

HEADER

WellSight Systems

Scale 1:240 (5"=100') Imperial

Measured Depth Log

Well Name: #2 EATON 13CD

Location: sec 13 - twp 13S - rge 32W LOGAN COUNTY

License Number: API #15-109-21,110

Region: KANSAS

Spud Date: 02 JUL 2012

Drilling Completed: 11 JUL 2012

Surface Coordinates: 775' FSL & 775' FEL

115' north & 115' west of SE - SE

Bottom Hole Coordinates: 0.5 degree deviation @ 228, 1 degree deviation @ 1,206,
0.75 degree deviation @ 3,425, 1 degree deviation @ 4,695

Ground Elevation (ft): 2,928 K.B. Elevation (ft): 2,938

Logged Interval (ft): 3,600 To: 4,695 Total Depth (ft): 4,695

Formation: WABAUNSEE to MISSISSIPPIAN

Type of Drilling Fluid: CHEMICAL: displace @ 3,457

Printed by WellSight Log Viewer from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: Ritchie Exploration, Inc. license # 4767

Address: P.O. Box 783188

Wichita, Kansas 67278-3188

GEOLOGIST

Name: Ted Jochems, Jr.

Company: Consulting Geologist

Address: 212 North Market ste 517

Wichita, Kansas 67202

COMMENTS

CONTRACTOR: Murfin rig #14

(Greg Unruh, toolpusher and Bob Mickelson, relief pusher)

MUD: Mud-Co (Terry Ison and Reid Atkins)

DRILL STEM TESTS: Superior Testers Enterprises

(Ken Swinney)

ELECTRIC LOGS: Superior Well Services (Mitch Rupp)

SURFACE CASING: 8.625" @ 225

PRODUCTION CASING: 4.5" to Mississippian

DRILL STEM TEST #1

3,979 - 4,027 30 - 45 - 45 - 60 LKC C & D zones

IFP: good blow to BOB / 23 minutes

ISIP: 0.25" blowback

ISIP: 0.25" blowback
FFP: good blow to BOB / 30 minutes
FSIP: 1.75" blowback
REC: 225' CGO (5% G, 95%O)
360' OCWM (2% O, 60% M, 38% W)
585' total fluid

FP: 63 - 170# / 186 - 289#
SIP: 1,182 - 1,161#
HP: 1,897 - 1,878#

GRAVITY: 30 degrees API corrected
CHLORIDES: 30,000 ppm recovery (3,400 ppm system)
BHT: 120 degrees F
COMMENT: chart indicates very good permeability

DRILL STEM TEST #2

4,160 - 4,186 30 - 30 - 30 - 30 LKC J zone

IFP: weak blow built to 0.125", died / 23 minutes

ISIP: no blowback

FFP: no blow. flush tool, no help

FSIP: no blowback

REC: 10' DM (100% M)

10' total fluid

FP: 41 - 46# / 48 - 53#

SIP: 1,166 - 1,089#

HP: 1,984 - 1,981#

COMMENT: flush does not appear on shut-in curve as it fell between data collection points. chart indicates poor permeability.

DRILL STEM TEST #3

4,230 - 4,265 30 - 45 - 45 - 60 LKC L zone

IFP: weak blow built to 3.5" / 30 minutes

ISIP: no blowback

FFP: no blow. flush tool: weak blow built to 2.75" / 45 minutes


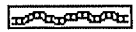
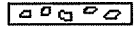

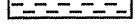
FSIP: no blowback


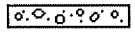



REC: 225' MW (40% M, 60% W)



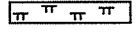

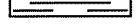
225' total fluids

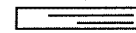
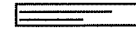

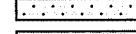
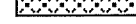
CHLORIDES: 35,000 ppm recovery (3,800 ppm system)

