

Occidental Petroleum

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

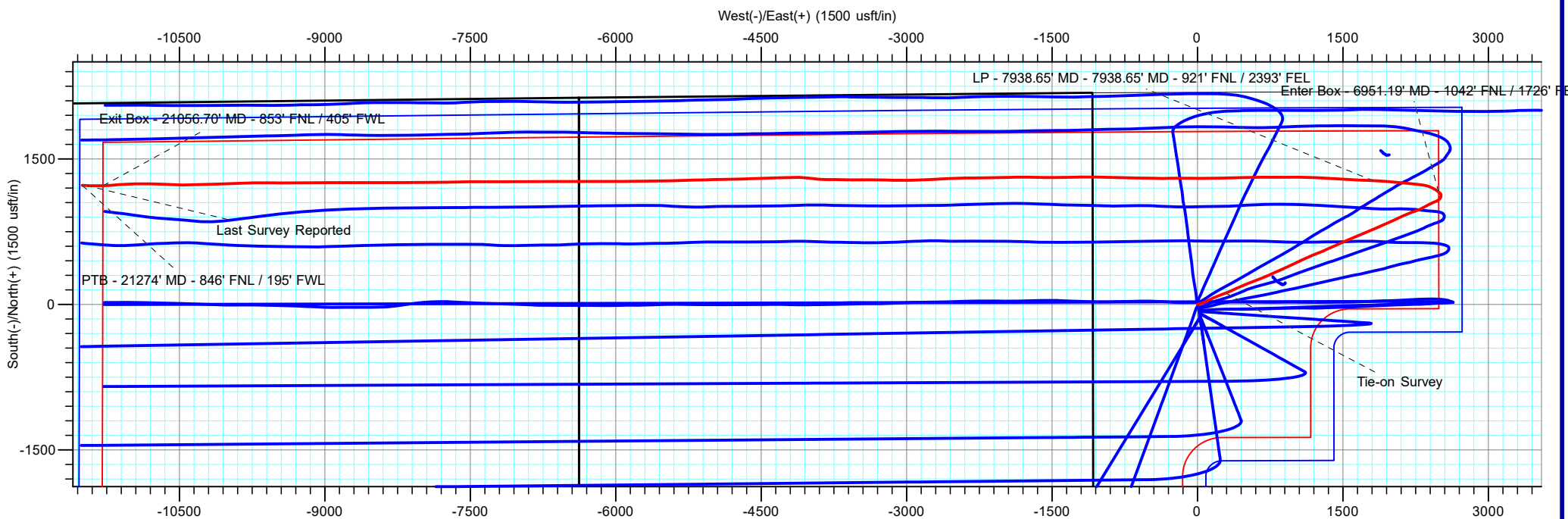
PROJECT DETAILS: Weld County, CO (UTM-NAD83)
 Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Zone 13N (108 W to 102 W)



ACTUAL LINE CALLS
SHL: 2188' FNL, 1073' FWL
HEEL: 921' FNL, 2393' FEL
TOE: 846' FNL, 195' 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	
1835.00	25.03	69.63	1793.50	116.75	289.04	-289.73	312.11	Tie-on Survey	
6951.19	17.68	304.74	6238.77	1158.64	2486.34	-2493.17	2815.78	Enter Box - 6951.19' MD - 1042' FNL / 1726' FEL	
7938.65	85.93	272.77	6856.11	1275.56	1815.45	-1822.98	3506.39	LP - 7938.65' MD - 7938.65' MD - 921' FNL / 2393' FEL	
21056.70	98.06	268.47	6551.29	1224.89	11287.91	11280.44	16614.71	Exit Box - 21056.70' MD - 853' FNL / 405' FWL	
21232.00	95.87	271.74	6528.85	1225.51	11461.73	11454.25	16788.57	Last Survey Reported	
21274.00	95.87	271.74	6524.55	1226.78	11503.49	11496.01	16830.35	PTB - 21274' MD - 846' FNL / 195' FWL	



TOTAL DIRECTIONAL SERVICES LLC

Design: Surveys (SBJ 13-4HZ/Plan C)
 4N-68W-13 SBJ 22-13HZ PAD
 Created By: RDW Date: 17:58, December 16 2021
 Approved: _____ Date: _____

