

15-39805

Mewbourne Oil Co

Eddy County, New Mexico

Sec 7, T17S, R29E

Empire 7 MP Federal #1H

Wellbore #1

Survey: MWD

DDC Survey Report

30 April, 2012



DDC Survey Report



Company:	Mewbourne Oil Co	Local Co-ordinate Reference:	Well Empire 7 MP Federal #1H
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 3718.0usft (Patterson UTI #101)
Site:	Sec 7, T17S, R29E	MD Reference:	WELL @ 3718.0usft (Patterson UTI #101)
Well:	Empire 7 MP Federal #1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project:	Eddy County, New Mexico	System Datum:	Mean Sea Level
Map System:	US State Plane 1927 (Exact solution)		
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site:	Sec 7, T17S, R29E		
Site Position:		Northing:	670,538.10 usft
From:	Map	Easting:	565,344.37 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 50' 35.569 N
		Longitude:	104° 7' 14.058 W
		Grid Convergence:	0.12 °

Well:	Empire 7 MP Federal #1H		
Well Position	+N/-S	0.0 usft	Northing: 670,538.10 usft
	+E/-W	0.0 usft	Easting: 565,344.37 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 50' 35.569 N
		Longitude:	104° 7' 14.058 W
		Ground Level:	3,699.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/23/2012	7.80	60.65	48,857

Design:	Wellbore #1		
----------------	-------------	--	--

Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0

Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	89.87

Survey Program		Date: 4/30/2012		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	3,431.0	GYRO (Wellbore #1)	Good_gyro	Good Gyro
3,501.0	8,241.0	MWD (Wellbore #1)	MWD default	MWD - Standard

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate
(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)
Tie-In @ 3431' MD / 3431' TVD									
3,431.0	0.69	353.93	3,430.8	23.8	8.3	8.4	0.00	0.00	0.00
3,501.0	0.80	344.00	3,500.8	24.7	8.2	8.2	0.24	0.15	-14.19
3,532.0	0.60	333.40	3,531.8	25.1	8.0	8.1	0.77	-0.65	-34.19
3,563.0	2.00	82.60	3,562.8	25.3	8.5	8.6	7.32	4.52	352.26
3,594.0	5.80	89.60	3,593.7	25.4	10.6	10.7	12.33	12.26	22.58
3,625.0	9.70	89.60	3,624.4	25.4	14.8	14.8	12.58	12.58	0.00
3,656.0	13.60	88.90	3,654.7	25.5	21.0	21.1	12.59	12.58	-2.26
3,688.0	17.10	89.10	3,685.6	25.6	29.5	29.6	10.94	10.94	0.63
3,719.0	20.00	90.50	3,715.0	25.7	39.4	39.4	9.46	9.35	4.52

