GEOLOGICAL REPORT

DRILLING TIME & SAMPLE DESCRIPTION

REPORT PREPARED BY: DOUGLAS V. DAVIS JR.

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LEASE: CLARK # 1 API: 15-191-22214-00-00.
OPERATOR: HERMAN L. LOEB LLC.
FIELD: WIDTSEN NW.
LOCATION: SE-SW-NE
SEC: 2 TWNSP: 31S RANGE: 3 W.
COUNTY: Sumner STATE: KANSAS
CONTRACTOR: STERLING DRILLING RIG # 4.
SPUD: 3/21/14 COMP: 3/26/14
LTD: 3399' RTD: 3400' MUD UP: 2720'
DRILLING TIME FROM: 2500' TO: RTD.
SAMPLE SAVED FROM: 2500' TO: RTD.
SAMPLE EXAMINED FROM: 2500' TO: RTD.
FORMATION SAMPLE TOPS (DATUM)
Stalnaker Sh. 2900 (+1000)
Winfield 2939 (+961)
Topeka LS. 3039 (+861)
Heebner Sh. 3064 (+836)
Toronto 3082 (+818)
Douglas Sh. 3098 (+802)
Brown LIME 3194 (+706)
Lansing 3204 (+696)
Kansas City 3430 (+470)
Stark Sh. 3594 (+306)
Swope LS. 3629 (+271)
Hertha LS. 3642 (+258)
BASE OF KC. 3680 (+220)
Arbuckle 3394 (+506)
RTD 3400 (+500)
LTD 3399' (+501)
ELEVATION: 2706' GL / 2711' KB
SURFACE CASING: 8 5/8" 20# J55 @ 312' w/ 200 sks Common
PRODUCTION CASING: 5 1/2" 15.5# J55 @ 3399' w/ 175 sks EA-2
PERFORATIONS: NONE
DST #1 3279-3324'
SWOPE LS.
15"-45"-30"-60"
Weak Blow,
Rec-150' GIP, 75' GOCWM
IHP 1591# FHP 1575#
IFP 19-32# FFP 43-54#
ISIP 954# FSIP 679#
BHT 113 F
DST #2 3370-3399'
HERTHA LS.
15"-45"-30"-60"
Weak Blow,
Rec-10' GIP, 75' GOCWM
IHP 1591# FHP 1575#
IFP 16-29# FFP 43-54#
ISIP 954# FSIP 679#
BHT 113 F
MUD-CO 3324' 5:00AM
WT 9.1 VIS56 WL 8.0
CHLOR3000 LCM TRC
COSTS $608.45
TOTAL $7,081.90
MUD-CO 3400' 11:30AM
WT 9.2 VIS58 WL 8.0
CHLOR3200 LCM TRC
COSTS $440.20
TOTAL $7,522.20
Kansas City
Stalnaker Sh.
Winfield
Topeka LS.
Heebner Sh.
Toronto
Douglas Sh.
Brown LIME
Lansing
Kansas City
Stark Sh.
Swope LS.
Hertha LS.
BASE OF KC.
Arbuckle
RTD
LTD
DST#1
DST#2

REMARKS: It was recommended this test to have casing run.

DST

DST #1 3279-3324'
SWOPE Ls.
15"-45"-30"-60"
Weak Blow,
Rec-150' GIP, 75' GOCWM
IHP 1591# FHP 1575#
IFP 19-32# FFP 43-54#
ISIP 954# FSIP 679#
BHT 113 F

LEGEND

LIMESTONE, SANDSTONE, DOLOMITE, SHALE, BLK SHALE, CHERT, ANH./GYPSUM

DRILLING TIME IN MINUTES PER FOOT (5" 10" 15" 20" 25") — LITHOLOGY — SAMPLE DESCRIPTION — HOT WIRE (0 10 50 100 500 1000)

