

Project: Weld County, CO (UTM-NAD83)  
Site: 3N-65W-21 MOSER FED 3-21H7 PAD

Well: MOSER 21-2HZ

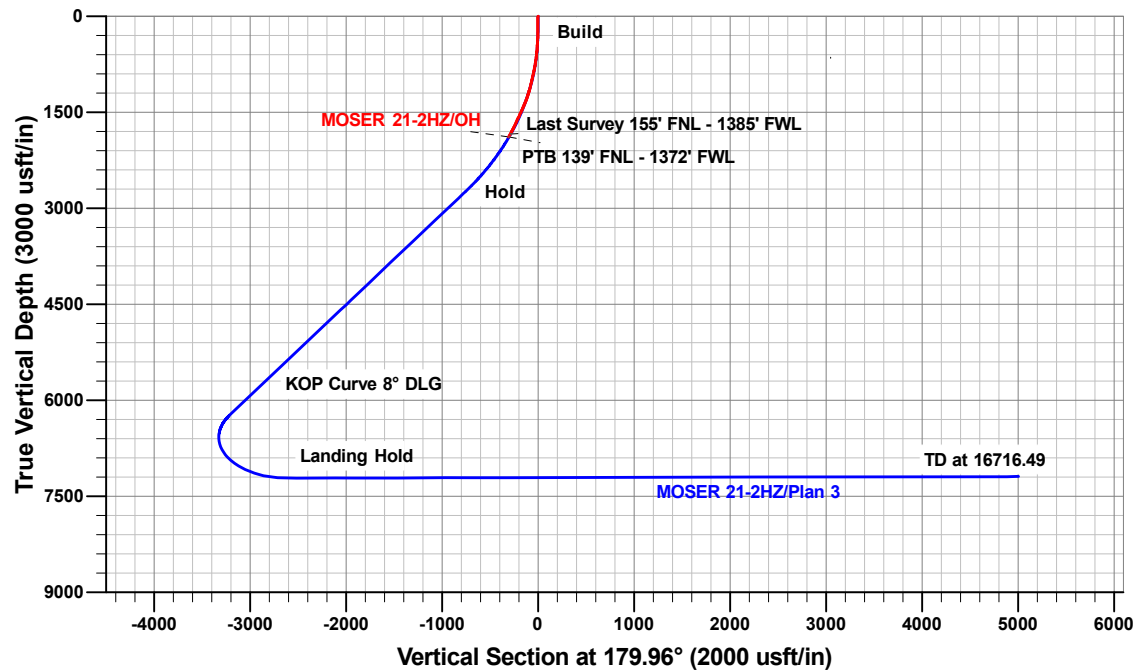
Wellbore: Wellbore #1

Design: OH

SHL 442' FNL - 1590' FWL Sec 21-T3N-R65W

Last Survey 155' FNL - 1385' FWL Sec 21-T3N-R65W

PTB 139' FNL - 1372' FWL Sec 21-T3N-R65W



#### ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	V Sect	Departure	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL 442' FNL - 1590' FWL
1893.00	23.42	323.22	1843.23	287.06	-200.61	-287.20	351.63	Last Survey 155' FNL - 1385' FWL
1943.00	23.42	323.22	1889.12	302.97	-212.51	-303.12	371.50	PTB 139' FNL - 1372' FWL

