



GEOLOGISTS REPORT

OPERATOR **MURFIN DRILLING COMPANY, INC.**

LEASE **MAHER #1-15**

LOCATION **600 FNL & 2100 FEL**

SEC **15** TWP **1S** RGE **32W**

COUNTY **RAWLINS** STATE **KANSAS**

FIELD **WILHELM EAST**

CONTRACTOR **Murfin Drilling Company** RIG NO. **7**

COMMENCED **15 Feb. 2019** COMPLETED **26 Feb. 2019**

MUD DISPLACED **3279** MUD TYPE **Chemical**

DRILLING TIME KEPT FROM **3550** TO **4325**

SAMPLES SAVED FROM **3550** TO **4325**

SAMPLES EXAMINED FROM **3550** TO **4325**

GEOLOGICAL SUPERVISION FROM **3278** TO **4325**

GEOLOGIST ON WELL **Paul Gunzelman**

FORMATION NAME	LOG TOP DATUM	SAMPLE TOP DATUM
Stone Corral	2778	2781
Base/Anhydrite	+208	+205
Topoka	2818	2822
Heebner Shale	+168	+164
Lansing	3734	3737
Stark Shale	-748	-751
Mound City	3896	3898
FT Scott	-910	-912
	3925	3927
	-939	-941
	4128	4124
	-1142	-1138
	4186	4186
	-1200	-1201
	4283	4277
	-1297	-1291
Total Depth	4323	4325
	-1337	-1339

