11,428.06	ENTER 460 CIRCLE - 21413.92' MD (263 FWL, 378 FNL)	
21,446.00	6,526.42	1,680.50	-11,460.12	Last Survey	
21,493.00	6,528.05	1,680.32	-11,507.10	PTB - 21493.00' MD (374 FNL, 180 FWL)	



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<b>Wellbore:</b>	Plan C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	EDM 5000.1 Single User Db

Checked By: _____	Approved By: _____	Date: _____
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