HEADER

WellSight Systems

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

Well Name: #1 GLENN 34D
Well Id:
Location: sec 34 - twp 17S - rge 30W LANE COUNTY
License Number: API #15-101-22,550 **Region:** KANSAS
Spud Date: 02 DEC 2014 **Drilling Completed:** 14 DEC 2014
Surface Coordinates: 365' FSL & 775' FEL
35' N & 115' W of C S2 - SE - SE
Bottom Hole Coordinates: DEVIATION SURVEYS: 0.5 degree @ 217,
0.75 degree @ 4,000, 0.75 degree @ 4,250, 1" @ 4,650
Ground Elevation (ft): 2,854 **K.B. Elevation (ft):** 2,859
Logged Interval (ft): 3,400 **To:** 4,650 **Total Depth (ft):** 4,650
Formation: ADMIRE to MISSISSIPPIAN
Type of Drilling Fluid: CHEMICAL: displace @ 3,367

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OPERATOR

Company: Ritchie Exploration, Inc. KLN 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

CONTACTOR: W W Drilling, rig #8 (toolpusher Sid Duetscher)
MUD: Mud-Co (Reid Atkins)
DRILL STEM TESTS: Trilobite Testing (Justin Harris)
ELECTRIC LOGS: Nabors Services (Ian Mabb)
(DIL & CDL/CNL)
SURFACE CASING: 8.625" @ 217
PRODUCTION CASING: 5" to Mississippian

DAILY PENETRATION

DATE	DEPTH			
02 DEC 2014				SPUD
03 DEC	308	0700 hours		
04 DEC	2,540	"	"	
05 DEC	3,235	"	"	
06 DEC	3,785	"	"	
07 DEC	4,000	"	"	DST #1
08 DEC	4,035	"	"	
09 DEC	4,133	"	"	
10 DEC	4,249	"	"	
11 DEC	4,298	"	"	DST #6
12 DEC	4,376	"	"	DST #7
13 DEC	4,469	"	"	DST #8
14 DEC	4,650	"	"	RTD

DRILL STEM TEST #1

3,965 - 4,000 30 - 45 - 45 - 60 LKC D zone
IFP: weak surface blow built to 2.5" / 30 min
ISIP: no return
FFP: weak surface blow
FSIP: no return
COMMENT: 120' of drill collars above tool
REC: 15' OCM (10% O, 90% M)
126' OCM (5% O, 95% M)(drill collars)
141' total fluid
FP: 14 - 44# / 45 - 73#
SIP: 1,034 - 1,022#
HP: 1,918 - 1,862#
BHT: 111 degrees F
COMMENT:shut-in curves indicate excellent permeability.

DRILL STEM TEST #2

3,999 - 4,030 30 - 45 - 45 - 60 LKC E & F zones
IFP: weak surface blow built to 2" / 30 min
ISIP: no return
FFP: weak surface blow
FSIP: no return
COMMENT: 120' of drill collars above tool
REC: 8' CO (100% O)
126' OCM (20% O, 80% M) (drill collars)
134' total fluid
GRAVITY: 28 degrees API
FP: 12 - 38# / 40 - 68#
SIP: 1,001 - 990#
HP: 1,926 - 1,918#
BHT: 112 degrees F
COMMENT: shut-in curves indicate good to very good permeability.

DRILL STEM TEST #3

4,030 - 4,045 30 - 45 - 30 - 45
base LKC F & top LKC G zones (both with shows of oil)
IFP: BOB / 5 min
ISIP: no return
FFP: BOB / 6 min
FSIP: no return
COMMENT: 120' of drill collars above tool
REC: 20' OWCM (5% O, 35% W, 60% M)
504' MCW (97% W, 3% M)
252' MCW (95% W, 5% M)
126' MCW (85% W, 15% M) (drill collars)
902' total fluid
Rw: 0.23 ohms @ 50 degrees F
CHLORIDES: 40,000 ppm recovery (2,800 ppm system)
FP: 34 - 267# / 213 - 432#
SIP: 1,044 - 1,008#
HP: 1,940 - 1,916#
BHT: 123 degrees F
COMMENT: shut-in curves indicate excellent permeability.

DRILL STEM TEST #4

4,136 - 4,164 30 - 45 - 45 - 60 LKC I zone
IFP: BOB / 27 min
ISIP: no return
FFP: weak blow built to 11" / 45 min
FSIP: no return
COMMENT: 120' of drill collars above tool

REC: 20' MCW w/ oil spots (95% W, 5% M)
189' MCW (90% W, 10% M)
126' WCM (40% W, 60% M) (drill collars)
335' total fluid
Rw: 0.30 ohms @ 38 degrees F
CHLORIDES: 40,000 ppm recovery (2,700 ppm system)
FP: 17 - 101# / 84 - 174#
SIP: 861 - 843#
HP: 2,006 - 1,925#
BHT: 122 degrees F
COMMENT: shut-in curves indicate good permeability