Occidental Petroleum

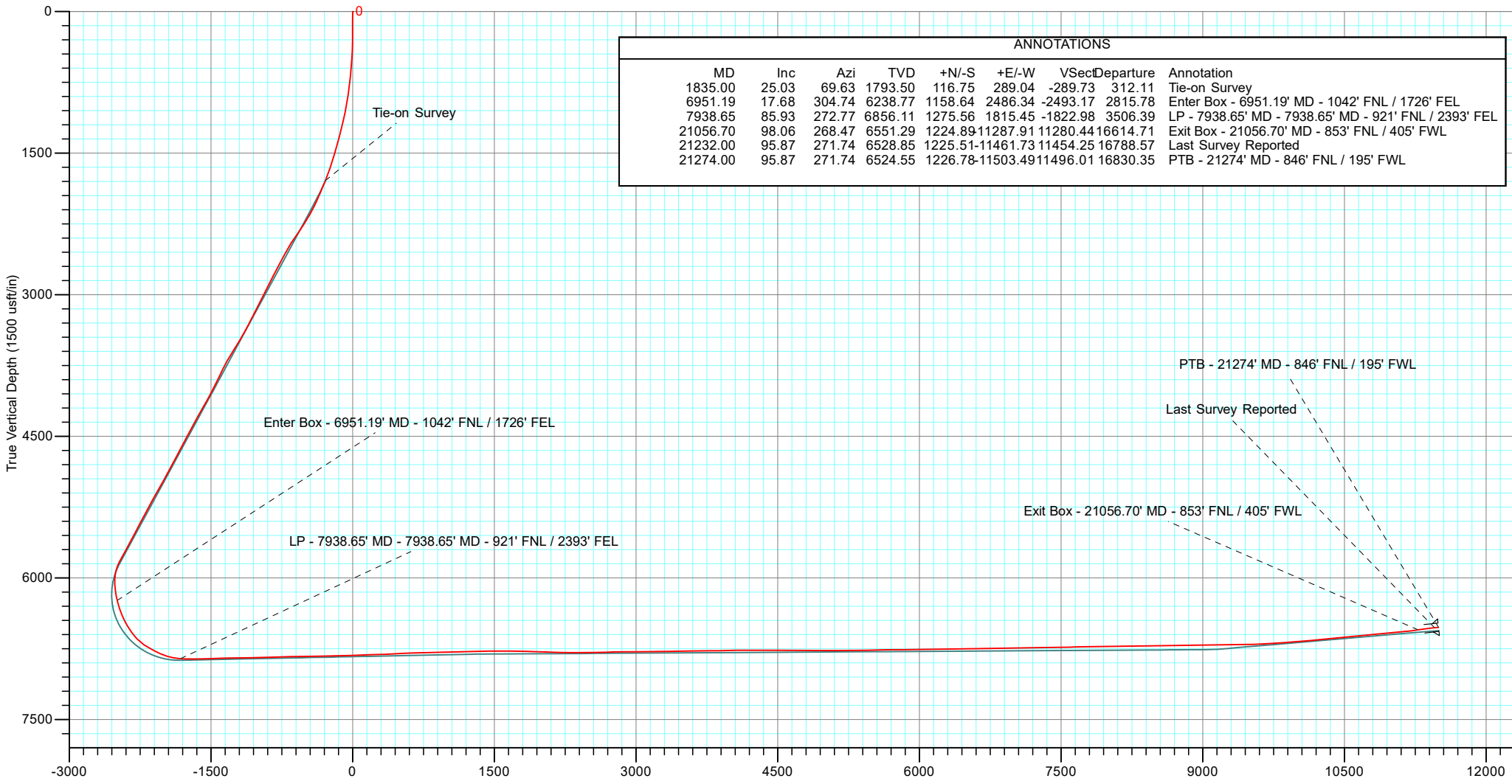
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TOTAL DIRECTIONAL SERVICES LLC

Design: Surveys (SBJ 13-4HZ/Plan C)
 4N-68W-13 SBJ 22-13HZ PAD
 Created By: RDW Date: 18:53, December 16 2021
 Date: _____
 Approved: _____ Date: _____



Occidental Petroleum

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

Plan C

Design: Surveys

Standard Survey Report

16 December, 2021





Survey Report



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

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

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

Well	SBJ 13-4HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,641,460.51 usft	Latitude:	40.315046
	+E/-W	0.00 usft	Easting:	1,652,438.73 usft	Longitude:	-104.956873
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	4,859.00 usft
Grid Convergence:		0.03 °				

Wellbore	Plan C				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IFR	10/6/2021	7.86	66.48	51,858.70

Design	Surveys				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	269.66	

Survey Program	Date	12/16/2021			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
115.00	21,274.00	Survey #1 (Adjusted) (Plan C)	APC_ISCWSA REV 2 MM	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
115.00	0.05	44.48	115.00	0.04	0.04	-0.04	0.05	0.05	0.00
215.00	0.29	53.78	215.00	0.22	0.27	-0.28	0.24	0.24	9.30
315.00	1.21	71.43	314.99	0.71	1.48	-1.48	0.93	0.92	17.65
415.00	2.24	76.12	414.94	1.51	4.38	-4.39	1.04	1.04	4.68
515.00	3.68	76.06	514.81	2.76	9.39	-9.41	1.44	1.44	-0.06
615.00	5.00	75.42	614.52	4.63	16.73	-16.76	1.32	1.32	-0.65
715.00	6.32	73.24	714.03	7.31	26.22	-26.26	1.33	1.32	-2.18
815.00	8.07	71.28	813.24	11.15	38.13	-38.20	1.77	1.75	-1.96
915.00	9.33	67.30	912.09	16.53	52.26	-52.36	1.39	1.26	-3.98



