



Scale 1:240 Imperial

Well Name: GREG UNIT #1
Surface Location: NE NW NW SE Sec. 21 - 6S - 20W
Bottom Location:
API: 15-163-24324
License Number: 34903
Spud Date: 10/21/2016 Time: 4:45 PM
Region: ROOKS COUNTY KANSAS
Drilling Completed: 10/27/2016 Time: 4:54 AM
Surface Coordinates: 2500' FSL & 2260' FEL
Bottom Hole Coordinates:
Ground Elevation: 2185.00ft
K.B. Elevation: 2193.00ft
Logged Interval: 3050.00ft To: 3673.00ft
Total Depth: 3673.00ft
Formation: LANSING - KANSAS CITY; ARBUCKLE
Drilling Fluid Type: FRESH WATER / CHEMICAL GEL

OPERATOR

Company: JASPAR CO.
Address: 1681 LIMESTONE ROAD SOUTH
P.O. BOX 1120
HAYS, KS 67601
Contact Geologist: SHANE VEHIGE
Contact Phone Nbr: (785) 623-6982
Well Name: GREG UNIT #1
Location: NE NW NW SE Sec. 21 - 6S - 20W
API: 15-163-24324
Pool:
State: KANSAS
Field: UNKNOWN
Country: USA

SURFACE CO-ORDINATES

Well Type: Vertical
Longitude: -99.5543014
Latitude: 39.5168831
N/S Co-ord: 2500' FSL
E/W Co-ord: 2260' FEL

LOGGED BY



Company: BIG CREEK CONSULTING, INC.
Address: 1909 MAPLE
ELLIS, KS 67637

Phone Nbr: (785) 259-3737
 Logged By: GEOLOGIST

Name: JEFF LAWLER

CONTRACTOR

Contractor: WW DRILLING, LLC
 Rig #: 12
 Rig Type: MUD ROTARY
 Spud Date: 10/21/2016
 TD Date: 10/27/2016
 Rig Release: 10/28/2016
 Time: 4:45 PM
 Time: 4:54 AM
 Time: 10:00 AM

ELEVATIONS

K.B. Elevation: 2193.00ft
 K.B. to Ground: 8.00ft
 Ground Elevation: 2185.00ft

NOTES


DUE TO ECONOMICAL RECOVERY ON DST #5 DECISION WAS MADE TO RUN 5 1/2" PRODUCTION CASING AND FURTHER EVALUATE ZONES OF INTEREST.

RESPECTFULLY SUBMITTED,
 JEFF LAWLER

WELL COMPARISON SHEET

| FORMATION | GREG UNIT #1 | | | | SE SW SE NE 21-6-20 | | | | NENW SE 21-6-20 | | | | NWNW SW SE 6-21-20 | | | | NWNW NE 21-6-20 | | | | | | | | | | | |
|---------------|--------------|-------|-------------|-------|---------------------|-------|-------|-------|-----------------|-------|-------|-------|--------------------|-------|-------|-------|-----------------|-------|---|----|---|----|------|-------|---|----|---|----|
| | LOG TOPS | | SAMPLE TOPS | | LOG | | LOG | | LOG | | LOG | | LOGS | | LOG | | LOG | | | | | | | | | | | |
| | DEPTH | DATUM | DEPTH | DATUM | DEPTH | DATUM | DEPTH | DATUM | DEPTH | DATUM | DEPTH | DATUM | DEPTH | DATUM | DEPTH | DATUM | DEPTH | DATUM | | | | | | | | | | |
| | CORR. | CORR. | CORR. | CORR. | CORR. | CORR. | CORR. | CORR. | CORR. | CORR. | CORR. | CORR. | CORR. | CORR. | CORR. | CORR. | CORR. | CORR. | | | | | | | | | | |
| ANHYDRITE TOP | 1801 | 392 | 1793 | 400 | 1770 | 402 | - | 10 | - | 2 | 1794 | 397 | - | 5 | + | 3 | 1840 | 390 | + | 2 | + | 10 | 1809 | 392 | + | 0 | + | 8 |
| BASE | 1832 | 361 | 1833 | 360 | 1803 | 369 | - | 8 | - | 9 | 1819 | 372 | - | 11 | - | 12 | 1854 | 376 | - | 15 | - | 16 | | | | | | |
| TOPEKA | 3196 | -1003 | 3194 | -1001 | 3164 | -992 | - | 11 | - | 9 | 3185 | -994 | - | 9 | - | 7 | 3224 | -994 | - | 9 | - | 7 | 3221 | -1020 | + | 17 | + | 19 |
| HEEBNER SHALE | 3396 | -1203 | 3394 | -1201 | 3363 | -1191 | - | 12 | - | 10 | 3385 | -1194 | - | 9 | - | 7 | 3423 | -1193 | - | 10 | - | 8 | 3423 | -1222 | + | 19 | + | 21 |
| TORONTO | 3422 | -1229 | 3415 | -1222 | 3386 | -1214 | - | 15 | - | 8 | 3410 | -1219 | - | 10 | - | 3 | 3448 | -1218 | - | 11 | - | 4 | 3446 | -1245 | + | 16 | + | 23 |
| LKC | 3435 | -1242 | 3431 | -1238 | 3401 | -1229 | - | 13 | - | 9 | 3425 | -1234 | - | 8 | - | 4 | 3461 | -1231 | - | 11 | - | 7 | 3460 | -1259 | + | 17 | + | 21 |
| BKC | 3639 | -1446 | 3639 | -1446 | 3599 | -1427 | - | 19 | - | 19 | 3620 | -1429 | - | 17 | - | 17 | 3661 | -1431 | - | 15 | - | 15 | 3656 | -1455 | + | 9 | + | 9 |
| GORHAM SAND | | | | | 3630 | -1458 | | | | | 3664 | -1473 | | | | | | | | | | | | | | | | |
| ARBUCKLE | | | | | 3638 | -1466 | | | | | 3683 | -1492 | | | | | 3697 | -1467 | | | | | 3686 | -1485 | | | | |
| TOTAL DEPTH | 3672 | -1479 | 3673 | -1480 | 3698 | -1526 | + | 47 | + | 46 | 3691 | -1500 | + | 21 | + | 20 | 3696 | -1466 | - | 13 | - | 14 | 3750 | -1549 | + | 70 | + | 69 |

