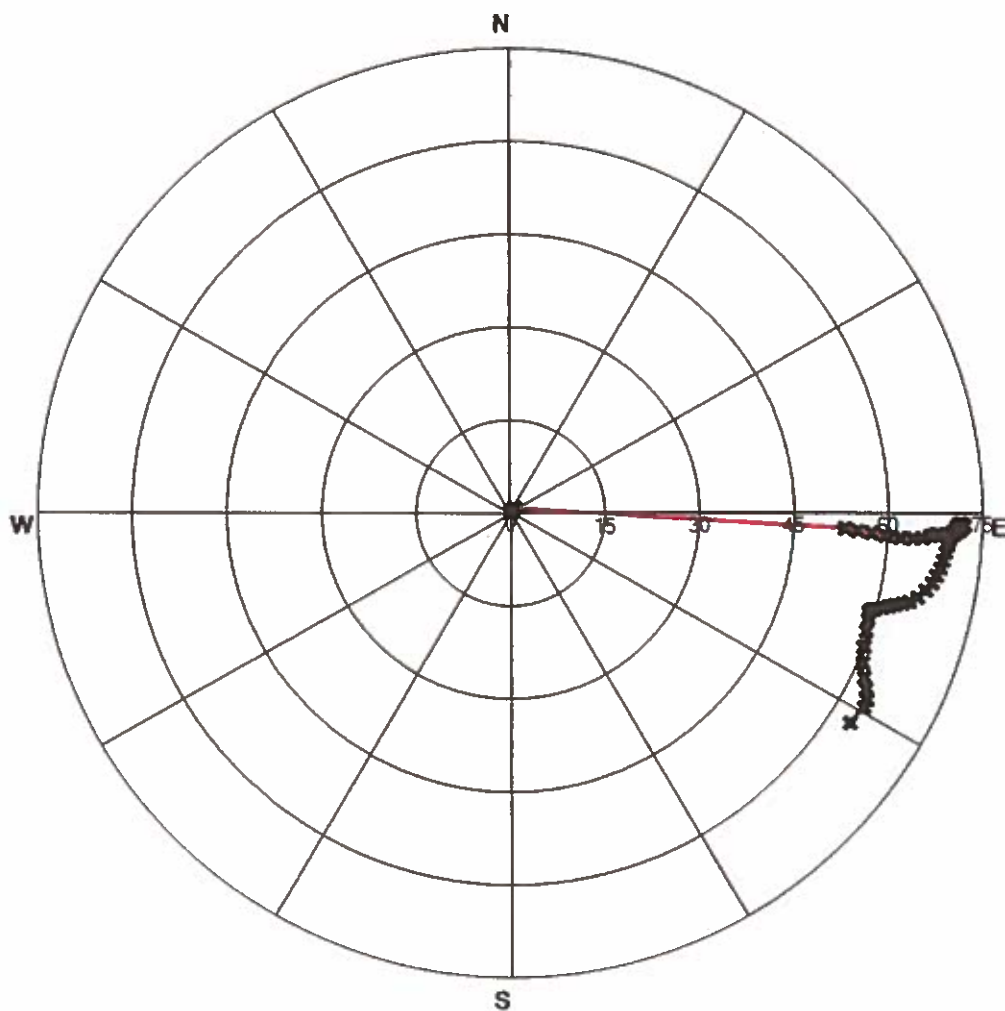
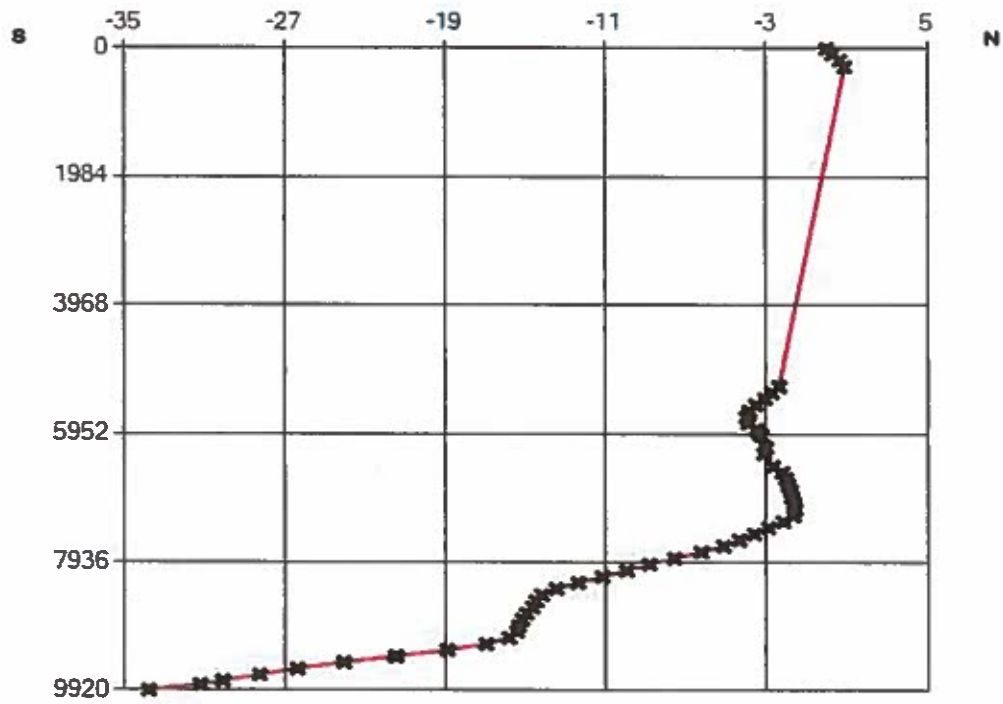