#### DESIGN TARGET DETAILS

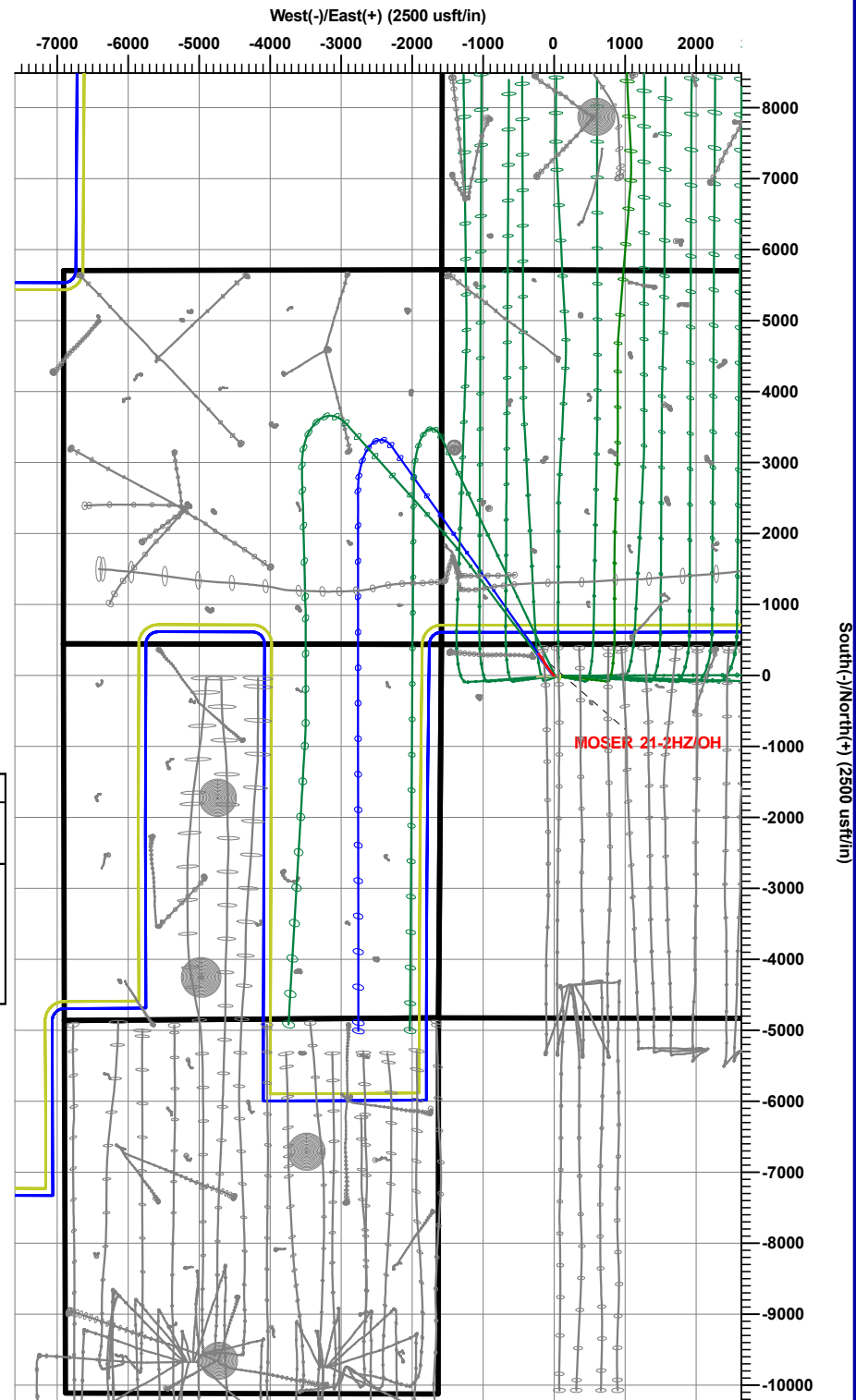
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
MOSER 21-2HZ_BHL	7193.60	-5007.03	-2755.66	14600890.00	1729222.00	40.2032077	-104.6819513
MOSER 21-2HZ_LP	7219.60	2603.44	-2761.04	14608500.40	1729188.50	40.2241065	-104.6819736
MOSER 21-2HZ_SHL	0.90	0.00	0.00	14605907.18	1731959.14	40.2169577	-104.6720822

