

# **Occidental Petroleum**

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

**BERRY FARMS 8-8HZ PAD**

**BERRY FARMS 8-5HZ**

**OH**

**Design: OH**

## **Standard Survey Report**

**21 March, 2023**



Project: Weld County, CO (UTM-NAD83)  
Site: BERRY FARMS 8-8HZ PAD  
Well: BERRY FARMS 8-5HZ  
Wellbore: OH  
Design: OH  
Lat: 40.243720  
Long: -104.908129  
GL: 4817.00  
KB: PD 461 @ 4837.00usft



Azimuths to True North  
Magnetic North: 7.98°  
Magnetic Field  
Strength: 51722.0nT  
Dip Angle: 66.43°  
Date: 12/31/2022  
Model: HDGM2022\_FILE

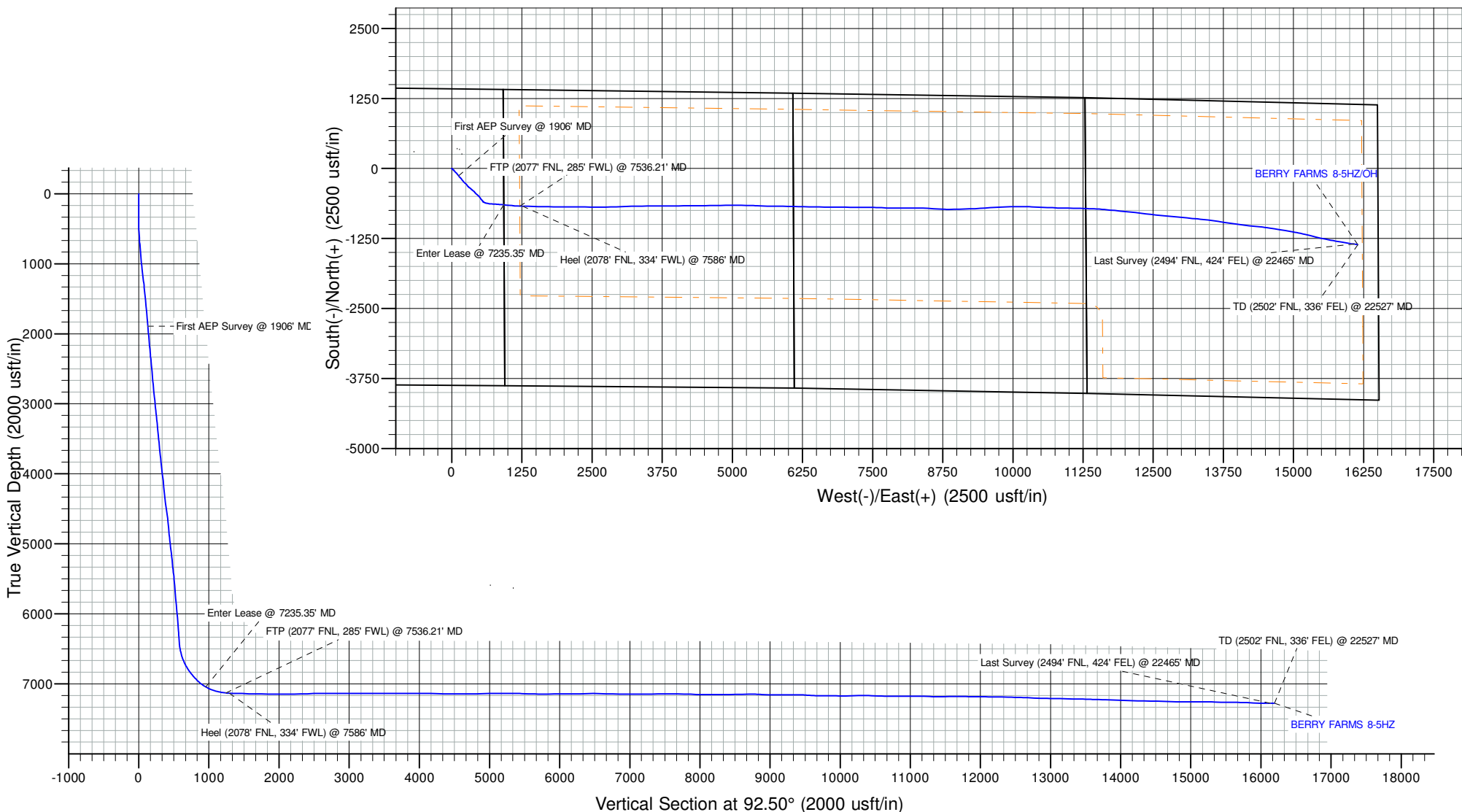
#### WELL DETAILS: BERRY FARMS 8-5HZ

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	14615497.10	1666053.61	40.243720	-104.908129

SHL: 1423' FNL, 924' FEL - Sec 8-T3N-R67W  
Heel: 2078' FNL, 334' FWL - Sec 9-T3N-R67W  
BHL: 2502' FNL, 336' FEL - Sec 11-T3N-R67W

#### ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
1906.00	8.28	140.76	1893.86	-131.48	123.53	129.15	183.37	First AEP Survey @ 1906' MD
7235.35	60.34	95.33	7045.13	-646.71	927.34	954.66	1199.21	Enter Lease @ 7235.35' MD
7536.21	84.58	92.10	7130.85	-670.67	1212.44	1240.54	1484.87	FTP (2077' FNL, 285' FWL) @ 7536.21' MD
7586.00	87.38	91.61	7134.34	-672.27	1262.08	1290.20	1534.44	Heel (2078' FNL, 334' FWL) @ 7586' MD
22465.00	89.89	98.67	7278.20	-1348.90	16086.72	16130.25	16409.97	Last Survey (2494' FNL, 424' FEL) @ 22465' MD
22527.00	89.89	98.67	7278.32	-1358.24	16148.01	16191.89	16471.97	TD (2502' FNL, 336' FEL) @ 22527' MD



## Survey Report

<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well BERRY FARMS 8-5HZ
<b>Project:</b>	Weld County, CO (UTM-NAD83)	<b>TVD Reference:</b>	PD 461 @ 4837.00usft
<b>Site:</b>	BERRY FARMS 8-8HZ PAD	<b>MD Reference:</b>	PD 461 @ 4837.00usft
<b>Well:</b>	BERRY FARMS 8-5HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	FHartmann

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

Site		BERRY FARMS 8-8HZ PAD			
Site Position:		Northing:	14,615,497.59 usft	Latitude:	40.243722
From:	Lat/Long	Easting:	1,665,993.52 usft	Longitude:	-104.908344
Position Uncertainty:		0.00 usft	Slot Radius:	13-3/16 "	

Well		BERRY FARMS 8-5HZ				
Well Position	+N/-S	0.00 usft	Northing:	14,615,497.10 usft	Latitude:	40.243721
	+E/-W	0.00 usft	Easting:	1,666,053.61 usft	Longitude:	-104.908129
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	4,817.00 usft
Grid Convergence:		0.06 °				

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM2022_FILE	12/31/2022	7.98	66.43	51,722.00000000

<b>Design</b>	OH				
<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	92.50	

<b>Survey Program</b>	<b>Date</b>	3/21/2023			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
7.00	1,823.00	Surface MWD (OH)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	
1,906.00	22,527.00	MWD (OH)	APC_ISCWSA REV 2 MWD+	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	
7.00	0.00	0.00	7.00	0.00	0.00	0.00	0.00	0.00	0.00	
86.00	0.10	212.57	86.00	-0.06	-0.04	-0.03	0.13	0.13	0.00	
178.00	0.20	309.74	178.00	-0.02	-0.20	-0.20	0.25	0.11	105.62	
270.00	0.35	230.31	270.00	-0.10	-0.54	-0.54	0.40	0.16	-86.34	
360.00	0.29	309.82	360.00	-0.13	-0.93	-0.92	0.46	-0.07	88.34	
449.00	1.50	128.40	448.99	-0.71	-0.19	-0.16	2.01	1.36	200.65	
539.00	3.49	121.47	538.90	-2.87	3.07	3.19	2.23	2.21	-7.70	
628.00	3.78	126.13	627.72	-6.01	7.75	8.00	0.46	0.33	5.24	

## Survey Report

<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well BERRY FARMS 8-5HZ
<b>Project:</b>	Weld County, CO (UTM-NAD83)	<b>TVD Reference:</b>	PD 461 @ 4837.00usft
<b>Site:</b>	BERRY FARMS 8-8HZ PAD	<b>MD Reference:</b>	PD 461 @ 4837.00usft
<b>Well:</b>	BERRY FARMS 8-5HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	FHartmann

