



GEOLOGISTS' REPORT

OPERATOR: MURFIN DRILLING COMPANY, INC.
LEASE: ORTH 'A' # 1-4

ELEVATIONS
KB 2264 Ft.
GL 2259 Ft.

LOCATION: 660 FSL & 330 FWL
SEC 4 TWSP 14S RGE 19W
COUNTY: ELLIS STATE: KANSAS

FIELD: ALWERTH
CONTRACTOR: Murfin Drilling Company RIG NO. 8
COMMENCED: 25 Nov. 2011 COMPLETED: 3 Dec. 2011
MUD REPLACED: 2942 MUD TYPE: Chemical
DRILLING TIME KEPT FROM: 3180 TO: 4000
SAMPLES SAVED FROM: 3180 TO: 4000
SAMPLES EXAMINED FROM: 3180 TO: 4000

CASING RECORD
Conductor None
Surface 8 5/8" @ 220'
Production None

GEOLOGICAL SUPERVISION FROM 3019 TO 4000
GEOLOGIST ON WELL: Paul Gurewelman

FORMATION NAME LOG TOP DATUM TOP DATUM SAMPLE

Stone Corral 1540 +724 1540 +724
Base/Anhydrite 1586 +678 1585 +679

Topoka 3282 -1018 3280 -1016
Heebner Shale 3527 -1263 3524 -1260
Toronto 3548 -1284 3545 -1281
Lansing 3570 -1306 3569 -1305
Base/Kansas City 3816 -1552 3811 -1547
Arbuckle 3929 -1665 3930 -1666
Total Depth 4004 -1740 4000 -1736