DST #1 LKC E-F 3497' - 3520' (PLUGGED TOOL, SLID TO BOTTOM)

| | | |
|---|---|--|
|  <p>TRILOBITE TESTING, INC.</p> | DRILL STEM TEST REPORT | |
| | Jaspar Co PO Box 1120 Hays, KS 67601 ATTN: Jeff Lawler | 21-6S-20W Rooks Greg Unit 1 Job Ticket: 57960 Test Start: 2016.10.25 @ 02:55:15 |

GENERAL INFORMATION:

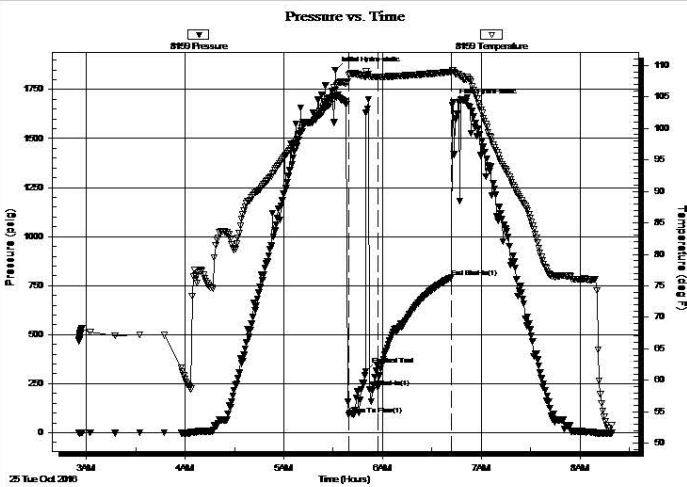
Formation: **IKC E-F**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 05:39:30
 Time Test Ended: 08:19:30
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Leal Cason
 Unit No: 74
 Interval: **3497.00 ft (KB) To 3520.00 ft (KB) (TVD)**
 Reference Elevations: 2193.00 ft (KB)
 Total Depth: 3520.00 ft (KB) (TVD)
 2185.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Good
 KB to GR/CF: 8.00 ft

Serial #: 8159 Inside

Press@RunDepth: 231.23 psig @ 3498.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2016.10.25 End Date: 2016.10.25 Last Calib.: 2016.10.25
 Start Time: 02:55:16 End Time: 08:19:30 Time On Btm: 2016.10.25 @ 05:31:15
 Time Off Btm: 2016.10.25 @ 06:43:00