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)	
718.00	5.86	129.60	717.40	-10.69	13.69	14.14	2.33	2.31	3.86	
807.00	6.38	133.01	805.89	-16.96	20.80	21.52	0.71	0.58	3.83	
897.00	6.41	135.15	895.33	-23.94	28.00	29.02	0.27	0.03	2.38	
987.00	7.39	132.95	984.68	-31.44	35.78	37.12	1.13	1.09	-2.44	
1,076.00	8.99	139.71	1,072.77	-40.65	44.47	46.20	2.10	1.80	7.60	
1,166.00	9.74	138.36	1,161.57	-51.70	54.08	56.28	0.87	0.83	-1.50	
1,255.00	10.33	136.96	1,249.21	-63.16	64.52	67.22	0.72	0.66	-1.57	
1,345.00	7.82	132.61	1,338.07	-73.20	74.54	77.66	2.89	-2.79	-4.83	
1,434.00	7.60	136.66	1,426.27	-81.58	83.03	86.51	0.66	-0.25	4.55	
1,523.00	7.51	139.11	1,514.50	-90.26	90.88	94.73	0.38	-0.10	2.75	
1,613.00	7.50	142.22	1,603.73	-99.35	98.33	102.57	0.45	-0.01	3.46	
1,703.00	7.65	144.72	1,692.94	-108.88	105.39	110.04	0.40	0.17	2.78	
1,792.00	8.41	140.63	1,781.07	-118.75	112.94	118.01	1.07	0.85	-4.60	
1,823.00	8.39	139.77	1,811.74	-122.23	115.84	121.06	0.41	-0.06	-2.77	
1,906.00	8.28	140.76	1,893.86	-131.48	123.53	129.15	0.22	-0.13	1.19	
First AEP Survey @ 1906' MD										
1,998.00	7.78	139.33	1,984.96	-141.33	131.78	137.82	0.59	-0.54	-1.55	
2,092.00	6.51	137.46	2,078.23	-150.08	139.53	145.94	1.37	-1.35	-1.99	
2,186.00	7.09	135.79	2,171.57	-158.17	147.17	153.93	0.65	0.62	-1.78	
2,280.00	6.00	133.87	2,264.95	-165.73	154.76	161.84	1.18	-1.16	-2.04	
2,372.00	8.63	139.41	2,356.20	-174.31	162.72	170.17	2.96	2.86	6.02	
2,464.00	9.31	144.89	2,447.07	-185.64	171.49	179.43	1.19	0.74	5.96	
2,556.00	8.64	146.52	2,537.94	-197.49	179.58	188.03	0.78	-0.73	1.77	
2,650.00	7.69	146.07	2,630.99	-208.60	186.99	195.91	1.01	-1.01	-0.48	
2,743.00	9.21	139.60	2,722.98	-219.43	195.29	204.67	1.93	1.63	-6.96	
2,837.00	7.71	140.99	2,815.96	-230.06	204.13	213.97	1.61	-1.60	1.48	
2,929.00	8.10	128.38	2,907.09	-238.88	213.10	223.32	1.93	0.42	-13.71	
3,022.00	6.52	134.23	2,999.33	-246.63	222.02	232.57	1.88	-1.70	6.29	
3,114.00	7.62	132.41	3,090.63	-254.39	230.27	241.14	1.22	1.20	-1.98	
3,207.00	8.64	133.86	3,182.69	-263.39	239.85	251.12	1.12	1.10	1.56	
3,300.00	6.83	134.39	3,274.84	-272.09	248.84	260.48	1.95	-1.95	0.57	
3,392.00	8.17	130.77	3,366.06	-280.19	257.70	269.68	1.54	1.46	-3.93	
3,485.00	8.50	142.28	3,458.08	-289.94	266.91	279.31	1.83	0.35	12.38	
3,578.00	9.50	143.44	3,549.93	-301.55	275.69	288.58	1.09	1.08	1.25	
3,670.00	8.51	146.77	3,640.80	-313.34	283.94	297.34	1.22	-1.08	3.62	
3,764.00	8.94	131.23	3,733.72	-323.97	293.25	307.10	2.54	0.46	-16.53	
3,856.00	7.73	134.22	3,824.75	-333.00	303.06	317.30	1.40	-1.32	3.25	
3,948.00	7.38	123.90	3,915.96	-340.61	312.40	326.96	1.52	-0.38	-11.22	
4,041.00	8.29	124.95	4,008.09	-347.78	322.85	337.72	0.99	0.98	1.13	
4,135.00	7.94	130.08	4,101.15	-355.84	333.38	348.58	0.86	-0.37	5.46	
4,227.00	7.22	137.60	4,192.34	-364.20	342.14	357.70	1.33	-0.78	8.17	
4,319.00	7.02	132.14	4,283.64	-372.25	350.20	366.11	0.77	-0.22	-5.93	
4,352.00	6.85	132.80	4,316.39	-374.94	353.14	369.16	0.57	-0.52	2.00	

## Survey Report

<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well BERRY FARMS 8-5HZ
<b>Project:</b>	Weld County, CO (UTM-NAD83)	<b>TVD Reference:</b>	PD 461 @ 4837.00usft
<b>Site:</b>	BERRY FARMS 8-8HZ PAD	<b>MD Reference:</b>	PD 461 @ 4837.00usft
<b>Well:</b>	BERRY FARMS 8-5HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	FHartmann