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1056.60	1062.70	Fox Hills
3849.60	4426.26	Parkman
4237.60	4938.29	Sussex
6864.60	8310.46	Sharon Springs
6911.60	8370.45	Niobrara
6975.60	8457.56	Nio B
7050.60	8571.96	Nio C
7171.60	8825.23	Fort Hayes
7193.60	8899.46	Codell

#### CASING DETAILS

TVD	MD	Name	Size
1850.90	1901.82	Surface Csg	9-5/8
7193.60	16717.39	Prod Csg	5-1/2



# **Occidental Petroleum**

**Weld County, CO (UTM-NAD83)  
3N-65W-21 MOSER FED 3-21HZ PAD  
MOSER 21-2HZ**

**Wellbore #1**

**Design: OH**

## **Standard Survey Report**

**27 March, 2023**

## Survey Report

<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well MOSER 21-2HZ
<b>Project:</b>	Weld County, CO (UTM-NAD83)	<b>TVD Reference:</b>	4844.60' GL + 15' KB @ 4859.60usft
<b>Site:</b>	3N-65W-21 MOSER FED 3-21HZ PAD	<b>MD Reference:</b>	4844.60' GL + 15' KB @ 4859.60usft
<b>Well:</b>	MOSER 21-2HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<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>	Ground Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

<b>Site</b>	3N-65W-21 MOSER FED 3-21HZ PAD		
<b>Site Position:</b>		<b>Northing:</b>	14,605,907.26 usft
<b>From:</b>	Map	<b>Easting:</b>	1,731,944.15 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "
		<b>Latitude:</b>	40.2169581
		<b>Longitude:</b>	-104.6721359

Well	MOSER 21-2HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,605,907.18 usft	Latitude:	40.2169578
	+E/-W	0.00 usft	Easting:	1,731,959.14 usft	Longitude:	-104.6720822
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	4,844.60 usft
Grid Convergence:		0.21 °				

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM2023	3/22/2023	7.80	66.43	51,701.80000000

<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	179.96	

<b>Survey Program</b>	<b>Date</b>	3/27/2023			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
79.00	1,943.00	OH (Wellbore #1)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	

<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	
79.00	0.38	51.64	79.00	0.16	0.21	-0.16	0.48	0.48	0.00	
170.00	0.51	325.41	170.00	0.68	0.21	-0.68	0.68	0.14	-94.76	
262.00	0.36	265.03	262.00	1.00	-0.31	-1.00	0.50	-0.16	-65.63	
353.00	2.02	310.61	352.97	2.01	-1.81	-2.02	1.96	1.82	50.09	
443.00	3.70	322.45	442.86	5.35	-4.78	-5.35	1.97	1.87	13.16	
532.00	4.08	314.81	531.65	9.86	-8.78	-9.86	0.72	0.43	-8.58	
622.00	5.30	332.20	621.36	15.79	-12.99	-15.80	2.07	1.36	19.32	
711.00	7.06	324.26	709.84	23.87	-18.10	-23.88	2.19	1.98	-8.92	
801.00	8.62	323.74	798.99	33.80	-25.32	-33.81	1.74	1.73	-0.58	