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Wellbore:	Plan C	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	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)
1,015.00	11.01	67.57	1,010.51	23.30	68.56	-68.70	1.68	1.68	0.27
1,115.00	13.46	66.89	1,108.23	31.52	88.10	-88.28	2.45	2.45	-0.68
1,215.00	14.74	64.94	1,205.22	41.47	110.32	-110.56	1.36	1.28	-1.95
1,315.00	15.67	64.82	1,301.72	52.60	134.07	-134.37	0.94	0.94	-0.12
1,415.00	16.95	65.08	1,397.69	64.49	159.51	-159.89	1.28	1.28	0.26
1,515.00	18.52	67.69	1,492.94	76.66	187.43	-187.88	1.76	1.57	2.61
1,615.00	18.16	68.66	1,587.86	88.36	216.63	-217.16	0.47	-0.36	0.97
1,715.00	19.60	67.84	1,682.48	100.36	246.69	-247.28	1.47	1.44	-0.83
1,815.00	23.98	69.39	1,775.31	113.84	281.26	-281.93	4.41	4.38	1.55
1,834.00	25.06	69.64	1,792.60	116.60	288.64	-289.33	5.73	5.70	1.30
1,835.00	25.03	69.63	1,793.50	116.75	289.04	-289.73	2.59	-2.56	-0.85
Tie-on Survey									
1,920.00	22.86	68.84	1,871.18	128.97	321.30	-322.06	2.59	-2.56	-0.93
2,013.00	25.69	64.02	1,955.96	144.33	356.28	-357.13	3.71	3.04	-5.18
2,105.00	28.04	66.79	2,038.03	161.59	394.08	-395.04	2.89	2.55	3.01
2,199.00	30.62	64.30	2,119.97	180.68	435.97	-437.03	3.04	2.74	-2.65
2,291.00	32.70	67.53	2,198.28	200.34	480.05	-481.24	2.92	2.26	3.51
2,383.00	34.88	70.83	2,274.74	218.48	527.88	-529.16	3.10	2.37	3.59
2,476.00	37.11	68.52	2,349.99	237.49	579.11	-580.51	2.81	2.40	-2.48
2,568.00	36.20	67.64	2,423.79	257.99	630.06	-631.58	1.14	-0.99	-0.96
2,660.00	32.15	67.57	2,499.89	277.67	677.83	-679.47	4.40	-4.40	-0.08
2,752.00	29.44	66.95	2,578.91	295.87	721.27	-723.02	2.97	-2.95	-0.67
2,845.00	30.94	65.97	2,659.30	314.55	764.14	-765.99	1.70	1.61	-1.05
2,937.00	28.81	64.59	2,739.07	333.70	805.77	-807.74	2.43	-2.32	-1.50
3,029.00	29.15	66.88	2,819.55	352.01	846.40	-848.48	1.26	0.37	2.49
3,122.00	29.68	67.54	2,900.56	369.70	888.51	-890.69	0.67	0.57	0.71
3,248.00	28.87	64.47	3,010.47	394.73	944.79	-947.12	1.35	-0.64	-2.44
3,341.00	29.33	63.85	3,091.73	414.44	985.50	-987.94	0.59	0.49	-0.67
3,434.00	29.53	62.73	3,172.73	434.98	1,026.32	-1,028.88	0.63	0.22	-1.20
3,526.00	29.21	66.45	3,252.92	454.34	1,067.05	-1,069.73	2.01	-0.35	4.04
3,618.00	29.32	66.10	3,333.17	472.44	1,108.22	-1,111.01	0.22	0.12	-0.38
3,710.00	31.05	67.78	3,412.70	490.54	1,150.79	-1,153.68	2.09	1.88	1.83
3,803.00	33.24	67.06	3,491.44	509.54	1,196.47	-1,199.47	2.39	2.35	-0.77
3,895.00	34.47	67.13	3,567.84	529.49	1,243.68	-1,246.80	1.34	1.34	0.08
3,988.00	33.33	66.56	3,645.03	549.88	1,291.37	-1,294.61	1.27	-1.23	-0.61
4,081.00	31.09	66.09	3,723.71	569.78	1,336.77	-1,340.13	2.42	-2.41	-0.51
4,174.00	27.38	64.74	3,804.85	588.65	1,378.08	-1,381.54	4.05	-3.99	-1.45
4,267.00	28.41	66.92	3,887.04	606.45	1,417.77	-1,421.34	1.56	1.11	2.34
4,361.00	29.04	63.83	3,969.48	625.28	1,458.82	-1,462.51	1.72	0.67	-3.29
4,454.00	29.38	69.40	4,050.67	643.26	1,500.44	-1,504.23	2.94	0.37	5.99
4,548.00	31.36	67.09	4,131.77	660.90	1,544.56	-1,548.46	2.45	2.11	-2.46
4,640.00	32.81	67.90	4,209.72	679.59	1,589.71	-1,593.71	1.64	1.58	0.88
4,733.00	30.34	65.14	4,288.95	698.95	1,634.37	-1,638.49	3.08	-2.66	-2.97