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)
4,445.00	8.44	121.86	4,408.57	-382.31	363.01	379.34	2.31	1.71	-11.76
4,538.00	9.79	124.97	4,500.39	-390.44	375.29	391.96	1.54	1.45	3.34
4,631.00	9.84	135.55	4,592.04	-400.65	387.33	404.44	1.94	0.05	11.38
4,723.00	8.82	134.12	4,682.82	-411.17	397.90	415.46	1.14	-1.11	-1.55
4,815.00	8.16	141.46	4,773.82	-421.19	407.03	425.02	1.38	-0.72	7.98
4,908.00	8.09	141.25	4,865.88	-431.45	415.24	433.66	0.08	-0.08	-0.23
5,000.00	9.28	132.75	4,956.83	-441.54	424.74	443.60	1.90	1.29	-9.24
5,091.00	7.65	132.87	5,046.84	-450.64	434.57	453.81	1.79	-1.79	0.13
5,185.00	8.72	128.88	5,139.88	-459.37	444.70	464.31	1.29	1.14	-4.24
5,277.00	7.64	139.90	5,230.95	-468.43	454.07	474.07	2.06	-1.17	11.98
5,369.00	7.45	128.88	5,322.15	-476.85	462.65	483.01	1.58	-0.21	-11.98
5,461.00	8.82	127.24	5,413.23	-484.86	472.91	493.61	1.51	1.49	-1.78
5,554.00	6.83	132.65	5,505.36	-492.92	482.66	503.70	2.28	-2.14	5.82
5,646.00	7.14	150.03	5,596.68	-501.58	489.54	510.95	2.31	0.34	18.89
5,740.00	7.89	147.05	5,689.88	-512.06	495.96	517.83	0.90	0.80	-3.17
5,832.00	7.89	139.38	5,781.01	-522.15	503.51	525.81	1.14	0.00	-8.34
5,924.00	7.90	140.00	5,872.14	-531.79	511.68	534.39	0.09	0.01	0.67
6,016.00	7.08	143.46	5,963.35	-541.18	519.12	542.24	1.02	-0.89	3.76
6,109.00	7.74	138.16	6,055.57	-550.46	526.71	550.22	1.02	0.71	-5.70
6,201.00	6.49	136.33	6,146.86	-558.83	534.44	558.30	1.38	-1.36	-1.99
6,294.00	5.88	149.50	6,239.33	-566.74	540.48	564.69	1.66	-0.66	14.16
6,386.00	8.24	150.98	6,330.62	-576.57	546.08	570.71	2.57	2.57	1.61
6,479.00	7.41	140.81	6,422.76	-587.04	553.10	578.18	1.73	-0.89	-10.94
6,571.00	12.39	122.32	6,513.38	-596.93	565.20	590.70	6.36	5.41	-20.10
6,663.00	17.56	113.98	6,602.24	-607.85	586.24	612.19	6.07	5.62	-9.07
6,755.00	25.11	104.55	6,687.90	-618.41	617.87	644.25	8.99	8.21	-10.25
6,847.00	31.40	99.18	6,768.91	-627.15	660.47	687.20	7.37	6.84	-5.84
6,939.00	37.39	92.19	6,844.82	-632.05	712.11	739.00	7.79	6.51	-7.60
7,032.00	42.40	94.43	6,916.15	-635.55	771.63	798.62	5.60	5.39	2.41
7,124.00	48.72	93.09	6,980.54	-639.82	837.14	864.25	6.95	6.87	-1.46
7,216.00	58.21	95.14	7,035.25	-645.20	910.77	938.05	10.47	10.32	2.23
7,235.35	60.34	95.33	7,045.13	-646.71	927.34	954.66	11.05	11.02	0.99
<b>Enter Lease @ 7235.35' MD</b>									
7,308.00	68.35	95.99	7,076.56	-653.18	992.45	1,020.00	11.05	11.02	0.91
7,400.00	73.73	95.98	7,106.44	-662.25	1,078.95	1,106.81	5.85	5.85	-0.01
7,493.00	82.15	92.52	7,125.86	-668.94	1,169.56	1,197.62	9.76	9.05	-3.72
7,536.21	84.58	92.10	7,130.85	-670.67	1,212.44	1,240.54	5.71	5.62	-0.98
<b>FTP (2077' FNL, 285' FWL) @ 7536.21' MD</b>									
7,586.00	87.38	91.61	7,134.34	-672.27	1,262.08	1,290.20	5.71	5.62	-0.97
<b>Heel (2078' FNL, 334' FWL) @ 7586' MD</b>									
7,679.00	88.85	91.40	7,137.40	-674.71	1,354.99	1,383.13	1.60	1.58	-0.23
7,771.00	88.47	91.25	7,139.55	-676.84	1,446.94	1,475.09	0.44	-0.41	-0.16
7,864.00	87.83	91.46	7,142.55	-679.04	1,539.87	1,568.02	0.72	-0.69	0.23
7,956.00	89.75	90.63	7,144.50	-680.72	1,631.83	1,659.97	2.27	2.09	-0.90

## Survey Report

<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well BERRY FARMS 8-5HZ
<b>Project:</b>	Weld County, CO (UTM-NAD83)	<b>TVD Reference:</b>	PD 461 @ 4837.00usft
<b>Site:</b>	BERRY FARMS 8-8HZ PAD	<b>MD Reference:</b>	PD 461 @ 4837.00usft
<b>Well:</b>	BERRY FARMS 8-5HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	FHartmann

