HEADER

WellSight Systems

Scale 1:240 (5''=100') Imperial
Measured Depth Log

Well Name: #1 BECKER 13BC
Location: sec 13 - twp 27S - rge 26W FORD COUNTY
License Number: API 15-057-20,846 Region: KANSAS
Spud Date: 05 OCT 2012 Drilling Completed: 17 OCT 2012
Surface Coordinates: 575' FSL & 1,110' FWL
85' south & 120' east of E2 - SW - SW
Bottom Hole Coordinates: see DEVIATION SURVEYS section
Ground Elevation (ft): 2,633 K.B. Elevation (ft): 2,645
Logged Interval (ft): 3,500 To: 5,259 Total Depth (ft): 5,259
Formation: lower COUNCIL GROVE to MISSISSIPPIAN
Type of Drilling Fluid: CHEMICAL - displace @ 3,590

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

OPERATOR

Company: Ritchie Exploration, Inc.
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: Duke Drilling rig #1
(Mike Godfrey, toolpusher)
MUD: Mud-Co (Justin Whiting)
DRILL STEM TESTS: Superior Testers Enterprises
(Ken Swinney)
GAS DETECTOR: MBC Well Logging
ELECTRIC LOGS: Nabors Completion and Production Serv.
(Ian Mabb & Jeff Groneweg)
CDL/CNL, DIL, SONIC
SURFACE CASING: 8.625'' @ 374
test plugged and abandoned on 17 OCT 2012

DAILY PENETRATION

DATE	DEPTH		
05 OCT 2012			SPUD
06 OCT	1,050	0700 hours	
07 OCT	2,202	" "	
08 OCT	3,005	" "	
09 OCT	3,705	" "	
10 OCT	4,370	" "	
11 OCT	4,665	" "	
12 OCT	4,875	" "	ream & clean @ 1,701
13 OCT	4,926	" "	DST #3
14 OCT	5,000	" "	
15 OCT	5,085	" "	DST #4
16 OCT	5,140	" "	TD @ 5,259
17 OCT	5,259	" "	logging

MUD REPORT

CHECK	DEPTH	WT	VIS	FIL	pH	PV	YP	GELS	CHLOR	SOLIDS	BTMS UP
3	2,457	9.7	30	n/c	7.0	2	3	3/4	80,000	5.2%	24 min
4	3,747	8.6	47	9.2	11.5	14	15	14/44	2,400	2.1%	31 min
5	4,464	9.35	51	9.6	11.0	16	18	17/52	3,200	7.0%	38 min
6	4,705	9.3	48	9.2	11.0	15	16	15/49	3,000	7.0%	39 min
7	4,926	9.2	48	8.8	11.0	16	18	15/47	3,600	6.2%	40 min
7a	4,926	9.35	58	9.6	11.0	22	24	0.3(sic)	4,900	6.2%	40 min
8	4,926	9.2	70	9.2	10.5	25	20	20/61	6,400	6.1%	42 min
9	5,002	9.2	61	8.4	10.5	22	22	18/55	3,900	6.2%	43 min
10	5,085	9.25	51	8.4	9.5	16	18	17/53	5,800	6.1%	43 min
11	5,208	9.1	55	10.8	10.5	17	20	17/56	4,400	5.5%	44 min

DRILL STEM TEST #1

INTENDED TARGET: PAWNEE & lower ALTAMONT 'C' zone
MISRUN
COMMENT: hit bridge @ 1,701, could not pass. trip out and recondition hole.

DRILL STEM TEST #2

INTENDED TARGET: PAWNEE & lower ALTAMONT 'C' zone
MISRUN
COMMENT: hit same bridge @ 1,701, could not pass. trip out and recondition hole.

DRILL STEM TEST #3

4,886 - 4,926 30 - 45 - 45 - 60
PAWNEE & lower ALTAMONT 'C' zone
COMMENT: hole had to be reconditioned twice as test attempts #1 & #2 could not pass bridge @ 1,701. There were four to five extra hours of circulation on the target zone, possibly causing formation damage which would affect test results.
IFP: weak blow built to 4" / 30 min.
ISIP: no blowback
FFP: fair blow built to 6.5" / 45 min
FSIP: no blowback
REC: 60" SOCM (5% O, 95% M)
120' MW w/ SO (1% O, 30% M, 69% W)
180' total fluid
COMMENT: 120' of drill collars (2.25" ID) above test tool, drill pipe (3.8" ID) above collars.
CHLORIDES: 53,000 ppm recovery (6,400 ppm system)
Rw: 0.28 ohms @ 68 degrees F
FP: 52 - 101# / 104 - 127#
SIP: 1,467 - 1,424#
HP: 2,388 - 2,375#
BHT: 108 degrees F

DRILL STEM TEST #4

4,982 - 5,085 30 - 30 - 30 - 30
lower CHEROKEE LS - HUCK LS - 1ST MORROW SAND
IFP: wk blow built to 0.25" / 10 min, died / 17 min
ISIP: no blowback
FFP: no blow, flush tool / 5 min (good surge); no help
FSIP: no blowback
REC: 10' DM (100% M)
10' total fluid
COMMENT: no drill collars in drill string
FP: 50 - 82# / 82 - 86#
SIP: 121 - 103#
HP: 2,507 - 2,460#
BHP: 114 degrees F

DRILL STEM TEST #5

5,048 - 5,115 30 -30 - 30 - 30
lower HUCK - ATOKA - MORROW - upper MISSISSIPPIAN
COMMENT: no drill collars used in drill string
IFP; weak blow built to 0.25" / 4 min, died / 18 min
ISIP: no blowback
FFP: no blow, flush tool / 5 min (good surge); no help
FSIP: no blowback
REC: 15' DM (100% M)
15' total fluid
FP: 62 - 64# / 64 - 68#
SIP: 101 - 88#
HP: 2,534 - 2,499#
BHT: 112 degrees F

DEVIATION SURVEYS

1 degree @ 377
1 degree @ 976
1 degree @ 1,479
0.75 degree @ 2,014
1 degree @ 2,519
1.25 degrees @ 4,717
1 degree @ 5,259