ROCK TYPES




-  Anhy
-  Bent
-  Brec
-  Cht
-  Clyst



-  Coal
-  Congl
-  Dol
-  Gyp
-  Igne

-  Lmst
-  Meta
-  Mrlst
-  Salt
-  Shale

-  Shcol
-  Shgy
-  Slstst
-  Ss
-  Till


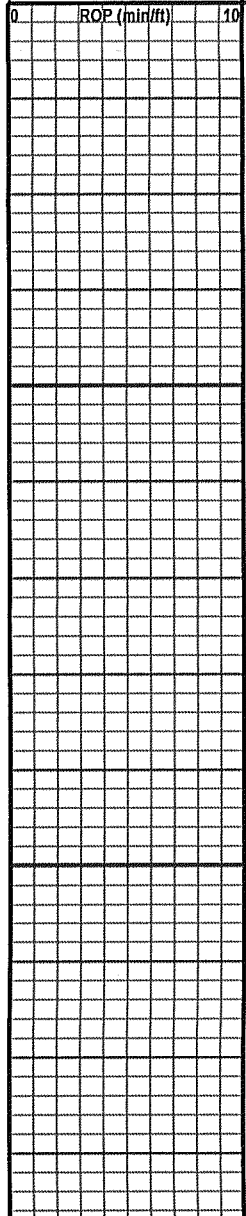


OTHER SYMBOLS

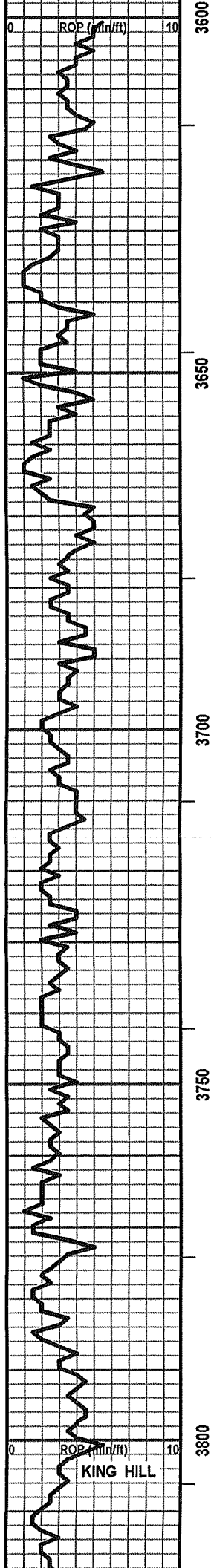
- OIL SHOW**
-  Even
 -  Spotted
 -  Ques

-  Dead
-  Gas

- INTERVAL**
-  Core
 -  Dst

- EVENT**
-  Conn
 -  Rft
 -  Sidewall

Curve Track 1 ROP (min/ft) 	Depth	Lithology	Oil Shows	Geological Descriptions	REMARKS
<p>0 ROP (min/ft) 10</p> 	<p>3500</p>			<p>examine samples wet for color, shows & description; dry for porosity & dry stain. descriptions are lagged up to true depth using mud engineer's calculation for bottoms up.</p> <p>driller's Stone Corral picks from drill time: top: 2,431 (+507) base: 2,453 (+485)</p>	<p>"cal floodd" is synonymous with "lithographic" or "dense." this is pervasive replacement by calcite.</p> <p>"cal overgrths" includes calcite crusts, druzi calcite, calcite veinlets and local recrystallization of larger fossils or clasts.</p> <p>"rextlzd" = recrystallized.</p> <p>ANHYDRITE (e-log): 2,429 (+509) BASE (e-log): 2,453 (+485)</p> <p>drill 228 to 3,425 with PDC bit, 3,425 to 4,695 (TD) with tricone.</p> <p>strap @ 3,425 strap 3,426.21 board 3,425.58 board short 0.63</p> <p>mud up @ 3,457</p>
	<p>3550</p>			<p>LS: gry & off wht, microxtln, fossl, loc chalky, sl cal floodd. poor por. NS</p> <p>sh stringers (s)</p>	



LS: gry to blk, micro-vfgr xtln, forams, loc chalky and / or shaly. v poor por. NS

SLTST: grn & grn, competent, v calc. v poor por. NS

LS: off wht to crm, microxtln, sl cal floodd, loc chalky, forams & relict bivalves. poor por. scarce minute brn stns (no odor), NSO

LS: off wht to crm, microxtln, sl cal floodd, loc chalky, loc pelletal, forams & bryozoans. v poor por. NS

SH: lt brn & lt grn, argil, silty, earthy hematite, minor py.

LS: lt brn, microxtln, cal floodd, loc chalky, loc dolomitic, forams & fusulinids. no intxtln por, loc good vug / fossl cast por. NS

LS: tan to lt gry, microxtln, cal floodd, forams and fusulinids, loc chalky, stringer(s) of red-brn sh. poor por. NS

LS: crm, gry & lt brn, microxtln, cal floodd, forams & fusulinids. por intxtln por, loc fair ppt por. NS

LS: crm, microxtln, v chalky (sl mushy). poor vis por. NS stringer(s) of grn, argil, silty sh.