TEST COMMENT: IE: Weak Surface Blow, Flushed Tool, Weak Surface Blow

TEST COMMENT: IF: Weak Surface Blow , Flushed Tool, Weak Surface Blow
 ISL: No Blow Back
 Pulled Test



| PRESSURE SUMMARY | | | |
|------------------|-----------------|--------------|----------------------|
| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
| 0 | 1848.87 | 106.08 | Initial Hydro-static |
| 9 | 90.33 | 108.42 | Open To Flow (1) |
| 19 | 311.13 | 108.24 | Flushed Tool |
| 26 | 231.23 | 108.11 | Shut-In(1) |
| 71 | 793.22 | 108.95 | End Shut-In(1) |
| 72 | 1684.73 | 109.18 | Final Hydro-static |

| Recovery | | |
|-------------|-------------|--------------|
| Length (ft) | Description | Volume (bbl) |
| 127.00 | Mud | 0.69 |
| | | |
| | | |
| | | |
| | | |
| | | |

| Gas Rates | | | |
|-----------|----------------|-----------------|------------------|
| | Choke (inches) | Pressure (psig) | Gas Rate (Mcf/d) |
| | | | |
| | | | |
| | | | |
| | | | |

Trilobite Testing, Inc

Ref. No: 57960

Printed: 2016.10.25 @ 08:37:31

DST #2 LKC E-F 3497' - 3520'

| | | |
|---------------------------------------|---|---|
| <p>TRILOBITE TESTING, INC.</p> | DRILL STEM TEST REPORT | |
| | Jaspar Co PO Box 1120 Hays, KS 67601 ATTN: Jeff Lawler | 21-6S-20W Rooks Greg Unit 1 Job Ticket: 57961 DST#: 2 Test Start: 2016.10.25 @ 12:55:15 |

GENERAL INFORMATION:

Formation: **LKC E-F**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 14:39:15
 Time Test Ended: 17:35:30

Interval: **3497.00 ft (KB) To 3520.00 ft (KB) (TVD)**
 Total Depth: 3520.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good

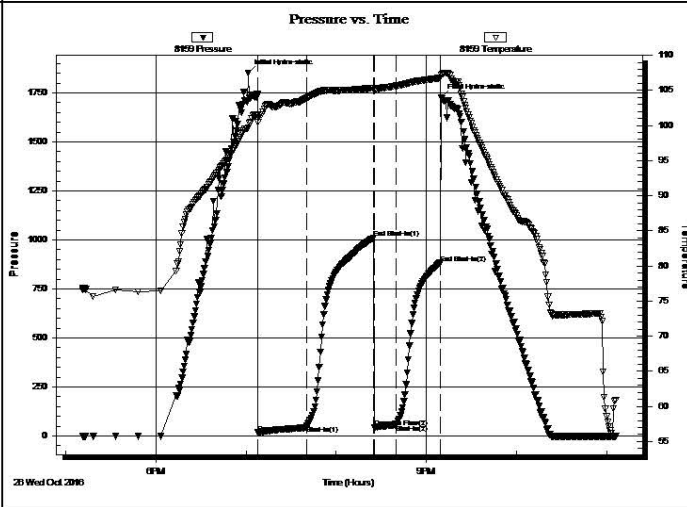
Test Type: Conventional Bottom Hole (Reset)
 Tester: Leal Cason
 Unit No: 74

Reference Elevations: 2193.00 ft (KB)
 2185.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8159 **Inside**

Press@RunDepth: 17.72 psig @ 3498.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2016.10.25 End Date: 2016.10.25 Last Calib.: 2016.10.25
 Start Time: 12:55:16 End Time: 17:35:30 Time On Btm: 2016.10.25 @ 14:38:45
 Time Off Btm: 2016.10.25 @ 15:41:45

TEST COMMENT: IF: Weak Surface Blow , Dead @ 4 minutes, Flushed Tool, Weak Surface Blow , Dead @ 5 minutes
 FS: No Blow



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1851.90 | 99.65 | Initial Hydro-static |
| 7 | 16.73 | 100.50 | Open To Flow (1) |
| 39 | 51.85 | 103.90 | Shut-In(1) |
| 84 | 1009.65 | 105.34 | End Shut-In(1) |
| 84 | 45.44 | 105.08 | Open To Flow (2) |
| 99 | 57.04 | 105.63 | Shut-In(2) |
| 128 | 882.42 | 106.75 | End Shut-In(2) |
| 129 | 1725.71 | 107.12 | Final Hydro-static |

| Length (ft) | Description | Volume (bbl) |
|-------------|---------------|--------------|
| 65.00 | MCO 50%M 50%O | 0.32 |
| | | |
| | | |
| | | |
| | | |
| | | |

