

Adam Eldani Geo-Log/Report

WellSight Systems

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

Measured Depth Log

Well Name: #1 NAU-CRUSTBUSTER

Location: Sec. 4- Township 26S- Range 22W FORD COUNTY, KANSAS

License Number: API 15-057-20891

Region: Kansas (Western, Ks)

Spud Date: 05/16/2013

Drilling Completed: 05/31/2013

Surface Coordinates: 113' FSL 1260' FEL

Bottom Hole Deviation Surveys are detailed through out the Geo-Report.

Coordinates:

Ground Elevation (ft): 2391'

K.B. Elevation (ft): 2403'

Logged Interval (ft): 3400' To: 5000'

Total Depth (ft): 5000'

Formation: Mississippian

Type of Drilling Fluid: Mud-Co Chemical

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: Ritchie Exploration Inc. (drilled by SOUTHWIND RIG# 70)

Address: 8100 E. 22nd ST. N. #700

Wichita, KS, 67278-3188

GEOLOGIST

Name: Adam M.A. Eldani

Company: Ritchie Exploration Inc.

Address: 8100 E. 22nd ST. N. #700

Wichita, KS, 67278-3188

Sample & Log Tops/ Daily Drilling Report

TOPS:

E-LOG:

Anhydrite: 1463'+940
B/Anhydrite: 1494'+909
Stotler: 3477'-1074
Heebner: 4099'-1696
Lansing: 4211'-1808
Muncie Sh: 4388'-1985
Stark Sh: 4494'-2091
Hush: 4550'-2147
BKC: 4590'-2187
Marmaton: 4594'-2191
Altamont: 4645'-2242
Pawnee: 4715'-2312
Fort Scott: 4745'-2342
Cherokee Sh: 4767'-2364
Huck: 4831'-2428
Atoka: 4849'-2446
Mississippian: 4867'-2464

SAMPLE TOPS:

Anhydrite: 1464'+939
B/Anhydrite: 1492'+911
Stotler: 3476'-1073
Heebner 4097'-1694
Lansing: 4210'-1807
Muncie Sh: 4382'-1979
Stark Sh: 4491'-2088
Hush: 4548'-2145
BKC: 4582'-2179
Marmaton: 4589'-2186
Altamont: 4637'-2234
Pawnee: 4712'-2309
Fort Scott: 4744'-2341
Cherokee Sh: 4763'-2360
Huck: 4828'-2425
Atoka: 4844'-2441
Mississippian: 4871'-2468

DST'S:

DST #1: 4616' - 4682' (Altamont A & B) Recovered 5'mud.

IFP: 17-20#/30" ISIP: 34#/30"

FFP: 20-20#/30" FSIP: 27#/30"

DST #2: 4653' - 4740' (Altamont C & Pawnee) Recovered 10'mud.

IFP: 50-53#/30" ISIP: 974#/30"

FFP: 55-59#/30" FSIP: 854#/30"

DST 3: 4764' - 4850' (Cherokee & Huck) Recovered 110' gas in pipe and 20' oil cut mud (16% oil, 84% mud).

IFP: 51-51#/30" ISIP: 245#/45"

FFP: 48-54#/45" FSIP: 455#/100"

Rig repairs extended FSIP time.

DAILY DRILLING REPORT:

5/16 spud

5/17 351'

5/18 1042'

5/19 1900'

5/20 2870'

5/21 TWIST OFF @ 3391'

5/22 3391'

5/23 3391'

5/24 3550'

5/25 4125'

5/26 4408'

5/27 4682'

5/28 4738'

5/29 4835'

5/30 4860'

5/31 5000'

Misc. Field Info.

All DST's info. are NEAR the correct log depth.

RIG: SOUTHWIND DRILLING RIG#70

DRILLPIPE: 4-1/2" XH

TOOLPUSHER: SAM STAGGS

MUD: MUDCO (JUSTIN WHITING)

GAS DETECTOR: NONE

DRILL STEM TESTS: TRILOBITE TESTING

LOGS: NABORS

Comments

SURFACE Casing: 8 5/8" @ 351'

Moved in and rigged up. Spud at 4:15 p.m. Ran 8 jts used 23# 8-5/8" surface casing. Tally at 338.33', set at 351.33'. Cemented with 225 sacks common, 2% gel, 3% cc. Cement circulated. Plug down at 12:45 a.m. on 5/17/13.

Well Log Surveys BY NABORS: Compensated Density/ Neutron Log, & Dual Induction.

STRUCTURALLY: This Well ran Lower & Higher to Offset.

After the evaluation of electrical logs, and drill stem test results; Ritchie Exploration, Inc. elected to Plug & Abandon
#1 NAU-CRUSTBUSTER.

RTD 5000' Ran Electric Log. LTD 5000'.


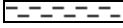

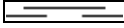




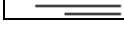
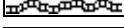


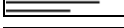
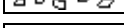

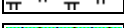





Plug and Abandon. 1st plug set at 1500' with 50 sacks of 60/40 Poz, 4% gel, 1/4# flo-seal; 2nd plug set at 840' with 80 sacks; 3rd plug set at 390' with 50 sacks; 4th plug set at 60' with 20 sacks; 30 sacks in rat hole. 200 total sacks. Job complete at 7:00 p.m. Plugging orders by Eric MacLaren with the KCC.