OTHER SYMBOLS

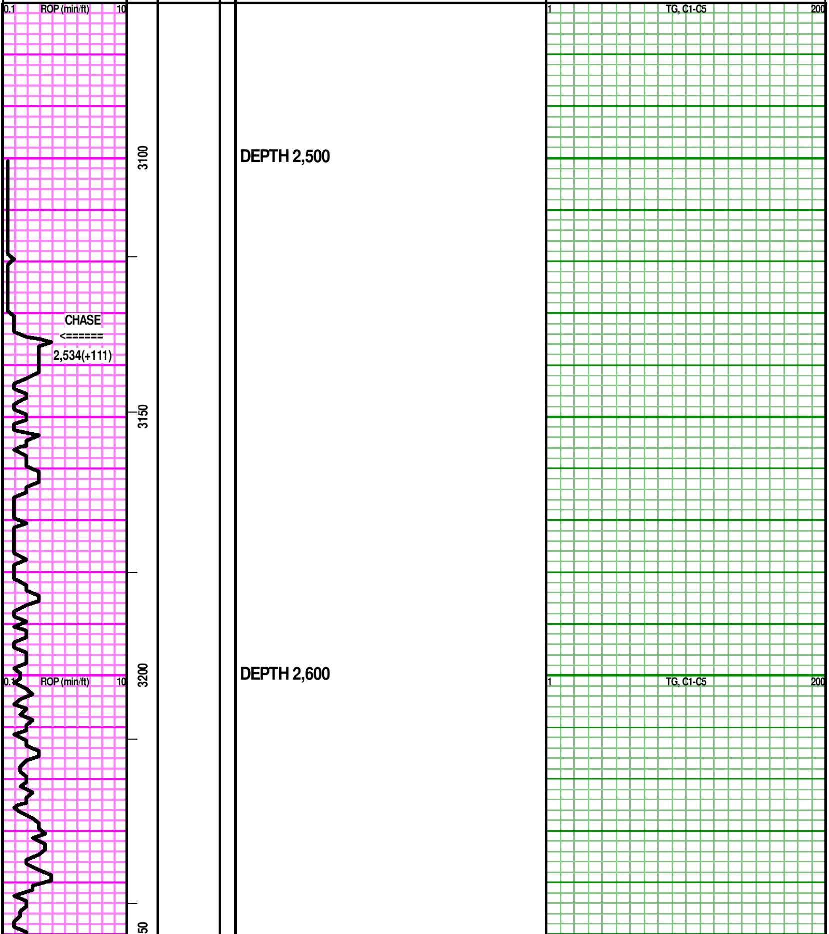
LITHOLOGY
🟧 Anhy
▭ Bent
▭ Brec
▭ Cht
▭ Clyst
■ Coal
🟨 Congl
🟪 Dol
🟧 Gyp
🟥 Igne
🟦 Lmst
▭ Meta
▭ Mrlst
🟩 Salt
▤ Shale
▭ Shcol
▤ Shgy
🟧 Sltst
🟨 Ss
▭ Till

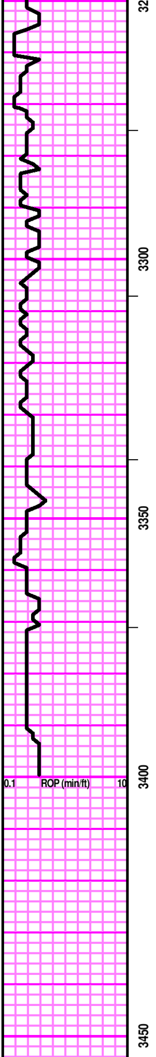
OIL SHOW
● Even
◐ Spotted
○ Ques
▷ Dead

☆ Gas

EVENT
⊟ Conn
▷ Rft
▶ Sidewall

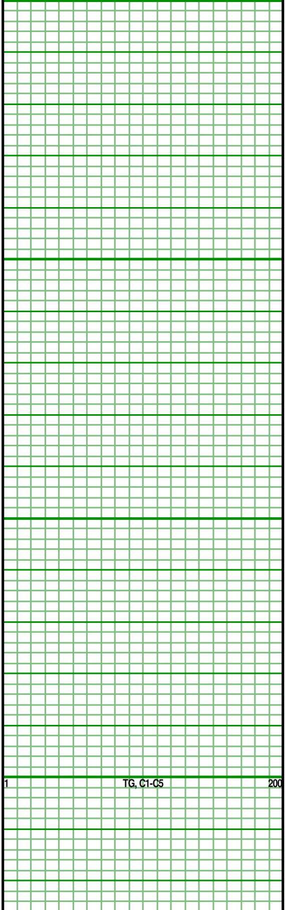
Curve Track 1	Depth	Lithology	Oil Shows	Geological Descriptions	TG, C1-C5
ROP (min/ft) ━━					TG (Units) ━━ C1 (units) ━━ C2 (units) ━━ C3 (units) ━━ C4 (units) ━━ C5 (units) ━━





DEPTH 2,700

DEPTH 2,800



examine samples wet for color, shows & description; dry for porosity & dry stain. sample descriptions are lagged up to true depth using mud engineer's calculations for bottoms up.

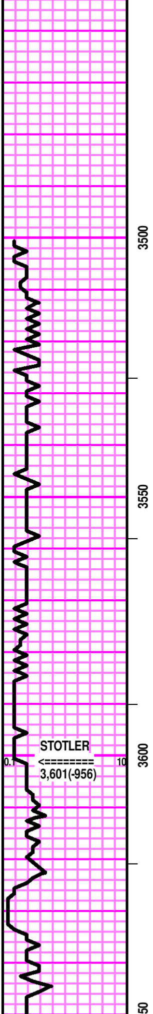
drilling with 529' of drill collars.

"cal floodd" is synonymous with "lithographic" or "dense." this is pervasive replacement by calcite.

"cal overgrths" includes calcite crusts, druzy calcite, calcite veinlets and local recrystallization of larger fossils or clasts.

"rextlzd" = recrystallized.

"sil" = siliceous; introduction of moderate to



PUMP: Ideco MM-700

BAD HOLE CONDITIONS @ 1,701: bridged or swelled early in hole, stopped two drill stem test attempts.

abundant silica - original color and texture preserved.

"cht" describes very heavy silicification - original color and texture altered.

displace @ 3,590

gas detector up @ 3,590.

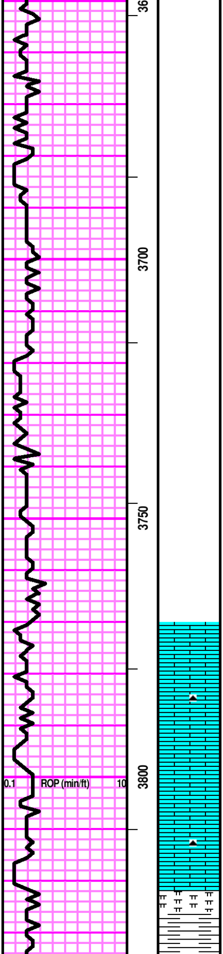
1 TG, C1-C5 200

STOTLER (e-log):
3,603 (-958)

GU = gas units
GUK = gas units kick
BG = background

0 GU BG

1 GU BG



LS: gry, microxtln, loc ool, minor cal crusts. poor por. NS

LS: tan, microxtln, rextlzd, loc relict ?forams?, loc pelletal, loc cht (tan, microxtln, forams). poor por. NS