LS: brn, microxtln, cal floodd, loc sl dolmte. NVP. rare minute brn stns (no odor), NSO

SS: lt maroon, vfgr-fgr, subang to rndd, sl friable, abt mica, minor specular hematite. v poor por. NS

rig check

LS: lt gry to lt brn, microxtln, cal floodd, cal overgrths, ?bivalve? fragments. no vis por. NS

WOP

LS: brn & gry, microxtln, cal floodd, dns. no vis por. NS

SH: red-brn, silty, abt earthy hematite.

LS: lt gry & off wht, microxtln, cal floodd, loc chalky, cal crusts (micro-fgr xtln), fair amounts of earthy hematite. rare cht (gry, cryptxtln). v poor por. NS

SH: red-brn & grn, silty, abt earthy hematite.

LS: gry, microxtln, cal floodd, chalk partings, loc forams, spicules & ?bivalves?, loc earthy hematite. no intxtln por, scarce good vug por. NS

LS: gry, off wht & crm, microxtln, wkly cal floodd, loc v chalky w/ relict bivalves, loc relict forams. poor vis por. NS

LS: gry & off wht, microxtln, cal floodd. no vis por. 1 pc w/ wk brn stn (no odor, v wk brn dry stn), NSO

SH: gry & red-brn, argil, earthy hematite, loc silty w/ plant fragments.

LS: crm, micro-vfgr xtln, rextlzd, loc chalky. poor por. NS

SH: red-brn, gry & blk, argil, loc micac, earthy hmt, rare py. stringer(s) of SS (maroon, vfgr, subrnndd, micac, poor por, NS).

LS: crm to gry, microxtln, cal floodd. NVP. 1pc w/ minute brn stn (no odor), NSO

DOL: crm, microxtln, rextlzd. poor por. NS

LS: crm to tan, microxtln, cal floodd, loc chalky, loc fossl, loc silcfd to cht (wht, cryptxtln, fossl). v poor por. NS

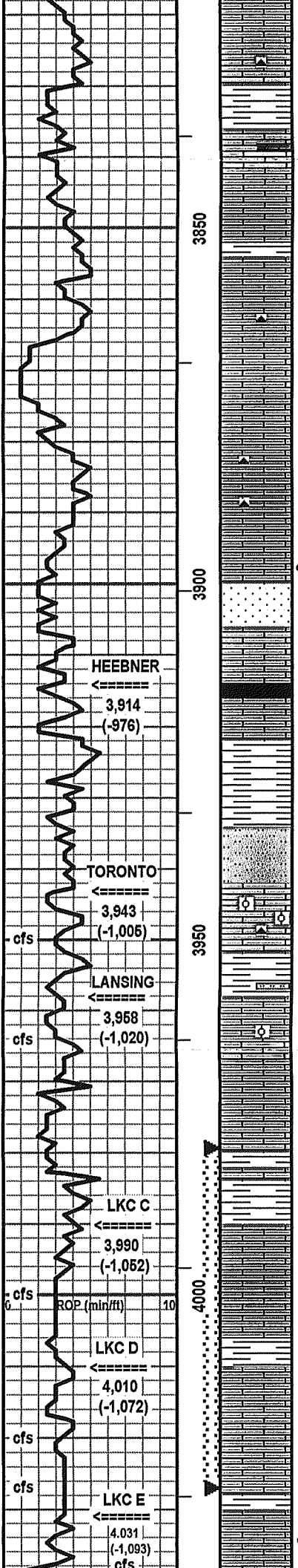
finely ground samples

LS: crm to tan, gry, micro-vfgr xtln, rextlzd, cal overgrths. no intxtln por, scarce wk fossl cast por. NS

KING HILL (e-log): 3,799 (-861)

SH: gry, argil, loc carb.

LS: crm & lt gry, microxtln, rextlzd, loc chalky, minor cal crusts. poor vis por. minor brn stns (no odor, no cut), NSO



LS: crm, gry & lt brn, microxtln, cal floodd, cal overgrths, loc pelletal, minor earthy hematite, loc silcfd to cht (pale gry, microxtln). v poor por. NS

SH: red-brn, gry & grn, argil, earthy hematite, rare py.