Samples will be deposited with KANSAS GEOLOGICAL SURVEY.

RESPECTFULLY SUBMITTED;

Adam M. A. Eldani
Petroleum Geologist.

ROCK TYPES

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

ACCESSORIES

MINERAL

- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Breclfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau

- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Sil
- Sulphur
- Tuff

FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite

- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom

STRINGER

- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst

- Sltstrg
- Ssstrg

TEXTURE

- Boundst
- Chalky
- Cryxln
- Earthy
- Finexln
- Grainst
- Lithogr
- Microxln
- Mudst
- Packst
- Wackest

OTHER SYMBOLS

POROSITY

- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic
- Pinpoint

- Vuggy

SORTING

- Well
- Moderate
- Poor

ROUNDING

- Rounded
- Subrnd
- Subang
- Angular

OIL SHOW

- Even

- Spotted
- Ques
- Dead

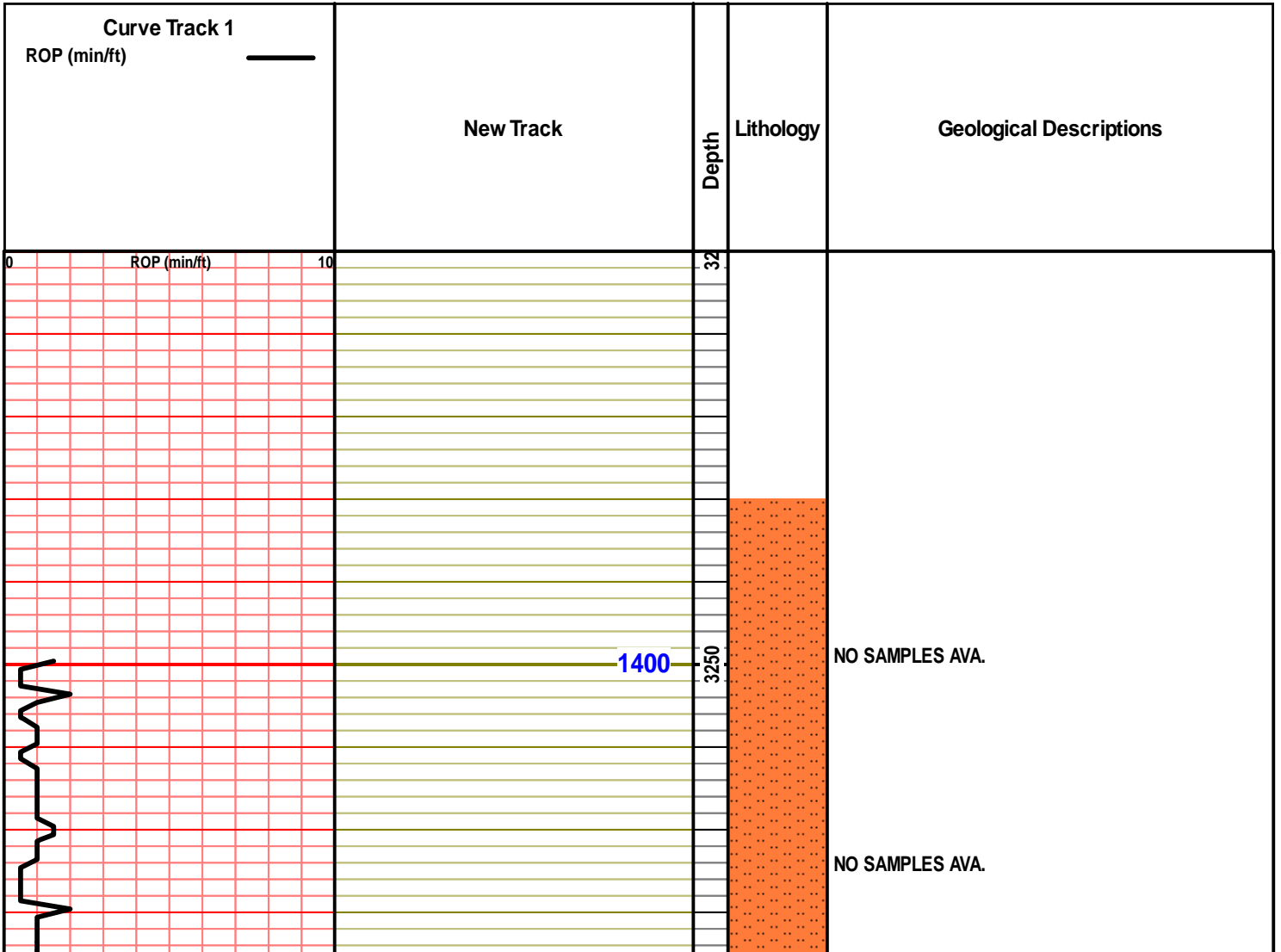
INTERVAL

- Core
- Dst
- Dst

- Dst_alt

EVENT

- Rft
- Sidewall



1450

3300

e-log anhy-b/anhy tops:
1464+939
1492+911

←=====
TOP OF
ANHYDRITE
(1463 +940)

←=====
BASE OF
ANHYDRITE
(1494 +909)

1500

3350

NO SAMPLES AVA.