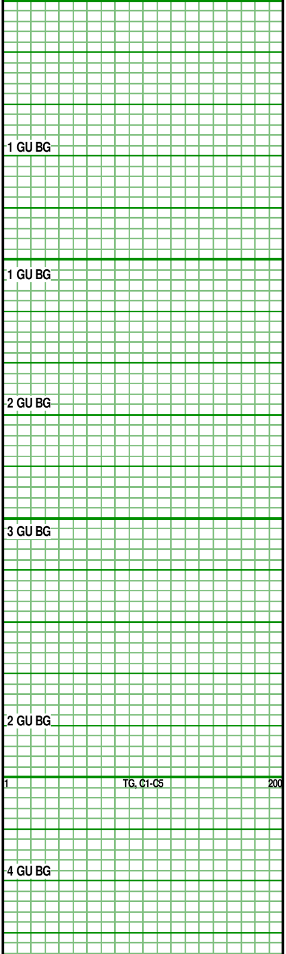
LS: lt gry to gry, microxtln, sl rextlzd, cal crusts, fossl (forams & crinoids). poor por. NS

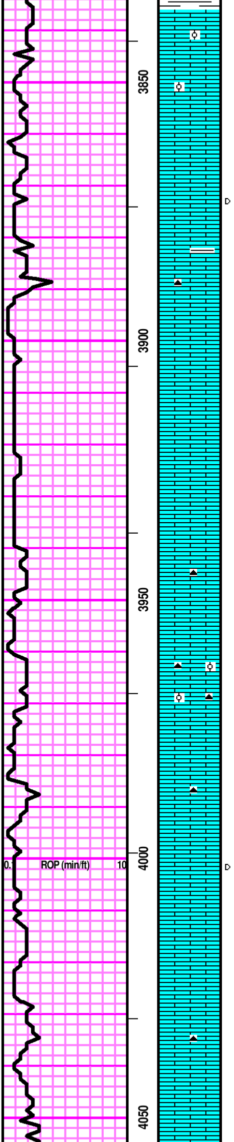
LS: tan, microxtln, loc rextlzd, loc silcfd to cht (brn, abt forams (?ool?)). poor por. minor minute brn flecks (no odor, no cut), NSO

LS: crm, microxtln, rextlzd, chalky. poor vis por. NS

MARL: gry & grn, silty. no vis por. ns

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





LS: tan to pale gry, microxtln, rextlzd, chalky, loc ool (incl pellets). v poor vis por. NS

LS: crm to tan, microxtln, rextlzd, chalky, loc fgr cal overgrths, ool. poor vis por. rare minute brn flecks (no odor), NSO

LS: pale gry, microxtln (loc vfgr), sl rextlzd + wkly cal floodd, loc siliceous, minor relict fossls. no vis por. NS

LS: crm to tan, microxtln (loc vfgr), rexltzd, sl chalky. poor intxtln por, loc fair vug/ppt por. scarce minute brn flecks & blk dd oil (no odor, no cut), NSO

LS: gry & crm, microxtln, cal floodd, minor cal crusts, loc silcfd to cht (brn-gry, microxtln). no vis por. NS stringer(s) of SH (gry & red-brn, argil, earthy hematite).

LS: tan to lt brn, rextlzd, chalky, loc wkly cal floodd, loc relict fossls. poor vis por. minor minute brn & blk flecks (no odor, no cut), NSO

LS: crm to pale brn, micro-vfgr xtln, rextlzd, chalky, relict forams. v poor vis por. VSSG on brk (no gas kick), NSO

LS: crm to tan, microxtln, rextlzd, chalky, relict forams. poor vis por, minor loc wk vug/ppt por. NS

LS: gry to lt gry, microxtln,loc pelletal, loc silcfd to cht (gry & crm, fossl). poor por, rare wk fossl cast por. NS

LS: crm, micro-vfgr xtln, rextlzd, chalky, relict forams. v poor por. NS

LS: gry to crm, microxtln, wkly cal floodd, ool, abt silcfcn to cht (gry, microxtln, ool). v poor por. NS

LS: gry to brn, microxtln, mealy, chalky, fossl, loc rextlzd. v poor por. NS

LS: gry, tan & lt brn, microxtln, wkly cal floodd, abt fossls & pellets, loc silcfd to cht (gry, microxtln, fossl). no vis por. NS

LS: crm to lt brn, micro-vfgr xtln, rextlzd, chalky, loc cal floodd, fossl. v poor vis por. minute brn flecks (no odor, no cut), NSO

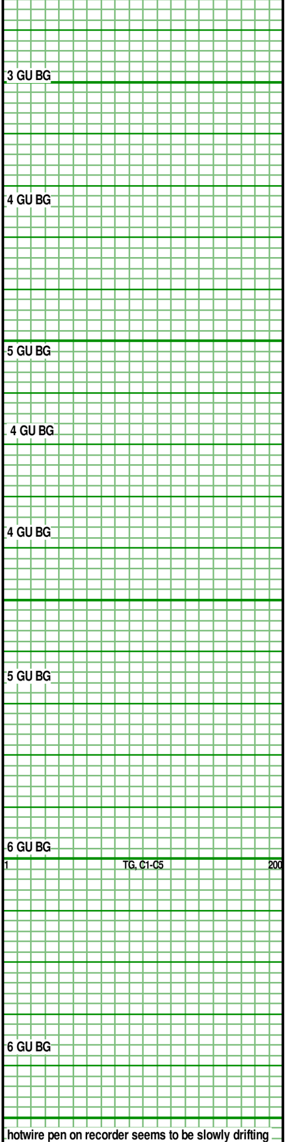
LS: gry, microxtln, wkly cal floodd. no vis por. NS

LS: crm, microxtln, rextlzd, chalky, relict bivalves. v poor por. NS

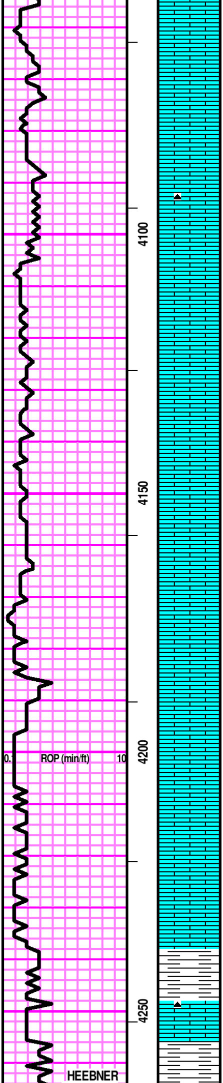
LS: lt gry & crm, micro-vfgr xtln, cal floodd, minor cal crusts, relict forams, loc silcfd to cht (gry, cryptxtln, fossl). v poor por. NS

LS: crm to tan, microxtln, rextlzd, loc sl sucr, chalky. v poor vis por. minor minute dk brn flecks (no odor, no cut), NSO

LS: crm to pale gry, microxtln, cal floodd, minor relict forams. no vis por. NS



hotwire pen on recorder seems to be slowly drifting



LS: crm, microxtln, v chalky, loc rextlzd, relict bivalves. v poor vis por. NS

LS: crm, microxtln, cal floodd, relict fossls, cal overgrths. no vis por. NS

LS: gry, microxtln, cal floodd, relict fossls, scarce cal crusts. no vis por. NS

LS: pale gry to lt gry, microxtln, cal floodd, relict fossls, minor cal overgrths, rare silcfcn to cht (gry, cryptxtln). no vis por. NS