* Recovery from multiple tests

| | Choke (inches) | Pressure (psig) | Gas Rate (Mcf/d) |
|--|----------------|-----------------|------------------|
| | | | |
| | | | |
| | | | |

Trilobite Testing, Inc Ref. No: 57963 Printed: 2016.10.27 @ 06:49:55

ROCK TYPES

| | | |
|------------|------------|------------|
| Dolprim | shale, gry | shale, red |
| Lmst fw7> | Carbon Sh | Shcol |
| shale, grn | Shblk | Arg/Shale |
| | | Ss |

ACCESSORIES

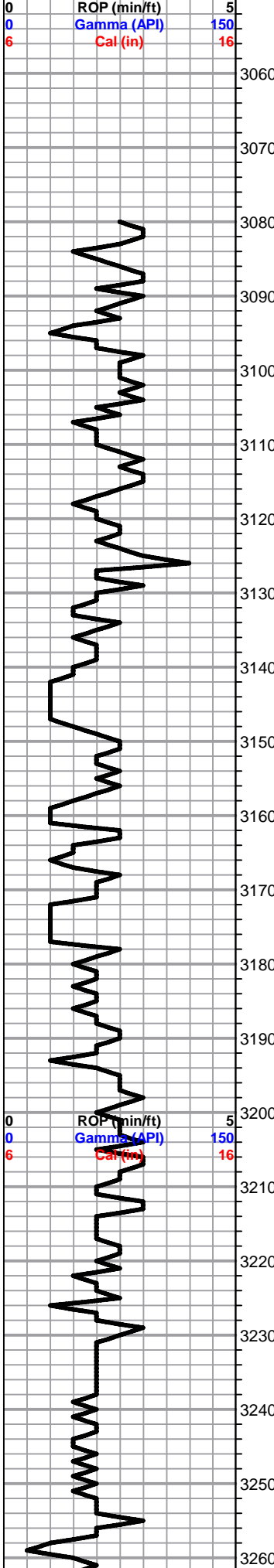
| | |
|------------------------------|----------------------------|
| STRINGER Sandstone | TEXTURE C Chalky |
|------------------------------|----------------------------|

OTHER SYMBOLS

| | |
|---|----------------------------------|
| MISC Daily Report Digital Photo Document Folder Link Vertical Log File Horizontal Log File Core Log File Drill Cuttings Rpt | DST DST Int DST alt |
|---|----------------------------------|

Printed by GEOstrip VC Striplog version 4.0.8.15 (www.grsi.ca)

| Curve Track #1 | Depth Intervals | DST | Lithology | Oil Show | Geological Descriptions | Curve Track #3 |
|----------------|-------------------|-----|-----------|----------|-------------------------|----------------|
| ROP (min/ft) | | | | | | |
| Gamma (API) | | | | | | |
| Cal (in) | | | | | | |



1' DRILL TIME THROUGH ANHYDRITE FROM 1780' - 1840'
1' DRILL TIME FROM 3080' - RTD
10' WET/DRY SAMPLES FROM 3120' - RTD

GEOLOGICAL SUPERVISION BY JEFF LAWLER FROM 3080' - RTD

8 5/8" SURFACE PIPE SET @ 220' SURVEY 1/2 DEGREES

ANHYDRITE TOP 1793' (+400) E-LOG 1801' (+392)
ANHYDRITE BASE 1833' (+360) E-LOG 1832' (+361)

Sh- Gray Maroon, silty & calcareous, gritty & earthy, some arenaceous, gummy argillaceous wash

Lm- Cream Buff, FXLN, fsl, well cemented, sctrd XLN porosity

Sh- Gray, silty & calcareous, argillaceous wash

Lm- Gray, VFXLN, dense, well cemented, fsl & trashy w/ poor vis. porosity

Sh- Gray, argillaceous clumps

Lm- Cream Gray, FXLN, fsl mix, sctrd XLN porosity, some trashy high-energy bioclastics

Sh/Ss- Gray Maroon, gritty & earthy, gummy wash Ss- Yellow Mint Green, well cemented, well sorted & consolidated, sub-angular, sl shaley, barren

TOPEKA 3194' (-1001) E-LOG 3196' (-1003) Lm- Cream, VFXLN, dense, well cemented, tight w/ min. vis. porosity, vry clean & barren