DRILL STEM TEST #5

4,226 - 4,250 30 - 45 - 45 - 60
MIDDLE CREEK & LKC L zone
IFP: BOB / 2 min
ISIP: weak surface blow
FFP: BOB / 5 min
FSIP: weak surface blow
COMMENT: 120' of drill collars above tool
REC: 136' CO (40% G, 60 %O)
378' GMCO (40% G, 50% O, 10% M)
504' OMCW (2% O, 93% W, 5% M) (drill pipe)
126' OMCW (2% O, 93% W, 5% M) (drill collars)
316' GIP
1,144' total fluid
GRAVITY: 31 degrees API
Rw: 0.25 ohms @ 37 degrees F
CHLORIDES: 50,000 ppm recovery (2,700 ppm system)
FP: 66 - 407# / 422 - 593#
SIP: 661 - 662#
HP: 2,067 - 1,967#
BHT: 126 degrees F
COMMENT: shut-in curves indicate excellent permeability.

DRILL STEM TEST #6

4,277 - 4,298 30 - 30 - 45 - 60 PLEASANTON
IFP: weak surface blow died / 8 min
ISIP: no return
FFP: no blow - flush tool @ 5 min: packer re-established
seat, got blow to BOB. blow decreased to 6" / 45 min
FSIP: no return
COMMENT: 120' of drill collars above tool
REC: 199' SOCM (2% O, 98% M) (drill pipe)
126' DM w/ oil spots (100% M) (drill collars)
325' total fluid
FP: 12 - 19# / 16 - 171#
SIP: 685 - 704#
HP: 2,090 - 2,064#
BHT: 113 degrees F
COMMENT: shut-in curves indicate poor to fair permeability
during initial shut-in, somewhat better during final shut-in.

DRILL STEM TEST #7

4,296 - 4,376 30 - 45 - 30 - 45
MARMATON to ALTAMONT 'B'
IFP: BOB / 2.5 min
ISIP: no return
FFP: weak surface blow built to 5"
FSIP: no return
COMMENT: 120' of drill collars above tool
REC: 220' MCW (50% W, 50% M)
315' MCW (60% W, 40% M)
315' MCW (70% W, 30% M)
126' MCW (90% W, 10% M)
oil spots in top of tool
976' total fluid
Rw: 0.21 ohms @ 47 degrees F
CHLORIDES: 50,000 ppm recovery (3,800 ppm system)
FP: 75 - 398# / 406 - 424#
SIP: 424 - 427#
HP: 2,086 - 2,010#
BHT: 121 degrees F
COMMENT: initial shut-in curve indicates poor to fair permeability.

DRILL STEM TEST #8

4,390 - 4,469 30 - 45 - 45 - 60
PAWNEE - MYRICK STATION - FORT SCOTT
IFP: weak surface blow built to 2.5" / 30 min
ISIP: no return
FFP: weak surface blow built to 3.5" / 45 min
FSIP: no return
COMMENT: 120' of drill collars above tool
REC: 63' GOCM (10% G, 20% O, 70% M) (drill collars)
63' total fluid
FP: 15 - 28# / 39 - 37#
SIP: 172 - 312#
HP: 2,127 - 2,071#
BHT: 115 degrees F
COMMENT: shut-in curves are concave and indicate extremely poor permeability.

MUD REPOORT

displace @ 3,367

RPT	DEPTH	WT	VIS	FIL	pH	PV	YP	GELS	CHLOR	SOLIDS	BTMS UP
2	2,614	9.0	29	n/c	7.0	-	-	-	24,000	3.2%	24 min
3	3,305	9.2	30	n/c	7.0	-	-	-	22,000	5.0%	31 min
4	3,810	8.9	58	6.8	11.0	22	16	6/23	2,200	4.4%	36 min
5	4,000	9.1	52	7.2	10.0	18	17	11/23	2,800	5.5%	37 min
6	4,045	9.1	49	8.8	10.0	14	16	10/30	3,000	5.3%	38 min
7	4,146	9.1	52	8.0	10.5	17	15	9/25	2,700	5.4%	39 min
8	4,250	9.2	55	7.2	11.0	20	16	7/23	4,000	5.8%	40 min
9	4,298	9.2	52	6.8	10.5	16	19	11/30	3,800	5.9%	40 min
10	4,376	9.2	55	8.0	11.0	17	21	12/28	4,400	5.7%	41 min
11	4,469	9.2	52	6.4	10.5	14	16	9/20	4,000	5.8%	42 min
12	4,625	9.2	52	6.4	11.0	18	15	10/22	3,000	5.9%	43 min

ROCK TYPES

▨ **Anhy**
▨ **Bent**
▨ **Brec**
▨ **Cht**
▨ **Clyst**
■ **Coal**
▨ **Congl**
▨ **Dol**
▨ **Gyp**
▨ **Igne**
▨ **Lmst**
▨ **Meta**
▨ **Mrlst**
▨ **Salt**
▨ **Shale**
▨ **Shcol**
▨ **Shgy**
▨ **Sltst**
▨ **Ss**
▨ **Till**