DDC Survey Report



Company:	Mewbourne Oil Co	Local Co-ordinate Reference:	Well Empire 7 MP Federal #1H
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 3718 0usft (Patterson UTI #101)
Site:	Sec 7, T17S, R29E	MD Reference:	WELL @ 3718.0usft (Patterson UTI #101)
Well:	Empire 7 MP Federal #1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)
3,750.0	23.60	91.50	3,743.8	25.5	50.9	50.9	11.67	11.61	3.23
3,782.0	27.40	90.30	3,772.6	25.3	64.6	64.7	11.98	11.88	-3.75
3,813.0	31.10	89.30	3,799.7	25.3	79.8	79.8	12.04	11.94	-3.23
3,844.0	34.20	88.70	3,825.8	25.6	96.5	96.6	10.05	10.00	-1.94
3,876.0	37.50	88.40	3,851.7	26.1	115.2	115.3	10.33	10.31	-0.94
3,907.0	40.50	88.70	3,875.8	26.6	134.7	134.8	9.70	9.68	0.97
3,938.0	42.90	90.50	3,899.0	26.7	155.4	155.4	8.65	7.74	5.81
3,969.0	46.10	91.70	3,921.1	26.3	177.1	177.1	10.67	10.32	3.87
4,001.0	49.80	91.70	3,942.5	25.6	200.8	200.9	11.56	11.56	0.00
4,032.0	54.10	90.70	3,961.6	25.1	225.2	225.3	14.10	13.87	-3.23
Crossed Hard Line @ 4054' MD / 3974' TVD									
4,054.0	56.51	90.20	3,974.1	24.9	243.3	243.4	11.13	10.97	-2.28
4,063.0	57.50	90.00	3,979.0	24.9	250.9	250.9	11.13	10.97	-2.19
4,095.0	60.80	88.70	3,995.4	25.2	278.3	278.4	10.89	10.31	-4.06
4,126.0	65.30	88.60	4,009.5	25.9	306.0	306.0	14.52	14.52	-0.32
4,157.0	68.80	88.60	4,021.6	26.6	334.5	334.5	11.29	11.29	0.00
4,188.0	73.70	88.70	4,031.5	27.3	363.8	363.9	15.81	15.81	0.32
4,220.0	78.40	89.30	4,039.2	27.8	394.9	394.9	14.80	14.69	1.88
4,236.0	80.50	89.40	4,042.2	28.0	410.6	410.7	13.14	13.13	0.63
4,310.0	87.90	92.60	4,049.6	26.7	484.1	484.2	10.88	10.00	4.32
4,342.0	88.10	91.90	4,050.7	25.4	516.1	516.2	2.27	0.63	-2.19
4,373.0	90.00	91.50	4,051.3	24.5	547.1	547.1	6.26	6.13	-1.29
4,404.0	90.20	91.70	4,051.2	23.7	578.1	578.1	0.91	0.65	0.65
4,436.0	89.80	92.20	4,051.2	22.6	610.0	610.1	2.00	-1.25	1.56
4,468.0	89.70	92.10	4,051.3	21.4	642.0	642.1	0.44	-0.31	-0.31
4,500.0	89.60	91.70	4,051.5	20.3	674.0	674.0	1.29	-0.31	-1.25
4,532.0	89.10	92.10	4,051.9	19.3	706.0	706.0	2.00	-1.56	1.25
4,564.0	89.80	90.30	4,052.2	18.6	738.0	738.0	6.04	2.19	-5.63
4,595.0	89.50	90.00	4,052.4	18.5	769.0	769.0	1.37	-0.97	-0.97
4,627.0	89.10	90.70	4,052.8	18.3	801.0	801.0	2.52	-1.25	2.19
4,659.0	88.80	90.10	4,053.4	18.1	833.0	833.0	2.10	-0.94	-1.88
4,691.0	89.70	89.60	4,053.8	18.2	865.0	865.0	3.22	2.81	-1.56
4,723.0	89.30	89.40	4,054.1	18.4	897.0	897.0	1.40	-1.25	-0.63
4,755.0	89.20	88.90	4,054.5	18.9	929.0	929.0	1.59	-0.31	-1.56
4,786.0	90.20	88.40	4,054.7	19.6	959.9	960.0	3.61	3.23	-1.61
4,817.0	90.00	88.20	4,054.6	20.6	990.9	991.0	0.91	-0.65	-0.65
4,848.0	89.80	88.00	4,054.7	21.6	1,021.9	1,022.0	0.91	-0.65	-0.65
4,878.0	89.30	87.30	4,054.9	22.8	1,051.9	1,051.9	2.87	-1.67	-2.33
4,909.0	88.70	86.80	4,055.4	24.4	1,082.8	1,082.9	2.52	-1.94	-1.61
4,938.0	89.30	87.70	4,055.9	25.8	1,111.8	1,111.9	3.73	2.07	3.10
5,000.0	90.00	88.60	4,056.3	27.8	1,173.8	1,173.8	1.84	1.13	1.45
5,062.0	89.60	87.80	4,056.5	29.8	1,235.7	1,235.8	1.44	-0.65	-1.29
5,124.0	89.50	89.10	4,057.0	31.4	1,297.7	1,297.8	2.10	-0.16	2.10