Sh- Gray Black, silty & calcareous

Lm- Buff Tan, VFXLN, dense, well cemented, tight w/ poor vis. porosity

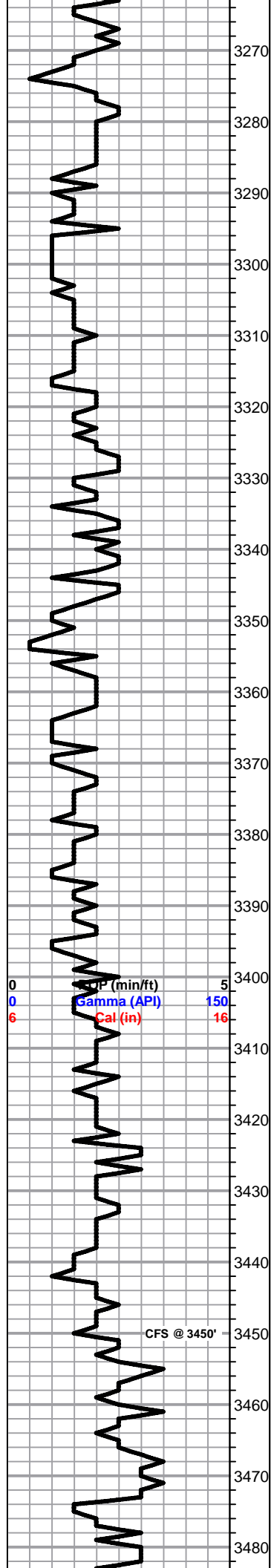
Lm- A/A

Ss- Frosted, Med Grn, consolidated & well sorted, micaceous, sl friable, barren

Lm- Cream, FXLN, fsl w/ crinoids, sctrd XLN porosity, poorly developed

Lm- Cream Off White, FXLN, fsl & oolitic, some mod. developed w/ sctrd to dense XLN porosity, some soft white chalk and a few chalky in part, vry clean

Lm- Cream Off White, Fn Grn, chalky in part, soft white chalk, several pcs of porcelain like cherty Ls w/o vis. porosity



Lm- Buff Gray, VF-FXLN, dense, well cemented, fsl w/ sctrd XLN porosity

Lm- Buff Cream, FXLN, dense, well cemented, mottled, poorly dev. w/ sctrd XLN porosity

Sh- Black Gray Maroon, fissile & carbonaceous, argillaceous clumps, gritty & earthy

Sh- Gray, gummy argillaceous sandy wash & clumps

Sh- Maroon, argillaceous wash

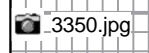
Lm- Cream Tan, mix of tight VFXLN w/o vis. porosity & fsl & oolitic FXLN, loosely cemented & semi-crumbly, sctrd XLN porosity, barren

Lm- Cream Buff, FXLN, sl fsl, chalky in part, sctrd XLN porosity, barren

Sh- Maroon Green, argillaceous clumps & wash

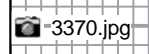
Sh- Black Gray Maroon, fissile & carbonaceous, gummy various colored wash

● Lm- Off White, FXLN, fsl, sctrd mod. dev. w/ dense XLN & fn ppt porosity, DRK SCTRDR STN, TR FO, FR ODR, much soft white chalk



Lm- Cream, VFXLN, dense, well cemented & tight w/ no vis. porosity, vry clean, much soft white chalk

● Lm- White Off White, FXLN, loosely cemented well dev. w/ dense fn ppt & XLN porosity, some w/ clear replacement cementation, clear reXLN, SCTRDR LT STN, TR FO, WK-FR ODR

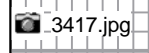


Lm- Cream Off White, FXLN, loosely cemented, chalky in part, sctrd XLN porosity, much soft white chalk, barren

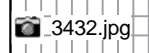
HEEBNER 3394' (-1201) E-LOG 3396' (-1203) Sh- Black, fissile & carbonaceous

Sh- Gray Maroon, abundant argillaceous wash

● **TORONTO 3415' (-1222) E-LOG 3422' (-1229)** Lm- Off White, F-MEDXLN, mod. well dev. w/ sctrd XLN & ppt porosity, SCTRDR DRK STN, TR FO ON A FEW PCS, NO ODR



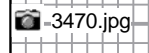
● **LKC 3431' (-1238) E-LOG 3435' (-1242)** Lm- Cream Off White, F-MEDXLN, well dev. oolitic Ls w/ sctrd to consistent XLN & ppt interoolite porosity, SCTRDR LT STN, TR FRO, FR ODR, SOME GSY BUBBLES & OILY SHEEN