OTHER SYMBOLS

OIL SHOW
● Even
◑ Spotted
○ Ques

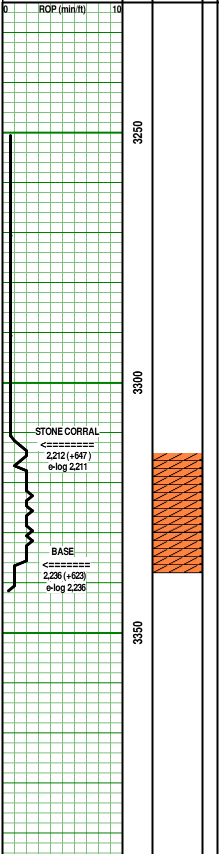
▷ Dead
☆ Gas

INTERVAL
■ Core
⊡ Dst

EVENT
⊟ Conn
▷ Rft
▶ Sidewall

Curve Track 1
ROP (min/ft)

Depth | **Lithology** | **Oil Shows** | **Geological Descriptions** | **REMARKS**



DEPTH 2,150

DEPTH 2,200

anhydrite top and base picked from drill time: no samples collected.

DEPTH 2,250

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.

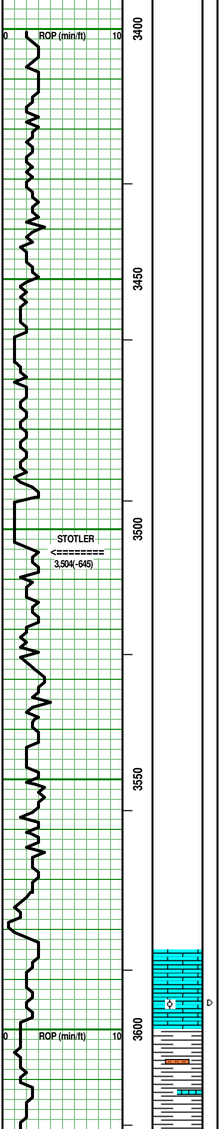
"cal floodd" is synonymous with "lithographic" or "dense." this is pervasive replacement by calcite.

"cal overgrths" includes calcite crusts (calcite analogue to tripolitic chert), druzy calcite, calcite veinlets and local recrystallization of larger fossils or clasts.

"rextlzd" = recrystallized.

"sil" = siliceous: introduction of moderate to abundant silica - original color and texture preserved.

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



drilling with 418' of drill collars

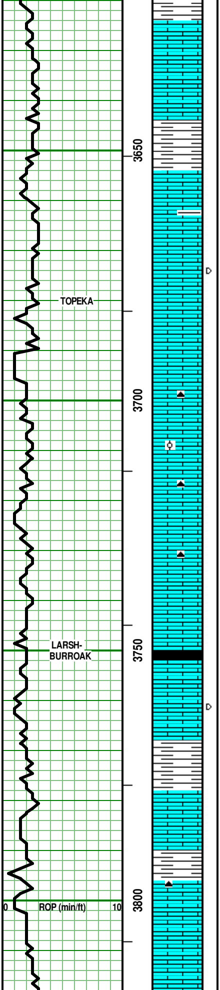
LS: gry & off wht, microxtln, sl cal floodd, loc chalky. no / poor vis por. tr minute amber flecks (no odor, no cut), NSO

LS: gry & off wht, microxtln, cal floodd, loc ool. no vis por. minor minute amber flecks & stns (no odor, no cut), NSO

SH: gry, argil, silty, cal inclusions, stringers of SLTST (pale grn, calc, poor por, NS)

SH: gry & maroon, argil, silty, earthy hematite, stringers of LS (gry, microxtln, pelletal), NVP NS

displace @ 3,367



LS: lt gry, microxtln, fossl, pelletal, chalky partings. v poor vis por. rare minute amber flecks (no odor, NSO

LS: gry to dk gry, microxtln, shaly, silty, fossl, loc chalky. v poor vis por. NS

SH: lt gry, v silty, v calc, minor mica, tr blk plant fragments.

vis 54 wt 8.9

LS: wht, microxtln, variably chalky, loc wkly cal floodd, relict forams, tr cal overgrths. no / poor vis por. NS

LS: gry to dk gry, microxtln, loc cal floodd, loc v silty & shaly. v poor por. rare minute amber flecks (no odor), NSO

LS: gry > tan, microxtln, wkly cal floodd, minor relict fossls, wk cal crusts. no vis por. tr minute amber & blk stns (no odor, no cut), NSO

LS: off wht to pale gry, microxtln, variably chalky, loc wkly rextlzd, relict forams. no / poor vis por. NS

LS: gry & off wht, loc rextlzd, loc cal floodd, variably chalky, loc relict fossls. poor vis por. tr minute brn stns (no odor, no cut), NSO

LS: off wht, micro-vfgr xtln, loc rextlzd, variably chalky, loc silcfd to cht (lt gry, micro- vfgr xtln, loc fossl). no / poor vis por. NS

vis 56 wt 8.8

LS: gry & off wht, micro-vfgr xtln, silty, loc microxtln py, loc fossl. no vis por (tr ooc). tr brn stns (no odor, no cut), NSO