2500 DSH#4
Sh-Dk Gry to Gry,
Ls- Tan/Brwn, Fxln, Fos, NVP NS, NF
Sh-Dk Gry/Blk Carb,
Ls- Tan/Brwn, Fxln, Fos, NVP NS, NF
2550 Sh-Dk Gry/Blk Carb,
Sh-Dk Gry to Gry,
Ls- Wh/Crm, Fxln, NVP, NS, NF
2600
Sh-Dk Gry to Gry,
Sh-Dk Gry to Gry,
Ls- Tan/Crm,Fxln Ool, NVP, NS, NF
2650
Sh-Dk Gry to Gry,
Sh-Dk Gry to Gry,
2700
Sh-Dk Gry to Gry,
Ls- Tan/Crm,Fxln Ool, NVP, NS, NF
Sh-Dk Gry to Gry,
Sh-Dk Gry to Gry,
2750
Sh-Dk Gry to Gry,
Sh-Dk Gry to Gry,
2800
Sh-Dk Gry to Gry,
Sh-Dk Gry to Gry,
2850
Ls- Tan/Lt Brn,Fxln NVP, NS, NF
Sh-Dk Gry to Gry,
Sh-Dk Gry to Gry,
2900
Ss-Qtz,Wh/Clr, Vfgnd, Calc Wall Sort, PrFr Inter-gran Por NS, NF
Ss-Qtz,Wh/Clr, Fgnd, Md Sort PrFr Inter-gran Por,NS, NF
Ss-Qtz,Wh/Clr, Fgnd, Md Sort PrFr Inter-gran PG,NS, NF
2950
Sh-Dk Gry to Gry,
Sh-Dk Gry to Gry,
3000
Sh-Gry-Grn to Gry,
Sh-Gry-Grn/Gry/Mar
3050
Sh-Gry-Grn/Gry/Mar
Sh-Gry-Grn/Gry/Mar
3100
Sh-Gry-Grn to Gry,
Sh-Gry-Grn to Gry,
3150
Sh-Gry-Grn to Gry,
Ls- Lt Gry/Wh/Crm, Fxln, Fos NVP, NS, NF
Ls- Crm/Tan, Fxln,PrFr Inter-xln Por NS, NF
3200
Ls- Crm/Tan, Fxln, Sli Fos NVP, NS, NF
Ls- Crm/Tan, Fxln, NVP, NS, NF
3250
Sh-Gry-Grn to Gry,
Ls-Crm/Tan,Lt Brn,Fxln, Fos, NVP, No NF
Sh-Dk Gry/Blk Carb
Ls-Tan,Lt Brn,Fxln, Fos, NVP, NS, NF
3300
Sh-Gry-Grn to Gry,
Ls-Crm/Tan,Fxln, Fos, Ool,PrFr Oom/Inter-xln Por,Lt Brn Stn, Ev Fluor,Cut Cloudy,NSFP Show Poor Cut Cloudy
Ls-Crm/Tan,Fxln, Fos, Ool,PrFr Oom/Inter-xln Por, NS, NF
Sh-Dk Gry to Gry,
Ls-Crm/Tan,Lt Brn,Fxln, Fos, NVP, No NF
3350
Ls-Crm/Tan,Lt Brn,Fxln, Fos, Pr Inter-xln Por, No NF
Ls-Crm/Tan,Fxln, Fos, NVP No NF
Ls-Crm/Tan,Lt Brn,Fxln, Fos, NVP, No NF
3400 Sh-Dk Gry/Blk Carb

DRILLING TIME IN MINUTES PER FOOT (5" 10" 15" 20" 25") — LITHOLOGY — SAMPLE DESCRIPTION — HOT WIRE (0 10 50 100 500 1000)

CONTRACTOR: Sterling Drilling Rig #4 LOCATION: SE-SW-NE
LEASE: Clark #1 SEC: 2 TWNSP: 31S RANGE: 3W
ELEVATION: 1298' RTD: 3400' LTD: 3399' COUNTY: Sumner STATE: Kansas