LS: crm, micro-vfgr xtln, chalky, wkly rextlzd, cal overgrths. v poor vis por, scarce fair vug por. NS

LS: off wht to crm, microxtln, chalky, loc cal floodd. v poor vis por. NS

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

LS: gry, microxtln, cal floodd, chalky partings, fgr-mgr druzy cal, relict fossls. no vis por, rare isolated ppts. NS

LS: gry, microxtln, cal floodd, cal crusts, chalky partings, fgr cal overgrths, rare blk specular hematite. no vis por. NS

LS: lt gry to gry, microxtln, cal floodd, abt cal crusts & fgr-mgr druzy cal, minor blk hematite. no vis intxtln por, poss fracture por. NS

LS: crm & lt gry, micro to cgr xtln, abt fgr-cgr druzy cal & cal overgrths, chalky zones. prob fracture zone. no vis por, prob fracture por. NS

LS: gry, microxtln, cal floodd, cal vnlts. no vis por. NS

LS: gry, microxtln, cal floodd, fgr-mgr cal overgrths. no vis por. NS

LS: gry & crm, microxtln, cal floodd, abt vfgr-cgr druzy cal & cal overgrths, microxtln cal crusts & vnlts, scarce py & blk hmt. prob fracture zone. poor intxtln por, prob fracture por. 1 pc w/ minute brn flecks (no odor, no cut), NSO

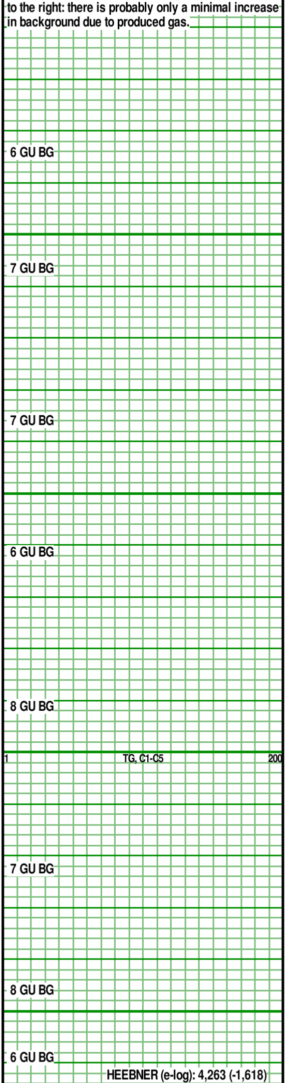
LS: crm & lt gry, microxtln, cal floodd, abt vfgr-cgr druzy cal & microxtln cal crusts, scarce relict fossls, rare blk hmt. v poor intxtln por, minor fair vug por, prob fracture por. NS

LS: crm, micro-fgr xtln, cal floodd, chalky partings. no intxtln por, loc poor-fair vug/ppt por. NS

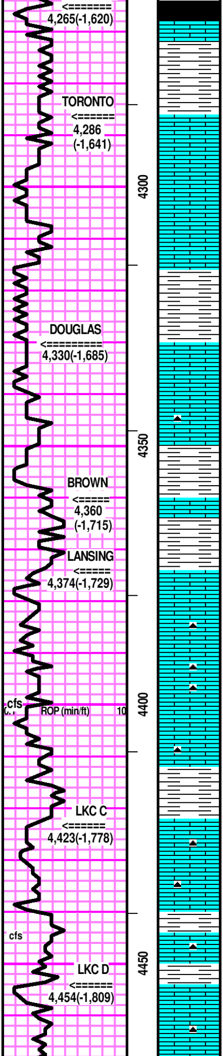
SH: red-brn, maroon, gry, grn & blk, argil, silty, loc micac, abt earthy & specular hematite, rare rock granules.

LS: crm & gry, microxtln, cal floodd, loc peletal, loc silcfd to cht (gry, cryptxtln). no vis por. NS

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


to the right: there is probably only a minimal increase in background due to produced gas.

HEEBNER (e-log): 4,263 (-1,618)



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

LS: brn, microxtln, cal floodd, relict fossls, minor py. no vis por. NS

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

LS: gry-brn, microxtln, cal floodd, sl pelletal, scarce py. no vis por. NS

LS: crm, pale grn & wht, microxtln, rextlzd, loc v chalky (mushy), loc v silty. poor vis por. NS

LS: tan, microxtln, cal floodd, abt relict fossls. no vis por. NS

SH: gry & blk, argil, loc v silty.

SH: brn & gry, micac, loc silty, mushy, earthy hmt.

LS: tan to lt brn, microxtln, cal floodd, silty, loc fossl, loc v chalky. poor vis por. NS

LS: gry to lt brn, microxtln, cal floodd, loc fossl, loc silcfd to cht (brn, cryptxtln, xlscnt). no vis por. NS

SH: gry, argil, micac, mostly mushy.

LS: brn & crm, microxtln, cal floodd, cal crusts, loc abt forams. no/v poor por. NS

SH: gry & grn, argil, micac, loc silty, scarce mgr rock grains.

LS: crm, microxtln, rextlzd, loc chalky. poor vis por. NS

LS: crm, micro-vfgr xtln, rextlzd, chalky, loc silcfd to cht (crm, cryptxtln). poor vis por. VSSG (1 bubble) on brk (no odor), NSO

LS: brn, microxtln, hvyly cal floodd, Minor cal crusts & mgr druzy cal, loc silcfd to cht (brn, cryptxtln). no vis por. NS

LS: crm, microxtln, rextlzd, chalky. poor vis por. NS

LS: dk gry to dk brn, micro-vfgr xtln, cal floodd, fossl, loc silcfd to cht (blk, cryptxtln). no vis por. NS

SH: gry, argil, micac + grn, argil, silty, pyr, bivalves, rock granules + red-brn & maroon, silty, earthy & specular hematite @ base of unit.

LS: crm, microxtln, rextlzd, chalky, loc cht (crm, microxtln, blk & brn hmt smears on edges (no cut)). poor vis por. NS

LS: brn to gry-brn, microxtln, cal floodd, minor cal crusts, fossl, loc silcfd to cht (brn, cryptxtln, fossl). no vis por. NS

LS: off wht, microxtln, rextlzd, chalky. poor vis por. NS

SH: brn, argil, earthy, micac, tr py.

LS: crm to tan, microxtln, cal floodd, rare brachiopods, loc cht (crm, cryptxtln). NVP NS

SH: grn, argil, micac.

LS: tan to gry, microxtln, rextlzd, chalky. poor vis por. loc abt minute red-brn stns (no odor, no cut), NSO

LS: dk brn, microxtln, cal floodd, dns, loc silcfd to cht (brn, cryptxtln). no vis por. NS

11 GUK above BG

add premix

7 GU BG

3 GU BG

TORONTO (e-log): 4,284 (-1,639)

10 GU BG

vis 46 wt 9.1

5 GU BG

10 GU BG

background varies as premix blends in.