LS: lt gry & lt brn, microxtln, variably chalky, tr cht (wht, cryptxtln). v poor por. tr brn stns (no odor), NSO

LS: off wht, lt brn & brn, microxtln, cal floodd, loc rextlzd & chalky, tr gry cht (microxtln, relict fossls). no / poor vis por. NS

LS: off wht & lt brn to brn, microxtln, cal floodd, loc chalky, loc relict fossls. no / poor vis por. tr brn stns (no odor), NSO

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

LS: off wht, micro-vfgr xtln, wkly rextlzd, variably chalky, relict forams. poor vis por. minor brn stns (no odor, no cut, ?hematite?), NSO

SH: grn, red-brn & gry, silty, argil, earthy & specular hematite, loc sandy (poor por, NS)

LS: lt to dk gry, microxtln, abt forams, loc sl chalky, pelletal, loc sl cal floodd. no / poor vis por. NS

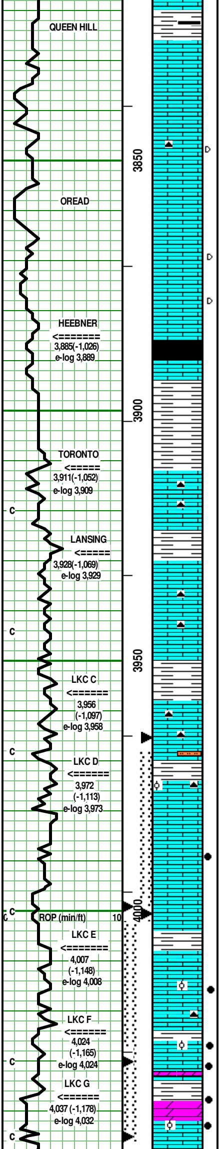
LS: off wht, microxtln, sl rextlzd, chalky (loc mushy), forams. very poor vis por. NS

vis 53 wt 8.9 lcm 0.5#

SH: gry, argil, silty.

LS: pale to lt gry, microxtln, cal floodd, loc rextlzd & chalky, loc cht (wht, cryptxtln). no / poor vis por. rare brn stns (no odor), NS

LS: lt gry to gry, micro-vfgr xtln, cal floodd, loc rextlzd & chalky, loc cht (wht, cryptxtln). no / poor vis por. some brn stns (no odor), NSO



SH: lt to dk gry, red-brn & lt maroon, argil, loc v silty & micac, earthy & specular hematite, tr py, blk & carb @ base.

LS: gry to brn, microxtln, cal floodd, loc chalky, relict fossls. no vis por. NS

LS: wht to off wht, loc rextlzd, variably chalky. poor vis por. NS

LS: off wht, cal floodd, loc chalky, abt forams, loc cht (pale gry, cryptxtln). no / poor vis por. brn stns (no odor, no cut), NSO

LS: wht to tan, micro-vfgr xtln, rextlzd, chalky (loc mushy), stringer(s) of SH (grn & red-brn, argil, earthy hematite, silty). no / poor vis por. NS

LS: lt gry to off wht, microxtln, rextlzd, v chalky. v poor vis por. abt brn & blk stns & flakes (no odor, no cut), NSFO on brk.

LS: off wht to lt brn, micro-vfgr xtln, rextlzd, v chalky, loc smears of blk carb sh (shale diapir). poor por. abt brn stns (no odor), NSO

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

LS: brn, microxtln, cal floodd, wk cal crusts, loc silty, fusulinids, loc hmt (some cubes). no vis por. minor brn stns (no odor, no cut), NSO

SH: grn, gry & red-brn, argil (loc mushy), loc silty / sdy, earthy hematite.

LS: wht, microxtln, cal floodd, loc chalky, loc abt relict forams (?ool?), loc cht (wht to pale gry, cryptxtln, forams & spicules). no / poor vis por. no odor, NS

LS: lt brn, microxtln, cal floodd, wk cal crusts, forams & phylloid algae, loc cht (lt brn, cryptxtln, fossl). no vis por. no odor, NS

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

LS: brn, microxtln, cal floodd + rextlzd, sl chalky, fossl, cal crusts. no vis por. tr brn stns (no odor, no cut), NS

LS: crm, tan & brn, microxtln, cal floodd, relict forams & crinoids, loc abt vfgr - mgr py, tr druzy cal, abt cht (wht, lt gry & brn, cryptxtln, fusulinids). no vis por. no odor, NS

SH: gry to dk gry, grn & red-brn, argil, micac, earthy hematite, tr py, rock granules.