## Survey Report

<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well MOSER 21-2HZ
<b>Project:</b>	Weld County, CO (UTM-NAD83)	<b>TVD Reference:</b>	4844.60' GL + 15' KB @ 4859.60usft
<b>Site:</b>	3N-65W-21 MOSER FED 3-21HZ PAD	<b>MD Reference:</b>	4844.60' GL + 15' KB @ 4859.60usft
<b>Well:</b>	MOSER 21-2HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<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)
891.00	10.71	322.37	887.71	45.86	-34.42	-45.88	2.34	2.32	-1.52
980.00	11.29	318.49	975.08	58.93	-45.24	-58.96	1.06	0.65	-4.36
1,070.00	11.92	323.69	1,063.24	73.02	-56.59	-73.06	1.36	0.70	5.78
1,159.00	12.50	322.17	1,150.22	88.03	-67.94	-88.08	0.75	0.65	-1.71
1,249.00	14.93	323.34	1,237.65	105.03	-80.83	-105.09	2.72	2.70	1.30
1,339.00	17.39	326.74	1,324.09	125.58	-95.14	-125.65	2.93	2.73	3.78
1,428.00	18.66	327.83	1,408.72	148.75	-110.01	-148.83	1.48	1.43	1.22
1,518.00	20.27	326.99	1,493.58	174.02	-126.17	-174.11	1.82	1.79	-0.93
1,607.00	20.80	327.19	1,576.92	200.23	-143.13	-200.33	0.60	0.60	0.22
1,697.00	20.53	327.65	1,661.13	226.99	-160.24	-227.10	0.35	-0.30	0.51
1,786.00	21.06	327.45	1,744.33	253.65	-177.19	-253.78	0.60	0.60	-0.22
1,876.00	23.42	323.35	1,827.64	281.64	-196.57	-281.78	3.14	2.62	-4.56
1,893.00	23.42	323.22	1,843.23	287.06	-200.61	-287.20	0.30	0.00	-0.76
Last Survey 155' FNL - 1385' FWL									
1,943.00	23.42	323.22	1,889.12	302.97	-212.51	-303.12	0.00	0.00	0.00
PTB 139' FNL - 1372' FWL									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,893.00	1,843.23	287.06	-200.61	Last Survey 155' FNL - 1385' FWL
1,943.00	1,889.12	302.97	-212.51	PTB 139' FNL - 1372' FWL

Checked By: _____	Approved By: _____	Date: _____
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# **Occidental Petroleum**

**Weld County, CO (UTM-NAD83)  
3N-65W-21 MOSER FED 3-21HZ PAD  
MOSER 21-2HZ**

**Wellbore #1**

**Design: OH**

## **Survey Report - Geographic**

**27 March, 2023**

# Survey Report - Geographic

<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well MOSER 21-2HZ
<b>Project:</b>	Weld County, CO (UTM-NAD83)	<b>TVD Reference:</b>	4844.60' GL + 15' KB @ 4859.60usft
<b>Site:</b>	3N-65W-21 MOSER FED 3-21HZ PAD	<b>MD Reference:</b>	4844.60' GL + 15' KB @ 4859.60usft
<b>Well:</b>	MOSER 21-2HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<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>	Ground Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

Site	3N-65W-21 MOSER FED 3-21HZ PAD				
Site Position:		Northing:	14,605,907.26 usft	Latitude:	40.2169581
From:	Map	Easting:	1,731,944.15 usft	Longitude:	-104.6721359
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.21 °

Well	MOSER 21-2HZ					
Well Position	+N/-S	0.00 usft	Northing:	14,605,907.18 usft	Latitude:	40.2169578
	+E/-W	0.00 usft	Easting:	1,731,959.14 usft	Longitude:	-104.6720822
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	4,844.60 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM2023	3/22/2023	7.80	66.43	51,701.80000000

<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	179.96	

<b>Survey Program</b>	<b>Date</b>	3/27/2023			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
79.00	1,943.00	OH (Wellbore #1)	APC_ISCWSA REV 2 MWD+	Fixed:v2:crustal field declination	