3391' A Twist Off Occurred...
Three Days to Fish Collars
Out.

0 ROP (min/ft) 10

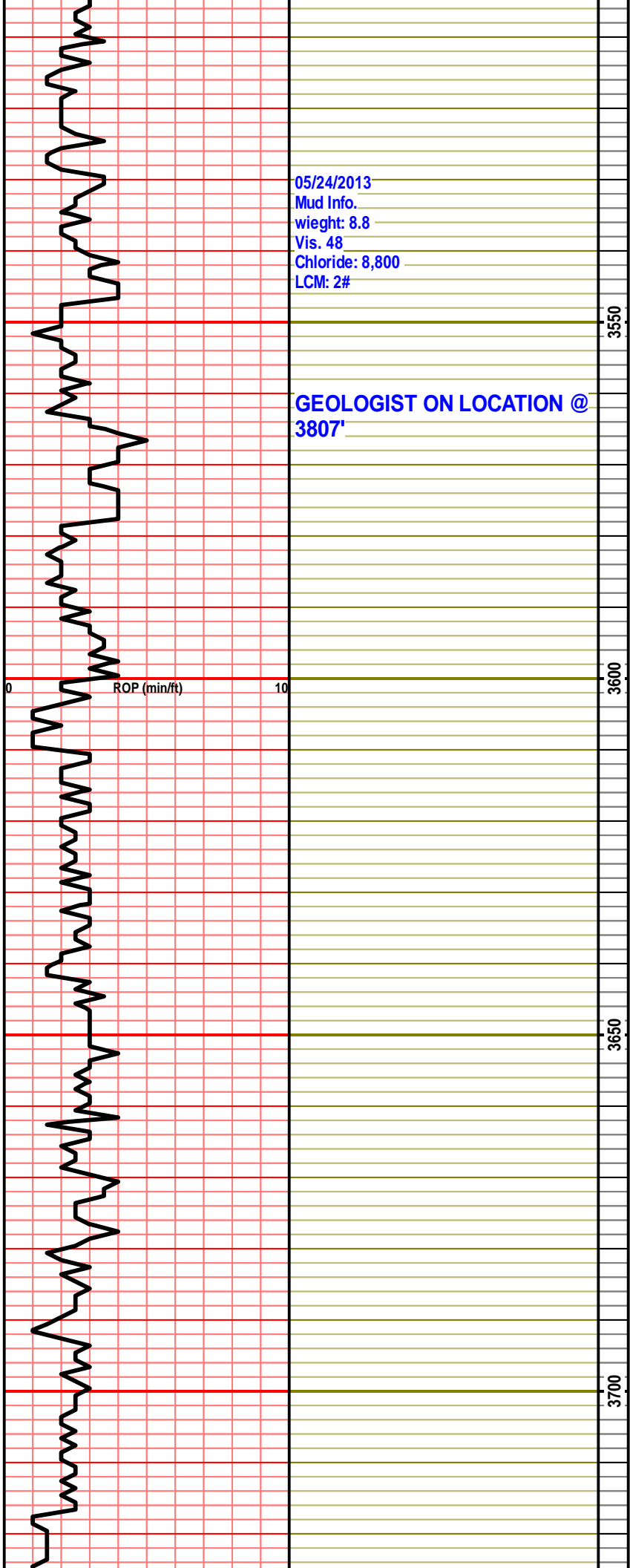
3400

3450

←=====
Stotler
3477'-1074

MUD DISPLACMENT 3491'

3500



05/24/2013
Mud Info.
weight: 8.8
Vis. 48
Chloride: 8,800
LCM: 2#

GEOLOGIST ON LOCATION @
3807'

ROP (min/ft)