LS: crm, microxtln, cal floodd, loc rextlzd (vfgr), loc chalky, relict forams, minor cal crusts & overgrths, loc sil / cht (tan & off wht, cryptxtln, fossl), coatings of dk brn microxtln hmt (no cut), tr py. no / poor vis por. no odor, NS

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

LS: crm, microxtln, variably cal floodd, loc ool, tr vfgr py, loc cht (wht, cryptxtln, vfgr py). no vis por. no odor, NS

LS: wht, microxtln, v chalky, bivalve casts. poor vis por. no odor, NS

● LS: crm, microxtln, hvyly cal floodd, fgr druzy cal, minor relict fossls, tr py. fair-good intxtln por in druzy cal only. v wk SO in druzy cal (dk brn, no / v wk odor, fair flash cut, 18 show pcs, wk to good patchy lt brn dry stn, no show energy).

LS: wht, microxtln, v chalky, bivalve casts. poor vis por. NS

SH: grn & red-brn, argil, earthy hematite, py, rock granules, minor crinoids.

● LS: brn, lt gry & crm, microxtln, cal floodd, dns, cal crusts, druzy cal, loc ool, minor fossls, tr py, cht @ base (pale gry, cryptxtln). no matrix por, wk-fair por in secondary cal. wk SO (dk brn, tiny drplts, fair-good odor, wk-fair cut, 16 show pcs, patchy brn dry stn, no show energy)

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

● LS: crm, micro-vfgr xtln, rextlzd, chalky, loc ool, microxtln druzy cal, cal crusts. wk-fair intool por & intxtln por in secondary cal. fair SO (dk brn, fair - good odor, 15 show pcs, patchy to satd brn-dk brn dry stn, v wk show energy)

● 9 show pcs below test intv. first appearence of dolomite as below.

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

● DOL: tan, vfgr xtln, rextlzd, sucr. poor por. 1 show pc (SSO w/ patchy dry stn)

● LS: tan > brn, microxtln, hvyly cal floodd (dns), abt vfgr-mgr druzy cal & cal crusts, ool, abt chalk partings (mushy), rare py. no matrix por, wk-fair ooc & intxtln por in secondary cal. wk-fair SO (dk brn, wk-fair odor, wk-good cut, 11 show pcs, dk brn patchy to satd dry stn, no show energy)

vis 58 wt 8.9 lcm 1#

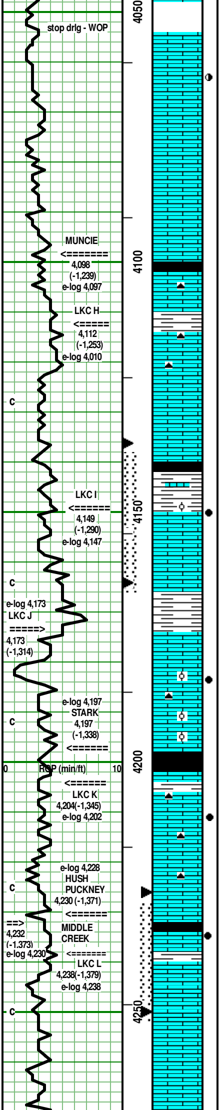
DST #1
3,965 - 4,000
REC 141' OCM
SIP 1,034 - 1,022#
details above

strap pipe @ 4,000
board 4,028.67
strap 4,028.38
board long 0.29

vis 60+ wt 9.3 lcm 2# after DST #1

DST #2
3,999 - 4,030
REC 8' CO & 126' OCM
SIP 1,001 - 990#
details above

DST #3
4,030 - 4,045
REC 20' OWCM & 882' MCW
SIP 1,044 - 1,022#
details above



4,045 - 53: first sample (before bottoms up) shows crm ls (cal floodd + chalky) w/ 2 - 3 show pcs & wk odor, presumed to be from the DST #3 intv.

LS: crm, microxtln, cal floodd, minor-moderate vfgr druzy cal, loc chalky. no / poor vis por. NS

LS: crm & pale gry, microxtln, cal floodd, abt chalk partings, minor cal overgrths, minor microxtln hmt / py. no / poor vis por. tr blk & dk brn stns & flakes (1 pc gave wk cut: ?caving?)(no odor), NSO

LS: pale gry, microxtln, cal floodd, minor druzy cal & cal crusts. no vis por. NS

LS: wht to off wht, microxtln, sl rextlzd, chalky. no / poor vis por. NS

LS: pale gry to gry, microxtln, cal floodd, minor druzy cal & cal crusts, loc wht & chalky, minor specular hematite. no / poor por. tr brn stns (no odor, no cut - ?hematite?), NSO

LS: gry, microxtln, cal floodd, cal crusts, loc wht & chalky. no / poor vis por. NS

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

LS: brn, microxtln, hvyly cal floodd, cal crusts, loc cht (dk brn, crypt - microxtln, forams & spicules), minor blk smears of hmt (no cut), tr py, 1 pc w/ sphalerite. no vis por. no odor, NS

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

LS: crm & pale gry, microxtln, cal floodd, loc sl rextlzd & chalky, cal crusts, tr druzy cal, tr brn hmt, tr py, loc cht (wht, crypt-micro xtln, tr relict fossls). no / poor vis por. no odor, NS