LS: crm to tan, microxtln, rextlzd, stringer(s) of DOL(crm, vfgr xtln, sucr, poor-fair intxtln por). poor por. NS

LS: off wht to pale gry, microxtln, cal floodd, loc silcfd to cht (lt gry, microxtln). v poor por. NS

SH: gry, argil.

LS: crm & lt gry, microxtln, cal floodd, loc rextlzd, loc silcfd to cht (pale gry, cryptxtln). v poor por. NS

LS: crm, microxtln, cal floodd, v platy, brittle. no vis por. NS

LS: off wht, microxtln, rextlzd, chalky. poor vis por. VSSG on brk, NSG

LS: pale gry, microxtln, cal floodd, relict fossils, loc silcfd to cht (wht, crypt-microxtln, spicules). no vis por. NS

LS: crm, microxtln, rextlzd, somewhat chalky. poor por. 1 tiny pc w/ minute brn poss SO (no odor, good cut).

SS: gry, vfgr-fgr, subrndd, glauc, wk cal cmt. poor por. NS

LS: crm to tan, micro-vfgr xtln, cal floodd, loc sl chalky. poor por. rare brn & blk stns (no odor, no cut), NSO

SH: blk, carb, micac, cal inclusions.

LS: off wht & brn, microxtln, cal floodd. no vis por. minor brn stns & flecks (no odor, no cut), NSO

SH: red-brn, grn & gry, argil, earthy hematite, silty, loc micac.

SLTST: gry, calc, scarce py, plant fragments. v poor por. NS

LS: crm, micro-vfgr xtln, cal floodd, cal overgrths, loc relict oolites, rare cht (crm & orange, ool). poor intxtln por, scarce fair vug por. rare minute brn flecks (no odor, no cut), NSO, VSSG on brk.

SH: gry & red-brn, argil, earthy hematite, stringers of SLTST (gry, calc, poor por, NS)

LS: lt gry to tan, microxtln, cal floodd, loc chalky, relict fossils, loc ool, scarce py. poor intxtln por, loc fair intool por. scarce brn stns (no odor, poss FeOX), NSO

LS: crm, micro-vfgr xtln, cal floodd, cal overgrths, loc rextlzn, relict fossils, minor hmt stns. no vis por. NS

LS: crm, microxtln, cal floodd, dns, cal overgrths, loc ool, relict fossils, chalky partings. no intxtln por, loc fair ppt por. NS

SH: red-brn, grn & gry, earthy hematite, argil.

LS: lt tan, microxtln, cal floodd, cal overgrths, chalk partings, minor hmt stns, relict fossils, scarce glauc. no intxtln por, scarce wk ppt / vug por. NS

LS: lt gry, microxtln, cal floodd, abt forams, cal overgrths. no intxtln por, loc fair vug por. minute brn flecks w/ SO on brk (brn, gassy, no odor, fair cut, patchy brn dry stn).

SH: red-brn, gry & grn, argil, earthy hmt.

LS: crm to tan, microxtln, cal floodd, cal overgrths & crusts, chalk partings, loc abt forams, scarce glauc. no vis por. 1 pc w/ minute blk flecks (no odor, no cut), NSO

LS: crm to pale gry, microxtln, cal floodd, relict fossils (incl forams & spicules). no vis por. NS

SH: red-brn & grn, argil, silty, earthy hmt, rare plant fragments.

LS: pale gry & lt brn, microxtln, cal floodd, cal crusts, loc chalky, relict fossils, glauc. no intxtln por, loc fair vug / ppt por. no apparent shows or stns, no odor. 1 pc gave vv wk cut & patchy dry stn. 1 drplt FO in tray. VSSG on brk.

finely ground samples w/ abt sh cavings.

QUEEN HILL (e-log): 3,854 (-916)

samples finely ground w/ abt sh cavings.

driller advises that last three connections have pulled tight.