DDC Survey Report



Company:	Mewbourne Oil Co	Local Co-ordinate Reference:	Well Empire 7 MP Federal #1H
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 3718.0usft (Patterson UTI #101)
Site:	Sec 7; T17S, R29E	MD Reference:	WELL @ 3718.0usft (Patterson UTI #101)
Well:	Empire 7 MP Federal #1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 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)
5,186.0	89.80	90.50	4,057.4	31.7	1,359.7	1,359.8	2.31	0.48	2.26
5,247.0	89.20	90.00	4,057.9	31.4	1,420.7	1,420.8	1.28	-0.98	-0.82
5,308.0	88.20	89.40	4,059.3	31.7	1,481.7	1,481.8	1.91	-1.64	-0.98
5,339.0	87.90	89.80	4,060.4	31.9	1,512.7	1,512.7	1.61	-0.97	1.29
5,370.0	89.50	90.10	4,061.1	32.0	1,543.7	1,543.7	5.25	5.16	0.97
5,399.0	90.80	90.50	4,061.0	31.8	1,572.7	1,572.7	4.69	4.48	1.38
5,431.0	90.30	90.50	4,060.7	31.5	1,604.7	1,604.7	1.56	-1.56	0.00
5,463.0	90.00	90.10	4,060.6	31.4	1,636.7	1,636.7	1.56	-0.94	-1.25
5,527.0	90.80	90.50	4,060.2	31.0	1,700.7	1,700.7	1.40	1.25	0.63
5,590.0	90.80	90.10	4,059.3	30.7	1,763.6	1,763.7	0.63	0.00	-0.63
5,653.0	90.20	89.60	4,058.7	30.9	1,826.6	1,826.7	1.24	-0.95	-0.79
5,717.0	89.40	89.40	4,059.0	31.4	1,890.6	1,890.7	1.29	-1.25	-0.31
5,780.0	90.50	89.80	4,059.0	31.9	1,953.6	1,953.7	1.86	1.75	0.63
5,844.0	90.20	90.30	4,058.6	31.8	2,017.6	2,017.7	0.91	-0.47	0.78
5,907.0	90.10	90.10	4,058.5	31.6	2,080.6	2,080.7	0.35	-0.16	-0.32
5,971.0	89.90	90.00	4,058.5	31.5	2,144.6	2,144.7	0.35	-0.31	-0.16
6,034.0	89.10	90.00	4,059.0	31.5	2,207.6	2,207.7	1.27	-1.27	0.00
6,098.0	88.60	89.40	4,060.3	31.9	2,271.6	2,271.7	1.22	-0.78	-0.94
6,161.0	88.10	90.10	4,062.1	32.1	2,334.6	2,334.7	1.37	-0.79	1.11
6,224.0	87.80	90.30	4,064.4	31.9	2,397.5	2,397.6	0.57	-0.48	0.32
6,287.0	88.90	90.70	4,066.2	31.4	2,460.5	2,460.6	1.86	1.75	0.63
6,351.0	90.30	90.50	4,066.6	30.7	2,524.5	2,524.6	2.21	2.19	-0.31
6,414.0	89.30	90.10	4,066.8	30.4	2,587.5	2,587.6	1.71	-1.59	-0.63
6,478.0	90.00	90.50	4,067.2	30.0	2,651.5	2,651.6	1.26	1.09	0.63
6,541.0	91.00	91.50	4,066.7	28.9	2,714.5	2,714.6	2.24	1.59	1.59
6,605.0	90.40	90.50	4,065.9	27.8	2,778.5	2,778.5	1.82	-0.94	-1.56
6,669.0	89.90	91.00	4,065.7	27.0	2,842.5	2,842.5	1.10	-0.78	0.78
6,732.0	89.60	91.20	4,066.0	25.8	2,905.5	2,905.5	0.57	-0.48	0.32
6,795.0	88.60	91.20	4,067.0	24.4	2,968.4	2,968.5	1.59	-1.59	0.00
6,859.0	88.20	90.30	4,068.8	23.6	3,032.4	3,032.4	1.54	-0.63	-1.41
6,922.0	87.70	89.40	4,071.0	23.8	3,095.4	3,095.4	1.63	-0.79	-1.43
6,986.0	88.60	89.80	4,073.1	24.2	3,159.3	3,159.4	1.54	1.41	0.63
7,049.0	88.20	89.40	4,074.9	24.7	3,222.3	3,222.3	0.90	-0.63	-0.63
7,113.0	89.60	89.10	4,076.1	25.5	3,286.3	3,286.3	2.24	2.19	-0.47
7,177.0	89.90	89.60	4,076.4	26.2	3,350.3	3,350.3	0.91	0.47	0.78
7,240.0	89.30	90.10	4,076.8	26.4	3,413.3	3,413.3	1.24	-0.95	0.79
7,304.0	90.90	89.60	4,076.7	26.6	3,477.3	3,477.3	2.62	2.50	-0.78
7,368.0	91.00	90.00	4,075.6	26.8	3,541.3	3,541.3	0.64	0.16	0.63
7,431.0	90.60	89.60	4,074.8	27.0	3,604.3	3,604.3	0.90	-0.63	-0.63
7,495.0	90.20	88.60	4,074.3	28.0	3,668.2	3,668.3	1.68	-0.63	-1.56
7,559.0	90.60	90.50	4,073.9	28.5	3,732.2	3,732.3	3.03	0.63	2.97
7,623.0	90.10	90.50	4,073.5	27.9	3,796.2	3,796.3	0.78	-0.78	0.00
7,686.0	89.50	90.00	4,073.7	27.7	3,859.2	3,859.3	1.24	-0.95	-0.79
7,750.0	89.30	90.00	4,074.4	27.7	3,923.2	3,923.3	0.31	-0.31	0.00