Survey Report



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Wellbore:	Plan C	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	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)
4,825.00	29.95	65.83	4,368.50	718.12	1,676.41	-1,680.64	0.57	-0.42	0.75
4,918.00	29.69	69.57	4,449.20	735.67	1,719.18	-1,723.51	2.02	-0.28	4.02
5,010.00	30.87	68.23	4,528.65	752.38	1,762.45	-1,766.88	1.48	1.28	-1.46
5,102.00	29.49	66.02	4,608.18	770.34	1,805.06	-1,809.60	1.93	-1.50	-2.40
5,195.00	29.43	64.97	4,689.15	789.31	1,846.68	-1,851.33	0.56	-0.06	-1.13
5,287.00	30.05	66.39	4,769.03	808.10	1,888.27	-1,893.03	1.02	0.67	1.54
5,381.00	31.50	65.05	4,849.80	827.88	1,932.10	-1,936.98	1.71	1.54	-1.43
5,473.00	30.94	66.00	4,928.47	847.64	1,975.50	-1,980.49	0.81	-0.61	1.03
5,567.00	31.11	66.63	5,009.03	867.10	2,019.87	-2,024.97	0.39	0.18	0.67
5,660.00	31.62	64.88	5,088.44	886.98	2,063.99	-2,069.22	1.12	0.55	-1.88
5,754.00	30.78	66.27	5,168.84	907.12	2,108.32	-2,113.67	1.18	-0.89	1.48
5,847.00	30.87	66.54	5,248.70	926.20	2,152.00	-2,157.45	0.18	0.10	0.29
5,941.00	30.11	67.30	5,329.70	944.90	2,195.87	-2,201.44	0.91	-0.81	0.81
6,033.00	29.62	72.52	5,409.50	960.63	2,238.85	-2,244.51	2.87	-0.53	5.67
6,126.00	28.86	69.15	5,490.66	975.53	2,281.75	-2,287.50	1.95	-0.82	-3.62
6,220.00	30.31	59.76	5,572.44	995.56	2,323.47	-2,329.34	5.16	1.54	-9.99
6,314.00	32.27	61.47	5,652.77	1,019.49	2,366.01	-2,372.02	2.29	2.09	1.82
6,408.00	31.08	64.71	5,732.77	1,041.85	2,410.00	-2,416.14	2.21	-1.27	3.45
6,501.00	30.77	69.57	5,812.56	1,060.41	2,454.00	-2,460.25	2.71	-0.33	5.23
6,594.00	23.87	47.31	5,895.35	1,081.55	2,490.27	-2,496.64	13.14	-7.42	-23.94
6,687.00	19.03	17.78	5,982.14	1,108.84	2,508.79	-2,515.33	12.56	-5.20	-31.75
6,780.00	11.57	349.76	6,071.89	1,132.52	2,511.77	-2,518.45	11.08	-8.02	-30.13
6,872.00	11.59	306.16	6,162.19	1,147.08	2,502.65	-2,509.42	9.29	0.02	-47.39
6,951.19	17.68	304.74	6,238.77	1,158.64	2,486.34	-2,493.17	7.70	7.68	-1.79
Enter Box - 6951.19' MD - 1042' FNL / 1726' FEL									
6,964.00	18.66	304.60	6,250.94	1,160.91	2,483.05	-2,489.90	7.70	7.69	-1.12
7,057.00	22.32	307.66	6,338.05	1,180.15	2,456.82	-2,463.78	4.10	3.94	3.29
7,149.00	29.09	296.64	6,420.94	1,200.89	2,422.94	-2,430.02	8.98	7.36	-11.98
7,241.00	30.19	288.43	6,500.94	1,218.24	2,380.98	-2,388.17	4.57	1.20	-8.92
7,334.00	36.71	280.06	6,578.53	1,230.51	2,331.35	-2,338.61	8.57	7.01	-9.00
7,426.00	43.35	275.45	6,648.95	1,238.32	2,272.76	-2,280.07	7.90	7.22	-5.01
7,518.00	56.45	276.45	6,708.08	1,245.66	2,202.93	-2,210.28	14.26	14.24	1.09
7,610.00	62.07	274.87	6,755.09	1,253.42	2,124.27	-2,131.67	6.28	6.11	-1.72
7,704.00	65.36	274.64	6,796.71	1,260.40	2,040.29	-2,047.74	3.51	3.50	-0.24
7,797.00	71.32	274.26	6,831.02	1,267.10	1,954.16	-1,961.64	6.42	6.41	-0.41
7,891.00	83.30	273.24	6,851.64	1,273.07	1,862.82	-1,870.34	12.79	12.74	-1.09
7,938.65	85.93	272.77	6,856.11	1,275.56	1,815.45	-1,822.98	5.61	5.53	-0.98
LP - 7938.65' MD - 7938.65' MD - 921' FNL / 2393' FEL									
7,984.00	88.44	272.33	6,858.33	1,277.57	1,770.20	-1,777.75	5.61	5.53	-0.98
8,076.00	89.57	272.66	6,859.93	1,281.58	1,678.30	-1,685.88	1.28	1.23	0.36
8,169.00	91.84	273.07	6,858.79	1,286.22	1,585.43	-1,593.04	2.48	2.44	0.44
8,263.00	91.53	273.06	6,856.02	1,291.25	1,491.61	-1,499.24	0.33	-0.33	-0.01
8,356.00	92.99	275.26	6,852.35	1,297.99	1,398.93	-1,406.61	2.84	1.57	2.37
8,449.00	90.58	272.23	6,849.46	1,304.06	1,306.19	-1,313.91	4.16	-2.59	-3.26