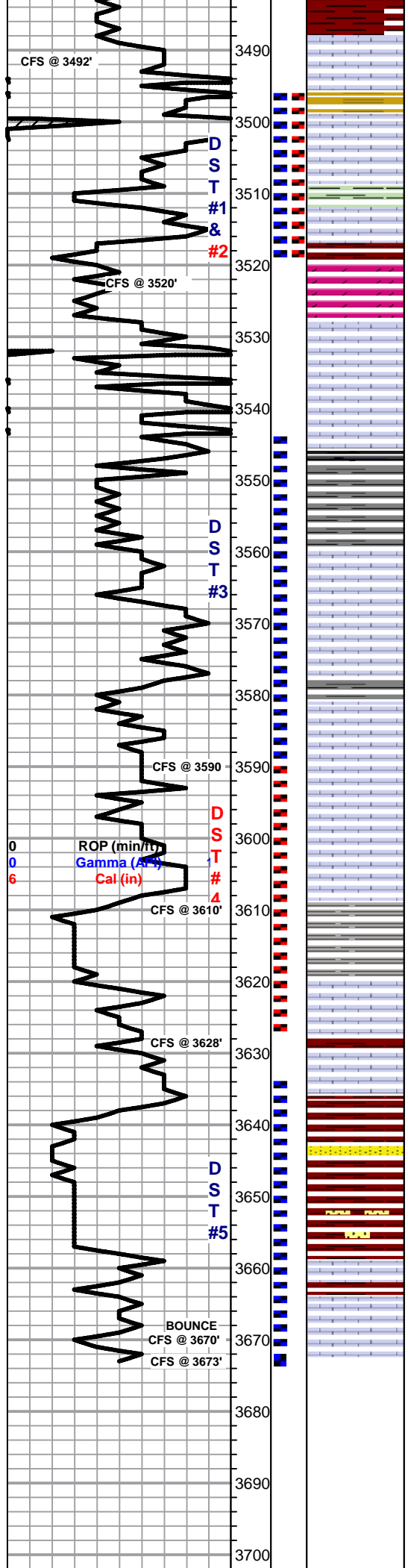
Lm- Cream Off White, VF-FXLN, dense, well cemented, mostly tight w/ sctrd XLN & poor vis. porosity, clean & barren

Sh- Gray Maroon, gummy argillaceous clumps

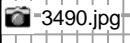
● Lm- Off White, F-MEDXLN, assort. of oolitic Ls from oolite clusters w/ consistent ppt interoolite porosity to bioclastic oolitic Ls w/ sctrd XLN & ppt interoolite porosity, SCTRDR LT STN, NSFO, WK-FR ODR, much soft white chalk



C C C C



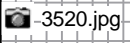
Lm- Cream Off White, FXLN, oolitic w/ fusulinds, sctrd dev. w/ vry fn ppt & sctrd XLN porosity, LT SCTRDR STN, TR OF DEAD OIL STN, NSFO, ODR (HAVE HAD CONTINUAL CARRYOVER ODR SINCE CFS @ 3450')



Lm- Buff Cream, VF-FXLN, dense, well cemented, tight w/ sctrd XLN porosity, some w/ poor vis. porosity, barren

Sh- Gray Green Maroon, argillaceous wash, gritty & earthy

Lm- Cream, FXLN, oolitic, mod. well dev. w/ dense XLN & sctrd vry fn ppt interoolite porosity, LT SCTRDR STN, TR FO, GD ODR



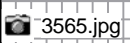
Dolomite-Tan, VF-FXLN, dense, well cemented w/ dense consistent XLN porosity, barren, some soft white chalk

Lm- Off White Buff, FXLN, dense, well cemented, some sl chalky in part, poor vis. porosity, barren

Sh- Black Maroon Gray, fissile & carbonaceous, gritty & earthy, argillaceous wash

Sh- Gray, argillaceous clumps

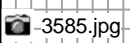
Lm- White Cream, FXLN, sl fsl, mod. devel. w/ sctrd fn ppt & XLN porosity, SCTRDR LT STN, NSFO, FR ODR



Lm- Cream Buff, VF-FXLN, dense, well cemented, mostly tight w/ poor vis. porosity, some sl chalky in part, few pcs of dense cherty Ls w/o vis. porosity

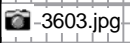
Sh- Gray Maroon, semi-waxy, gritty & earthy

Lm- Cream Tan, mix of sl fsl w/ sctrd vry fn ppt & XLN porosity w/ LT SCTRDR STN, TR FO, MUCH FREE OIL FLOATING IN WET CUP, WK ODR, & VFXLN, tight Ls w/ vry poor vis. porosity



Sh- Gray Maroon, semi-waxy, gritty & earthy

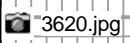
Lm- Cream Tan, FXLN, fsl & sl oolitic, sctrd dev. w/ fn ppt & XLN porosity, LT STN, NSFO, WK ODR