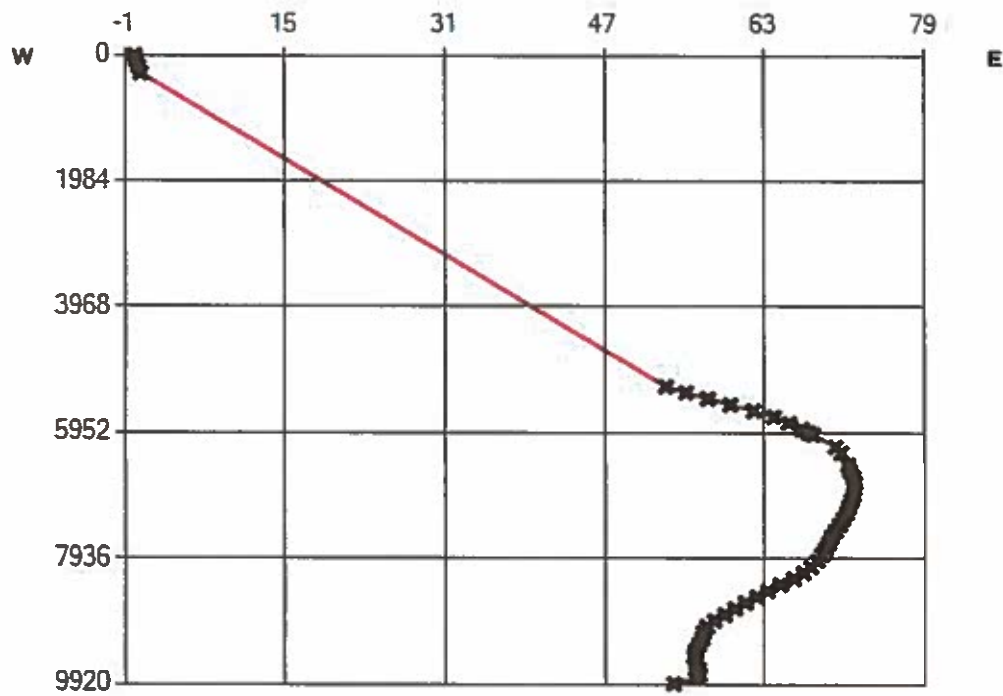
TVD CROSS SECTION LOOKING DOWN



TVD CROSS SECTION LOOKING WEST



TVD CROSS SECTION LOOKING NORTH



RECORD OF TVD SURVEY
Calculated by Minimum Curvature Method

MEAS. DEPTH	TOOL OFFSET	SURVEY DEPTH	DRIFT ANGLE	AZIMUTH	T.V.D.	N-S Drift	E-W Drift
0	0	0	0	0	0	0	0
100	18	82	0.4	21	82	0.27	0.1
200	18	182	0.2	67	182	0.66	0.39
300	18	282	0.2	14	282	0.9	0.59
5242	18	5224	1.2	103	5223.63	-2.37	53.1
5337	18	5319	1.3	98	5318.61	-2.74	55.14
5431	18	5413	1.4	99	5412.58	-3.07	57.33
5526	18	5508	1.4	104	5507.55	-3.53	59.6
5623	18	5605	1.4	92	5604.52	-3.86	61.93
5717	18	5699	1.1	97	5698.5	-4.01	63.97
5811	18	5793	0.8	70	5792.49	-3.9	65.48
5906	18	5888	0.8	74	5887.48	-3.49	66.74
5960	18	5942	0.6	86	5941.48	-3.37	67.38
6000	18	5982	1	73	5981.48	-3.25	67.92
6190	18	6172	0.4	111	6171.47	-3	70.12
6285	18	6267	0.3	91	6266.47	-3.12	70.68
6474	18	6456	0.3	25	6455.47	-2.68	71.38
6569	18	6551	0.3	18	6550.47	-2.22	71.56
6664	18	6646	0.3	100	6645.47	-2.03	71.88
6758	18	6740	0.2	333	6739.47	-1.93	72.05
6853	18	6835	0	323	6834.47	-1.78	71.97
6948	18	6930	0.1	296	6929.47	-1.74	71.9
7042	18	7024	0.2	297	7023.47	-1.63	71.68
7137	18	7119	0.1	259	7118.47	-1.57	71.45
7234	18	7216	0.2	246	7215.47	-1.66	71.21
7328	18	7310	0.6	205	7309.47	-2.17	70.85
7422	18	7404	0.4	205	7403.47	-2.91	70.5
7516	18	7498	0.6	213	7497.47	-3.62	70.09
7612	18	7594	0.4	198	7593.47	-4.36	69.71
7706	18	7688	0.6	197	7687.47	-5.14	69.46
7801	18	7783	0.8	198	7782.46	-6.25	69.11
7895	18	7877	0.9	195	7876.45	-7.59	68.72
7990	18	7972	0.7	203	7971.44	-8.84	68.3

8084	18	8066	0.9	214	8065.43	-9.98	67.66
8179	18	8161	0.8	208	8160.42	-11.18	66.93
8274	18	8256	1.1	227	8255.41	-12.39	65.95
8368	18	8350	1	235	8349.39	-13.48	64.62
8463	18	8445	0.8	247	8444.38	-14.21	63.33
8558	18	8540	0.6	269	8539.37	-14.48	62.22
8653	18	8635	0.8	255	8634.36	-14.66	61.08
8748	18	8730	0.5	252	8729.35	-14.96	60.05
8843	18	8825	0.8	263	8824.34	-15.17	59
8938	18	8920	0.5	255	8919.33	-15.36	57.94
9029	18	9011	0.4	274	9010.33	-15.44	57.24
9124	18	9106	0.5	188	9105.33	-15.83	56.85
9219	18	9201	0.9	184	9200.32	-16.98	56.74
9313	18	9295	1.5	192	9294.3	-18.92	56.43
9408	18	9390	1.6	183	9389.27	-21.46	56.1
9410	18	9392	1.5	191	9391.27	-21.51	56.09
9505	18	9487	1.6	178	9486.24	-24.06	55.9
9600	18	9582	1.2	171	9581.21	-26.37	56.1
9695	18	9677	1.1	173	9676.19	-28.26	56.37
9790	18	9772	1.1	180	9771.17	-30.08	56.48
9844	18	9826	1.6	216	9825.16	-31.21	56.04
9934	18	9916	2.7	223	9915.1	-33.78	53.86

Notes :

Depth is in feet

All azimuths are referenced to GRID NORTH and corrected with the north correction above

Block 20, University Lands Survey Winkler County, Texas

GRID N(Y) 767764.925
GRID E(X) 1078718.122

N 73°42'21" E 5280.23'

6
GRID N: 769246.639
GRID E: 1083786.874

330'

#W101DD SHL/PP
EL. 2828

GRID N: 768505.782
GRID E: 1081252.498

12

MEWBOURNE OIL COMPANY

330'

FTP

Surface Hole Location (SHL)
GRID N: 768304.110
GRID E: 1070904.043
NAD83 Lat/Long
Lat: +31.745648°
Long: -103.287135°

First Take Point (FTP)
GRID N: (Y) 767685.788
GRID E: (X) 1078090.513
NAD83 Lat/Long
Lat: +31.743805° N
Long: 103.296401° W

Bottom Hole Location (BHL)
Last Take Point (LTP)/Terminus
GRID N: 761706.966
GRID E: 1080831.331
NAD83 Lat/Long
Lat: +31.727557°
Long: -103.290373°

TRACT #1:
140.152 ACRES

180.196 ACRE
University B20 12/13

GRID N: 762689.388
GRID E: 1080200.447

GRID N: 763429.549
GRID E: 1082734.587

13
GRID N: 764170.901
GRID E: 1085269.237

POOLED UNIT

TRACT #2:
40.044 ACRES
BHL/LTP/
Terminus

Driving Directions to Location:
From Intersection of Hwy 115 and
FM 1232 in Wink, Texas,
Drive Northwest on FM 1232, 1.5
miles to CR 201;
Turn left (West) on to CR 201, drive
6.8 miles to lease road at Lat:
31°42'47.70", Long: 103°17'35.40";
Turn right (North) on to lease road,
drive 0.8 mile to lease road,
Turn left (West) on to lease road,
drive 0.3 miles to Lat: 31°44'44.21",
Long: 103°17'48.84";
Location is left (West) 265 feet.