ELEVATIONS
KB **2986 Ft.**

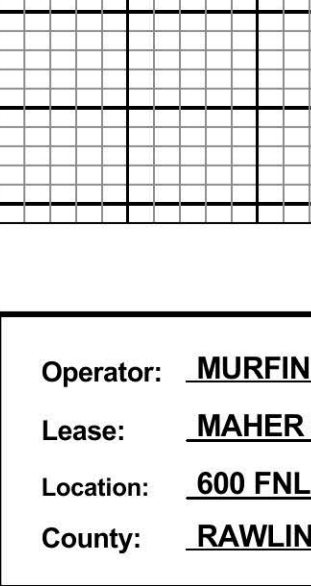
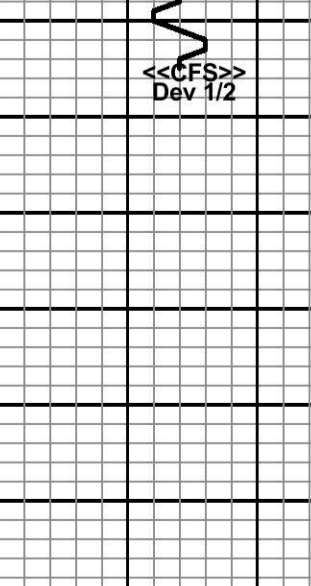
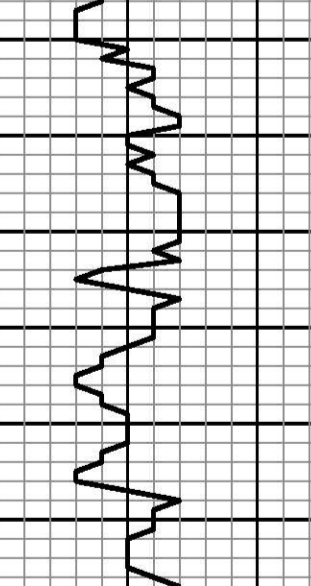
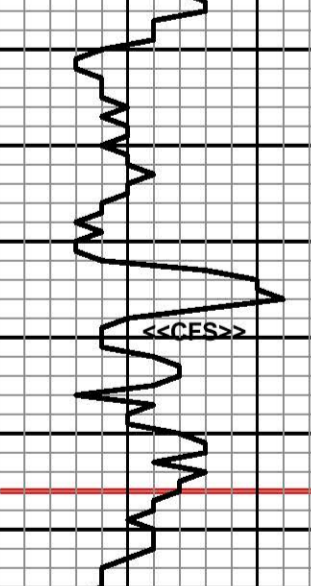
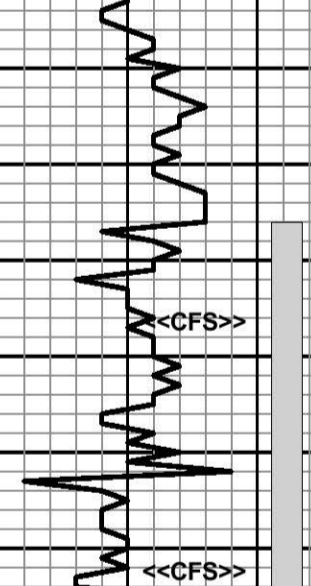
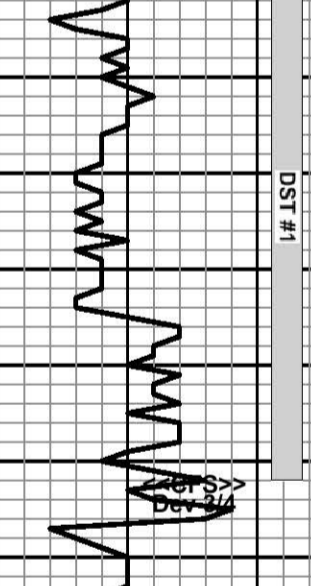
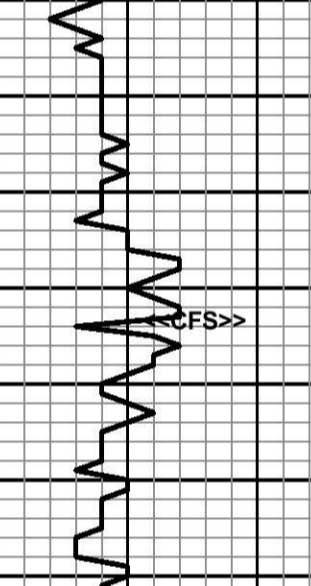
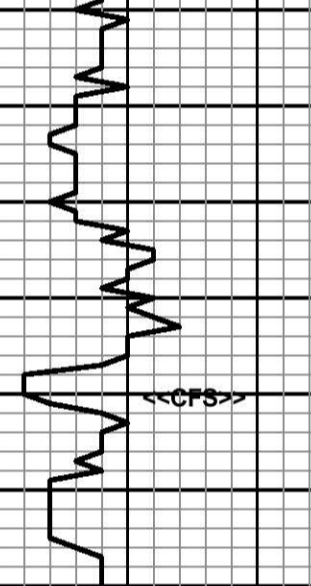
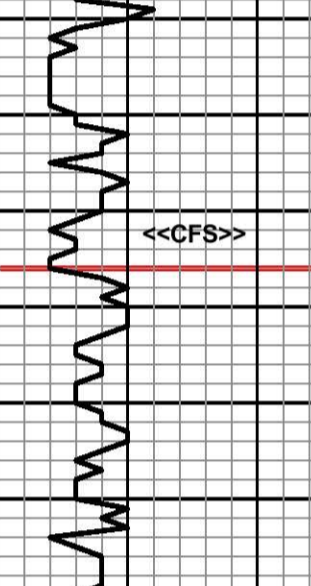
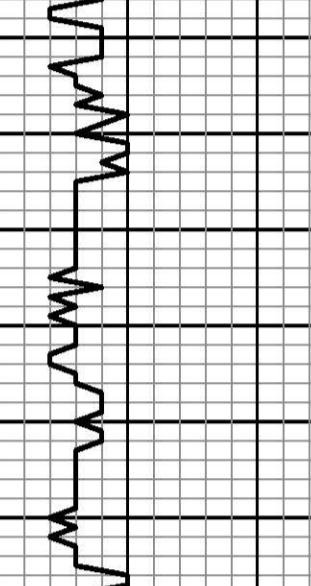
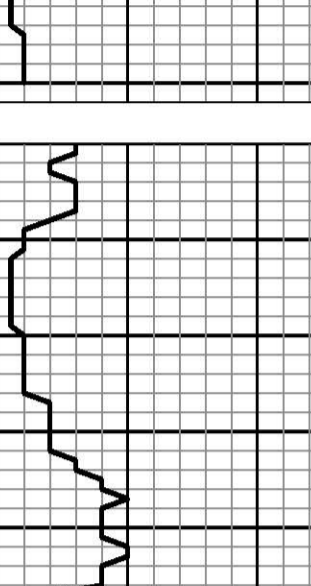
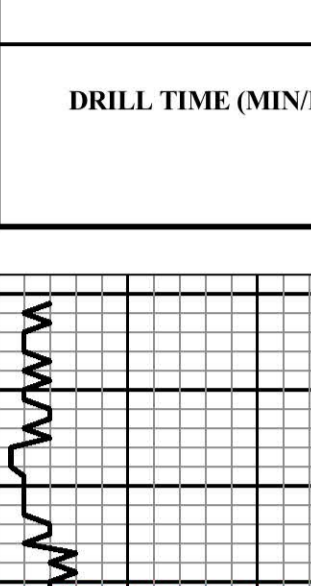
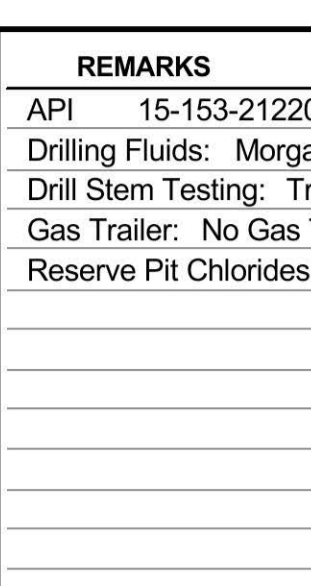
CL **2981 Ft.**