0

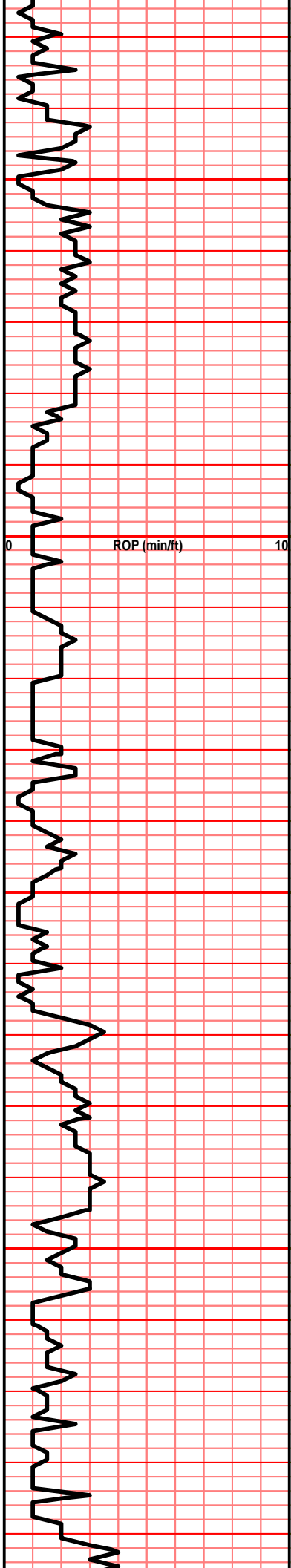
10

3550

3600

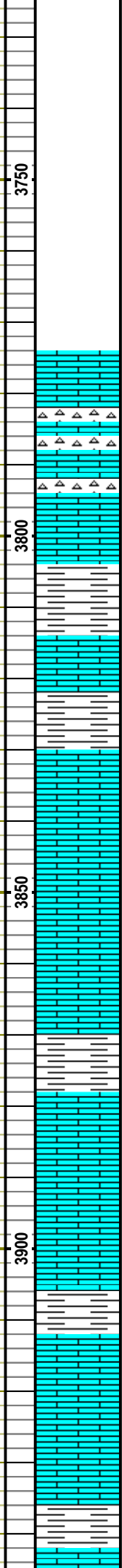
3650

3700



PUMP PRESSURE:
950+

PUMP PRESSURE:
950+



3800: crm micrtic lm, micro por, gry inxln lm, no vids por no odr, ns, lots of chlk, no odr, ns.

3810: msrlt drty crm chlky lm, gry-translucnt chrt, few sltn stn clusters, no odr, ns.

3820: aa, incrs in chrt, gry micrtic lm/ prtly xln, no odr, ns.

3830: mstly chlky lm, tan highly foss lm, cemnt flooded, no odr, ns.

3840: incrs in gry and crm chrt, crm fn xln lm, no vis por, no odr, ns.

3850: incrs in gry sh, lotrs of micrtic/chlky lm, crm xln lm, v. dense, no ovis por, no odr, ns.

3860: incrs in chrt, crm pack stn lm, lots of crm xln lm, sli foss, no vis por, no odr, ns.

3870: aa, incrs in chlky-chlky lm, no omdr, ns.

3880: crm xln lm, sli foss, poor-no por, lots of gry-brwn chrt, no odr, ns.

3890: mstly crm chlky/micrtic lm, few wht chlk cluster, gry sh.

3900: grysh xln lm, poor por, ns.

3910: incrs in gry chrt, gry fn-med grn lm, poor por, no odr, ns.

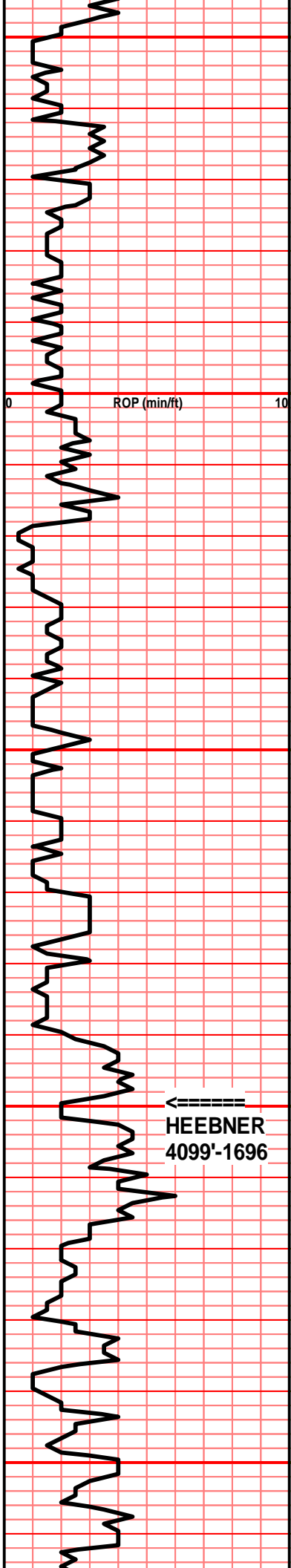
3920: incrs in red & gry sh.

3930: aa, no sig change.

3940: crm-brwn fn xln lm, no vis por, hrd to brk, no odr, ns.

3950: aa, incrs in foss lm, well cemntd, poor-no por, no odr, ns.