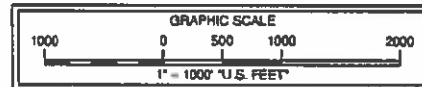
GRID N: 757614.353
GRID E: 1081683.472
23

N 73°42'03" E 5278.51'

GRID N: 768353.638
GRID E: 1084217.259

24
GRID N: 756095.788
GRID E: 1086749.830
19

University B20 12/13



Note: Well location is 8.2 miles West of the city of Wink, Texas.
Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1927, Central Zone.
Note: Bearings and distances are based on The Texas Coordinate System of 1927, Central Zone.
Note: Example: (S-99999) indicates General Land Office file number.



Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

January 11, 2016

16011184-KRM

Revised: 03/15/2017 KRM
USGS Quadrangle Sheet: Soda Lake NE, Tex.

Railroad Commission Permit Plat
MEWBOURNE OIL COMPANY
University B20 12/13 #W101DD
465' FROM SOUTH LINE
330' FROM WEST LINE
of Section 1, Block 20
University B20 12/13 Lease

Section 12 & 13, Block 20
University Lands Survey
Winkler County, Texas

Scale: 1" = 1000'

TELEDIFT

P.O.Box 94395 * Oklahoma City, OK 73143-4395 Ph : 405-631-4882

ISSUING AGENCY	CERTIFICATION NUMBER
Teledrift Company	841318

State of Texas,

I, Ramiro Mireles, certify that I am employed by TELEDIFT and I did conduct or supervise the taking of survey data started on 16 JUN 17 for the University B20 12\13 W101DD well from a depth of 0' to a depth of 9934'. This data is true, correct, complete and within the limitations of the tools as set forth by TELEDIFT. I am authorized and qualified to make this report and this survey was conducted at the request of Mewbourne, for the University B20 12\13 W101DD well in Winkler. I have reviewed this report and find that it conforms to the principles and procedures as set forth by TELEDIFT.

NAME: Ramiro Mireles	TITLE: Service Tech
SIGNATURE: <i>Ramiro Mireles</i>	

NAME: David Jackson	TITLE: Monitoring Tech
SIGNATURE: <i>David Jackson</i>	

NAME: David Terrell	TITLE: Regional Manager
SIGNATURE: <i>David Terrell</i>	



August 4, 2017

Railroad Commission of Texas
Attn: Oil & Gas Division
P.O. Box 12967
Austin, TX 78711-2967

Attn: Pam Johns

Re: Mewbourne Oil Company
University B20 12/13 #W101DD
Phantom (Wolfcamp)
Winkler County, Texas
API# 42-495-33830

Enclosed please find the original and one (1) copy of the survey performed on the reference well by STRYKER ENERGY DIRECTIONAL SERVICES, LLC. (P-5 #828149) Other information required by your office is as follows:

<u>Name & Title</u>	<u>Drainhole No.</u>	<u>Survey Depths</u>	<u>Dates Performed</u>	<u>Type Survey</u>
John Bult	Original Hole	385ft. to 5,074 ft.	06-19-17 to 06-22-17	MWD Survey
John Bult	Original Hole	10,025ft. to 18,639 ft.	06-29-17 to 07-13-17	MWD Survey

A certified plat on which the bottom-hole location is oriented to both surface location and to the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.


Todd Estes

Enclosures

CC:

Mewbourne Oil Company
Attn: Janet Burns
P.O. Box 7698
Tyler, TX 75711

Mewbourne Oil Company
Attn: Robin Terrell
P.O. Box 5720
Hobbs, NM 88241

RRC\Mewbourne Oil Company\University B20 12/13 #W101DD\M171044

STRYKER ENERGY DIRECTIONAL SERVICES, LLC.
P.O. Box 1250
Montgomery, TX 77356
Office (936) 582-7296 * Fax (936)-588-4163



August 4, 2017

Survey Certification Report

STATE OF TEXAS

COUNTY OF Montgomery

I, Todd Estes, certify that I am employed by STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C., and that I did on the day(s) of June 19, 2017 through June 22, 2017, conduct or supervise the taking of a SEDS MWD Original Hole Survey from a depth of 385 feet to a depth of 5,074 feet; and that I did on the day(s) of June 29, 2017 through July 13, 2017, conduct or supervise the taking of a SEDS MWD Original Hole Survey from a depth of 10,025 feet to a depth of 18,639 feet; that I am authorized and qualified to make this report; that this survey was conducted at the request of Mewbourne Oil Company, for the University B20 12/13 #W101DD well, API # **42-495-33830** in Winkler County, Texas; and that I have reviewed this report and find that it conforms to the principles as set forth by STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C..

A handwritten signature in blue ink, appearing to read "Todd Estes", written over a horizontal line.

Todd Estes

STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C.

STRYKER ENERGY DIRECTIONAL SERVICES, LLC.

P.O. Box 1250

Montgomery, TX 77356

Office (936) 582-7296 * Fax (936)-588-4163

**RAILROAD COMMISSION OF TEXAS
OIL & GAS DIVISION**

PERMIT TO DRILL, DEEPEN, PLUG BACK, OR RE-ENTER ON A REGULAR OR ADMINISTRATIVE EXCEPTION LOCATION

PERMIT NUMBER 824601	DATE PERMIT ISSUED OR AMENDED Mar 24, 2017	DISTRICT * 08		
API NUMBER 42-495-33830	FORM W-1 RECEIVED Mar 20, 2017	COUNTY WINKLER		
TYPE OF OPERATION NEW DRILL	WELLBORE PROFILE(S) Horizontal	ACRES 180.2		
OPERATOR MEWBOURNE OIL COMPANY BOX 7698 TYLER, TX 75711-0000		NOTICE This permit and any allowable assigned may be revoked if payment for fee(s) submitted to the Commission is not honored. District Office Telephone No: (432) 684-5581		
LEASE NAME UNIVERSITY B20 12/13		WELL NUMBER W101DD		
LOCATION 8.2 miles W direction from WINK		TOTAL DEPTH 12500		
Section, Block and/or Survey SECTION 1 BLOCK 20 ABSTRACT 1 SURVEY UL				
DISTANCE TO SURVEY LINES 465 ft. SOUTH 330 ft. WEST		DISTANCE TO NEAREST LEASE LINE 200 ft.		
DISTANCE TO LEASE LINES 465 ft. SOUTH 330 ft. WEST		DISTANCE TO NEAREST WELL ON LEASE See FIELD(s) Below		
FIELD(s) and LIMITATIONS: <p align="center">* SEE FIELD DISTRICT FOR REPORTING PURPOSES *</p>				
FIELD NAME LEASE NAME	ACRES NEAREST LEASE	DEPTH NEAREST LEASE		
	WELL # NEAREST WE	DIST		
PHANTOM (WOLFCAMP)	180.20	12,500	W101DD	08
UNIVERSITY B20 12/13	200	0		