Survey Report



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8,541.00	90.41	272.19	6,848.66	1,307.60	1,214.27	-1,222.00	0.19	-0.18	-0.04	
8,633.00	91.26	270.00	6,847.32	1,309.36	1,122.30	-1,130.05	2.55	0.92	-2.38	
8,725.00	91.18	270.16	6,845.36	1,309.49	1,030.32	-1,038.07	0.19	-0.09	0.17	
8,818.00	90.55	271.18	6,843.96	1,310.58	937.34	-945.10	1.29	-0.68	1.10	
8,912.00	92.40	270.07	6,841.54	1,311.60	843.38	-851.15	2.29	1.97	-1.18	
9,004.00	93.32	269.72	6,836.95	1,311.43	751.50	-759.27	1.07	1.00	-0.38	
9,097.00	90.29	269.93	6,834.02	1,311.15	658.55	-666.32	3.27	-3.26	0.23	
9,190.00	90.78	269.33	6,833.15	1,310.55	565.56	-573.33	0.83	0.53	-0.65	
9,281.00	91.17	268.16	6,831.60	1,308.56	474.60	-482.36	1.36	0.43	-1.29	
9,373.00	89.94	267.92	6,830.71	1,305.41	382.66	-390.40	1.36	-1.34	-0.26	
9,466.00	91.21	268.40	6,829.78	1,302.42	289.71	-297.44	1.46	1.37	0.52	
9,560.00	92.06	270.23	6,827.10	1,301.30	195.76	-203.48	2.15	0.90	1.95	
9,652.00	90.83	269.15	6,824.78	1,300.80	103.80	-111.51	1.78	-1.34	-1.17	
9,745.00	92.30	270.10	6,822.24	1,300.19	10.84	-18.55	1.88	1.58	1.02	
9,839.00	91.81	270.56	6,818.87	1,300.74	-83.10	75.38	0.71	-0.52	0.49	
9,932.00	92.03	269.89	6,815.75	1,301.10	-176.05	168.32	0.76	0.24	-0.72	
10,024.00	92.21	269.68	6,812.35	1,300.76	-267.98	260.26	0.30	0.20	-0.23	
10,118.00	92.03	269.21	6,808.87	1,299.85	-361.91	354.19	0.54	-0.19	-0.50	
10,212.00	92.77	271.05	6,804.93	1,300.06	-455.83	448.10	2.11	0.79	1.96	
10,305.00	93.12	270.91	6,800.15	1,301.65	-548.69	540.96	0.41	0.38	-0.15	
10,398.00	92.04	271.05	6,795.97	1,303.24	-641.58	633.84	1.17	-1.16	0.15	
10,491.00	92.35	271.93	6,792.41	1,305.65	-734.48	726.72	1.00	0.33	0.95	
10,584.00	91.39	271.98	6,789.37	1,308.82	-827.38	819.59	1.03	-1.03	0.05	
10,676.00	91.02	270.98	6,787.44	1,311.20	-919.32	911.53	1.16	-0.40	-1.09	
10,770.00	90.70	271.52	6,786.03	1,313.25	-1,013.29	1,005.48	0.67	-0.34	0.57	
10,862.00	91.25	269.30	6,784.46	1,313.91	-1,105.27	1,097.45	2.49	0.60	-2.41	
10,956.00	90.97	269.54	6,782.64	1,312.96	-1,199.25	1,191.43	0.39	-0.30	0.26	
11,048.00	91.07	268.98	6,781.00	1,311.77	-1,291.22	1,283.42	0.62	0.11	-0.61	
11,140.00	90.34	269.06	6,779.87	1,310.19	-1,383.20	1,375.40	0.80	-0.79	0.09	
11,234.00	91.35	268.36	6,778.48	1,308.08	-1,477.17	1,469.38	1.31	1.07	-0.74	
11,328.00	91.56	270.98	6,776.10	1,307.54	-1,571.13	1,563.34	2.80	0.22	2.79	
11,420.00	90.24	272.81	6,774.65	1,310.58	-1,663.06	1,655.25	2.45	-1.43	1.99	
11,512.00	88.47	269.51	6,775.69	1,312.44	-1,755.02	1,747.20	4.07	-1.92	-3.59	
11,604.00	87.70	268.69	6,778.76	1,311.00	-1,846.95	1,839.14	1.22	-0.84	-0.89	
11,697.00	88.18	269.61	6,782.10	1,309.62	-1,939.88	1,932.08	1.12	0.52	0.99	
11,790.00	87.84	269.05	6,785.33	1,308.53	-2,032.82	2,025.02	0.70	-0.37	-0.60	
11,884.00	88.68	269.08	6,788.19	1,307.00	-2,126.76	2,118.97	0.89	0.89	0.03	
11,976.00	88.10	269.09	6,790.77	1,305.53	-2,218.71	2,210.93	0.63	-0.63	0.01	
12,069.00	89.76	269.37	6,792.51	1,304.28	-2,311.69	2,303.90	1.81	1.78	0.30	
12,161.00	89.34	268.07	6,793.23	1,302.23	-2,403.66	2,395.89	1.48	-0.46	-1.41	
12,254.00	91.32	268.68	6,792.70	1,299.59	-2,496.61	2,488.86	2.23	2.13	0.66	
12,346.00	91.60	268.35	6,790.35	1,297.21	-2,588.55	2,580.81	0.47	0.30	-0.36	
12,439.00	91.77	267.16	6,787.62	1,293.56	-2,681.44	2,673.72	1.29	0.18	-1.28	