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)	
8,048.00	89.62	90.78	7,145.00	-681.85	1,723.82	1,751.92	0.22	-0.14	0.16	
8,141.00	88.76	90.70	7,146.32	-683.05	1,816.80	1,844.86	0.93	-0.92	-0.09	
8,235.00	90.40	90.83	7,147.01	-684.30	1,910.79	1,938.82	1.75	1.74	0.14	
8,328.00	89.96	90.33	7,146.71	-685.25	2,003.78	2,031.76	0.72	-0.47	-0.54	
8,420.00	89.65	90.27	7,147.03	-685.73	2,095.78	2,123.69	0.34	-0.34	-0.07	
8,512.00	91.15	90.43	7,146.38	-686.29	2,187.77	2,215.62	1.64	1.63	0.17	
8,605.00	90.52	90.56	7,145.03	-687.09	2,280.76	2,308.56	0.69	-0.68	0.14	
8,698.00	92.10	89.81	7,142.90	-687.39	2,373.73	2,401.45	1.88	1.70	-0.81	
8,790.00	92.09	90.42	7,139.54	-687.58	2,465.67	2,493.31	0.66	-0.01	0.66	
8,884.00	90.86	91.01	7,137.12	-688.75	2,559.63	2,587.23	1.45	-1.31	0.63	
8,976.00	89.76	89.96	7,136.62	-689.53	2,651.62	2,679.17	1.65	-1.20	-1.14	
9,069.00	90.02	88.89	7,136.80	-688.60	2,744.61	2,772.04	1.18	0.28	-1.15	
9,161.00	90.05	88.61	7,136.74	-686.59	2,836.59	2,863.84	0.31	0.03	-0.30	
9,254.00	90.02	88.10	7,136.69	-683.92	2,929.55	2,956.60	0.55	-0.03	-0.55	
9,347.00	89.66	87.83	7,136.95	-680.62	3,022.49	3,049.30	0.48	-0.39	-0.29	
9,440.00	88.95	87.27	7,138.08	-676.64	3,115.40	3,141.95	0.97	-0.76	-0.60	
9,532.00	89.85	88.49	7,139.04	-673.24	3,207.33	3,233.64	1.65	0.98	1.33	
9,625.00	90.57	89.67	7,138.70	-671.74	3,300.31	3,326.47	1.49	0.77	1.27	
9,719.00	90.59	88.97	7,137.75	-670.63	3,394.30	3,420.32	0.74	0.02	-0.74	
9,813.00	89.94	90.03	7,137.31	-669.81	3,488.30	3,514.19	1.32	-0.69	1.13	
9,906.00	89.72	89.70	7,137.59	-669.59	3,581.30	3,607.09	0.43	-0.24	-0.35	
9,999.00	89.65	90.06	7,138.10	-669.40	3,674.29	3,699.99	0.39	-0.08	0.39	
10,091.00	90.25	89.77	7,138.18	-669.26	3,766.29	3,791.90	0.72	0.65	-0.32	
10,184.00	89.83	89.27	7,138.11	-668.48	3,859.29	3,884.77	0.70	-0.45	-0.54	
10,276.00	89.61	89.34	7,138.56	-667.36	3,951.28	3,976.63	0.25	-0.24	0.08	
10,368.00	89.86	89.40	7,138.99	-666.35	4,043.27	4,068.49	0.28	0.27	0.07	
10,460.00	88.94	88.46	7,139.95	-664.63	4,135.25	4,160.31	1.43	-1.00	-1.02	
10,554.00	89.45	90.14	7,141.27	-663.49	4,229.23	4,254.15	1.87	0.54	1.79	
10,649.00	89.48	90.09	7,142.16	-663.68	4,324.23	4,349.06	0.06	0.03	-0.05	
10,741.00	89.38	90.03	7,143.08	-663.77	4,416.22	4,440.97	0.13	-0.11	-0.07	
10,836.00	89.50	89.62	7,144.00	-663.48	4,511.22	4,535.86	0.45	0.13	-0.43	
10,928.00	90.01	89.15	7,144.40	-662.50	4,603.21	4,627.73	0.75	0.55	-0.51	
11,021.00	89.88	89.04	7,144.49	-661.03	4,696.20	4,720.56	0.18	-0.14	-0.12	
11,115.00	91.16	88.75	7,143.63	-659.21	4,790.18	4,814.37	1.40	1.36	-0.31	
11,207.00	92.11	88.97	7,141.01	-657.38	4,882.12	4,906.15	1.06	1.03	0.24	
11,300.00	91.26	90.22	7,138.27	-656.73	4,975.07	4,998.98	1.62	-0.91	1.34	
11,392.00	88.71	90.09	7,138.30	-656.98	5,067.07	5,090.90	2.78	-2.77	-0.14	
11,486.00	90.08	90.48	7,139.29	-657.44	5,161.06	5,184.82	1.52	1.46	0.41	
11,578.00	90.72	90.43	7,138.65	-658.17	5,253.05	5,276.76	0.70	0.70	-0.05	
11,671.00	89.78	92.80	7,138.24	-660.80	5,346.01	5,369.74	2.74	-1.01	2.55	
11,764.00	87.97	91.78	7,140.07	-664.51	5,438.91	5,462.72	2.23	-1.95	-1.10	
11,857.00	88.19	91.82	7,143.18	-667.43	5,531.81	5,555.66	0.24	0.24	0.04	
11,949.00	88.34	91.83	7,145.97	-670.36	5,623.72	5,647.61	0.16	0.16	0.01	

# Survey Report

<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well BERRY FARMS 8-5HZ
<b>Project:</b>	Weld County, CO (UTM-NAD83)	<b>TVD Reference:</b>	PD 461 @ 4837.00usft
<b>Site:</b>	BERRY FARMS 8-8HZ PAD	<b>MD Reference:</b>	PD 461 @ 4837.00usft
<b>Well:</b>	BERRY FARMS 8-5HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	FHartmann