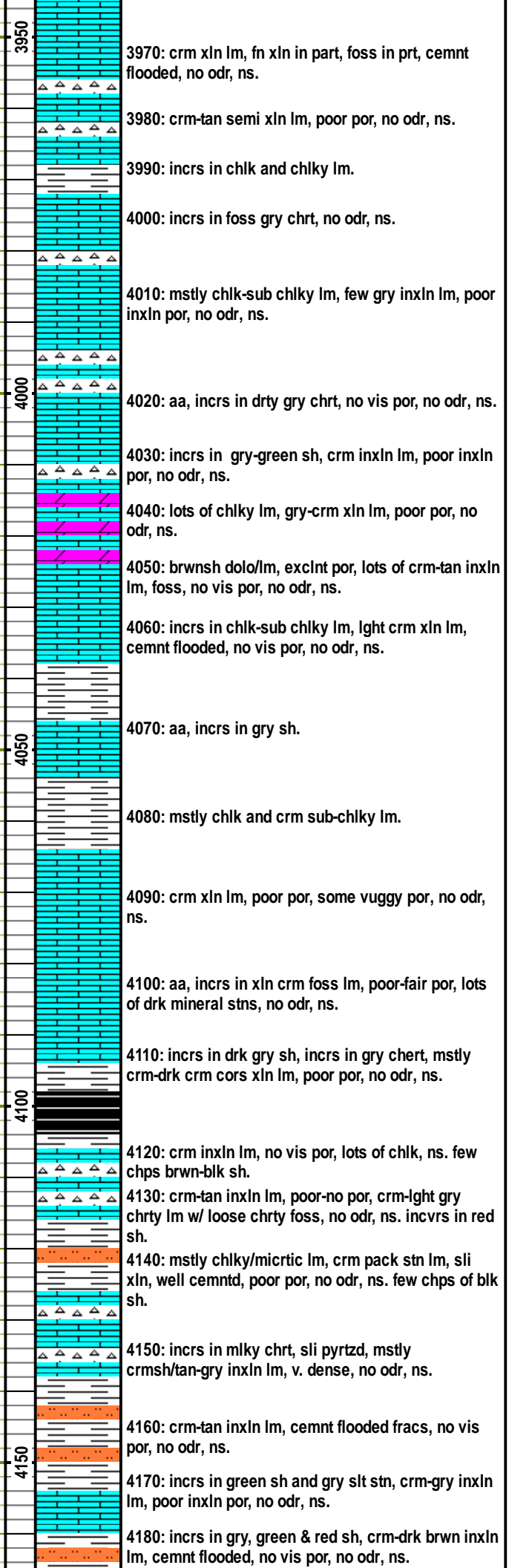
3960: foss brwnsh-grysh lm, poor por, no odr, ns.