Lm- Buff, VF-FXLN, dense, well cemented, sctrd micro XLN porosity, some chalky in part and soft white chalk, barren

Sh- Black Gray Maroon, soft & carbonaceous, gritty & earthy, argillaceous clumps & wash

Lm- Off White, F-MED XLN, well dev. oolitic w/ sctrd ppt interoolite porosity, SCTRDR TO SUB SAT STN, TR-FR SFO, FR ODR

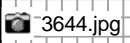


Lm- Cream Buff, FXLN, sl fsl, some well cemented w/ sctrd XLN porosity, some loosely cemented & chalky w/ poor vis. porosity

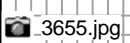
Lm- Cream, FXLN, fsl bioclastic, dense XLN porosity, loosely cemented, barren

BKC 3639' (-1446) E-LOG 3639' (-1449) Sh- Maroon Gray, gritty & earthy, semi-waxy

Ss- Frosted, Fn Grn, mod. well cemented, consolidated & well sorted, sl chalky/shaley, DRK SCTRDR STN, TR FO, WK ODR

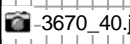


Sh- A/A, Ss- Frosted, Fn Grn, loosely cemented & vry friable, sl chalky/shaley, DRK SAT STN, GD SFO, HVY OILY SHEEN IN WET CUP, FEW FREE FLOATING GLOBULES IN WET CUP, WK-FR ODR



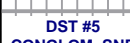
3670' 20"- Sh- A/A w/ influx of soft white chalk

40"- Lm- Cream, MED XLN, massive oolite clusters w/ angular crs grn qtz inclusions, consistent ppt sub-vugular oomoldic porosity, SAT DRK STN, GD SFO, GD ODR



60"- A/A w/ abundant med grn, rounded clear qtz grains loose in bottom of sample tray

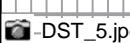
3673' 40"-A/A oomoldic Ls w/ large influx of argillaceous white clay