HEEBNER (e-log): 3,916 (-978)

TORONTO (e-log): 3,941 (-1,003)

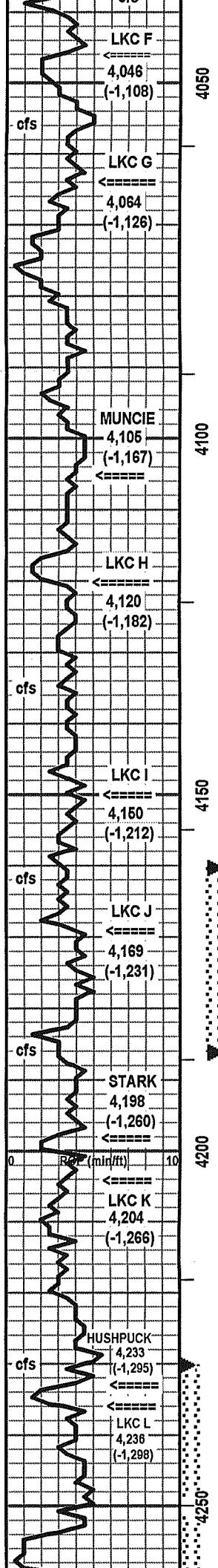
LANSING (E-LOG): 3,959 (-1,021)

DST #1
3,979 - 4,027
REC 225' CGO, 360' OCWM
SIP 1,182 - 1,161#
details above

LKC C (e-log): 3,995 (-1,057)

LKC D (e-log): 4,012 (-1,074)

vis 60 wt 9.1 lcm 2#



SH: grn & red-brn, argil, silty, earthy hematite.
DOL: tan, vfgr xtl, sucr. NVP rare brn stn (no odor), VSSG on brk, NSO

LS: crm to pale gry, microxtln, cal floodd, cal crusts, loc silcfd to cht (brn & gry, cryptxtln). NVP. rare brn stns (no odor), NSO

LS: tan to brn, micro-vfgr xtl, cal floodd, cal crusts, loc fossl, cal overgrths. no vis por. minor brn stns (no odor, no cut), NSO

SH: red-brn, grn & gry, argil, earthy & specular hmt, rock granules.

LS: crm, microxtln, cal floodd, cal crusts, vnlt & overgrths. no vis por. NS

LS: crm, micro-fgr xtl, rextlzd, loc chalky, cal overgrths, loc fossl, loc pyr. loc fair vug or intxtln por. NS

LS: pale gry, micro-fgr xtl, cal floodd, xtl cal overgrths, cal crusts, loc abt fossls. no vis por. NS

LS: gry & crm, microxtln, cal floodd, cal crusts, cal overgrths, loc wht chalk bed, dk gry FeOX coatings, rare ?bivalves?. v poor por. NS

SH: blk & dk brn, carb, micac, calc inclusions, scarce bdd py.

LS: gry, microxtln, cal floodd, cal crusts, rare py. no vis por. NS

SH: red-brn, grn, gry, maroon, argil, silty, earthy & specular hematite, rock granules, scarce clr selenite.

SLTST: grn & gry, microgranular silt, argil, micac, mushy, stringer(s) of gry fgr SS (fair intran por, NS).

LS: brn, gry & off wht, micro-vfgr xtl, hvly cal floodd, abt cal crusts, loc chalky, minor relict fossls, loc silcfd to cht (brn & pale gry, cryptxtln). no / poor vis por. abt blk, tarry dd oil (no odor, no cut, loc looks like blk sh (?sh injection?)), NSO

SH: grn, gry & red-brn, argil, micac, earthy & specular hmt, py.

LS: crm, microxtln, cal floodd, cal overgrths. NVP. NS

SLTST: grn, micro-granular silt, argil, micac. poor por. NS

SH: grn, gry & red-brn, argil, micac, earthy & specular hmt.

LS: gry, microxtln, cal floodd, cal crusts, minor fossls, loc silcfd to cht (gry, cryptxtln). NVP NS

LS: gry to crm, microxtln, cal floodd, minor cal crusts, loc abt forams, loc wht chalk beds (loc mushy) w/ relict bivalves, loc silcfd to cht (crm & wht, cryptxtln, forams). poor vis por. scarce brn stns (no odor), NS

SH: red-brn, grn & brn, argil, earthy hmt, rock granules. stringer of SLTST: gry-brn, v calc, poor por, NS.

LS: crm, microxtln, cal floodd, loc chalky, loc abt forams, loc silcfd to cht (crm & wht, crypt-microxtln, forams). poor vis por, loc vugs lined w/ druzi cal. 1 pc w/ SSO (brn, wk odor, good cut, wk brn dry stn)

stringer of DOL: tan, fgr sucr, fair intxtln por, NS.

LS: lt gry & lt brn, microxtln, cal floodd, cal crusts, relict fossls. no vis por. NS

SH: blk, carb, micac, cal inclusions.