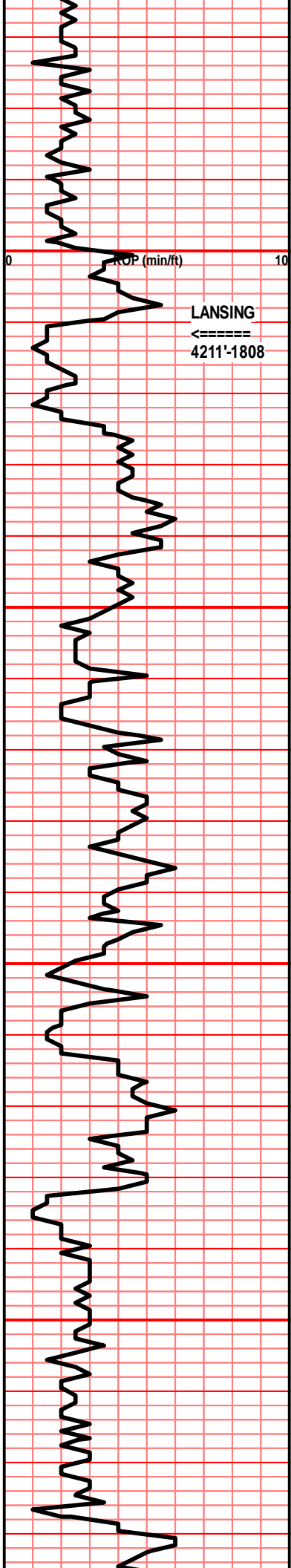


PUMP PRESSURE:
950+

←
HEEBNER
4099'-1696

05/25/2013
Mud Info.
wieght: 9.4
Vis. 60
Chloride: 9,400
LCM: 3#



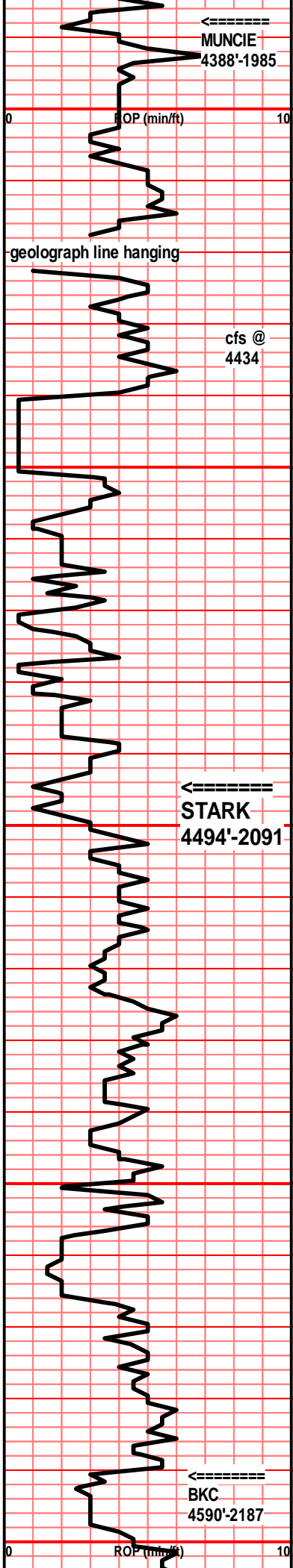


**PUMP PRESSURE:
950+**

**PUMP PRESSURE:
1000+**



- 4190: incrs in gry and maroon sh, incrs in gry slit stn, crm inxln lm, poor inxln por, n o odr, ns.
- 4200: aa, incrs in crm-drk tan xln lm, v. foss, cemnt flooded, no odr, ns.
- 4210: lots of gry sh, shw of dense inxln lm, no vis por, incrs in v. lght gry slit stn, no odr, ns.
- 4220: mstly gry, green, & maroon sh, incrs in lght crm xln lm, foss, cemnt flooded, no odr, ns.
- 4230: aa, incrs in sh aa.
- 4240: mstly gry and green sh, crm-tan xln lm, sli foss, poor-no por, incrs in tan chrt, ns.
- 4250: aa, incrs in tan chrt and chrtly lm, loose foss (crioniods), no odr, ns.
- 4260: greensh/gry-drk gr sh, tan-crm micortict lm, prtly xln, well cemntd, lots of tan chrt, no odr, ns.
- 4270: crm cors xln- inxln lm, poor por, no odr, ns.
- 4280: crm-gry inxln lm, sli foss, poor por, no odr, ns.
- 4290: crm pack stn lm, fair por, mstly gry-lght brwn chrtly lm, sli foss, no vis por, no odr, ns.
- 4300: incrs in drk gry inxln lm, v. dense, no vis por, sli foss, no odr, ns.
- 4310: aa, sig incrs in translucnt chert, incrs in gry chrtly slit stn, no odr, ns.
- 4320: incrs in gry sh, mstly crm xln lm, poor-no por, no odr, ns.
- 4330: incrs in wht chlk, tan-crm pack stn lm, med grn, poor intr prtcl por, no odr, ns.
- 4340: incrs in gry sh, mstly crm fn xln lm, no vis por, no odr, ns.
- 4350: tan inxln lm, cemnt flooded fracs, no vis por, no odr, ns.
- 4360: incrs in gry sh, incrs in chlk, mstly grysh shly lm, no odr, ns.
- 4370: incrs in maroon sh, mstly lght crm xln lm, dense, no vis por, no odr, ns.
- 4380: mstly tan xln lm, poor por, lots of mineral stns, no odr, ns.
- 4390: mstly gry and green sh, brwn inxln lm, v. dense, no odr, ns.



05/26/2013
 Mud Info.
 wieght: 9.3
 Vis. 49
 Chloride: 7,400
 LCM: 2#

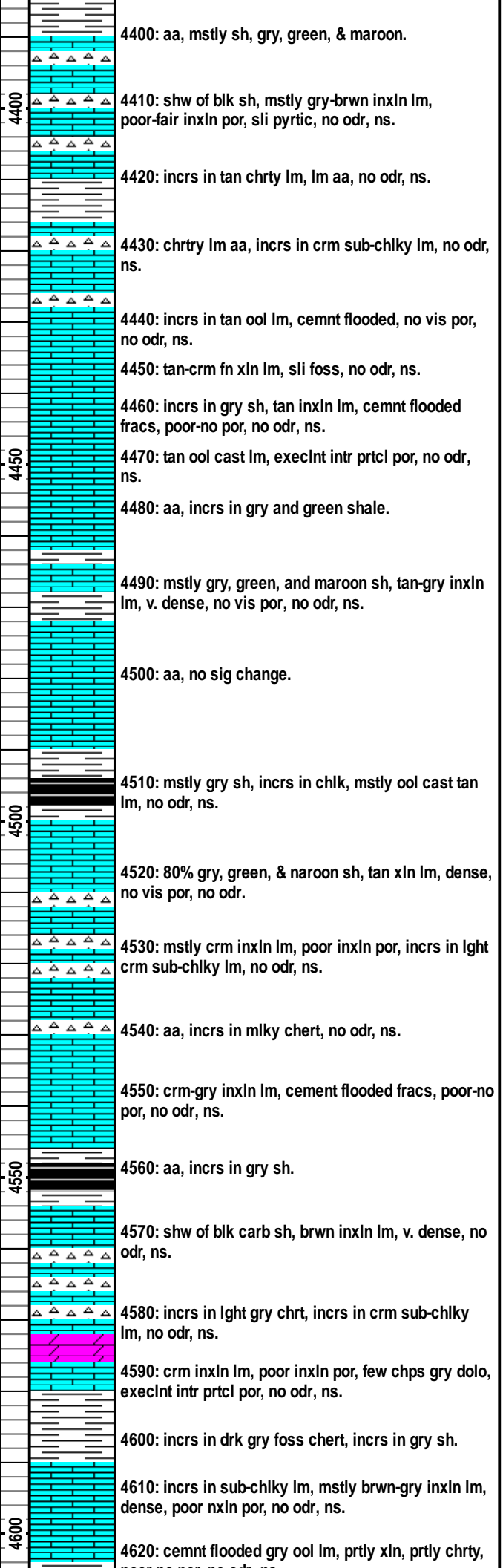
30MIN: mstly tan inxln lm, sli foss, poor-no por, lots of crm sub-chlky lm, lots of tan chert, no odr, ns. 60MIN: incrs in mlky chert, foss, mstly tan inxln lm, poor-no por, no odr, ns.