WELLBORE PROFILE(s) FOR FIELD: Horizontal				

RESTRICTIONS: This is a hydrogen sulfide field. Hydrogen Sulfide Fields with perforations must be isolated and tested per State Wide Rule 36 and a Form H-9 filed with the district office. Fields with SWR 10 authority to downhole commingle must be isolated and tested individually prior to commingling production.				
Lateral: TH1				
Penetration Point Location				
Lease Lines: 465.0 F SOUTH L				
330.0 F WEST L				
Terminus Location				
BH County: WINKLER				
Section: 13 Block: 20 Abstract:				
Survey: UL				
Lease Lines: 200.0 F SOUTH L				
330.0 F WEST L				
Survey Lines: 1120.0 F NORTH L				
330.0 F WEST L				
 THE FOLLOWING RESTRICTIONS APPLY TO ALL FIELDS				

Company: Mewbourne Oil Company
Project: Winkler County, TX
Site: Section 12-13 Blk. 20 University B20 12-13 W10
Well: University B20 12-13 W101DD
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well University B20 12-13 W101DD
TVD Reference: 2826 + 27 @ 2853.0usft (Patterson 220)
MD Reference: 2826 + 27 @ 2853.0usft (Patterson 220)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

Project Winkler County, TX

Map System: US State Plane 1927 (Exact solution)
Geo Datum: NAD 1927 (NADCON CONUS)
Map Zone: Texas Central 4203

System Datum: Mean Sea Level

Site Section 12-13 Blk. 20 University B20 12-13 W101DD

Site Position:		Northing:	768,304.11 usft	Latitude:	31° 44' 43.501 N
From:	Map	Easting:	1,078,904.04 usft	Longitude:	103° 17' 48.070 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.53 °

Well University B20 12-13 W101DD

Well Position	+N/-S	0.0 usft	Northing:	768,304.11 usft	Latitude:	31° 44' 43.501 N
	+E/-W	0.0 usft	Easting:	1,078,904.04 usft	Longitude:	103° 17' 48.070 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	27.0 usft	Ground Level:	2,826.0 usft

Wellbore Original Hole

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/2/2017	6.80	59.66	47,690.18726502

Design Original Hole

Audit Notes:

Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
-----------------	-----	---------------	--------	----------------------	-----

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	67.08

Company: Mewbourne Oil Company
Project: Winkler County, TX
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TVD Reference: 2826 + 27 @ 2853.0usft (Patterson 220)
MD Reference: 2826 + 27 @ 2853.0usft (Patterson 220)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

Survey Program **Date** 7/27/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	300.0	Rig Surveys (Original Hole)	MWD+IGRF	OWSG MWD + IGRF or WMM
385.0	18,690.0	MWD Survey (Original Hole)	MWD+IGRF	OWSG MWD + IGRF or WMM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	
300.0	0.20	14.00	300.0	1.0	0.6	1.1	32.66	Tie-In to Rig
385.0	0.20	58.60	385.0	1.2	0.8	1.4	33.37	
447.0	0.40	121.70	447.0	1.1	1.1	1.5	43.19	
508.0	0.40	66.70	508.0	1.1	1.4	1.8	52.58	
568.0	0.30	178.70	568.0	1.0	1.6	1.9	57.90	
629.0	0.20	208.80	629.0	0.8	1.6	1.8	64.09	
689.0	0.20	65.60	689.0	0.7	1.6	1.8	66.13	
749.0	0.10	70.60	749.0	0.8	1.8	1.9	66.22	
809.0	0.50	130.70	809.0	0.6	2.0	2.1	72.76	
869.0	0.70	139.60	869.0	0.2	2.5	2.5	85.90	
930.0	0.30	131.10	930.0	-0.2	2.8	2.8	94.33	
996.0	0.40	124.20	996.0	-0.5	3.1	3.2	98.28	
1,059.0	0.50	174.80	1,059.0	-0.9	3.3	3.4	104.33	
1,122.0	0.40	168.00	1,122.0	-1.3	3.4	3.7	111.48	
1,186.0	0.30	149.60	1,186.0	-1.7	3.5	3.9	115.71	
1,249.0	0.40	142.30	1,249.0	-2.0	3.8	4.3	118.26	
1,313.0	0.40	125.10	1,313.0	-2.3	4.1	4.7	119.70	
1,376.0	0.40	160.20	1,376.0	-2.7	4.3	5.1	121.54	
1,440.0	0.70	123.80	1,440.0	-3.1	4.7	5.7	123.11	
1,503.0	0.60	151.80	1,503.0	-3.6	5.2	6.3	124.59	
1,566.0	0.60	117.70	1,566.0	-4.0	5.7	7.0	125.50	

Company: Mewbourne Oil Company
Project: Winkler County, TX
Site: Section 12-13 Blk. 20 University B20 12-13 W10
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Wellbore: Original Hole
Design: Original Hole