ALL MEASUREMENTS FROM KB

CASING RECORD
Conductor None
Surface **8.58" @ 305'**
Production **5.12" @ 4238'**

ELECTRICAL SURVEYS
Pioneer Oilfield Services
Comp. Neutron Density

Dual Induction
Micro Resistivity
Comp. Sonic



REMARKS
API 15-153-21220-00-00
Drilling Fluids: Morgan Mud, Inc. (David Lines, engineer)
Drill Stem Testing: Trilobite Testing, Inc. (Martine Salinas, tester)
Gas Trailer: No Gas Trailer
Reserve Pit Chlorides: 1,400 PPM

DRILL TIME (MIN/FT)

DEPTH

LITHOLOGY

SHOWS

SAMPLE DESCRIPTIONS

REMARKS

STONE CORRAL
2781 (+205)

BASE/ANHYDRITE
2822 (+164)

1:01 AM, 20 Feb. 2019

STOTLER
3653 (-667)

Morgan Mud check @ 3673'
Vis: 60, Wt: 8.9, WL: 6.4
Chlor: 1,400 ppm, LCM: 4#

TOPEKA
3736 (-750)

HEEBNER SHALE
3898 (-912)

LANSING
3926 (-940)

Morgan Mud check @ 3948'
Vis: 54, Wt: 9.4, WL: 6.8
Chlor: 1,400 ppm, LCM: 4#

DST #1 3945 - 4002
30"-60"-30"-60"
IF: Surf. blow incr to 1 1/4 inches
FF: No blow
RECOVERY:
5 Ft. Mud
IHP: 2078 psi. FHP: 2011 psi.
IFP: 25-27 psi. ISIP: 476 psi.
FFP: 28-29 psi. FSIP: 380 psi.
BHT: 110 deg. F.

Morgan Mud check @ 4005'
Vis: 89, Wt: 9.2, WL: 6.4
Chlor: 1,300 ppm, LCM: 4#

DST #2 4036 - 4026
30"-60"-30"-90"
IF: Surf. blow incr to 3 1/2 inches
FF: Surf. blow incr to 4 3/4 inches
RECOVERY:
65 Ft. Heavy Oil Cut Mud (30% Oil, 70% Mud)
15 Ft. Clean Gussy Oil (36.8 grav. API)
IHP: 2089 psi. FHP: 2089 psi.
IFP: 25-44 psi. ISIP: 799 psi.
FFP: 45-60 psi. FSIP: 766 psi.
BHT: 111 deg. F.

STARK SHALE
4124 (-1138)

Morgan Mud check @ 4126'
Vis: 57, Wt: 9.3, WL: 6.4
Chlor: 1,200 ppm, LCM: 4#

MOUND CITY
4186 (-1200)

FT. SCOTT
4277 (-1291)

Morgan Mud check @ 4292'
Vis: 62, Wt: 9.5, WL: 6.8
Chlor: 1,200 ppm, LCM: 4#

TOTAL DEPTH
4325 (-1339)
10:59 AM, 25 February 2019