DDC Survey Report



Company:	Mewbourne Oil Co	Local Co-ordinate Reference:	Well Empire 7 MP Federal #1H
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 3718.0usft (Patterson UTI #101)
Site:	Sec 7, T17S, R29E	MD Reference:	WELL @ 3718.0usft (Patterson UTI #101)
Well:	Empire 7 MP Federal #1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)
7,813.0	88.70	89.80	4,075.5	27.8	3,986.2	3,986.3	1.00	-0.95	-0.32
7,877.0	88.60	89.40	4,077.0	28.2	4,050.2	4,050.3	0.64	-0.16	-0.63
7,940.0	89.00	90.70	4,078.3	28.2	4,113.2	4,113.2	2.16	0.63	2.06
8,004.0	88.60	90.50	4,079.6	27.5	4,177.2	4,177.2	0.70	-0.63	-0.31
8,067.0	87.80	89.60	4,081.6	27.4	4,240.1	4,240.2	1.91	-1.27	-1.43
8,131.0	88.60	91.20	4,083.6	27.0	4,304.1	4,304.1	2.79	1.25	2.50
8,194.0	88.20	90.30	4,085.4	26.2	4,367.1	4,367.1	1.56	-0.63	-1.43
TD @ 8241' MD / 4087' TVD									
8,241.0	88.20	90.30	4,086.9	25.9	4,414.0	4,414.1	0.00	0.00	0.00

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates	Comment
3,431.0	3,430.8	23.8	8.3
4,054.0	3,974.1	24.9	243.3
8,241.0	4,086.9	25.9	4,414.0
			Tie In @ 3431' MD / 3431' TVD
			Crossed Hard Line @ 4054' MD / 3974' TVD
			TD @ 8241' MD / 4087' TVD

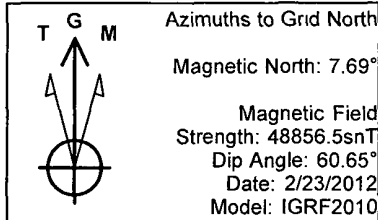
Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------

Company Name Mewbourne Oil Co
 Empire 7 MP Federal #1H
 Eddy County, New Mexico
 Rig. Patterson UTI #101
 Created By Dina Chance
 Date 3/22/2012