7 GU BG

DOUGLAS (e-log): 4,330 (-1,685)

7 GU BG

2.5 GU BG

BROWN (e-log): 4,362 (-1,717)

2.5 GU BG

LANSING (e-log); 4,373 (-1,728)

8 GU BG

16.5 GU

13 GU

1 TG, C1-C5 200

7 GU BG after cfs

5 GU BG

7.5 GU BG

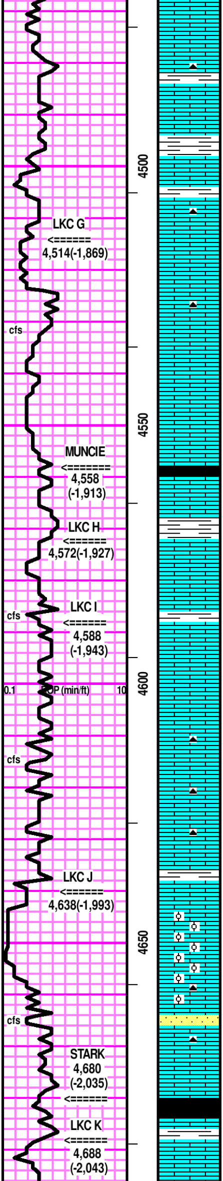
LKC C (e-log): 4,422 (-1,777)

5 GU BG

5-6 GU BG during cfs

run in tank of mud @ 4,445

LKC D (e-log): 4,454 (-1,809)



LS: brn, tan & crm, microxtln, cal floodd, relict fossls, cal overgrths (fgr), rare py. no vis por. NS

LS: gry, microxtln, cal floodd, loc silcfd to cht (gry, brn & blk, cryptxtln). no vis por. NS

SH: gry & grn, argil, micac.

LS: crm to lt brn, microxtln, cal floodd, fusulinids, minor py. no vis por. rare brn stn (no odor), NSO

SH: gry-brn & grn, argil, micac.

LS: crm, microxtln, rextlzd, sl chalky, cal overgrths. poor vis por. NS

SH: grn, argil, silty.

LS: brn to dk brn, microxtln, variably cal floodd, loc chalky, cal crusts, minor hmt smears, loc silcfd to cht (brn to dk brn, cryptxtln). no vis por. NS

LS: crm, micro-vfgr xtln, rextlzd, chalky partings, vfgr-mgr cal overgrths. poor intxtln por (loc fair to good), loc vug por. rare brn stn (no odor), NSO

LS: brn, microxtln, cal floodd, fossl, loc cht (brn & gry, cryptxtln, rare tripolitic crusts). no vis por. 1 pc tripolitic crust had brn stn (no odor, no cut), NSO

LS: tan, wk-moderate cal floodd, microxtln. no vis por. rare blk stn (no odor, no cut), NSO

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

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

LS: brn-orange, microxtln, sl chalky, relict ?forams?. v poor vis por. NS

LS: gry, microxtln, cal floodd, cal crusts. NVP NS

SH: blk, carb, micac, calc inclusions.

LS: gry, microxtln, cal floodd, loc chalky, pyr, loc silcfd to cht (gry, cryptxtln). no vis por. NS

SH: gry & grn, argil.

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

LS: crm, micro-vfgr xtln, rextlzd, cal overgrths. no intxtln por, loc poor vug por. NS

LS: brn, microxtln, cal floodd, vfgr druzy cal, cal crusts. no vis por. NS

SH: grn & gry, argil, silty, micac, fish scales.

LS: crm, microxtln, sl rextlzd, chalky. poor vis por. NS

LS: crm, microxtln, cal floodd, cal overgrths, scarce druzy cal. no vis por. rare wk brn stns (no odor), NSO

LS: crm to lt brn, microxtln, cal floodd, loc rextlzd, cal crusts & overgrths, scarce mgr druzy cal, rare marcasitized spines, loc silcfd to cht (dk brn to blk, cryptxtln). v poor por. rare minute dk brn dd oil flakes (no odor, no cut), NSO

LS: crm, microxtln, cal floodd, loc rextlzd, minor druzy cal, forams & pellets. no vis por. NS

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

LS: brn & tan, microxtln, cal floodd, loc sl chalky, abt fossls, loc silcfd to cht (gry, cryptxtln, fossl). no vis por. NS

SH: grn, argil.

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

LS: crm to lt brn, microxtln, cal floodd, mostly ooc w/ casts up to 1 mm. loc chalky (mushy). v good ooc por. rare v wk brn stn (no cut, no odor). VSSG on brk, NSO

LS: crm, microxtln, cal floodd, ool, rare silcfcn to cht (gry, cryptxtln, fossl). also non-ool cal floodd rock. no vis por. NS

SS: pale blue, silt-vfgr, silcfd, quartzitic. NVP NS

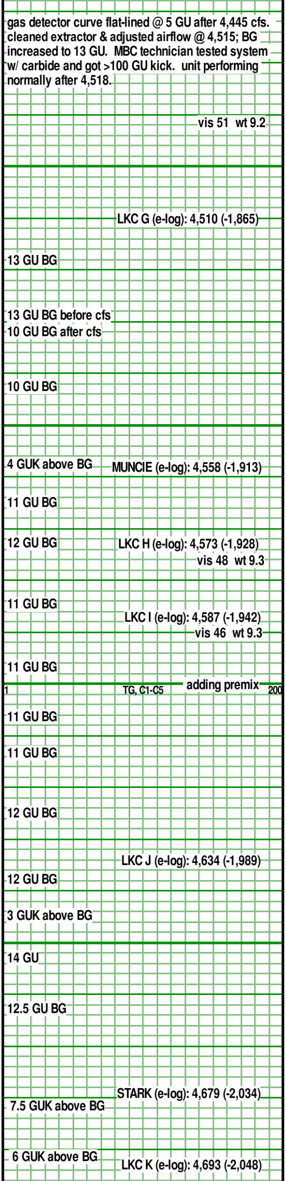
LS: gry & lt brn, microxtln, cal floodd, cal crusts & overgrths, chalky partings, loc silcfd to cht (gry, cryptxtln, fossl). no/poor vis por. NS

SH: blk, carb, micac.

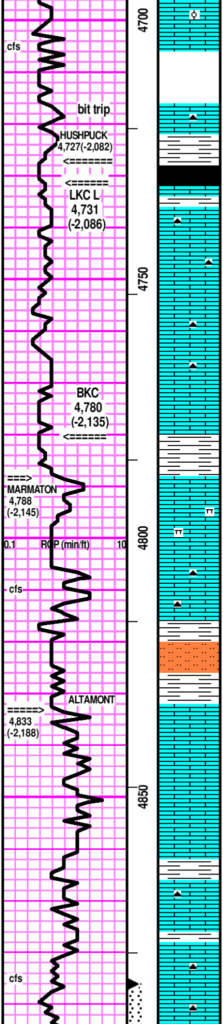
LS: gry, microxtln, cal floodd. no vis por. NS

SH: gry & grn, argil, pyr.