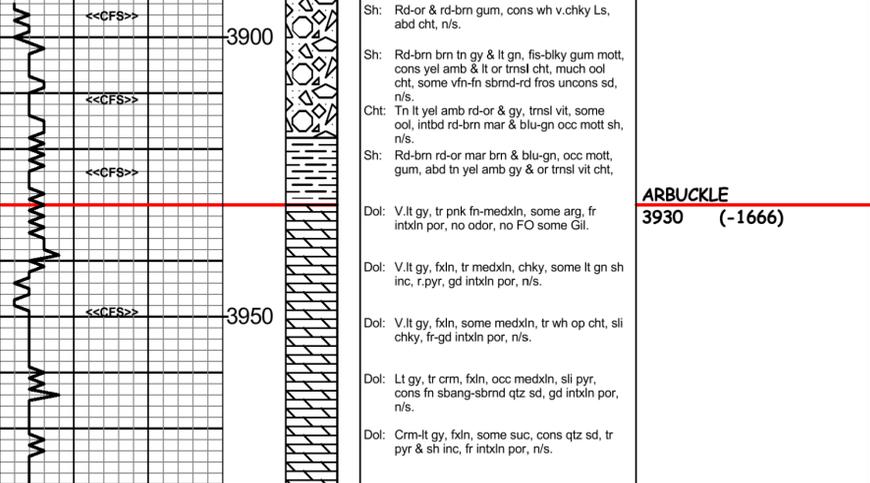
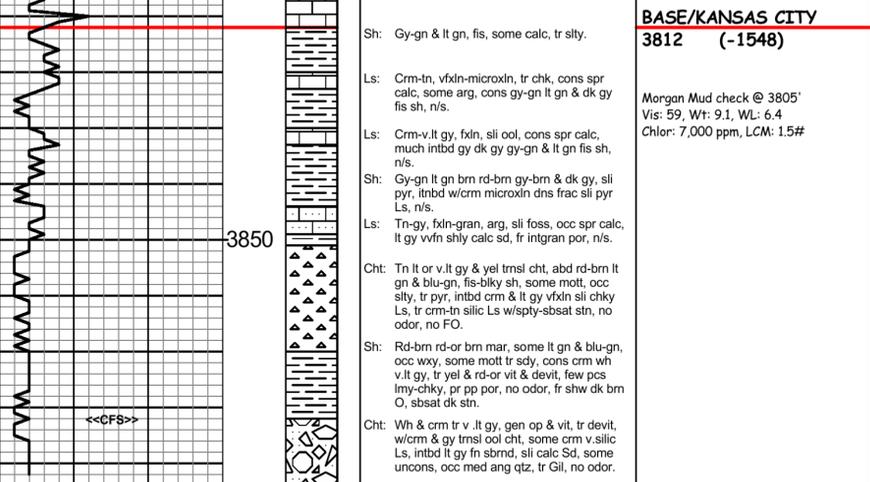
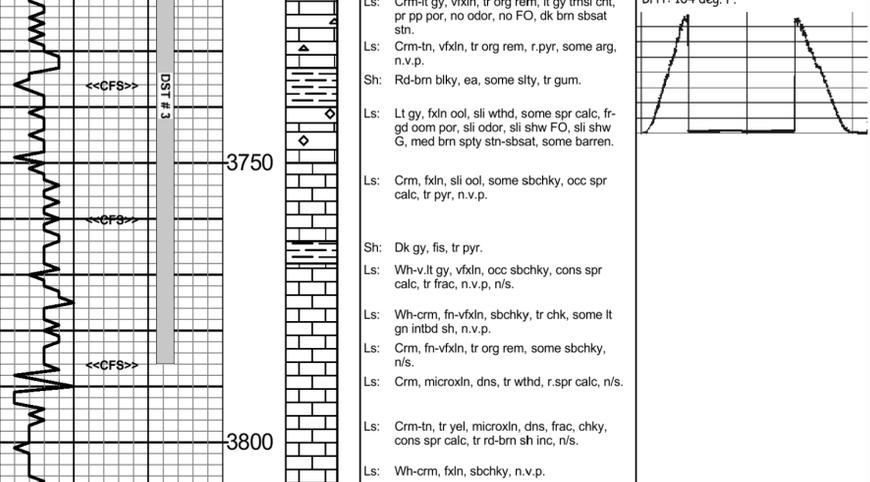
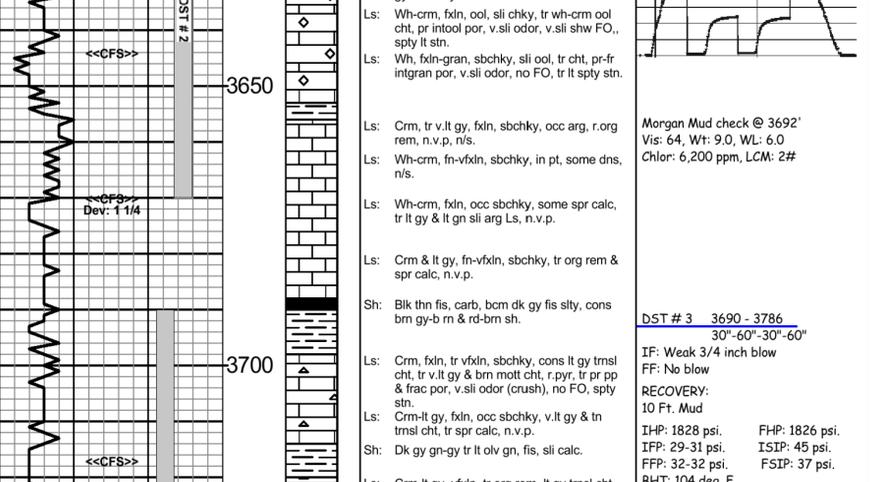