LS: brn, microxtln, hvly cal floodd, cal crusts. NVP NS

SH: maroon, grn & gry, argil, minor hematite, rare fossls.

LS: lt gry & off wht, microxtln, cal floodd, cal crusts, loc v chalky, loc sndd, relict fossls. no intxtln por, rare isolated vugs. NS

LS: lt gry & tan, micro-vfgr xtl, rextlzd, loc chalky, minor blk Feox coatings. poor vis por. NS

LS: lt gry & tan, microxtln, cal floodd, cal crusts, minor xtl cal overgrths, loc chalky, blk FeOX coatings, scarce py, loc silcfd to cht (gry & wht, cryptxtln, scarce fossls). v poor vis por. scarce brn stns (no odor, no cut), NSO

SH: blk, carb, sl micac, cal inclusions & overgrths.

LS: dk brn, micro-vfgr xtl, hvly cal floodd, cal crusts. NVP NS

LS: off wht (loc mottled brn), v chalky (mushy), mealy, relict bivalves. v poor vis por. rare brn flecks (no odor, no cut), NSO

LS: brn-gry, microxtln, cal floodd, cal crusts, cal overgrths, minor py, loc cht (wht, cryptxtln). no vis por. scarce brn dd oil stns (no odor, no cut), NSO

DOL: tan, vfgr xtl, sucr, loc fgr-mgr dol, rare py. fair to good micro xtl por, loc vugs. GSO on brk (brn, VSSG, fair odor, slow fair cut,

LKC E (e-log): 4,043 (-1,106)

LKC F (e-log): 4,050 (-1,112)

LKC G (e-log): 4,068 (-1,130)

MUNCIE CREEK (e-log): 4,114 (-1,176)

LKC H (e-log): 4,126 (-1,188)

LKC I (e-log): 4,167 (-1,219)

DST #2
4,160 - 4,186
REC 10' DM
SIP 1,166 - 1,089#
details above

LKC J (e-log): 4,176 (-1,237)

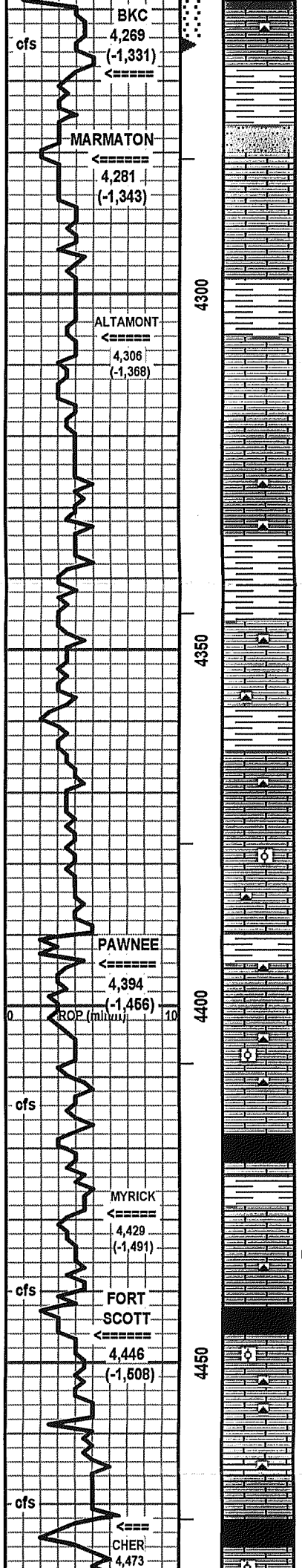
STARK (e-log): 4,194 (-1,266)

LKC K (e-log): 4,204 (-1,266)

HUSHPUCKNEY (e-log): 4,229 (-1,291)

LKC L (e-log): 4,234 (-1,296)

DST #3
4,230 - 4,265
REC 225' MW
SIP 1,260 - 1,240#
details above



patchy to satd honey dry stn).
 LS: gry-tan, microxtln, cal floodd, loc chalky, scarce py, loc silcfd to cht (wht, cryptxtln, pyr). poor vis por. minor stns, NSO

SH: grn, gry & red-brn, argil, loc silty, earthy hematite, rock granules.

SLTST: gry-grn, microxtln (loc vfgr), argil, calc, micac. NVP NS

LS: tan to brn & crm, microxtln, cal floodd, cal crusts & overgrths, chalk partings w/ relict bivalves. no vis por. NS

SH: gry, grn, red-brn & maroon, argil, loc silty, calc, earthy hematite.