LS: wht, micro-vfgr xtln, v chalky (mushy), relict bivalves, vfgr cal xtals. poor vis por. NSG NSO



gas detector curve flat-lined @ 5 GU after 4,445 cfs. cleaned extractor & adjusted airflow @ 4,515; BG increased to 13 GU. MBC technician tested system w/ carbide and got >100 GU kick. unit performing normally after 4,518.



LS: crm to orange-brn, microxtln, cal floodd, ool or fossl hash. poor por. NS

no sample 4,705 - 4,717 (commence bit trip before bottoms up reached surface). presumably ls with local cht.

LS: lt gry, microxtln, cal floodd, loc silcfd to cht (gry, cryptxtln). no vis por. NS

SH: gry, grn & blk, argil, loc micac.

SH: blk, carb, micac, wht cal inclusions, rare marcasitized spines.

LS: gry, microxtln, cal floodd, fossl. no vis por. NS

LS: gry, microxtln, cal floodd, vfgr druzy cal, loc silcfd to cht (gry, cryptxtln, fossl). no vis por. NS

LS: gry, microxtln, cal floodd, vfgr druzy cal & micro xtln cal crusts, loc silcfd to cht (wht & gry, cryptxtln, tripolitic crusts). no vis por. NS

LS: lt gry to crm, microxtln, cal floodd, minor druzy cal & cal crusts, loc silcfd to cht (gry, brn & clr, cryptxtln). no vis por. NS

LS: lt gry, brn & crm, microxtln, cal floodd, loc silcfd to cht (gry, brn & clr, cryptxtln). poss oxidation contacts between gry & crm, no vis por. NS

LS: dk gry, microxtln, cal floodd, v abt relict ?forams? & pellets, loc off wht cal crusts. no vis por. NS

SH: dk gry to blk & grn, argil, micac, pyr, plant fragments.

LS: gry to gry-brn, microxtln, sl cal floodd, minor cal crusts. v poor por. scarce dk brn & blk stns (no odor, no cut - poss hematite), NSO

LS: dk gry, microxtln, marly, mealy, cal vnlts. v poor vis por. NS

LS: dk gry to brn, microxtln, loc sl cal floodd, sl marly, abt crinoids, loc silcfd to cht (blk, cryptxtln, crinoids). v poor por. NS

LS: dk gry-brn, microxtln, marly, fossl fragments, loc silcfd to cht (dk brn, cryptxtln). NVP NS

SH: gry, grn & red-brn, argil, micac, loc v silty, loc pyr.

SLTST: grn, v argil (mushy), sl micac, loc v sdy.

SH: dk gry to blk, argil, sl micac.

LS: crm, microxtln, cal floodd, loc rextlzd, fish scales. no vis por. small blk inclusions look like dd oil when wet (no odor, no cut, ?hematite?), NSO

LS: gry, microxtln, sl marly & earthy, loc silty, scarce small blk inclusions (no odor - prob fish parts). v poor por. NS

LS: crm to tan, microxtln, cal floodd, loc rextlzd, scarce cht (crm, cryptxtln). no vis por. NS

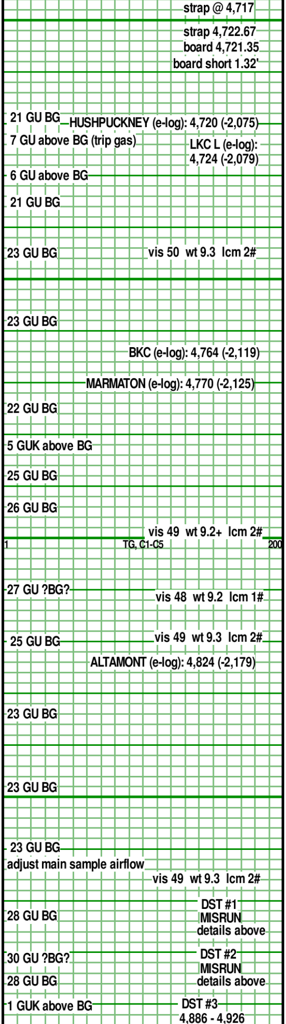
SH: grn, dk gry, argil, micac, loc silty w/ yel limonite stn.

LS: brn, crm & tan, microxtln, cal floodd, loc rextlzd & chalky, cal crusts, minor cht (brn, cryptxtln). no/poor vis por. NS

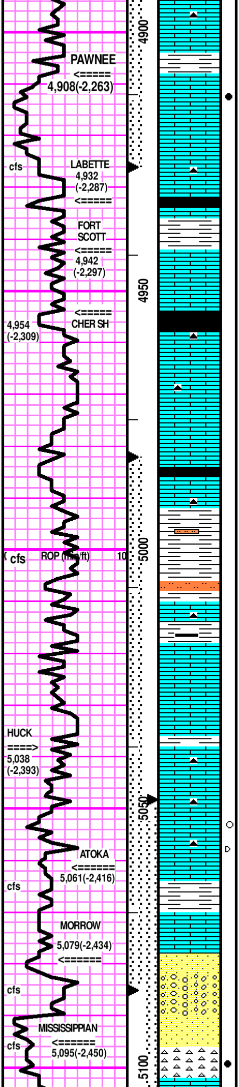
SH: gry & grn, argil, micac, pyr, rock granules.

LS: crm to tan, rextlzd, chalky, loc cal floodd w/ cal crusts. v poor vis por. NS

● LS: brn, microxtln, cal floodd, cal crusts, loc cht (brn, cryptxtln). no vis por. 1 pc VSSO in isolated ppt (brn, fnt odor, good cut, wk patchy brn dry stn)


strap @ 4,717
strap 4,722.67
board 4,721.35
board short 1.32'
21 GU BG
HUSHPUCKNEY (e-log): 4,720 (-2,075)
7 GU above BG (trip gas)
LKC L (e-log): 4,724 (-2,079)
6 GU above BG
21 GU BG
23 GU BG
vis 50 wt 9.3 lcm 2#
23 GU BG
BKC (e-log): 4,764 (-2,119)
MARMATON (e-log): 4,770 (-2,125)
22 GU BG
5 GUK above BG
25 GU BG
26 GU BG
vis 49 wt 9.2+ lcm 2#

27 GU ?BG?
vis 48 wt 9.2 lcm 1#
25 GU BG
vis 49 wt 9.3 lcm 2#
ALTAMONT (e-log): 4,824 (-2,179)
23 GU BG
23 GU BG
23 GU BG
adjust main sample airflow
vis 49 wt 9.3 lcm 2#
28 GU BG
DST #1 MISRUN details above
30 GU ?BG?
DST #2 MISRUN details above
28 GU BG
1 GUK above BG
DST #3 4,886 - 4,926



LS: brn & tan, microxtln, cal floodd, cal crusts, loc cht (brn & tan, cryptxtln). no vis por. no odor, no stn, NS

SH: grn, gry & blk, argil, micac.