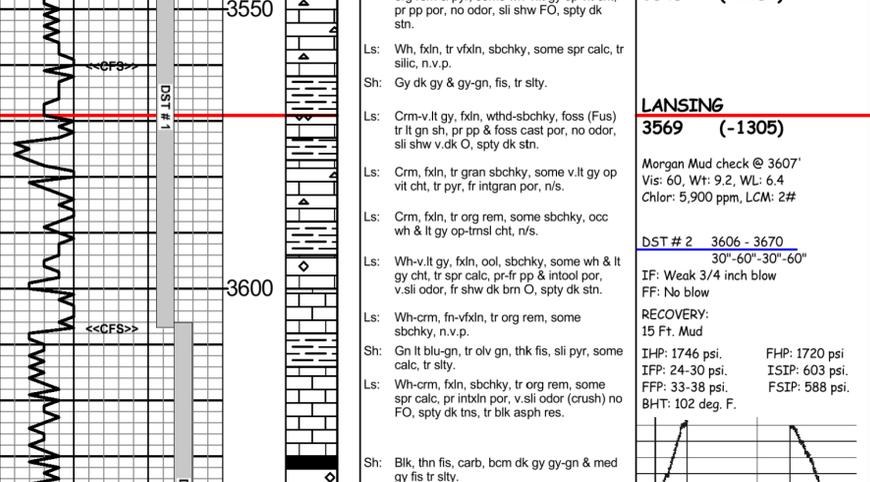
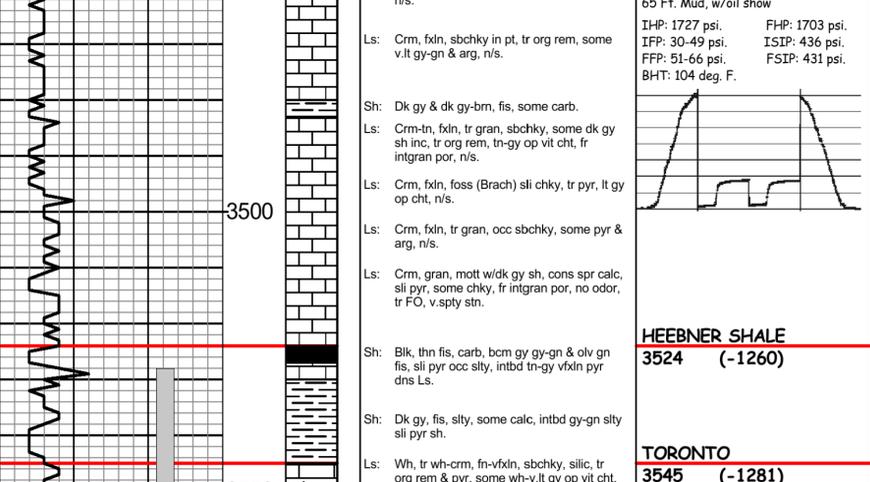
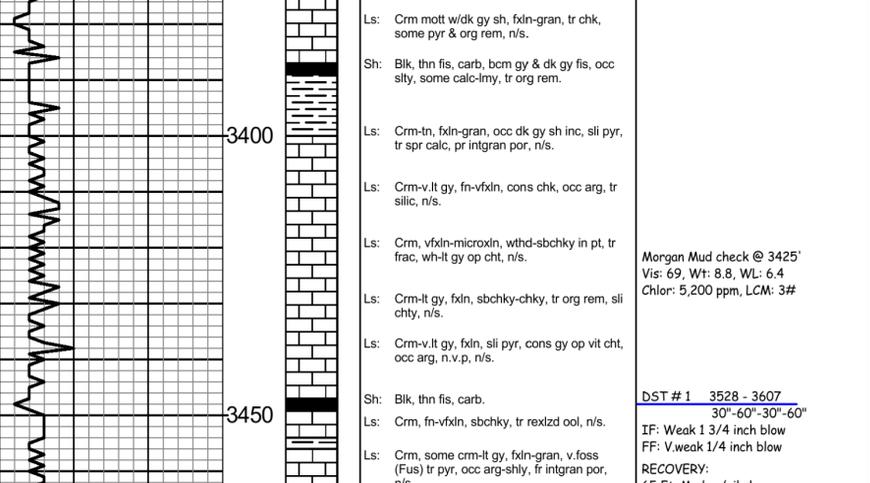
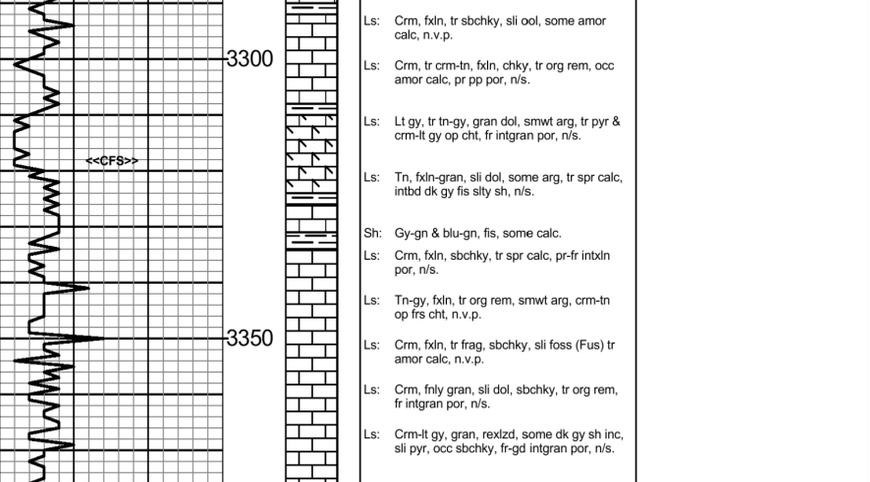