LS: off wht to wht, microxtln, chalky, sl rextlzd, bivalve casts. poor vis por. no odor, NS

LS: gry, off wht & wht, microxtln, cal floodd + sl rextlzd, chalky partings, relict fossls. no / poor vis por. NS

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

SH: grn, gry, maroon & red-brn, argil, micac, earthy & specular hematite, py, blk & carb @ top of unit, rock granules, stringer of brn, cal floodd, pyr LS (NVP, NS)

LS: crm to tan, variably cal floodd, mgr ool @ top, vfgr druzy cal, cal crusts. poor intool & intxtln por. wk-fair SO (dk brn, fair-good odor, dk brn patchy dry stn, 17 show pcs, v low show energy)

LS: peach to lt brn, microxtln, loc rextlzd, cal floodd, relict fossls. no vis por. no odor, NS

SH: gry & dk grn > maroon, argil, silty, minor py, blk hematite vnlts, rock granules.

LS: brn, gry & tan, microxtln, mod to hvyly cal floodd, cal crusts, chalk partings, minor blk hematite smears. no vis por. NS

LS: lt gry & crm, microxtln, cal floodd, ool, druzy cal in casts, loc v chalky. wk to fair ooc por. v wk SO (dk brn, wk-fair fleeting odor, wk cut, 9 show pcs, patchy dk brn dry stn, few drplts FO in tray)

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

LS: gry, cal floodd a/a after cfs: spl had wk odor (prob ooc cavings), but NS

SH: blk, carb, micac, pyr, wht cal inclusions, fragments of concentric algae.

LS: dk brn, microxtln, hvyly cal floodd, abt cal crusts. no vis por. wk odor (prob ooc cavings), NS

LS: crm, microxtln, cal floodd + rextlzd & chalky, druzy cal, cal crusts, loc silcfd to cht (pale blue & wht, cryptxtln, fossl). wk intxtln por in secondary cal only. wk SO (brn, wk odor, wk-fair cut, 6 show pcs, tr FO drplts, patchy to satd brn dry stn)

LS: crm to wht, rextlzd, v chalky, bivalve casts, loc silcfd to cht (wht, gry & pale blue, crypt - microxtln, fossl). poor vis por. NS

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

LS: brn & gry, microxtln, hvyly cal floodd, cal crusts, druzy cal, spines. wk intxtln por in secondary cal. wk SO (brn, wk-fair odor, fair cut, 3 show pcs, satd brn stn).

LS: gry, crypt-microxtln, cal floodd, fgr-mgr druzy cal, cal crusts, loc chalky, blk hematite coatings, loc relict fossls. no vis por. no odor, NS

LS: off wht & pale gry, microxtln, chalky, loc wkly cal floodd. no / poor vis por. tr brn stns (no odor, no dry stn; prob hmt), NSO

LS: crm, off wht & lt gry, microxtln, chalky (loc mushy), sl rextlzd, loc cal floodd, minor cal overgrths, minor hmt stns, loc relict fossl. poor vis por. no odor, NS

pump clutch fails @ 4,053: WOP for ~3.5 hours.

vis 50 wt 9.2 lcm 1#

DST #4
4,136 - 4,164
REC 20' MCW w/ oil spots, 189' MCW, 126' WCM
SIP 861 - 843#
details above

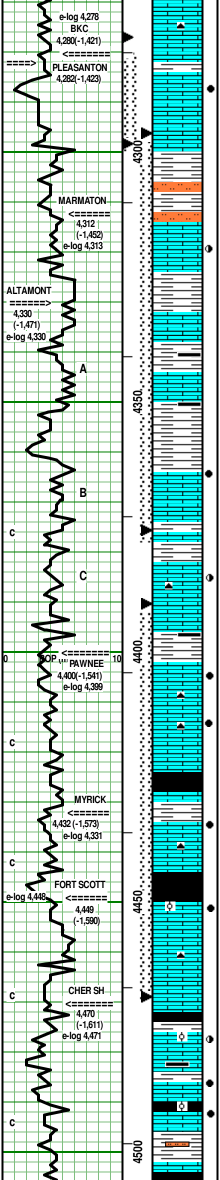
vis 52 wt 9.1 before DST #4

vis 54 wt 9.2 lcm 2# after DST #4

vis 60 wt 9.2 lcm 1#

vis 56 wt 9.2 lcm 1#
DST #5
4,226 - 4,250
REC 136' CO, 378' GMCO, 630' OMCW

SIP 661 - 662#
details above
vis 54 wt 9.2 lcm 1#



LS: lt gry, lt brn & off wht, microxtln, rextlzd + cal floodd, loc chalky, minor cal crusts, tr pelletal, rare py, loc cht (brn & gry, cryptxtln, microxtln hmt). no / poor vis por. no odor, NS

SH: dk grn to gry, argil, tr py.

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

● LS: crm, micro-vfgr xtln, rextlzd + cal floodd, abt micro-fgr xtln secondary cal (crusts, druzy & massive), relict forams. wk-fair vug, ppt & intfossl por. wk SO (tiny brn drplts, wk-fair odor, wk-fair cut, minor gas bbls, brn patchy dry stn, 32 show pcs). show horizon is in drill break.