Empire 7 MP Federal #1H
 Eddy County, New Mexico
 Q110662 & WT-12136



Mewbourne Oil Company

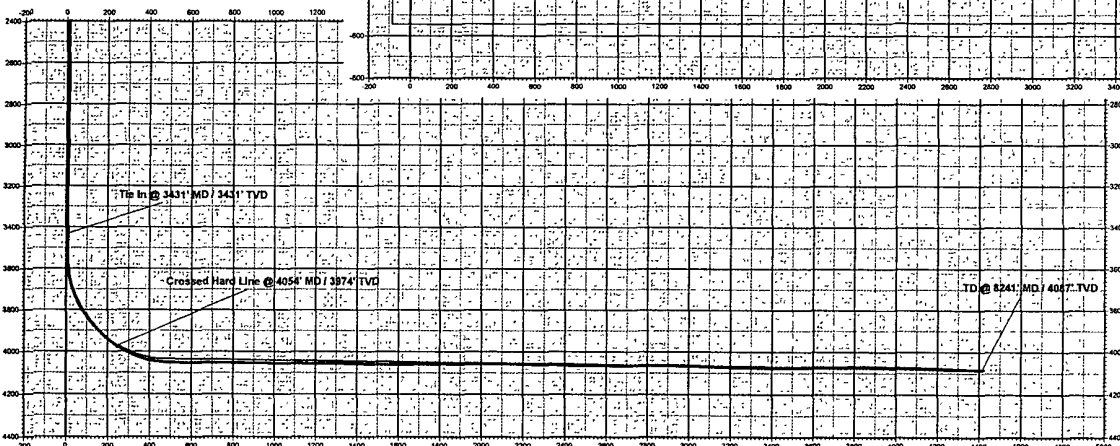
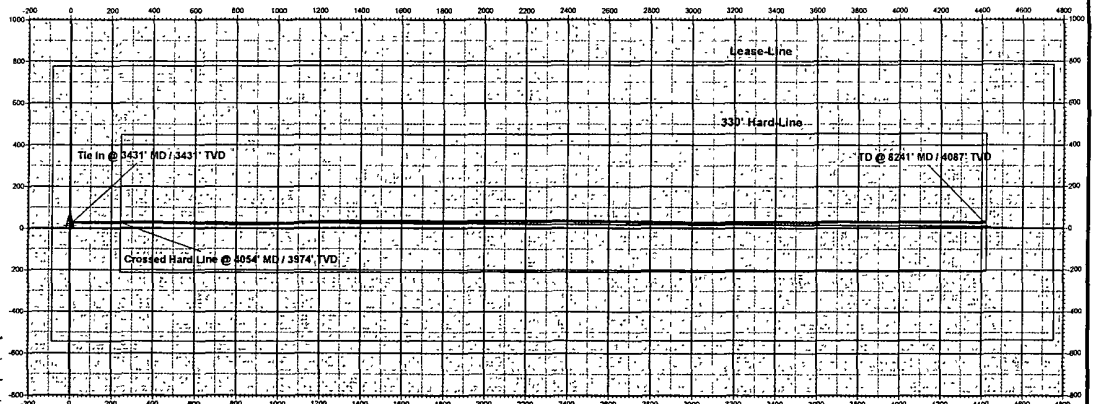


WELL DETAILS					
Empire 7 MP Federal #1H					
	Ground Level	3699 0			
+N-S	+E-W	Northing	Eastings	Latitude	Longitude
0 0	0 0	670538 10	665344 37	32° 50' 35.569 N	104° 7' 14.088 W

ANNOTATIONS									
MD	Inc	Azi	TVD	+N-S	+E-W	V-Sect	Departure	Annotation	
3431 0	0 89	353 95	3430 9	23 8	8 3	8 4	37 7	Tie In @ 3431' MD / 3431' TVD	
4054 0	88 61	90 20	3974 1	24 9	243 3	243 4	274 7	Crossed Hard Line @ 4054' MD / 3974' TVD	
8241 0	88 20	90 30	4087 9	25 9	4414 0	4414 1	4445 9	TD @ 8241' MD / 4087' TVD	

DESIGN TARGET DETAILS							
Name	TVD	+N-S	+E-W	Northing	Eastings	Latitude	Longitude
PBHL Empire 7 MP Federal #1H - plan hits target center	4089 0	10.1	4424 1	670548 20	669768 50	32° 50' 35.579 N	104° 7' 22.200 W

PROJECT DETAILS: Eddy County, New Mexico
 Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: New Mexico East 3001
 System Datum: Mean Sea Level



Vertical Section at 89.87° (200 usf/in)