LS: crm and gry, microxtln, cal floodd, chalk partings. poor vis por. NS

LS: lt brn, microxtln, cal floodd, cal crusts, xtln cal overgrths. no vis por. NS

LS: lt gry, microxtln, cal floodd, cal crusts, loc pelletal, scarce cht (gry, cryptxtln, bndd). no vis por. NS

SH: grn, gry & red-brn, argil (loc mushy), loc micac, loc silty, earthy hematite, minor py, minor rock granules.

LS: brn > tan & gry, microxtln, cal floodd, cal crusts, loc silcfd to cht (brn & wht, microxtln). no vis por. NS

SH: grn, gry, blk, red-brn & maroon, argil, loc silty, micac, earthy & specular hematite.

LS: crm to tan, microxtln, cal floodd, loc chalky, cal crusts, scarce silcfn to cht (pale gry, cryptxtln). poor vis por. NS

LS: tan to pale gry, microxtln, cal floodd, cal crusts, loc chalky, loc ool, scarce py, loc silcfd to cht (smoky & orange, cryptxtln + pale gry, microxtln). no / poor vis por. NS

SH: grn, gry, blk & red-brn, argil, micac, cal inclusions, poss loc carb, scarce py.

LS: crm, microxtln, rextlzd, chalky, loc relict fossils, loc silcfd to cht (pale blue, cryptxtln, fossl, pyr). poor vis por. NS

LS: crm to tan & brn, microxtln, cal floodd, fossl, loc ool, loc silcfd to cht (pale blue, cryptxtln, ool, pyr). no vis intxtln por, scarce ooc por. NS

SH: blk, carb, sl micac, cal inclusions.

LS: gry-brn, microxtln, cal floodd, cht (brn, fossl). NVP NS

SH: grn, gry & red-brn, argil, micac, earthy hematite.

LS: off wht, lt gry & brn, micro-vfgr xtln, rextlzd, loc cal floodd, loc chalky, loc mealy, minor fossils, loc cht (pale gry, microxtln. poor intxtln & vug por. minor brn stns & flecks (poss v wk odor, no cut), NSFO

SH: blk carb, micac, cal inclusions.

LS: brn & lt gry, microxtln, cal floodd, cal crusts, loc ool, loc chalky, scarce cht (brn, cryptxtln, fossl). no / poor vis por. minor brn stns & flecks (no odor, no cut), NSO

LS: tan, brn & lt gry, microxtln, cal floodd, loc rextlzd, scarce ool, loc silcfd to cht (wht, brn & pale blue, cryptxtln), rare py. no / poor por. NS

SH: blk, carb, micac, cal inclusions (wht & pink), py.

LS: gry-brn, microxtln, cal floodd, ool, cal crusts, no vis por. NS

BKC (e-log): 4,266 (-1,328)

MARMATON (e-log): 4,273 (-1,335)

ALTAMONT (e-log): 4,299 (-1,361)

abt sh cavings.

v abt sh cavings.

PAWNEE (e-log): 4,391 (-1,453)

abt sh cavings.

MYRICK STATION (e-log): 4,428 (-1,490)

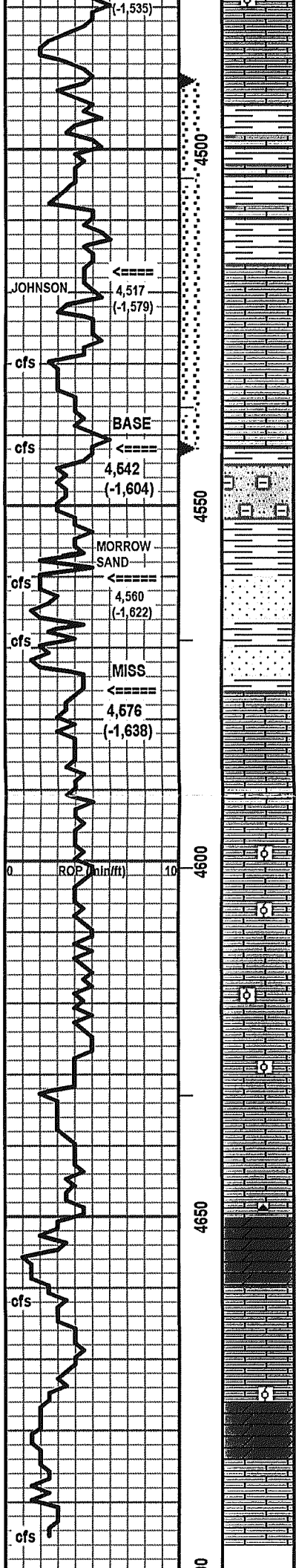
abt sh cavings.