**PUMP PRESSURE:
 950+**

←-----
STARK
 4494'-2091

**PUMP PRESSURE:
 900+**

←-----
BKC
 4590'-2187



4400: aa, mstly sh, gry, green, & maroon.
 4410: shw of blk sh, mstly gry-brwn inxln lm, poor-fair inxln por, sli pyrtic, no odr, ns.
 4420: incrs in tan chrty lm, lm aa, no odr, ns.
 4430: chrty lm aa, incrs in crm sub-chlky lm, no odr, ns.
 4440: incrs in tan ool lm, cemnt flooded, no vis por, no odr, ns.
 4450: tan-crm fn xln lm, sli foss, no odr, ns.
 4460: incrs in gry sh, tan inxln lm, cemnt flooded fracs, poor-no por, no odr, ns.
 4470: tan ool cast lm, execlnt intr prtcl por, no odr, ns.
 4480: aa, incrs in gry and green shale.
 4490: mstly gry, green, and maroon sh, tan-gry inxln lm, v. dense, no vis por, no odr, ns.
 4500: aa, no sig change.
 4510: mstly gry sh, incrs in chl, mstly ool cast tan lm, no odr, ns.
 4520: 80% gry, green, & naroon sh, tan xln lm, dense, no vis por, no odr.
 4530: mstly crm inxln lm, poor inxln por, incrs in lght crm sub-chlky lm, no odr, ns.
 4540: aa, incrs in mlky chert, no odr, ns.
 4550: crm-gry inxln lm, cement flooded fracs, poor-no por, no odr, ns.
 4560: aa, incrs in gry sh.
 4570: shw of blk carb sh, brwn inxln lm, v. dense, no odr, ns.
 4580: incrs in lght gry chrt, incrs in crm sub-chlky lm, no odr, ns.
 4590: crm inxln lm, poor inxln por, few chps gry dolo, execlnt intr prtcl por, no odr, ns.
 4600: incrs in drk gry foss chert, incrs in gry sh.
 4610: incrs in sub-chlky lm, mstly brwn-gry inxln lm, dense, poor nxln por, no odr, ns.
 4620: cemnt flooded gry ool lm, prtly xln, prtly chrty,

poor-no por, no odr, ns.

05/27/2013
Mud Info.
wieght: 9.35
Vis. 51
Chloride: 3,400
LCM: 1#

4630: incrs in gry sh, mstly drk gry inxln lm, dense, sli foss, no odr, ns.

4640: aa, incrs in crm inxln lm, poor por, one chp w/ execlnt vuggy por w/ a strng drk oil taary stn, clear cut in lighter fuel, no odr, nsfo.

4650: incrs in gry lm, incrs in brwn fn xln lm, no vis por, no odr, ns.

4660: incrs in purp sh, mstly crm-gry inxln lm, no odr, ns.

4670: mstly gry sh, incrs in gry inxln lm, poor-no por, no odr, ns.

4680: mstly crm inxln lm, cemnt flooded fracs, no vis por, no odr, ns.

4690: mstly gry, green, and maroon sh.

4700: crm inxln lm, semi dense, poor-no por, few chps w/ dead oil stns, no odr, ns.

4710: incrs in sub-chlky lm, crm inxln lm, cemnt flooded, no vis por, no odr, ns.

4720: incrs in gry and green sh, mstly crm inxln lm, cemnt flooded, no odr, ns.

4730: aa, brwn inxln lm, cemnt flooded, one chp w. ?able stn, poor cut in light fluid, no odr, ns.

4740: crm-brwn inxln lm, prtly fn xln, cemnt flooded, poor por, light odr, nsfo.

4750: mstly blk, freen and gry sh, drk tan- drk gry inxln lm, prtly cherty, foss, poor-no por, no odr, ns.

4760: mstly crminxln lm, sli dense, poor inxln por, no odr, ns.

4770: aa, incrs in cemnt flooded inxln lm, v. dense.

4780: mstly blk carb sh 85%+.

4790: mstly tan inxln lm, fn xln in prt, cemnt flooded, poor-no por, no odr, ns.

4800: incrs in blk sh, mstly drk crm-tan inxln lm, poor-no por, few crm micrtic lm, fair intr prtcl por, w/ slight shw of free v. lght brown oil, fair odor.

4810: incrs in chlky and sub-chlky lm, mstly tan fn xl n lm, sli foss, few chps w/ shw aa, poor-no odr, ns.

4820: incrs in green sh, incrs in translucnt chert, gry inxln lm. v. dense, w/ drk tary oil stns in fracs, no odr, nsfo.

4830: mstly sh aa, incrs in brwn xln lm, poor-no por, few lght crm fn grn lm w. a v. sfo, poor-no odr.

DST #1 4616-4682
REC: 5' MUD
30-30-30-30
**IFP: 18-20#/ ISIP: 35#/
FFP: 20-21#/ FSIP: 27#**

STRAIT HOLE SURVEY: .5 DEGREE

30MIN: incrs in gry sh, mstly crm inxln lm, cemnt flooded, poor-no por, no odr, ns.
60MIN: mstl crm inxln lm, poor inxln por, incrs in wht chrt, few brwn xln lm, v. dense, no odr, ns.

DST #2 4653-4740
REC: 10' MUD
30-30-30-30
**IFP: 50-53#/ ISIP: 974#/
FFP: 55-59#/ FSIP: 854#**

30MIN: mstly crm-brwn inxln lm, cemnt flooded, poor-no por, light odr, rainbow flim in try, ns. 60MIN: mstly crm- brwn xln lm, poor por, lght odr, slight rainbow flim on try, ns.