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TVD Reference: 2826 + 27 @ 2853.0usft (Patterson 220)
MD Reference: 2826 + 27 @ 2853.0usft (Patterson 220)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
1,630.0	0.70	132.10	1,630.0	-4.5	6.2	7.7	125.50
1,693.0	0.80	128.70	1,693.0	-5.0	6.9	8.5	125.96
1,757.0	0.90	115.00	1,756.9	-5.5	7.7	9.4	125.51
1,820.0	0.80	100.20	1,819.9	-5.8	8.6	10.3	123.97
1,884.0	1.00	93.90	1,883.9	-5.9	9.6	11.2	121.62
1,947.0	1.40	73.30	1,946.9	-5.7	10.8	12.2	117.73
2,012.0	1.50	74.20	2,011.9	-5.2	12.4	13.5	112.87
2,075.0	1.50	78.40	2,074.9	-4.8	14.0	14.8	109.08
2,170.0	1.70	65.30	2,169.8	-4.0	16.5	17.0	103.65
2,264.0	1.90	65.40	2,263.8	-2.8	19.2	19.4	98.24
2,359.0	1.10	343.40	2,358.8	-1.2	20.4	20.4	93.51
2,454.0	1.40	320.40	2,453.7	0.5	19.4	19.4	88.47
2,549.0	1.10	330.80	2,548.7	2.2	18.2	18.3	83.08
2,644.0	0.80	338.80	2,643.7	3.6	17.5	17.9	78.31
2,739.0	0.80	324.10	2,738.7	4.8	16.9	17.5	74.19
2,834.0	1.10	337.50	2,833.7	6.2	16.1	17.3	69.12
2,928.0	0.90	5.70	2,927.7	7.7	15.9	17.6	64.04
3,023.0	0.70	8.50	3,022.7	9.0	16.0	18.4	60.57
3,118.0	1.10	17.80	3,117.7	10.5	16.4	19.5	57.40
3,213.0	1.40	42.20	3,212.6	12.2	17.5	21.3	55.01
3,308.0	1.80	53.70	3,307.6	14.0	19.4	23.9	54.32
3,402.0	1.80	56.20	3,401.6	15.7	21.8	26.9	54.39
3,497.0	2.30	55.60	3,496.5	17.6	24.7	30.3	54.55
3,592.0	1.10	121.30	3,591.5	18.2	27.0	32.6	56.09
3,686.0	0.70	147.50	3,685.4	17.2	28.1	32.9	58.51
3,781.0	1.50	108.80	3,780.4	16.3	29.6	33.8	61.12
3,876.0	2.40	97.80	3,875.4	15.6	32.7	36.3	64.45

Company: Mewbourne Oil Company
Project: Winkler County, TX
Site: Section 12-13 Blk. 20 University B20 12-13 W10
Well: University B20 12-13 W101DD
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
3,971.0	0.80	132.40	3,970.3	14.9	35.2	38.2	67.01
4,066.0	0.30	258.50	4,065.3	14.4	35.4	38.3	67.84
4,161.0	0.10	329.90	4,160.3	14.5	35.2	38.0	67.65
4,256.0	0.20	186.90	4,255.3	14.4	35.1	37.9	67.74
4,350.0	0.20	150.50	4,349.3	14.1	35.2	37.9	68.20
4,445.0	0.20	219.60	4,444.3	13.8	35.1	37.7	68.57
4,539.0	0.60	123.10	4,538.3	13.4	35.4	37.9	69.30
4,634.0	1.00	110.80	4,633.3	12.8	36.6	38.8	70.70
4,728.0	1.10	122.10	4,727.3	12.1	38.2	40.0	72.47
4,823.0	1.70	103.80	4,822.3	11.2	40.3	41.8	74.43
4,918.0	1.80	110.30	4,917.2	10.4	43.1	44.3	76.45
5,012.0	1.70	103.70	5,011.2	9.5	45.8	46.8	78.24
5,074.0	1.80	98.40	5,073.2	9.2	47.7	48.5	79.10
5,224.0	1.20	103.00	5,223.1	8.5	51.5	52.2	80.66
5,319.0	1.30	98.00	5,318.1	8.1	53.6	54.2	81.40
5,413.0	1.40	99.00	5,412.1	7.8	55.8	56.3	82.06
5,508.0	1.40	104.00	5,507.0	7.3	58.0	58.5	82.82
5,605.0	1.40	92.00	5,604.0	7.0	60.4	60.8	83.40
5,699.0	1.10	97.00	5,698.0	6.8	62.4	62.8	83.75
5,793.0	0.80	70.00	5,792.0	7.0	63.9	64.3	83.79
5,888.0	0.80	74.00	5,887.0	7.4	65.2	65.6	83.56
5,982.0	1.00	73.00	5,980.9	7.8	66.6	67.0	83.33
6,172.0	0.40	111.00	6,170.9	8.0	68.8	69.3	83.34
6,267.0	0.30	91.00	6,265.9	7.9	69.4	69.8	83.50
6,456.0	0.30	25.00	6,454.9	8.3	70.1	70.5	83.21
6,551.0	0.30	18.00	6,549.9	8.8	70.2	70.8	82.85
6,646.0	0.30	100.00	6,644.9	9.0	70.6	71.1	82.73

Finish Stryker MWD
Rig Surveys

Company: Mewbourne Oil Company
Project: Winkler County, TX
Site: Section 12-13 Blk. 20 University B20 12-13 W10
Well: University B20 12-13 W101DD
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well University B20 12-13 W101DD
TVD Reference: 2826 + 27 @ 2853.0usft (Patterson 220)
MD Reference: 2826 + 27 @ 2853.0usft (Patterson 220)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
6,740.0	0.20	333.00	6,738.9	9.1	70.7	71.3	82.67
6,835.0	0.00	323.00	6,833.9	9.3	70.7	71.3	82.54
6,930.0	0.10	296.00	6,928.9	9.3	70.6	71.2	82.50
7,024.0	0.20	297.00	7,022.9	9.4	70.4	71.0	82.39
7,119.0	0.10	259.00	7,117.9	9.5	70.1	70.8	82.32
7,216.0	0.20	246.00	7,214.9	9.4	69.9	70.5	82.36
7,310.0	0.60	205.00	7,308.9	8.9	69.5	70.1	82.74
7,404.0	0.40	205.00	7,402.9	8.1	69.2	69.7	83.31
7,498.0	0.60	213.00	7,496.9	7.4	68.8	69.2	83.85
7,594.0	0.40	198.00	7,592.9	6.7	68.4	68.7	84.43
7,688.0	0.60	197.00	7,686.9	5.9	68.2	68.4	85.07
7,783.0	0.80	198.00	7,781.9	4.8	67.8	68.0	85.97
7,877.0	0.90	195.00	7,875.9	3.4	67.4	67.5	87.08
7,972.0	0.70	203.00	7,970.9	2.2	67.0	67.0	88.13
8,066.0	0.90	214.00	8,064.9	1.0	66.4	66.4	89.10
8,161.0	0.80	208.00	8,159.9	-0.2	65.6	65.6	90.14
8,256.0	1.10	227.00	8,254.8	-1.4	64.6	64.7	91.21
8,350.0	1.00	235.00	8,348.8	-2.5	63.3	63.4	92.22
8,445.0	0.80	247.00	8,443.8	-3.2	62.0	62.1	92.94
8,540.0	0.60	269.00	8,538.8	-3.5	60.9	61.0	93.25
8,635.0	0.80	255.00	8,633.8	-3.6	59.8	59.9	93.48
8,730.0	0.50	252.00	8,728.8	-3.9	58.7	58.9	93.83
8,825.0	0.80	263.00	8,823.8	-4.1	57.7	57.8	94.11
8,920.0	0.50	255.00	8,918.8	-4.3	56.6	56.8	94.37
9,011.0	0.40	274.00	9,009.8	-4.4	55.9	56.1	94.51
9,106.0	0.50	188.00	9,104.8	-4.8	55.5	55.8	94.94
9,201.0	0.90	184.00	9,199.8	-6.0	55.4	55.8	96.13