FORT SCOTT (e-log): 4,444 (-1,506)

abt sh cavings.

v abt sh cavings.

CHEROKEE SH (e-log): 4,470 (-1,532)



LS: off wht, microxtln, rextlzd, chalky. poor vis por. NS
 LS: lt gry, microxtln, cal floodd, cal crusts. poor vis por. scarce wk brn stns (no odor, slow fair cut, wk brn dry stn), NSFO

intbdd thin beds of LS: gry, microxtln, cal floodd, loc chalky, cal crusts, cal overgrths. poor vis por. NS
 and

SH: blk, carb, micac, bdd cal (off wht) + grn & gry, argil, pyr, micac, loc silty, rock granules.

LS: brn, gry & tan, microxtln, cal floodd, cal crusts, loc rextlzd & chalky, mgr-cgr druzi cal, scarce py. v poor vis intxtln por, rare isolated vugs. no odor, NS.

LS: brn, tan & off wht, microxtln, rextlzd, cal crusts, loc chalky, druzi cal, loc cal floodd. poor intxtln por, loc good vug & fossl cast por. VSSO (blk & brn, wk-fair odor, abt brn dry stn, slow fair cut, VSSG on brk)

SLTST: gry & grn, microxtln silt in clay matrix (competent to friable), variable grain contact, loc limonite stn, scarce sd & granules. NVP NS

SH: grn, gry & yel, argil, abt limonite stn, loc fissle, rare plant fragments.

SS: lt grn, silt to vfgr granular, subrndd, argil, non-calc, variably friable, glauc, loc mottled maroon & gry, rare rock granules. v poor por. NS

SH: grn, dove gry & yel, argil, silty, brn cht granules.

LS: wht, vfgr granular, subrndd, competent to friable. poor por. NS

SH: grn, gry, tan & yel, argil, loc silty, earthy hematite, limonite stn

LS: crm, microxtln, chalky, loc cal floodd, loc relict forams, loc sndd. poor vis por. NS

LS: gry to brn, micro-vfgr xtln, cal floodd, chalk partings, cal overgrths, rare py, rare glauc, loc forams. no / poor por. NS

LS: brn & gry, microxtln, cal floodd, loc chalky, loc ool, rare py, rare glauc. no / poor vis por. 1 pc w/ wk brn stn (no odor, no cut), NSO

LS: crm, microxtln, chalky, ool, minor dk brn coatings (no odor, no cut, ?FeOX?). poor vis por. NSO

LS: crm, microxtln, cal floodd, loc chalky, loc ool, rare py. poor vis por. NS

LS: crm, microxtln, chalky, ool, sndd (mgr). poor vis por. NS

LS: lt brn, microxtln, cal floodd, cal crusts, scarce forams. no vis por. NS

LS: wht, microxtln, cal floodd, loc chalky, cal overgrths, loc silefd to cht (wht, microxtln, relict fossls. NVP NS

DOL: honey brn, microxtln, sl sucr. poor intxtln por, loc good vug por. VSSG on brk, NSO

LS: lt brn, microxtln, cal floodd, cal crusts, loc fossl (forams & crinoids). NVP NS

LS: crm to wht, microxtln, chalky (loc mushy), ool. poor vis por. NS

DOL: dk brn, microxtln, sl sucr. no intxtln por, minor fair vug por. NS

LS: gry-brn, microxtln, rextlzd, chalky, forams. poor vis por. NS

DST #4

4,490 - 4,542

REC 15' DM w/ SO in tool

SIP 1,169 - 1,126#

details above

JOHNSON ZONE (e-log): 4,514 (-1,576)

sample catcher advises that sample box smells strongly of oil.

BASE (e-log): 4,535 (-1,297)

MORROW SAND (e-log): 4,556 (-1,618)

MISSISSIPPIAN (e-log): 4,570 (-1,632)

470

RTD 4,695

LTD 4,694

Ritchie Exploration, Inc.

#2 Eaton 13CD

775' FSL & 775' FEL

sec 13 - twp 13S - rge 32W

Logan County, Kansas