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)	
12,042.00	90.05	90.87	7,147.28	-672.55	5,716.68	5,740.58	2.11	1.84	-1.03	
12,134.00	90.45	90.40	7,146.88	-673.57	5,808.67	5,832.53	0.67	0.43	-0.51	
12,227.00	91.40	90.43	7,145.37	-674.24	5,901.66	5,925.45	1.02	1.02	0.03	
12,319.00	91.05	91.01	7,143.41	-675.40	5,993.63	6,017.39	0.74	-0.38	0.63	
12,412.00	89.54	90.73	7,142.93	-676.81	6,086.62	6,110.34	1.65	-1.62	-0.30	
12,504.00	90.27	91.18	7,143.08	-678.34	6,178.60	6,202.31	0.93	0.79	0.49	
12,597.00	90.79	91.15	7,142.22	-680.23	6,271.58	6,295.28	0.56	0.56	-0.03	
12,691.00	91.48	91.92	7,140.36	-682.75	6,365.52	6,389.25	1.10	0.73	0.82	
12,783.00	89.35	91.32	7,139.69	-685.35	6,457.48	6,481.23	2.41	-2.32	-0.65	
12,875.00	88.78	90.96	7,141.19	-687.18	6,549.45	6,573.19	0.73	-0.62	-0.39	
12,968.00	89.04	90.41	7,142.96	-688.29	6,642.42	6,666.13	0.65	0.28	-0.59	
13,061.00	89.01	90.11	7,144.55	-688.72	6,735.41	6,759.04	0.32	-0.03	-0.32	
13,153.00	88.43	89.99	7,146.60	-688.80	6,827.39	6,850.93	0.64	-0.63	-0.13	
13,245.00	89.40	90.46	7,148.34	-689.16	6,919.37	6,942.84	1.17	1.05	0.51	
13,337.00	89.48	90.57	7,149.24	-689.98	7,011.36	7,034.78	0.15	0.09	0.12	
13,430.00	89.71	90.06	7,149.90	-690.50	7,104.36	7,127.71	0.60	0.25	-0.55	
13,522.00	90.68	90.35	7,149.59	-690.82	7,196.35	7,219.64	1.10	1.05	0.32	
13,614.00	91.89	90.28	7,147.52	-691.33	7,288.33	7,311.55	1.32	1.32	-0.08	
13,706.00	91.29	90.84	7,144.97	-692.23	7,380.29	7,403.46	0.89	-0.65	0.61	
13,798.00	90.47	90.92	7,143.56	-693.64	7,472.26	7,495.41	0.90	-0.89	0.09	
13,891.00	89.23	92.24	7,143.80	-696.21	7,565.23	7,588.39	1.95	-1.33	1.42	
13,984.00	89.24	91.95	7,145.04	-699.61	7,658.15	7,681.38	0.31	0.01	-0.31	
14,077.00	89.17	91.93	7,146.33	-702.75	7,751.09	7,774.37	0.08	-0.08	-0.02	
14,169.00	87.27	91.18	7,149.19	-705.25	7,843.01	7,866.31	2.22	-2.07	-0.82	
14,261.00	87.72	89.65	7,153.21	-705.91	7,934.92	7,958.16	1.73	0.49	-1.66	
14,353.00	89.82	89.42	7,155.19	-705.17	8,026.89	8,050.01	2.30	2.28	-0.25	
14,445.00	89.77	88.89	7,155.52	-703.81	8,118.88	8,141.85	0.58	-0.05	-0.58	
14,537.00	90.54	90.31	7,155.27	-703.17	8,210.87	8,233.73	1.76	0.84	1.54	
14,630.00	91.45	91.01	7,153.65	-704.24	8,303.85	8,326.66	1.23	0.98	0.75	
14,723.00	90.17	92.13	7,152.34	-706.79	8,396.80	8,419.64	1.83	-1.38	1.20	
14,816.00	91.20	92.87	7,151.22	-710.84	8,489.70	8,512.63	1.36	1.11	0.80	
14,909.00	89.88	93.21	7,150.35	-715.78	8,582.57	8,605.62	1.47	-1.42	0.37	
15,002.00	91.25	93.48	7,149.43	-721.20	8,675.40	8,698.60	1.50	1.47	0.29	
15,095.00	88.72	92.84	7,149.46	-726.33	8,768.25	8,791.59	2.81	-2.72	-0.69	
15,187.00	87.53	89.52	7,152.47	-728.22	8,860.17	8,883.50	3.83	-1.29	-3.61	
15,279.00	87.45	89.55	7,156.50	-727.48	8,952.08	8,975.29	0.09	-0.09	0.03	
15,373.00	89.03	88.99	7,159.38	-726.28	9,046.02	9,069.09	1.78	1.68	-0.60	
15,465.00	90.62	87.86	7,159.66	-723.75	9,137.98	9,160.85	2.12	1.73	-1.23	
15,558.00	90.85	87.20	7,158.47	-719.74	9,230.89	9,253.50	0.75	0.25	-0.71	
15,651.00	90.95	87.51	7,157.01	-715.45	9,323.78	9,346.11	0.35	0.11	0.33	
15,743.00	88.46	88.10	7,157.48	-711.93	9,415.70	9,437.79	2.78	-2.71	0.64	
15,835.00	84.69	85.53	7,162.98	-706.83	9,507.37	9,529.15	4.96	-4.10	-2.79	
15,928.00	87.62	85.56	7,169.22	-699.62	9,599.87	9,621.25	3.15	3.15	0.03	
16,020.00	89.63	87.03	7,171.42	-693.68	9,691.64	9,712.68	2.71	2.18	1.60	

## Survey Report

<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well BERRY FARMS 8-5HZ
<b>Project:</b>	Weld County, CO (UTM-NAD83)	<b>TVD Reference:</b>	PD 461 @ 4837.00usft
<b>Site:</b>	BERRY FARMS 8-8HZ PAD	<b>MD Reference:</b>	PD 461 @ 4837.00usft
<b>Well:</b>	BERRY FARMS 8-5HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	FHartmann