Company: Mewbourne Oil Company

Lease/Well: Empire "7" MP Fed/1H

Location: 16 Miles E of Artesia

Rig Name: Patterson #101

State/County: New Mexico/Eddy

Latitude: 32.84

GRID North is 0.12 Degrees East of True North

VS-Azi: 0.00 Degrees



Depth Reference : RKB= 16 1/2 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: empire 7 mp fed #1h_ed.ut

Minimum Curvature Method

Report Date/Time: 3/22/2012 / 10:39

Vaughn Energy Services

Gardendale, Texas

432-563-5444

Surveyor: Seth Hardin

Empire "7" MP Fed 1H / API 30-015-39805

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.31	94.35	100.00	-0.02	0.27	-0.02	0.27	94.35	0.31
200.00	0.47	134.13	200.00	-0.33	0.84	-0.33	0.90	111.35	0.30
300.00	0.41	100.87	299.99	-0.68	1.48	-0.68	1.63	114.68	0.26
400.00	0.42	81.67	399.99	-0.69	2.19	-0.69	2.30	107.53	0.14
500.00	0.53	38.47	499.99	-0.28	2.85	-0.28	2.86	95.54	0.37
600.00	0.82	47.62	599.98	0.57	3.66	0.57	3.71	81.16	0.31
700.00	0.73	56.87	699.97	1.40	4.73	1.40	4.93	73.49	0.16
800.00	0.77	76.59	799.96	1.90	5.91	1.90	6.21	72.15	0.26
900.00	0.84	92.12	899.95	2.03	7.30	2.03	7.58	74.45	0.23
1000.00	0.88	95.77	999.94	1.93	8.80	1.93	9.01	77.65	0.07
1100.00	0.76	96.70	1099.93	1.77	10.22	1.77	10.37	80.16	0.13
1200.00	0.61	83.83	1199.93	1.75	11.40	1.75	11.54	81.26	0.21
1300.00	0.58	94.32	1299.92	1.77	12.43	1.77	12.56	81.89	0.11
1400.00	0.24	88.28	1399.92	1.74	13.14	1.74	13.26	82.46	0.34
1500.00	0.21	20.04	1499.92	1.91	13.41	1.91	13.55	81.88	0.25
1600.00	0.39	16.81	1599.92	2.41	13.57	2.41	13.79	79.93	0.19
1700.00	0.35	348.15	1699.91	3.04	13.61	3.04	13.95	77.40	0.19
1800.00	0.46	320.40	1799.91	3.65	13.29	3.65	13.78	74.62	0.22
1900.00	0.62	341.76	1899.91	4.48	12.86	4.48	13.62	70.81	0.25
2000.00	0.46	1.25	1999.90	5.39	12.70	5.39	13.80	67.00	0.24

measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
2100.00	0.61	338.26	2099.90	6.29	12.51	6.29	14.01	63.30	0.26
2200.00	0.98	339.32	2199.89	7.59	12.01	7.59	14.21	57.72	0.36
2300.00	0.70	332.60	2299.88	8.93	11.43	8.93	14.51	51.99	0.29
2400.00	0.82	354.14	2399.87	10.19	11.07	10.19	15.05	47.37	0.31
2500.00	0.93	354.75	2499.86	11.72	10.93	11.72	16.02	42.99	0.11
2600.00	1.00	354.60	2599.84	13.39	10.77	13.39	17.19	38.80	0.06
2700.00	0.90	352.39	2699.83	15.03	10.58	15.03	18.39	35.15	0.11
2800.00	0.64	345.28	2799.82	16.35	10.34	16.35	19.34	32.32	0.28
2900.00	0.66	339.46	2899.81	17.42	10.00	17.42	20.09	29.85	0.07
3000.00	0.70	338.74	2999.81	18.53	9.57	18.53	20.86	27.32	0.05
3100.00	0.61	337.61	3099.80	19.59	9.15	19.59	21.62	25.03	0.10
3200.00	0.67	343.25	3199.79	20.65	8.78	20.65	22.44	23.03	0.09
3300.00	0.91	354.25	3299.78	22.00	8.53	22.00	23.60	21.19	0.28
3400.00	0.77	353.65	3399.77	23.45	8.37	23.45	24.90	19.65	0.14
3433.00	0.69	353.95	3432.77	23.87	8.33	23.87	25.28	19.23	0.23