Survey Report



Company:	Occidental Petroleum	Local Co-ordinate Reference:	Well SBJ 13-4HZ
Project:	Weld County, CO (UTM-NAD83)	TVD Reference:	RKB = 20' @ 4879.00usft (PD 461)
Site:	4N-68W-13 SBJ 22-13HZ PAD	MD Reference:	RKB = 20' @ 4879.00usft (PD 461)
Well:	SBJ 13-4HZ	North Reference:	True
Wellbore:	Plan C	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	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)
12,531.00	91.21	265.18	6,785.22	1,287.42	-2,773.20	2,765.51	2.24	-0.61	-2.15
12,624.00	90.46	267.03	6,783.87	1,281.11	-2,865.97	2,858.32	2.15	-0.81	1.99
12,717.00	90.49	270.46	6,783.10	1,279.07	-2,958.93	2,951.29	3.69	0.03	3.69
12,809.00	90.73	269.84	6,782.12	1,279.31	-3,050.92	3,043.28	0.72	0.26	-0.67
12,902.00	89.85	271.55	6,781.65	1,280.44	-3,143.91	3,136.26	2.07	-0.95	1.84
12,994.00	90.85	271.51	6,781.09	1,282.89	-3,235.87	3,228.20	1.09	1.09	-0.04
13,086.00	90.59	270.82	6,779.93	1,284.76	-3,327.85	3,320.17	0.80	-0.28	-0.75
13,179.00	91.40	270.67	6,778.31	1,285.97	-3,420.83	3,413.13	0.89	0.87	-0.16
13,272.00	91.78	268.83	6,775.73	1,285.57	-3,513.78	3,506.09	2.02	0.41	-1.98
13,366.00	90.21	269.91	6,774.10	1,284.53	-3,607.76	3,600.07	2.03	-1.67	1.15
13,459.00	91.43	271.78	6,772.77	1,285.91	-3,700.73	3,693.04	2.40	1.31	2.01
13,555.00	89.49	269.76	6,772.00	1,287.20	-3,796.71	3,789.01	2.92	-2.02	-2.10
13,647.00	90.92	273.66	6,771.67	1,289.94	-3,888.65	3,880.93	4.51	1.55	4.24
13,738.00	91.67	277.15	6,769.61	1,298.51	-3,979.21	3,971.43	3.92	0.82	3.84
13,831.00	90.44	273.99	6,767.90	1,307.53	-4,071.74	4,063.91	3.65	-1.32	-3.40
13,923.00	89.92	269.28	6,767.61	1,310.16	-4,163.68	4,155.83	5.15	-0.57	-5.12
14,016.00	89.97	267.93	6,767.70	1,307.89	-4,256.65	4,248.81	1.45	0.05	-1.45
14,108.00	90.05	267.77	6,767.68	1,304.44	-4,348.58	4,340.76	0.19	0.09	-0.17
14,201.00	89.93	268.13	6,767.70	1,301.11	-4,441.52	4,433.72	0.41	-0.13	0.39
14,294.00	90.22	268.78	6,767.58	1,298.61	-4,534.49	4,526.70	0.77	0.31	0.70
14,386.00	89.57	268.24	6,767.75	1,296.21	-4,626.46	4,618.68	0.92	-0.71	-0.59
14,478.00	89.32	267.69	6,768.64	1,292.95	-4,718.39	4,710.64	0.66	-0.27	-0.60
14,571.00	89.55	269.02	6,769.56	1,290.28	-4,811.35	4,803.61	1.45	0.25	1.43
14,665.00	89.33	268.84	6,770.47	1,288.52	-4,905.33	4,897.59	0.30	-0.23	-0.19
14,757.00	89.50	269.08	6,771.41	1,286.85	-4,997.31	4,989.58	0.32	0.18	0.26
14,850.00	90.95	268.57	6,771.05	1,284.95	-5,090.28	5,082.57	1.65	1.56	-0.55
14,943.00	90.87	268.42	6,769.57	1,282.50	-5,183.24	5,175.54	0.18	-0.09	-0.16
15,035.00	90.85	268.60	6,768.19	1,280.11	-5,275.20	5,267.51	0.20	-0.02	0.20
15,127.00	90.82	267.99	6,766.85	1,277.37	-5,367.15	5,359.47	0.66	-0.03	-0.66
15,221.00	90.77	268.48	6,765.55	1,274.48	-5,461.09	5,453.43	0.52	-0.05	0.52
15,313.00	90.77	268.64	6,764.31	1,272.17	-5,553.06	5,545.41	0.17	0.00	0.17
15,405.00	90.73	269.54	6,763.11	1,270.71	-5,645.04	5,637.40	0.98	-0.04	0.98
15,498.00	90.78	269.39	6,761.88	1,269.84	-5,738.02	5,730.39	0.17	0.05	-0.16
15,590.00	90.80	270.31	6,760.61	1,269.60	-5,830.01	5,822.38	1.00	0.02	1.00
15,685.00	90.70	269.28	6,759.37	1,269.26	-5,925.00	5,917.37	1.09	-0.11	-1.08
15,777.00	90.72	270.03	6,758.23	1,268.70	-6,016.99	6,009.36	0.82	0.02	0.82
15,871.00	90.77	270.50	6,757.01	1,269.14	-6,110.99	6,103.35	0.50	0.05	0.50
15,964.00	90.82	269.56	6,755.72	1,269.19	-6,203.98	6,196.33	1.01	0.05	-1.01
16,057.00	90.76	269.48	6,754.43	1,268.41	-6,296.96	6,289.33	0.11	-0.06	-0.09
16,150.00	90.79	269.69	6,753.18	1,267.73	-6,389.95	6,382.32	0.23	0.03	0.23
16,242.00	90.77	269.75	6,751.92	1,267.28	-6,481.94	6,474.31	0.07	-0.02	0.07
16,334.00	90.82	270.36	6,750.65	1,267.37	-6,573.93	6,566.30	0.67	0.05	0.66
16,428.00	90.74	269.11	6,749.37	1,266.94	-6,667.92	6,660.29	1.33	-0.09	-1.33