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)	
16,112.00	90.70	88.09	7,171.16	-689.77	9,783.56	9,804.33	1.64	1.16	1.15	
16,204.00	89.72	86.54	7,170.82	-685.46	9,875.45	9,895.95	1.99	-1.07	-1.68	
16,297.00	88.25	86.96	7,172.47	-680.18	9,968.29	9,988.47	1.64	-1.58	0.45	
16,389.00	90.43	89.98	7,173.53	-677.73	10,060.23	10,080.22	4.05	2.37	3.28	
16,481.00	91.58	90.80	7,171.91	-678.36	10,152.21	10,172.14	1.54	1.25	0.89	
16,574.00	91.34	91.72	7,169.54	-680.40	10,245.16	10,265.09	1.02	-0.26	0.99	
16,666.00	89.82	92.97	7,168.61	-684.16	10,337.07	10,357.08	2.14	-1.65	1.36	
16,758.00	88.08	92.57	7,170.30	-688.61	10,428.95	10,449.06	1.94	-1.89	-0.43	
16,851.00	87.74	91.85	7,173.69	-692.19	10,521.81	10,541.99	0.86	-0.37	-0.77	
16,943.00	89.28	92.76	7,176.08	-695.89	10,613.70	10,633.96	1.94	1.67	0.99	
17,036.00	90.35	92.26	7,176.38	-699.96	10,706.61	10,726.95	1.27	1.15	-0.54	
17,129.00	90.06	91.46	7,176.05	-702.98	10,799.56	10,819.95	0.91	-0.31	-0.86	
17,221.00	89.34	89.51	7,176.53	-703.76	10,891.55	10,911.88	2.26	-0.78	-2.12	
17,313.00	89.80	91.81	7,177.22	-704.82	10,983.54	11,003.83	2.55	0.50	2.50	
17,406.00	89.42	91.74	7,177.86	-707.70	11,076.49	11,096.82	0.42	-0.41	-0.08	
17,498.00	88.70	91.96	7,179.37	-710.67	11,168.43	11,188.80	0.82	-0.78	0.24	
17,591.00	88.24	90.36	7,181.85	-712.55	11,261.37	11,281.74	1.79	-0.49	-1.72	
17,685.00	89.71	92.82	7,183.53	-715.16	11,355.31	11,375.70	3.05	1.56	2.62	
17,777.00	90.31	92.40	7,183.51	-719.35	11,447.22	11,467.70	0.80	0.65	-0.46	
17,869.00	91.58	93.75	7,182.00	-724.29	11,539.07	11,559.68	2.01	1.38	1.47	
17,962.00	89.38	95.61	7,181.22	-731.87	11,631.75	11,652.60	3.10	-2.37	2.00	
18,054.00	90.34	95.43	7,181.44	-740.72	11,723.32	11,744.47	1.06	1.04	-0.20	
18,147.00	88.92	96.00	7,182.04	-749.98	11,815.85	11,837.32	1.65	-1.53	0.61	
18,240.00	89.44	95.07	7,183.37	-758.95	11,908.41	11,930.18	1.15	0.56	-1.00	
18,332.00	89.34	95.79	7,184.35	-767.66	11,999.99	12,022.05	0.79	-0.11	0.78	
18,425.00	88.11	95.34	7,186.42	-776.67	12,092.52	12,114.89	1.41	-1.32	-0.48	
18,517.00	89.27	96.71	7,188.53	-786.33	12,183.99	12,206.69	1.95	1.26	1.49	
18,611.00	89.49	96.29	7,189.54	-796.97	12,277.38	12,300.46	0.50	0.23	-0.45	
18,705.00	89.22	96.58	7,190.60	-807.50	12,370.78	12,394.23	0.42	-0.29	0.31	
18,798.00	88.05	96.21	7,192.82	-817.86	12,463.17	12,486.99	1.32	-1.26	-0.40	
18,890.00	88.92	96.18	7,195.25	-827.78	12,554.60	12,578.76	0.95	0.95	-0.03	
18,983.00	86.77	96.14	7,198.75	-837.75	12,647.00	12,671.50	2.31	-2.31	-0.04	
19,076.00	87.87	96.07	7,203.09	-847.63	12,739.37	12,764.21	1.19	1.18	-0.08	
19,169.00	87.93	95.15	7,206.50	-856.72	12,831.86	12,857.01	0.99	0.06	-0.99	
19,261.00	88.64	94.81	7,209.26	-864.70	12,923.47	12,948.88	0.86	0.77	-0.37	
19,353.00	90.00	95.40	7,210.35	-872.89	13,015.09	13,040.78	1.61	1.48	0.64	
19,446.00	88.15	95.85	7,211.85	-882.00	13,107.63	13,133.63	2.05	-1.99	0.48	
19,538.00	88.15	95.05	7,214.82	-890.73	13,199.16	13,225.46	0.87	0.00	-0.87	
19,631.00	89.11	95.11	7,217.04	-898.97	13,291.77	13,318.33	1.03	1.03	0.06	
19,725.00	88.41	96.59	7,219.08	-908.54	13,385.26	13,412.15	1.74	-0.74	1.57	
19,817.00	90.28	97.04	7,220.13	-919.46	13,476.60	13,503.88	2.09	2.03	0.49	
19,909.00	86.92	97.95	7,222.38	-931.46	13,567.77	13,595.49	3.78	-3.65	0.99	
20,002.00	89.11	98.27	7,225.60	-944.57	13,659.78	13,687.98	2.38	2.35	0.34	