Company: Mewbourne Oil Company
Project: Winkler County, TX
Site: Section 12-13 Blk. 20 University B20 12-13 W10
Well: University B20 12-13 W101DD
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well University B20 12-13 W101DD
TVD Reference: 2826 + 27 @ 2853.0usft (Patterson 220)
MD Reference: 2826 + 27 @ 2853.0usft (Patterson 220)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	
9,295.0	1.50	192.00	9,293.7	-7.9	55.1	55.7	98.15	
9,390.0	1.60	183.00	9,388.7	-10.4	54.8	55.8	100.78	
9,487.0	1.60	178.00	9,485.7	-13.1	54.8	56.3	103.49	
9,582.0	1.20	171.00	9,580.6	-15.4	55.0	57.1	105.70	
9,677.0	1.10	173.00	9,675.6	-17.3	55.2	57.9	107.42	
9,772.0	1.10	180.00	9,770.6	-19.2	55.4	58.6	109.09	
9,826.0	1.60	216.00	9,824.6	-20.3	54.9	58.5	110.27	
9,916.0	2.70	223.00	9,914.5	-22.8	52.7	57.5	113.43	
10,025.0	2.60	231.50	10,023.4	-26.3	49.0	55.6	118.17	Tie-In to Rig Survey's
10,120.0	2.90	231.00	10,118.3	-29.1	45.5	54.0	122.63	
10,215.0	2.30	246.50	10,213.2	-31.4	41.9	52.3	126.86	
10,310.0	2.00	228.90	10,308.1	-33.2	38.9	51.2	130.53	
10,404.0	2.60	259.20	10,402.1	-34.7	35.5	49.7	134.33	
10,499.0	1.10	146.90	10,497.0	-35.9	33.9	49.4	136.61	
10,593.0	1.10	174.50	10,591.0	-37.5	34.5	51.0	137.41	
10,688.0	1.20	210.00	10,686.0	-39.3	34.1	52.0	139.06	
10,782.0	1.70	200.30	10,780.0	-41.5	33.1	53.1	141.39	
10,877.0	1.50	197.90	10,874.9	-44.0	32.2	54.5	143.75	
10,972.0	1.10	219.60	10,969.9	-45.9	31.3	55.5	145.70	
11,067.0	1.90	219.30	11,064.9	-47.8	29.7	56.3	148.13	
11,161.0	3.00	222.40	11,158.8	-50.8	27.1	57.6	151.96	
11,256.0	2.70	213.30	11,253.7	-54.5	24.2	59.6	156.10	
11,351.0	1.70	237.20	11,348.6	-57.1	21.7	61.1	159.17	
11,446.0	2.00	210.40	11,443.6	-59.3	19.7	62.5	161.62	
11,477.0	1.90	230.40	11,474.5	-60.1	19.1	63.1	162.42	
11,570.0	4.00	186.50	11,567.4	-64.3	17.5	66.7	164.79	
11,601.0	6.90	176.40	11,598.3	-67.3	17.5	69.5	165.43	

Company: Mewbourne Oil Company
Project: Winkler County, TX
Site: Section 12-13 Blk. 20 University B20 12-13 W10
Well: University B20 12-13 W101DD
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well University B20 12-13 W101DD
TVD Reference: 2826 + 27 @ 2853.0usft (Patterson 220)
MD Reference: 2826 + 27 @ 2853.0usft (Patterson 220)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
11,633.0	10.60	173.10	11,629.9	-72.1	18.0	74.3	166.01
11,665.0	14.00	170.70	11,661.2	-78.9	18.9	81.1	166.49
11,696.0	16.80	167.80	11,691.0	-86.9	20.5	89.3	166.73
11,728.0	20.50	165.30	11,721.4	-96.9	22.9	99.6	166.70
11,760.0	24.20	163.10	11,751.0	-108.6	26.2	111.7	166.42
11,791.0	27.20	161.80	11,778.9	-121.4	30.3	125.1	165.99
11,823.0	30.90	160.50	11,806.9	-136.1	35.3	140.6	165.45
11,855.0	33.20	160.50	11,834.0	-152.1	41.0	157.5	164.92
11,886.0	34.70	161.20	11,859.7	-168.5	46.7	174.8	164.52
11,918.0	36.20	161.60	11,885.8	-186.0	52.6	193.3	164.22
11,949.0	38.00	162.10	11,910.5	-203.8	58.4	212.0	164.01
11,981.0	40.00	163.10	11,935.3	-223.0	64.4	232.1	163.89
12,013.0	42.60	163.70	11,959.4	-243.3	70.5	253.3	163.85
12,044.0	46.00	164.30	11,981.6	-264.1	76.4	274.9	163.86
12,076.0	49.20	163.90	12,003.1	-286.8	82.9	298.5	163.88
12,107.0	51.70	162.70	12,022.9	-309.7	89.8	322.4	163.84
12,138.0	55.30	161.70	12,041.3	-333.4	97.4	347.3	163.72
12,170.0	57.70	161.90	12,059.0	-358.8	105.7	374.0	163.58
12,202.0	61.00	163.20	12,075.3	-385.0	114.0	401.5	163.51
12,233.0	63.60	164.20	12,089.7	-411.4	121.7	429.0	163.52
12,265.0	66.80	165.40	12,103.1	-439.4	129.3	458.0	163.61
12,328.0	73.50	165.20	12,124.5	-496.7	144.3	517.2	163.80
12,359.0	74.60	164.40	12,133.0	-525.4	152.1	547.0	163.85
12,368.2	75.28	164.14	12,135.4	-533.9	154.5	555.9	163.86
LP University B20 12-13 W101DD							
12,390.0	76.90	163.53	12,140.7	-554.3	160.4	577.1	163.86
12,422.0	79.70	162.60	12,147.1	-584.3	169.5	608.4	163.82