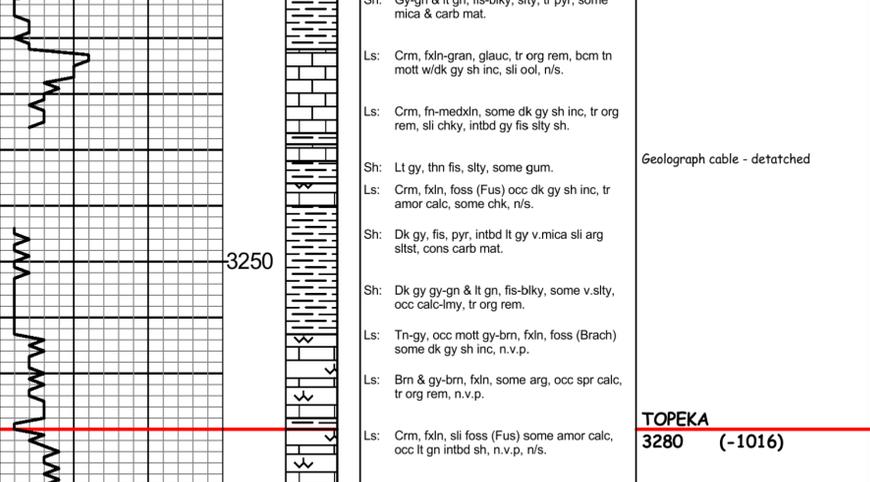
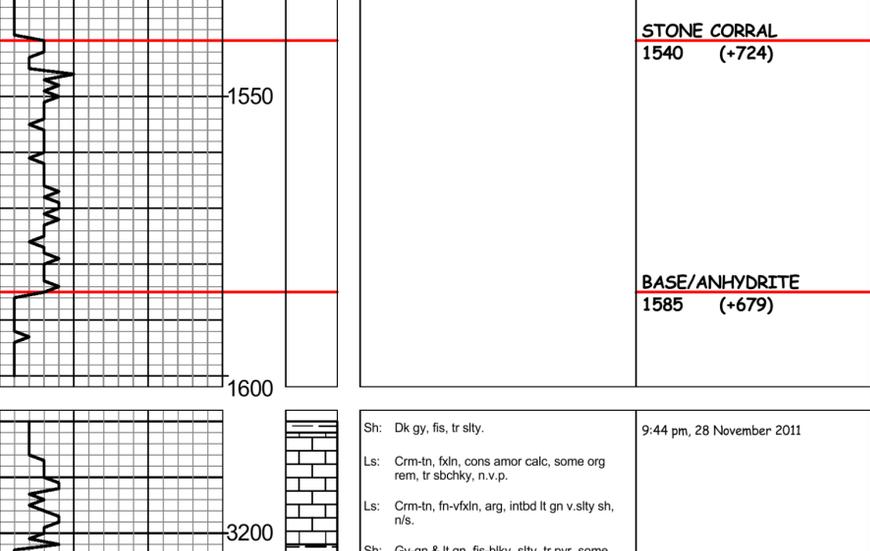
ELECTRICAL SURVEYS:
Log-Tech, Inc.
Comp. Neutron Density