LS: lt gry, tan & lt brn, microxtln, cal floodd, cal crusts, loc relict fossls. no vis por. 1 pc questionable wk SO (?caving?), no odor.

SH: grn, gry & red-brn, argil, silty, loc micac, earthy & specular hematite, micro-vfgr py, rndd rock granules, lepidodendron, blk plant fragments.

stringers of SLTST: lt grn, silt-vfgr gran, friable, v calc, argil, rndd & angl rock granules. poor por. NS

◐ LS: lt brn to tan, microxtln, sl rextlzd, loc cal floodd, abt relict forams & fossls (?ool?), minor cal crusts, tr-minor massive secondary cal. v poor vis por. minor brn stns (no odor, no cut, 3 pcs w/ brn patchy dry stn), NSFO

SH: gry, argil, silty, sl micac.

LS: crm to pale gry, microxtln, cal floodd, chalk partings, abt relict fossls (incl bryozoans), minor cal crusts, tr glauc. no / poor vis por. no odor, NS

SH: gry, grn & maroon, argil, loc micac, earthy & specular hmt, loc blk & carb.

LS: gry & maroon, microxtln, cal floodd, cal crusts, loc abt forams / fossls, abt glauc, yel limonite stn, hmt coatings & xtals. poor por. tr minute brn flecks (no odor, no cut), NSO

SH: gry, grn & maroon, argil, silty, specular hmt, loc blk & carb.

SH: grn, argil, rock granules & pebbles.

● LS: lt brn, microxtln, cal floodd, abt druzy cal & cal crusts, ?autobrecciated? relict fossls. wk-fair vug & intxtln por in cal crusts. wk-fair SO (brn, minute drplts, wk fleeting odor, 29 show pcs, brn patchy dry stn, no show energy).

LS: maroon, microxtln, variably cal floodd, abt stns, coatings & psuedomorphs of earthy hematite. poor vis por. no odor, NS

SH: red-brn & maroon, abt earthy hematite.

SH: gry & red-brn, argil, sl silty, earthy hmt, plant fragments, rock granules.

◐ LS: tan to lt brn, microxtln, cal floodd, minor microxtln druzy cal & cal crusts, minor cht (orange, brn & wht, microxtln). no vis por. 5 pcs w/ v wk patchy brn dry stn (no odor, no cut), NSFO

SH: gry, grn, red-brn & maroon, v argil, silty, earthy hmt, rock granules, tr yel limonite stn, tr blk & carb.

● LS: off wht, microxtln, cal floodd, chalk partings, microxtln druzy cal, relict fossls, loc cht (wht, cryptxtln), tr py & hmt. no / poor vis por (wk por in druzy cal). wk SO (minute brn flecks & blk ?gils?, fnt odor, wk-fair cut, 5 show pcs, wk patchy lt brn dry stn, no energy)

● LS: brn, microxtln, cal floodd, abt cht (brn, cryptxtln), vfgr druzy cal, cal crusts, minor py. no matrix por, prob fracture por (druzy cal), rare vug por. wk-fair SO in druzy cal (tiny brn drplts, fnt odor, 3 show pcs, patchy brn dry stn, no energy)

SH: blk, carb, sl micac, wht cal inclusions, tr cgr py, durable.

LS: gry-brn, microxtln, hvyly cal floodd, cal crusts, cht (brn & blk, cryptxtln). no vis por. NS

SH: gry & grn, argil, sl silty, py.

● LS: crm to pale gry, microxtln, cal floodd, chalky, loc vfgr druzy cal, sl marly, py & hmt, fusulinids, minor cht (lt gry, cryptxtln, spicules). wk-fair intxtln & vug por in druzy cal only. wk SO (minute brn drplts, wk to fair odor, wk cut, 17 show pcs, wk lt brn dry stn, rare gas bbls)

SH: blk, carb, micac, wht cal inclusions, sl pyr, loc finely bdd.

● LS: crm & gry-brn, microxtln, cal floodd, fgr-mgr ool in microxtln cal matrix. minor poor intool por. v wk SO (minute brn stns, wk cut, tr gas bbls, v wk lt brn patchy dry stn, 5 show pcs)

LS: dk brn-gry, microxtln, variably cal floodd, cal crusts, loc chalky, somewhat marly, relict fossls, tr py, minor cht (brn, cryptxtln, xlscnt). no vis por. NS

LS: off wht & gry, microxtln, sl rextlzd, loc chalky, loc lt brn & cal floodd. v poor vis por. NS

SH: blk, carb, micac, wht cal inclusions + lime grn & maroon, argil w/ yel limonite stn.