Survey Report



Company:	Occidental Petroleum	Local Co-ordinate Reference:	Well SBJ 13-4HZ
Project:	Weld County, CO (UTM-NAD83)	TVD Reference:	RKB = 20' @ 4879.00usft (PD 461)
Site:	4N-68W-13 SBJ 22-13HZ PAD	MD Reference:	RKB = 20' @ 4879.00usft (PD 461)
Well:	SBJ 13-4HZ	North Reference:	True
Wellbore:	Plan C	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	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)
16,521.00	90.90	270.71	6,748.04	1,266.79	-6,760.91	6,753.27	1.73	0.17	1.72
16,614.00	90.73	269.20	6,746.71	1,266.72	-6,853.90	6,846.26	1.63	-0.18	-1.62
16,707.00	90.76	269.27	6,745.50	1,265.48	-6,946.88	6,939.25	0.08	0.03	0.08
16,800.00	91.35	269.53	6,743.79	1,264.50	-7,039.86	7,032.23	0.69	0.63	0.28
16,893.00	90.93	269.98	6,741.94	1,264.11	-7,132.84	7,125.21	0.66	-0.45	0.48
16,987.00	90.86	270.49	6,740.47	1,264.49	-7,226.83	7,219.20	0.55	-0.07	0.54
17,079.00	90.99	270.01	6,738.99	1,264.89	-7,318.81	7,311.18	0.54	0.14	-0.52
17,171.00	90.98	269.60	6,737.41	1,264.58	-7,410.80	7,403.16	0.45	-0.01	-0.45
17,264.00	91.18	269.88	6,735.65	1,264.16	-7,503.78	7,496.15	0.37	0.22	0.30
17,356.00	91.10	269.08	6,733.82	1,263.32	-7,595.76	7,588.13	0.87	-0.09	-0.87
17,448.00	91.25	268.98	6,731.94	1,261.77	-7,687.73	7,680.10	0.20	0.16	-0.11
17,540.00	91.00	269.60	6,730.13	1,260.63	-7,779.70	7,772.08	0.73	-0.27	0.67
17,634.00	90.79	268.95	6,728.66	1,259.44	-7,873.68	7,866.07	0.73	-0.22	-0.69
17,726.00	90.72	268.91	6,727.45	1,257.72	-7,965.66	7,958.05	0.09	-0.08	-0.04
17,818.00	90.79	269.58	6,726.24	1,256.51	-8,057.64	8,050.04	0.73	0.08	0.73
17,910.00	90.71	269.88	6,725.03	1,256.07	-8,149.63	8,142.03	0.34	-0.09	0.33
18,002.00	90.55	269.20	6,724.02	1,255.34	-8,241.62	8,234.03	0.76	-0.17	-0.74
18,095.00	91.00	270.30	6,722.76	1,254.93	-8,334.61	8,327.02	1.28	0.48	1.18
18,190.00	90.94	270.15	6,721.15	1,255.30	-8,429.60	8,422.00	0.17	-0.06	-0.16
18,284.00	90.92	270.39	6,719.63	1,255.75	-8,523.58	8,515.98	0.26	-0.02	0.26
18,376.00	90.79	269.65	6,718.26	1,255.78	-8,615.57	8,607.97	0.82	-0.14	-0.80
18,469.00	90.92	270.45	6,716.87	1,255.86	-8,708.56	8,700.96	0.87	0.14	0.86
18,563.00	90.94	269.68	6,715.34	1,255.97	-8,802.55	8,794.94	0.82	0.02	-0.82
18,656.00	90.73	270.33	6,713.99	1,255.97	-8,895.54	8,887.93	0.73	-0.23	0.70
18,748.00	90.59	268.97	6,712.93	1,255.41	-8,987.53	8,979.92	1.49	-0.15	-1.48
18,843.00	90.59	269.17	6,711.95	1,253.87	-9,082.51	9,074.91	0.21	0.00	0.21
18,936.00	91.00	270.38	6,710.66	1,253.50	-9,175.50	9,167.90	1.37	0.44	1.30
19,028.00	90.86	269.28	6,709.17	1,253.23	-9,267.49	9,259.89	1.21	-0.15	-1.20
19,122.00	91.02	270.09	6,707.62	1,252.71	-9,361.47	9,353.87	0.88	0.17	0.86
19,215.00	91.00	270.54	6,705.98	1,253.23	-9,454.45	9,446.85	0.48	-0.02	0.48
19,308.00	90.95	270.15	6,704.40	1,253.79	-9,547.44	9,539.83	0.42	-0.05	-0.42
19,402.00	92.49	270.57	6,701.58	1,254.38	-9,641.39	9,633.78	1.70	1.64	0.45
19,496.00	93.87	268.54	6,696.37	1,253.65	-9,735.24	9,727.63	2.61	1.47	-2.16
19,589.00	94.09	268.65	6,689.91	1,251.37	-9,827.98	9,820.39	0.26	0.24	0.12
19,683.00	94.64	267.63	6,682.76	1,248.33	-9,921.66	9,914.08	1.23	0.59	-1.09
19,775.00	95.21	267.46	6,674.86	1,244.41	-10,013.24	10,005.68	0.65	0.62	-0.18
19,868.00	95.63	268.13	6,666.07	1,240.84	-10,105.75	10,098.21	0.85	0.45	0.72
19,961.00	94.76	268.95	6,657.65	1,238.48	-10,198.34	10,190.81	1.28	-0.94	0.88
20,053.00	94.29	267.82	6,650.39	1,235.90	-10,290.01	10,282.50	1.33	-0.51	-1.23
20,146.00	95.05	268.48	6,642.82	1,232.91	-10,382.65	10,375.16	1.08	0.82	0.71
20,238.00	96.21	270.51	6,633.80	1,232.10	-10,474.20	10,466.71	2.53	1.26	2.21
20,331.00	95.80	271.93	6,624.07	1,234.07	-10,566.67	10,559.16	1.58	-0.44	1.53
20,423.00	95.16	272.86	6,615.28	1,237.89	-10,658.17	10,650.63	1.22	-0.70	1.01
20,516.00	95.50	272.20	6,606.64	1,241.98	-10,750.67	10,743.11	0.80	0.37	-0.71