Company: Mewbourne Oil Company
Project: Winkler County, TX
Site: Section 12-13 Blk. 20 University B20 12-13 W10
Well: University B20 12-13 W101DD
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well University B20 12-13 W101DD
TVD Reference: 2826 + 27 @ 2853.0usft (Patterson 220)
MD Reference: 2826 + 27 @ 2853.0usft (Patterson 220)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
12,453.0	82.10	162.10	12,152.0	-613.5	178.8	639.0	163.75
12,485.0	84.80	161.60	12,155.7	-643.7	188.7	670.8	163.66
12,517.0	88.10	161.20	12,157.7	-673.9	198.9	702.7	163.56
12,580.0	92.80	160.70	12,157.2	-733.5	219.5	765.6	163.34
12,674.0	93.50	160.53	12,152.0	-822.0	250.6	859.4	163.04
12,769.0	93.10	162.00	12,146.5	-911.8	281.1	954.2	162.87
12,864.0	94.30	162.10	12,140.4	-1,002.0	310.3	1,048.9	162.79
12,959.0	89.10	162.70	12,137.6	-1,092.5	339.0	1,143.9	162.76
13,053.0	87.70	162.70	12,140.2	-1,182.2	366.9	1,237.8	162.76
13,148.0	89.50	162.10	12,142.5	-1,272.7	395.7	1,332.8	162.73
13,242.0	91.00	164.60	12,142.1	-1,362.8	422.6	1,426.8	162.77
13,337.0	89.50	162.60	12,141.7	-1,453.9	449.4	1,521.8	162.82
13,431.0	90.50	165.40	12,141.7	-1,544.2	475.3	1,615.7	162.89
13,526.0	89.90	161.00	12,141.4	-1,635.2	502.8	1,710.7	162.91
13,621.0	90.40	163.60	12,141.1	-1,725.6	531.7	1,805.7	162.88
13,715.0	91.30	166.30	12,139.7	-1,816.4	556.1	1,899.6	162.98
13,810.0	90.20	164.00	12,138.5	-1,908.2	580.4	1,994.5	163.08
13,904.0	91.80	164.80	12,136.9	-1,998.7	605.7	2,088.5	163.14
13,999.0	92.50	164.30	12,133.3	-2,090.2	631.0	2,183.4	163.20
14,093.0	90.50	164.10	12,130.8	-2,180.6	656.5	2,277.3	163.24
14,188.0	90.60	164.20	12,129.9	-2,272.0	682.5	2,372.3	163.28
14,283.0	89.90	163.20	12,129.5	-2,363.2	709.2	2,467.3	163.30
14,377.0	89.90	162.70	12,129.7	-2,453.1	736.7	2,561.3	163.28
14,471.0	89.40	162.70	12,130.2	-2,542.8	764.7	2,655.3	163.26
14,566.0	92.40	163.00	12,128.8	-2,633.6	792.7	2,750.3	163.25
14,661.0	90.00	163.90	12,126.8	-2,724.6	819.7	2,845.3	163.26
14,755.0	90.10	163.30	12,126.7	-2,814.8	846.3	2,939.3	163.27

Company: Mewbourne Oil Company
Project: Winkler County, TX
Site: Section 12-13 Blk. 20 University B20 12-13 W10
Well: University B20 12-13 W101DD
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well University B20 12-13 W101DD
TVD Reference: 2826 + 27 @ 2853.0usft (Patterson 220)
MD Reference: 2826 + 27 @ 2853.0usft (Patterson 220)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
14,850.0	89.40	159.00	12,127.1	-2,904.7	877.0	3,034.2	163.20
14,945.0	90.00	160.60	12,127.6	-2,993.8	909.8	3,129.0	163.10
15,039.0	90.10	159.50	12,127.5	-3,082.2	941.8	3,222.9	163.01
15,134.0	90.50	159.40	12,127.0	-3,171.1	975.2	3,317.7	162.91
15,228.0	89.80	159.40	12,126.8	-3,259.1	1,008.2	3,411.5	162.81
15,323.0	90.10	161.10	12,126.9	-3,348.5	1,040.3	3,506.4	162.74
15,417.0	89.70	160.50	12,127.0	-3,437.3	1,071.3	3,600.4	162.69
15,511.0	92.00	163.80	12,125.6	-3,526.8	1,100.1	3,694.3	162.68
15,606.0	92.40	166.00	12,122.0	-3,618.4	1,124.8	3,789.2	162.73
15,701.0	90.80	167.80	12,119.3	-3,710.9	1,146.3	3,883.9	162.83
15,795.0	88.70	168.10	12,119.7	-3,802.8	1,165.9	3,977.5	162.95
15,890.0	88.10	165.60	12,122.4	-3,895.3	1,187.5	4,072.3	163.05
15,984.0	88.00	166.40	12,125.6	-3,986.4	1,210.3	4,166.1	163.11
16,079.0	89.60	163.90	12,127.6	-4,078.2	1,234.6	4,261.0	163.16
16,173.0	91.60	166.10	12,126.6	-4,169.0	1,258.9	4,354.9	163.20
16,267.0	87.20	162.70	12,127.6	-4,259.5	1,284.2	4,448.9	163.22
16,361.0	87.60	162.60	12,131.8	-4,349.1	1,312.2	4,542.8	163.21
16,456.0	89.60	163.40	12,134.2	-4,439.9	1,340.0	4,637.7	163.21
16,551.0	92.40	164.60	12,132.5	-4,531.2	1,366.1	4,732.7	163.22
16,645.0	90.00	163.70	12,130.5	-4,621.6	1,391.8	4,826.7	163.24
16,740.0	89.50	162.70	12,130.9	-4,712.6	1,419.3	4,921.7	163.24
16,834.0	90.80	163.70	12,130.7	-4,802.6	1,446.4	5,015.7	163.24
16,929.0	90.10	162.10	12,130.0	-4,893.4	1,474.4	5,110.7	163.23
17,024.0	90.20	160.90	12,129.7	-4,983.5	1,504.5	5,205.6	163.20
17,118.0	89.70	161.20	12,129.8	-5,072.4	1,535.0	5,299.5	163.16
17,213.0	90.50	162.80	12,129.6	-5,162.7	1,564.4	5,394.5	163.14
17,307.0	90.70	162.50	12,128.6	-5,252.4	1,592.4	5,488.5	163.13

Company: Mewbourne Oil Company
Project: Winkler County, TX
Site: Section 12-13 Blk. 20 University B20 12-13 W10
Well: University B20 12-13 W101DD
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well University B20 12-13 W101DD
TVD Reference: 2826 + 27 @ 2853.0usft (Patterson 220)
MD Reference: 2826 + 27 @ 2853.0usft (Patterson 220)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