LS: wht to off wht, microxtln, rextlzd, chalky. poor vis por. 1-2 pcs w/ minute oil flecks (brn, wk odor, wk satd dry stn, good cut)

LS: wht to pale gry, microxtln, rextlzd, chalky, loc cal floodd w/ cht (off wht, cryptxtln, tripolitic crusts). poor vis por. minor blk stn (no odor, no cut), NSO

LS: tan, microxtln, cal floodd, loc chalky, fossl (loc abt forams). no/v poor vis por. NS

SH: blk, carb, sl micac, rare wht cal inclusions

LS: gry-brn, microxtln, hvyly cal floodd, fossl, rare py. NVP NS

SH: grn to gry, argil, micac, loc silty, rare earthy hematite.

LS: tan to brn, microxtln, cal floodd, minor cal crusts, chalky partings, minor fossls (incl brachiopods) & pellets. no vis por. NS

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

LS: tan to brn, microxtln, cal floodd, minor cal crusts, loc cht (brn & gry, cryptxtln, fossl). NVP NS

LS: dk gry to dk brn, microxtln, hvyly cal floodd, cal crusts, loc silcfd to cht (dk gry & dk brn, cryptxtln). no vis por. NS

LS: off wht to tan, microxtln, rextlzd, v chalky, loc cal floodd, relict bivalves. poor vis por. VVSSG on brk (no odor), NSO

SH: blk, carb, micac, wht cal inclusions, py.

LS: brn, microxtln, cal floodd, cal crusts, scarce druzy cal, fossl, loc silcfd to cht (dk brn, cryptxtln, fossl). no vis por. NS

SH: gry to blk, grn, red-brn, argil (loc mushy), loc micac, calc, rock granules, stringer(s) of SLTST/SS (gry, silt-vfgr, silty, loc sil cmt & glauc, NVP, NS)

SLTST: off wht, v argil (v mushy), calc. NVP NS

LS: gry-wht, microxtln, cal floodd, pyr, loc silcfd to cht (wht & gry, cryptxtln). no vis por. NS

SH: gry, argil, loc blk, carb, micac.

LS: off wht to tan, microxtln, rextlzd, v chalky, scarce fgr druzy cal, rare relict bivalves. poor vis por. NS

SH: gry & grn, argil.

LS: brn, microxtln, cal floodd, cal crusts, off wht chalky prtings, rare py, loc cht (dk brn, cryptxtln). no/poor vis por. NS

LS: wht to off wht, microxtln, rextlzd, chalky. poor vis por. scarce minute brn stns (no odor, no cut), NSO

○ LS: off wht, microxtln, rextlzd, chalky. poor vis por. minor brn stns & dd oil flakes (wk-fair odor, 1 pc slow v wk cut, v wk patchy to satd dry stn, SSG on brk, NSFO)

▷ LS: brn, microxtln, cal floodd, cal crusts, druzy cal, loc glauc, brn cht. no vis por. 1 pc w/ brn dd oil flakes (no cut), NSFO

LS: lt grn to grn, crypt-microxtln, ?cal floodd?, wht microxtln cal crusts, cal overgrths. no vis por. NS

SH: grn, lime grn & gry, v argil, rock granules, micac, pyr.

SH: grn, lime grn, gry, maroon & tan, argil, pyr (vfgr), yel limonite stn, loc laminated, minor red earthy hematite.

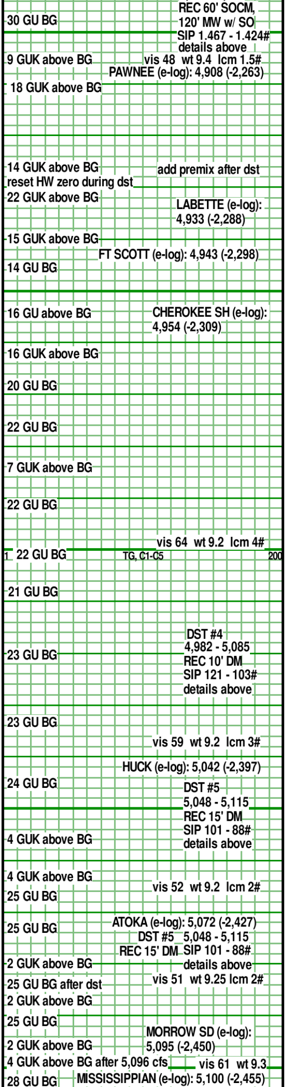
LS: brn & off wht, micro-vfgr xtln, cal floodd, loc relict grainstone texture, cal crusts, chalky partings. no vis por. NS

SS: wht & tan, silt-vfgr, rndd, cal cmt (loc sil), mostly friable, rock granules, loc 1-5% hvy mins, glauc, scarce plant fragments. v poor por. no odor, no cut, NS

CONG: grn, gry, maroon & yel, clay (non-calc) matrix w/ vfgr rnd snd (variable grain support) & granules of ls & cht, hematite & limonite stn. NVP NS

SS: grn, off wht & gry, vfgr well rndd snd grns in clay matrix (non-calc, mushy), v friable. v poor vis por. VVSSG on brk (no odor), NS

● CHT: wht, crm & orange, crypt-microxtln, tripolitic crusts, relict forams, pyr, hmt. fair-good vug por in crusts. SSFO in crusts (dk brn, wk odor, wk to good cut, patchy to satd lt brn dry stn)



30 GU BG

REC 60' SOCM,
120' MW w/ SO
SIP 1.467 - 1.424#
details above

9 GUK above BG

vis 48 wt 9.4 lcm 1.5#

PAWNEE (e-log): 4,908 (-2,263)

18 GUK above BG

14 GUK above BG

add premix after dst

reset HW zero during dst

22 GUK above BG

LABETTE (e-log):
4,933 (-2,288)

15 GUK above BG

FT SCOTT (e-log): 4,943 (-2,298)

14 GU BG

16 GU above BG

CHEROKEE SH (e-log):
4,954 (-2,309)

16 GUK above BG

20 GU BG

22 GU BG

7 GUK above BG

22 GU BG

vis 64 wt 9.2 lcm 4#

22 GU BG

21 GU BG

DST #4
4,982 - 5,085
REC 10' DM
SIP 121 - 103#
details above

23 GU BG

23 GU BG

vis 59 wt 9.2 lcm 3#

HUCK (e-log): 5,042 (-2,397)

24 GU BG

DST #5
5,048 - 5,115
REC 15' DM
SIP 101 - 88#
details above

4 GUK above BG

4 GUK above BG

vis 52 wt 9.2 lcm 2#

25 GU BG

25 GU BG

ATOKA (e-log): 5,072 (-2,427)

DST #5 5,048 - 5,115
REC 15' DM SIP 101 - 88#
details above

2 GUK above BG

vis 51 wt 9.25 lcm 2#

25 GU BG after dst

2 GUK above BG

25 GU BG

MORROW SD (e-log):
5,095 (-2,450)