<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>Map Northing (usft)</b>	<b>Map Easting (usft)</b>	<b>Latitude</b>	<b>Longitude</b>
0.00	0.00	0.00	0.00	0.00	0.00	14,605,907.18	1,731,959.14	40.2169578	-104.6720822
79.00	0.38	51.64	79.00	0.16	0.21	14,605,907.34	1,731,959.34	40.2169582	-104.6720814
170.00	0.51	325.41	170.00	0.68	0.21	14,605,907.86	1,731,959.35	40.2169596	-104.6720814
262.00	0.36	265.03	262.00	1.00	-0.31	14,605,908.17	1,731,958.83	40.2169605	-104.6720833
353.00	2.02	310.61	352.97	2.01	-1.81	14,605,909.18	1,731,957.32	40.2169633	-104.6720887
443.00	3.70	322.45	442.86	5.35	-4.78	14,605,912.51	1,731,954.33	40.2169725	-104.6720993
532.00	4.08	314.81	531.65	9.86	-8.78	14,605,917.00	1,731,950.32	40.2169848	-104.6721136
622.00	5.30	332.20	621.36	15.79	-12.99	14,605,922.92	1,731,946.09	40.2170011	-104.6721287
711.00	7.06	324.26	709.84	23.87	-18.10	14,605,930.98	1,731,940.95	40.2170233	-104.6721470
801.00	8.62	323.74	798.99	33.80	-25.32	14,605,940.88	1,731,933.69	40.2170506	-104.6721729
891.00	10.71	322.37	887.71	45.86	-34.42	14,605,952.91	1,731,924.55	40.2170837	-104.6722055
980.00	11.29	318.49	975.08	58.93	-45.24	14,605,965.94	1,731,913.68	40.2171196	-104.6722443

## Survey Report - Geographic

<b>Company:</b>	Occidental Petroleum	<b>Local Co-ordinate Reference:</b>	Well MOSER 21-2HZ
<b>Project:</b>	Weld County, CO (UTM-NAD83)	<b>TVD Reference:</b>	4844.60' GL + 15' KB @ 4859.60usft
<b>Site:</b>	3N-65W-21 MOSER FED 3-21HZ PAD	<b>MD Reference:</b>	4844.60' GL + 15' KB @ 4859.60usft
<b>Well:</b>	MOSER 21-2HZ	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,070.00	11.92	323.69	1,063.24	73.02	-56.59	14,605,979.99	1,731,902.28	40.2171583	-104.6722849
1,159.00	12.50	322.17	1,150.22	88.03	-67.94	14,605,994.96	1,731,890.88	40.2171995	-104.6723255
1,249.00	14.93	323.34	1,237.65	105.03	-80.83	14,606,011.91	1,731,877.92	40.2172462	-104.6723717
1,339.00	17.39	326.74	1,324.09	125.58	-95.14	14,606,032.40	1,731,863.54	40.2173026	-104.6724230
1,428.00	18.66	327.83	1,408.72	148.75	-110.01	14,606,055.52	1,731,848.58	40.2173662	-104.6724763
1,518.00	20.27	326.99	1,493.58	174.02	-126.17	14,606,080.73	1,731,832.33	40.2174356	-104.6725341
1,607.00	20.80	327.19	1,576.92	200.23	-143.13	14,606,106.87	1,731,815.27	40.2175076	-104.6725949
1,697.00	20.53	327.65	1,661.13	226.99	-160.24	14,606,133.57	1,731,798.07	40.2175811	-104.6726562
1,786.00	21.06	327.45	1,744.33	253.65	-177.19	14,606,160.17	1,731,781.01	40.2176543	-104.6727169
1,876.00	23.42	323.35	1,827.64	281.64	-196.57	14,606,188.09	1,731,761.53	40.2177312	-104.6727863
1,893.00	23.42	323.22	1,843.23	287.06	-200.61	14,606,193.49	1,731,757.47	40.2177460	-104.6728008
<b>Last Survey 155' FNL - 1385' FWL</b>									
1,943.00	23.42	323.22	1,889.12	302.97	-212.51	14,606,209.36	1,731,745.51	40.2177897	-104.6728434
<b>PTB 139' FNL - 1372' FWL</b>									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,893.00	1,843.23	287.06	-200.61	Last Survey 155' FNL - 1385' FWL	
1,943.00	1,889.12	302.97	-212.51	PTB 139' FNL - 1372' FWL	

Checked By: _____	Approved By: _____	Date: _____
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