Dual Induction
Micro-resistivity
Comp. Sonic

FORMATION NAME	LOG TOP DATUM	TOP DATUM	SAMPLE
Stone Corral	1540	+724	1540 +724
Base/Anhydrite	1586	+678	1585 +679
Topoka	3282	-1018	3280 -1016
Heebner Shale	3527	-1263	3524 -1260
Toronto	3548	-1284	3545 -1281
Lansing	3570	-1306	3569 -1305
Base/Kansas City	3816	-1552	3811 -1547
Arbuckle	3929	-1665	3930 -1666
Total Depth	4004	-1740	4000 -1736

REMARKS
API 15-051-26224-00-00
Drilling Fluids: Morgan Mud, Inc. (David Lines, engineer)
Drill Stem Testing: Trilobite Testing, Inc. (Ray Schwager, tester)
Gas Trailer: No Gas Trailer
Reserve Pit Chlorides: 19,600 ppm.

DEPTH	LITHOLOGY	SAMPLE DESCRIPTIONS	REMARKS
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Lease: ORTH 'A' # 1-4
Location: 660 FSL & 330 FWL SEC 4 TWSP 14S RGE 19W
County: ELLIS State: KANSAS

STONE CORRAL
1540 (+724)

BASE/ANHYDRITE
1585 (+679)

TOPEKA
3280 (-1016)

HEEBNER SHALE
3524 (-1260)

TORONTO
3545 (-1281)

LANSING
3569 (-1305)

BASE/KANSAS CITY
3812 (-1548)

ARBUCKLE
3930 (-1666)

TOTAL DEPTH
4000 (-1736)

9:44 pm, 28 November 2011

Geolograph cable - detached

Morgan Mud check @ 3425'
Vis: 69, Wt: 8.8, WL: 6.4
Chlor: 5,200 ppm, LCM: 3#

DST # 1 3528 - 3607
30"-60"-30"-60"
IF: Weak 1 3/4 inch blow
FF: V.weak 1/4 inch blow
RECOVERY:
65 Ft. Mud, w/oil show
IHP: 1727 psi. FHP: 1703 psi.
IFP: 30-49 psi. ISIP: 436 psi.
FFP: 51-66 psi. FSIP: 431 psi.
BHT: 104 deg. F.

DST # 2 3606 - 3670
30"-60"-30"-60"
IF: Weak 3/4 inch blow
FF: No blow
RECOVERY:
10 Ft. Mud
IHP: 1746 psi. FHP: 1703 psi.
IFP: 29-31 psi. ISIP: 436 psi.
FFP: 32-38 psi. FSIP: 588 psi.
BHT: 102 deg. F.

DST # 3 3690 - 3786
30"-60"-30"-60"
IF: Weak 3/4 inch blow
FF: No blow
RECOVERY:
10 Ft. Mud
IHP: 1828 psi. FHP: 1826 psi.
IFP: 29-31 psi. ISIP: 45 psi.
FFP: 32-32 psi. FSIP: 37 psi.
BHT: 104 deg. F.

Morgan Mud check @ 3692'
Vis: 64, Wt: 9.0, WL: 6.0
Chlor: 6,200 ppm, LCM: 2#

Morgan Mud check @ 3805'
Vis: 59, Wt: 9.1, WL: 6.4
Chlor: 7,000 ppm, LCM: 1.5#

11:45 pm, 2 December 2011