◐ LS: gry, mgr-cgr ool in microxtln cal matrix (loc chalky). v wk intool por. 3 pcs give wk lt brn dry stn (no odor, no cut, NSFO)

● LS: gry, microxtln, variably cal floodd, minor druzy cal, loc chalky, minor relict fossls. no matrix por, minor vug por w/ druzy cal. wk SO (minute brn drplts, wk odor, wk cut, 4 show pcs, wk lt brn patchy dry stn)

● LS: gry-brn, mgr ool in microxtln cal matrix, loc microxtln druzy cal, minor py. wk intxtln por in matr. wk-fair SO (tiny brn drplts, no odor, wk lt brn patchy dry stn, 7 show pcs)

SH: gry, grn, red-brn & maroon, v argil (loc mushy), silty (loc occuring as grn SLTST: argil, glauc, v poor por, NS), micac, earthy hematite, pyr, plant fragments, loc blk & carbonaceous.

DST #6
4,277 - 4,298
REC 199' SOCM, 126' DM w/ oil spots
SIP 685 - 704#
details above

vis 52 wt 9.2 lcm 1#

brassy ingredients in pipe dope adhere to show pcs.

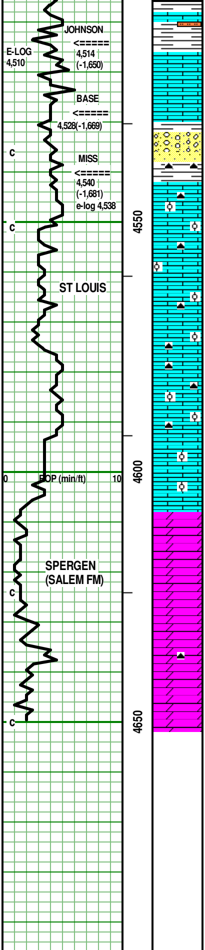
vis 54 wt 9.3 lcm 2#

DST #7
4,296 - 4.376
REC 976' MW w/ oil spots
SIP 424 - 427#
details above

vis 50 wt 9.2 lcm 2#

DST #8
4,390 - 4,469
REC 63' GOCM
SIP 172 - 312#
details above

vis 48 wt 9.2 lcm 1#



intbdd LS: gry, brn & off wht, microxtln, cal floodd, chalky, minor relict fossls. no / poor vis por. no odor, NS

LS: gry, brn & off wht, microxtln, cal floodd, cal crusts, micro-fgr xtln druzy cal, minor py/hmt, tr fusulinids. no / poor matrix por, wk vug por. wk SO (minute brn drplts, fnt odor, wk cut, 16 show pcs, wk lt brn to brn patchy dry stn, blk tarry gilsonite)

vis 53 wt 9.2 lcm 1#

SH: gry, grn & brn, argil, silty, py, rock granules.

CONG: wht, vfgr-mgr rndd qtz & rock grns w/ 25% mgr-cgr rndd-angl blk rock grns (?shale?), cal cmt, competent, cht granules & pebbles (limonite stn). poor por. NS underlain by SS: pale grn & wht, vfgr rndd, sl friable. poor por. NS

NOTE REVERSE GRADING.

grn, gry & red-brn SH with wht, crm, clr & tan CHT: weathered Mississippian.

LS: lt brn to gry-brn, crypt-micro xtln, cal floodd, loc relict ool & chalky, tr glauc, loc silcfd to cht (smoky brn, cryptxtln, xlscnt). no / poor vis por. NS

LS: tan & brn, micro-vfgr xtln, chalky, sl rextlzd, relict ool, sanded, tr glauc, loc silcfd to cht (wht, blue & clr, crypt-micro xtln, pyr). v poor vis por. NS

LS: crm to tan, microxtln, chalky, vfgr-fgr sanded, relict ool, tr glauc, loc cht (wht, micro-vfgr xtln, fossl). poor vis por. NS

vis 50 wt 9.3 lcm 1#

LS: crm, microxtln, chalky, relict ool, vfgr sanded, loc cht (wht & gry, vfgr xtln, fossl). poor vis por. NS

LS: crm & gry, crypt-micro xtln, cal floodd, loc cht (wht & smoky gry, cryptxtln). no vis por. NS

LS: crm to tan, microxtln, cal floodd, fgr ool, loc sil, loc silcfd to cht (wht, micro-vfgr xtln: abundant). no vis por. NS

LS: tan to brn, microxtln, cal floodd, fgr-mgr ool, wkly developed cal crusts. no vis por. NS

DOL: tan to brn, micro-vfgr xtln, sucr, vfgr-fgr rhombs. fair to good intxtln & vug por. no odor, NS

DOL: tan to brn, micro-vfgr xtln, sucr, tr microxtln py. fair-good intxtln & vug por. no odor, NS

DOL: brn (mottled gry), micro-vfgr xtln, relict fossls (incl gastropods) & oolites. good intxtln & vug por. NS

DOL: gry-brn (mottled gry), microxtln, sucr, loc calc, relict ool, minor mgr-cgr clr druzy dol, loc silicified to cht (gry, microxtln). poor por. NS

DOL: brn, microxtln, sucr, dk gry forams (?oolites? - no grain contact), chalk partings. fair to good por. NS

RTD 4,650
LTD 4,650

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