Survey

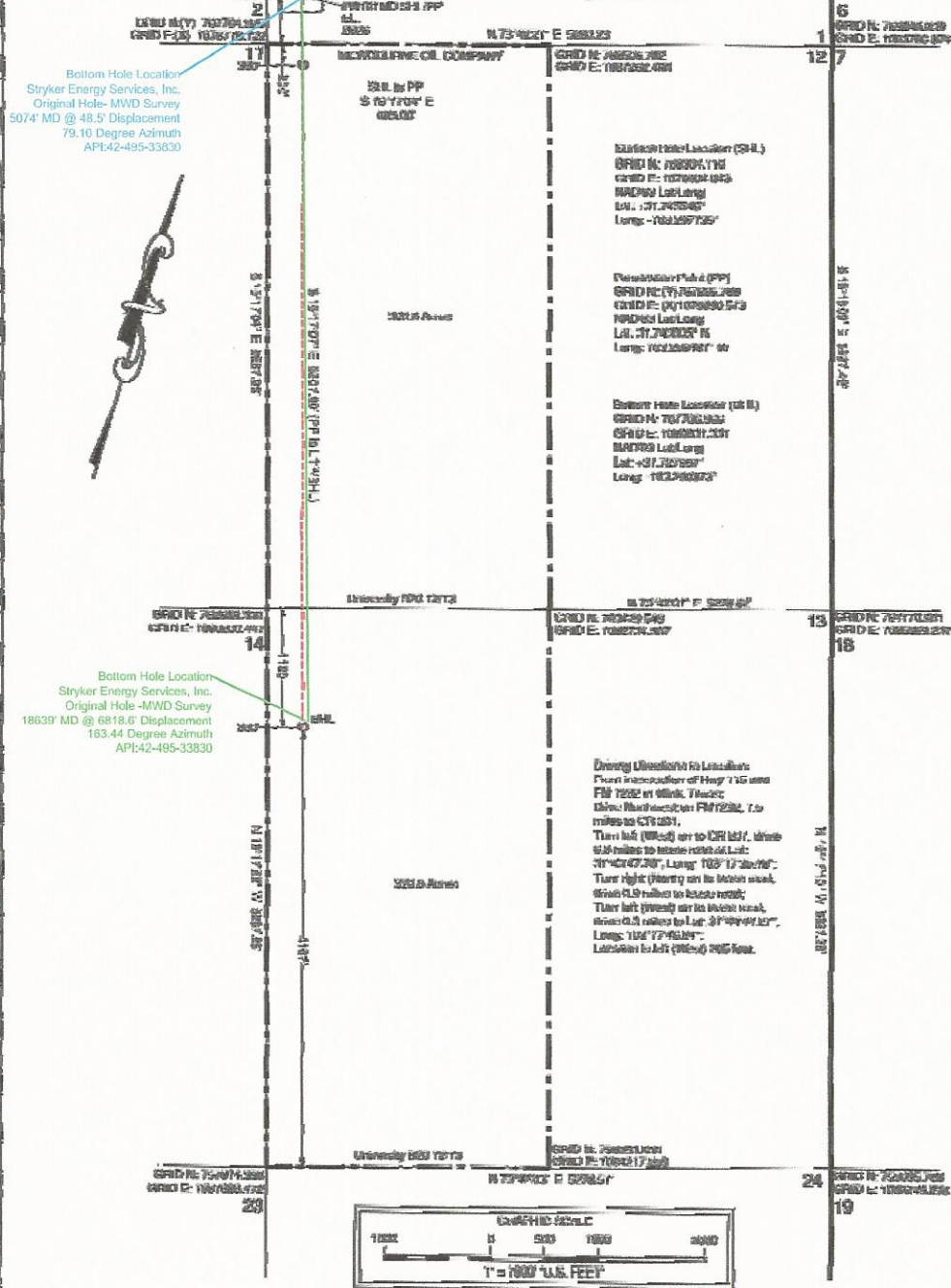
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)
17,402.0	92.30	162.30	12,126.1	-5,342.9	1,621.1	5,583.5	163.12
17,497.0	93.10	163.40	12,121.7	-5,433.6	1,649.1	5,678.4	163.12
17,592.0	91.30	165.00	12,118.0	-5,525.0	1,675.0	5,773.3	163.13
17,686.0	89.50	168.60	12,117.4	-5,616.4	1,696.4	5,867.1	163.19
17,780.0	89.20	167.70	12,118.4	-5,708.4	1,715.7	5,960.7	163.27
17,875.0	91.40	170.40	12,117.9	-5,801.7	1,733.8	6,055.2	163.36
17,970.0	89.70	165.70	12,117.0	-5,894.6	1,753.4	6,149.9	163.43
18,063.0	90.20	165.30	12,117.1	-5,984.6	1,776.7	6,242.8	163.46
18,157.0	88.70	164.10	12,118.0	-6,075.3	1,801.5	6,336.8	163.48
18,252.0	89.20	164.20	12,119.8	-6,166.7	1,827.5	6,431.7	163.49
18,345.0	90.00	164.30	12,120.4	-6,256.2	1,852.7	6,524.7	163.50
18,440.0	90.70	162.60	12,119.8	-6,347.2	1,879.8	6,619.7	163.50
18,535.0	89.50	161.20	12,119.7	-6,437.5	1,909.3	6,714.7	163.48
18,628.0	89.90	160.30	12,120.1	-6,525.3	1,939.9	6,807.6	163.44
18,639.0	91.00	161.30	12,120.1	-6,535.7	1,943.6	6,818.6	163.44
18,690.0	91.00	161.30	12,119.2	-6,584.0	1,959.9	6,869.5	163.42

18690' MD Projected to Bit - PBHL University B20 12-13 W101DD

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
18,690.0	12,119.2	-6,584.0	1,959.9	18690' MD Projected to Bit

Block 20, University Lands Survey Winkler County, Texas



From: Well location 18122 miles West of the City of Wink, Texas.
Main Survey Reconstruction line in 1843/1850 of Pennell & Marlowe Land Surveyors, Inc.
Note: Considerable distance between the Texas Commission Order of 1907, General Survey
Note: Bearings and distances are based on the Texas Commission Order of 1907, General Survey
Note: Exception, (3) bearing indicates General Land Office line location.



Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 575

January 11, 2016
1007 FMS 1000

P.O. BOX 5007, WINKLER, TEXAS 76891-0507 FAX (817) 258-0575 FILE #1007-02

Revised: 01/15/2017-1007
USGS Quadrangle Sheet: 1007-1000, 1007-1001, 1007-1002
Followed Correlation Form: P-1007

MENSCURINE OIL COMPANY
University 020 12113 00101 MD
405' FROM SOUTH LINE
200' FROM WEST LINE
of Section 1, Block 20
University 020 12113 Lease
041.1 Acres being the W2 of
Section 12 & 13, Block 20
University Lands Survey
Winkler County, Texas

Scale: 1" = 1000'