30MIN: incrs in gry and blk carb sh, mstly lght brwn-drk tan inxln lm, cemnt flooded, dense, no odr, ns. 60MIN: mstly blk carb sh, crm-drk tan inxln lm, sli foss, cemnt flooded, poor-no por, no odr, ns.

05/28/2013
Mud Info.
wieght: 9.35
Vis. 53
Chloride: 6,600
LCM: 1#

DST #3 4764-4850
30-45-45-100
Time wa extanded on final shut in due to rig repair.
REC: 110' GIP, 20' OCM (16%O)
**IFP: 51-51#/ ISIP: 245#/
FFP: 48-54#/ FSIP: 455#**

30MIN: mstly drk crm- tan ixln lm, poor por, lots of crm-tan prtly xln-prtly pack stn lm, w/ fair-poor intr prtcl-xln por, w/ shw of v. lght brwn oil, fair-strng odr. 60MIN: incrs in blk & gry sh, lm as thirty min sample, no sig change.

ALTAMONT
4645'-2242

PAWNEE
4715'-2312

CHEROKEE
4767'-2364

ROP (min/ft) cfs @ 4803



05/29/2013

Mud Info.

wieght: 9.45

Vis. 50

Chloride: 7,900

LCM: 1#

4840: crm-tan inxln lm, poor-fair inxln por, few chps w/ a slght shw of brown oil, fair-strng odr.

4850: lght crmfn xln lm, w/ mod vuggy por, shw of brown oil, fair-strng odr.

4860: mstly gry, green and black carb sh.

cfs @ 4850

30MIN: crm-tan inxln lm, w/ inxln and pin point vuggy por, lots of shw of free brown oil, strng odr. 60MIN: shows aa, no sig change lithology, incrs in lght gry slt stn, decrse in odr.

4870: incrs in gry, green and maroon sh. incrs in yellow, wht, and clear chrt.

Mississippian
4867-2464

cfs @ 4880

30MIN: lots of gry & sh, few multi color chert, mstly lght crm sycrosc dolo, well cemntd, poor por, no odr, ns. 60MIN: incrs in blk sh, incrs in wht chlk, mstly lght crm sycrosc dolo, well cemntd, poor por, no odr, ns.

4880: mstly clear, wht, orange, green, and yellow chert, no odr, ns.

4890: incrs in wht chlk, mstly lght crm sycrosc dolo, well cemntd, poor por, no odr, ns.

4900: los of gry sh, mstly crm-drk crm sycrosc dolo, poor por, no odr, ns.

4900

4910: aa, incrs in drk tan fn xln lm, no vis por, no odr, ns.

05/30/2013

Mud Info.

wieght: 9.3

Vis. 46

Chloride: 6,200

LCM: 1#

4920: incrs in chlk, mstly crm sycrosc dolo, fair intr prtcl por, few xln dolo, no vis por, no odr, ns.

4930: aa, incrs in gry and maroon sh, few green and yellow chrt, no odr, ns.

4940: aa, no sig change.

4950: lght crm dolo, sycrosc, fair-exclnt intr prtcl por, no odr, ns.

4960: buff fn grn dolo, well cemntd, poor-no intr prtcl por, no odr, ns.

4950

4970: buff xln dolo w/ large vuggy por, no odr, ns.

05/31/2013

Mud Info.

wieght: 9.4

Vis. 58

Chloride: 7,000

LCM: 1#

4980: drk crm xln dolo, cemnt flooded, poor-no por, no odr, ns.

4990: aa, no sig change.

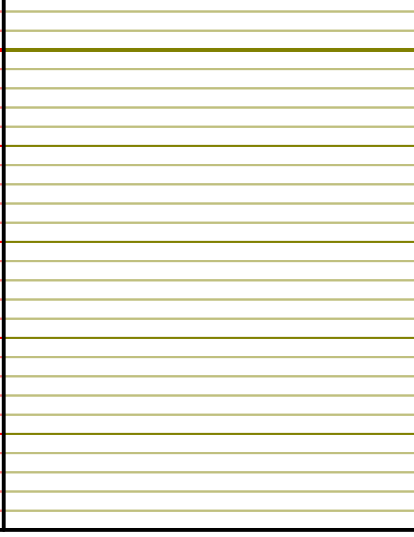
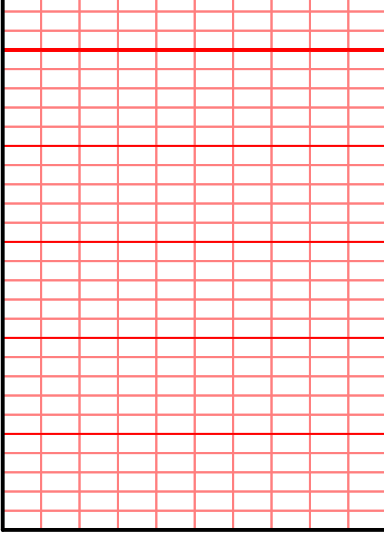
STRAIT HOLE SURVEY: 1 DEGREE

5000: gry fn grn dolo, v. well cemntd, poor-no por, no odr, ns.

40MIN: gry inxln lm, dense, no vis por, lots of carb mud, gummy sample, no odr, ns.

5000

RTD 5000'



00 5050