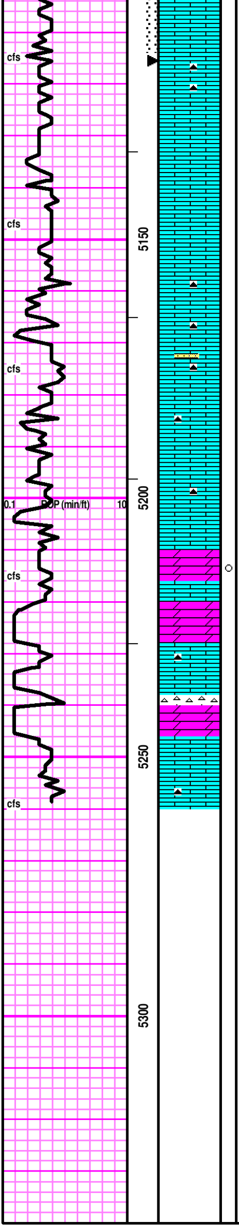
2 GUK above BG

4 GUK above BG after 5,096 cfs

vis 61 wt 9.3

28 GU BG

MISSISSIPPIAN (e-log): 5,100 (-2,455)



LS: crm & gry, microxtln, cal floodd, chalky partings, minor cal crusts, loc relict grnst texture, relict forams, pyr. no/poor vis por. NS

LS: crm, microxtln, cal floodd, sl chalky, pyr, loc silcfd to cht (pale gry & tan, cryptxtln, fossl, pyr) NVP rare gry stn (no odor, ?hmt?), NSO

LS: crm, microxtln (loc vfgr), cal floodd, loc siliceous, chalky partings. no/poor vis por. loc VSSG on brk in chalk (no odor), NSO

LS: crm, microxtln, cal floodd, loc siliceous, chalky partings, relict fossls (incl bivalves). no/poor vis por. no odor, NS

gry & grn sh in spls - presumably cavings.

LS: crm, microxtln, cal floodd, loc siliceous, minor cal overgrths. no/poor vis por. NS

LS: crm, microxtln, cal floodd, chalky partings, relict fossls, silceous, pyr, loc silcfd to cht (crm & tan, cryptxtln). no/poor vis por. NS

LS: wht to crm, microxtln, chalky, loc rextlzd, rare py, loc silcfd to cht (crm, cryptxtln, pyr). poor vis por. VSSG on brk (no odor), NSO

LS: crm, microxtln, cal floodd, widely chalky, relict fossls, loc silcfd to cht (crm, tan & orange, cryptxtln). stringer of SS (off wht, vfgr, rndd, loc chalky. NVP NS). no/poor vis por (rare vug por). rare lt brn stn (no odor), NSO

LS: wht to crm, microxtln, rextlzd, chalky (often mushy), relict forams, loc silcfd to cht (crm to tan, cryptxtln, sil vnlts, relict forams. no/poor vis por. VSSG on brk (no odor), NSO

LS: crm, microxtln, wkly cal floodd, loc rextlzd (v chalky), loc siliceous, relict fossls (forams & bivalves). no/poor vis por. loc VSSG on brk (no odor), NSO

LS: crm, microxtln, rextlzd, v chalky (often mushy), relict fossls (forams & bivalves). poor vis por. VSSG on brk (no odor), NSO

LS: lt gry, microxtln, cal floodd, loc silcfd to cht (gry, crypt - microxtln, fossl). no vis por. rare brn stn (no odor, no cut), NSO

DOL: gry to tan, microxtln, sucr. fair intxtln por, loc vuggy. minor wk brn stn (no odor, no cut, v wk brn dry stn), NSO

LS: brn, microxtln, hvyly cal floodd, cal crusts, loc silcfd to cht (brn & gry, microxtln). NVP NS

DOL: brn & tan, microxtln, sucr. fair intxtln por, scarce isolated vugs. VSSG on brk, no odor, no cut, no dry stn, NS

LS: crm, microxtln, sl rextlzd, chalky, loc cal floodd, loc silcfd to cht (crm, tan & orange, crypt-microxtln). poor vis por. NS

LS: wht, microxtln, v chalky (mushy). poor vis por. no stn, VSSG on brk (no odor), NS

CHT: brn, crypt-microxtln, fossl, tripolitic crusts. no vis por. NS

DOL: brn, microxtln, sucr. poor-fair por. no stn, no odor, NS

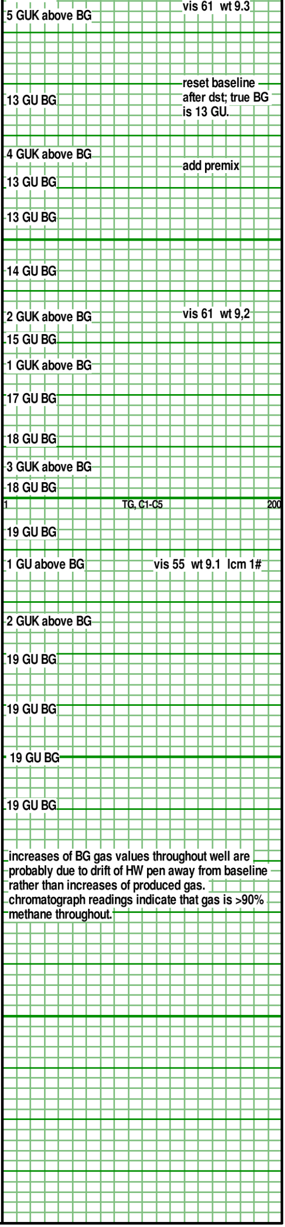
LS: wht to crm, microxtln, sl rextlzd, chalky, relict fossls. poor vis por. VSSG on brk (no odor). no stns, NS

LS: crm, microxtln, cal floodd, cal crusts, druzy cal, loc silcfd to cht (off wht, crm, orange & clr, cryptxtln, loc fossl, rare py). no vis por. no stns, no cut, NS

RTD 5,259

LTD 5,262

Ritchie Exploration, Inc.
#1 Becker 13BC
575' FSL & 1,110' FWL
sec 13 twp 27S rge 26W
Ford County, Kansas



5 GUK above BG

vis 61 wt 9.3

reset baseline after dst; true BG is 13 GU.

13 GU BG

4 GUK above BG

add premix

13 GU BG

13 GU BG

14 GU BG

2 GUK above BG

vis 61 wt 9,2

15 GU BG

1 GUK above BG

17 GU BG

18 GU BG

3 GUK above BG

18 GU BG

19 GU BG

1 GU above BG

vis 55 wt 9.1 lcm 1#

2 GUK above BG

19 GU BG

19 GU BG

19 GU BG

19 GU BG

increases of BG gas values throughout well are probably due to drift of HW pen away from baseline rather than increases of produced gas. chromatograph readings indicate that gas is >90% methane throughout.