## Survey Report

<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well BERRY FARMS 8-5HZ
<b>Project:</b>	Weld County, CO (UTM-NAD83)	<b>TVD Reference:</b>	PD 461 @ 4837.00usft
<b>Site:</b>	BERRY FARMS 8-8HZ PAD	<b>MD Reference:</b>	PD 461 @ 4837.00usft
<b>Well:</b>	BERRY FARMS 8-5HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	FHartmann

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)
20,095.00	87.65	98.53	7,228.23	-958.15	13,751.74	13,780.45	1.59	-1.57	0.28
20,188.00	87.71	98.22	7,231.99	-971.68	13,843.67	13,872.88	0.34	0.06	-0.33
20,281.00	88.58	98.21	7,235.00	-984.96	13,935.67	13,965.37	0.94	0.94	-0.01
20,373.00	88.20	97.85	7,237.59	-997.81	14,026.73	14,056.91	0.57	-0.41	-0.39
20,466.00	87.97	97.06	7,240.69	-1,009.87	14,118.89	14,149.51	0.88	-0.25	-0.85
20,557.00	88.73	96.44	7,243.31	-1,020.56	14,209.23	14,240.22	1.08	0.84	-0.68
20,650.00	89.31	95.85	7,244.90	-1,030.51	14,301.68	14,333.01	0.89	0.62	-0.63
20,743.00	88.91	95.56	7,246.35	-1,039.76	14,394.20	14,425.86	0.53	-0.43	-0.31
20,836.00	88.43	97.20	7,248.51	-1,050.09	14,486.60	14,518.62	1.84	-0.52	1.76
20,928.00	88.13	98.65	7,251.27	-1,062.77	14,577.68	14,610.16	1.61	-0.33	1.58
21,021.00	88.33	99.18	7,254.14	-1,077.17	14,669.51	14,702.53	0.61	0.22	0.57
21,113.00	88.68	98.00	7,256.54	-1,090.91	14,760.45	14,793.98	1.34	0.38	-1.28
21,205.00	89.43	100.52	7,258.06	-1,105.71	14,851.23	14,885.32	2.86	0.82	2.74
21,297.00	90.34	101.05	7,258.24	-1,122.92	14,941.60	14,976.36	1.14	0.99	0.58
21,389.00	91.06	99.66	7,257.12	-1,139.46	15,032.09	15,067.49	1.70	0.78	-1.51
21,482.00	89.47	102.13	7,256.69	-1,157.04	15,123.40	15,159.48	3.16	-1.71	2.66
21,574.00	89.14	103.22	7,257.81	-1,177.22	15,213.15	15,250.02	1.24	-0.36	1.18
21,667.00	87.97	103.73	7,260.15	-1,198.88	15,303.56	15,341.29	1.37	-1.26	0.55
21,759.00	88.83	103.28	7,262.72	-1,220.36	15,392.98	15,431.56	1.05	0.93	-0.49
21,851.00	88.66	102.44	7,264.74	-1,240.83	15,482.65	15,522.04	0.93	-0.18	-0.91
21,944.00	90.13	101.47	7,265.72	-1,260.09	15,573.63	15,613.77	1.89	1.58	-1.04
22,036.00	88.60	101.31	7,266.74	-1,278.26	15,663.81	15,704.66	1.67	-1.66	-0.17
22,129.00	87.86	100.25	7,269.61	-1,295.65	15,755.12	15,796.64	1.39	-0.80	-1.14
22,222.00	87.76	99.34	7,273.16	-1,311.46	15,846.70	15,888.82	0.98	-0.11	-0.98
22,316.00	88.42	98.90	7,276.30	-1,326.35	15,939.46	15,982.14	0.84	0.70	-0.47
22,407.00	89.54	98.60	7,277.92	-1,340.19	16,029.38	16,072.58	1.27	1.23	-0.33
22,465.00	89.89	98.67	7,278.21	-1,348.90	16,086.72	16,130.25	0.62	0.60	0.12
Last Survey (2494' FNL, 424' FEL) @ 22465' MD									
22,527.00	89.89	98.67	7,278.32	-1,358.24	16,148.02	16,191.89	0.00	0.00	0.00
TD (2502' FNL, 336' FEL) @ 22527' MD									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,906.00	1,893.86	-131.48	123.53	First AEP Survey @ 1906' MD
7,235.35	7,045.13	-646.71	927.34	Enter Lease @ 7235.35' MD
7,536.21	7,130.85	-670.67	1,212.44	FTP (2077' FNL, 285' FWL) @ 7536.21' MD
7,586.00	7,134.34	-672.27	1,262.08	Heel (2078' FNL, 334' FWL) @ 7586' MD
22,465.00	7,278.21	-1,348.90	16,086.72	Last Survey (2494' FNL, 424' FEL) @ 22465' MD
22,527.00	7,278.32	-1,358.24	16,148.02	TD (2502' FNL, 336' FEL) @ 22527' MD

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_