Survey Report



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

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)
20,608.00	96.21	270.09	6,597.25	1,243.81	-10,842.17	10,834.60	2.41	0.77	-2.29
20,700.00	95.92	269.33	6,587.53	1,243.35	-10,933.65	10,926.08	0.88	-0.32	-0.83
20,793.00	94.91	266.68	6,578.76	1,240.12	-11,026.17	11,018.62	3.04	-1.09	-2.85
20,885.00	94.67	265.56	6,571.07	1,233.92	-11,117.64	11,110.12	1.24	-0.26	-1.22
20,980.00	97.05	267.07	6,561.37	1,227.84	-11,211.94	11,204.45	2.96	2.51	1.59
21,056.70	98.06	268.47	6,551.29	1,224.89	-11,287.91	11,280.44	2.24	1.32	1.83
Exit Box - 21056.70' MD - 853' FNL / 405' FWL									
21,073.00	98.28	268.77	6,548.97	1,224.50	-11,304.04	11,296.57	2.24	1.32	1.83
21,166.00	97.26	270.73	6,536.40	1,224.10	-11,396.18	11,388.71	2.36	-1.10	2.11
21,232.00	95.87	271.74	6,528.85	1,225.51	-11,461.73	11,454.25	2.60	-2.11	1.53
Last Survey Reported									
21,274.00	95.87	271.74	6,524.55	1,226.78	-11,503.49	11,496.01	0.00	0.00	0.00
PTB - 21274' MD - 846' FNL / 195' FWL									

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
21,274.00	6,524.55	20" Casing	20	24

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,835.00	1,793.50	116.75	289.04	Tie-on Survey
6,951.19	6,238.77	1,158.64	2,486.34	Enter Box - 6951.19' MD - 1042' FNL / 1726' FEL
7,938.65	6,856.11	1,275.56	1,815.45	LP - 7938.65' MD - 7938.65' MD - 921' FNL / 2393' FEL
21,056.70	6,551.29	1,224.89	-11,287.91	Exit Box - 21056.70' MD - 853' FNL / 405' FWL
21,232.00	6,528.85	1,225.51	-11,461.73	Last Survey Reported
21,274.00	6,524.55	1,226.78	-11,503.49	PTB - 21274' MD - 846' FNL / 195' FWL

Checked By: _____ Approved By: _____ Date: _____