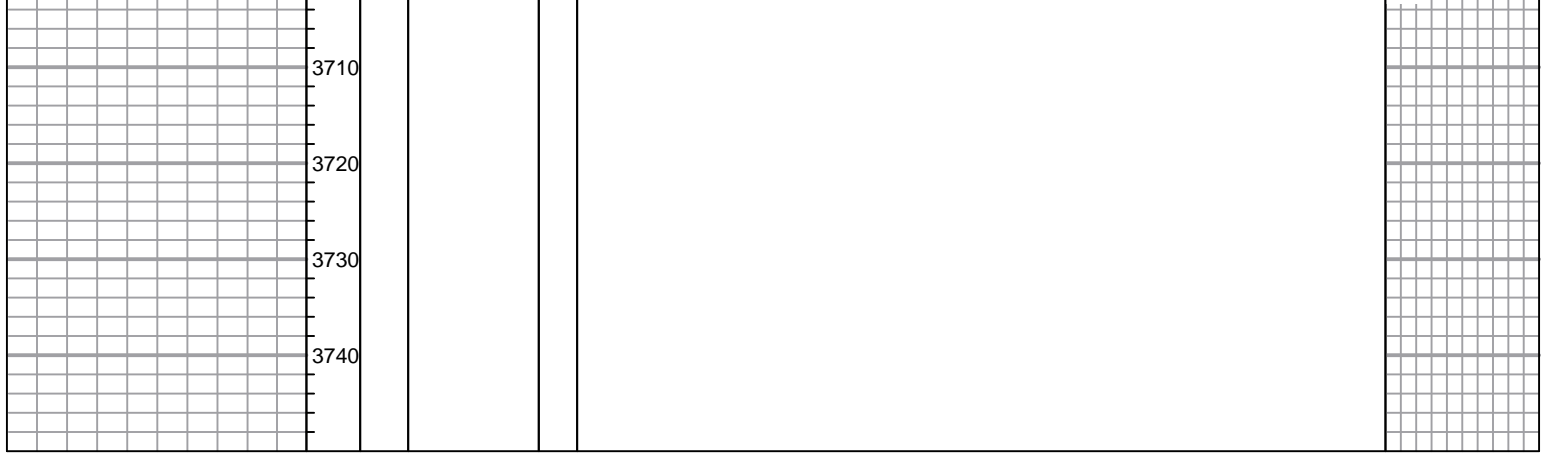


RTD 3673' (-1480) LTD 3672' (-1479) @ 04:54 10/27/2016

DST #5
CONGLOM. SND
3635' - 3673'
30-45-30-45

90' GIP
92' MCO
(75% O, 25% M)
190' GMCO
(10% G, 65% O,
25% M)
IFP: 35-91#
FFP: 97-125#
SIP: 985-926#





3350.jpg

A001 1280x1024 2016/10/24 11:46:49 Unit: mm Magnification: 77.5 x 1



3350' x 20



0.2 mm

3370' x 30



0.5 mm

3417' X 20



0.5 mm

3432' X 20



3470' x 25





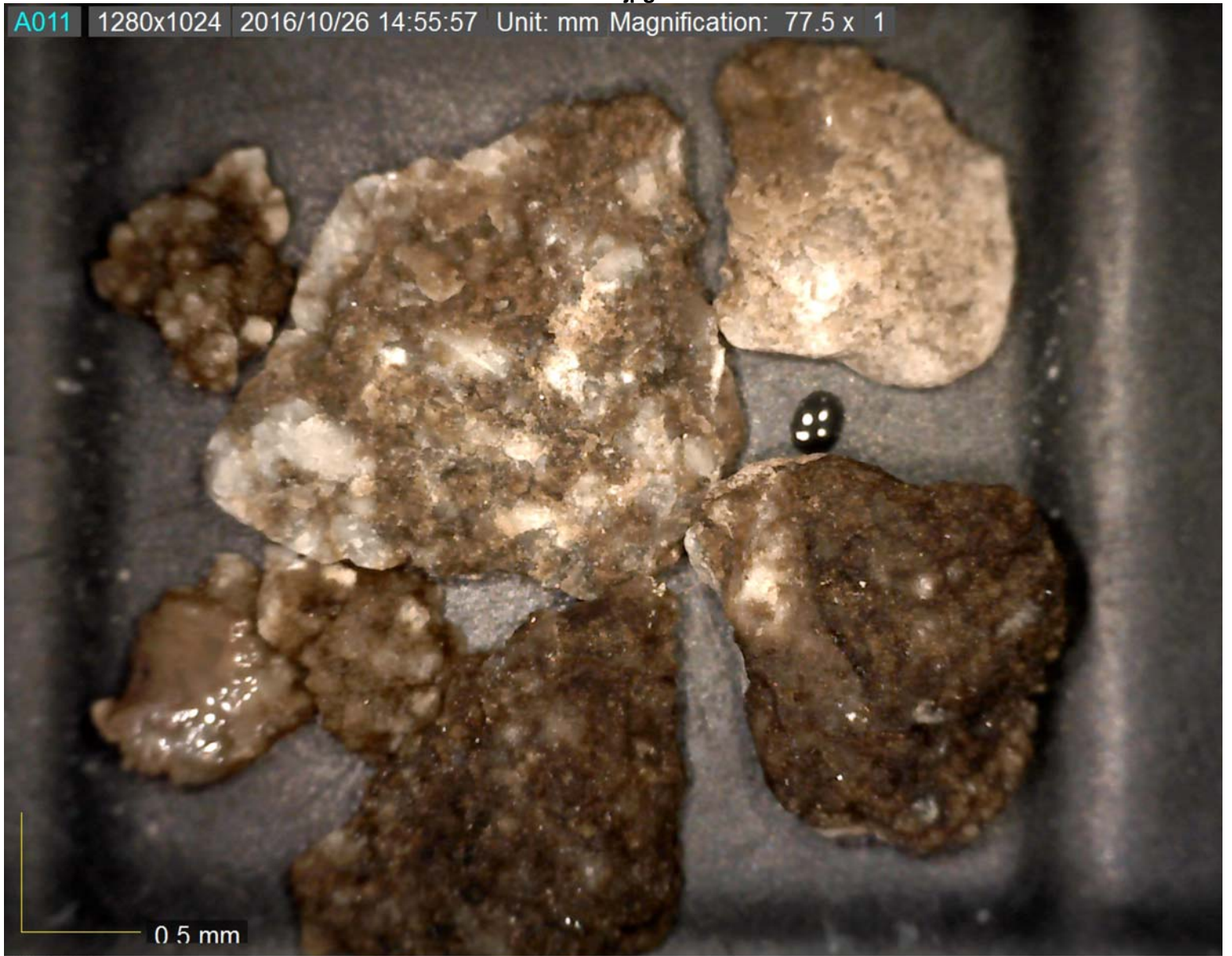






0.5 mm

3603' x 25





3655.jpg

A013 1280x1024 2016/10/27 04:13:22 Unit: mm Magnification: 116.2 x 1

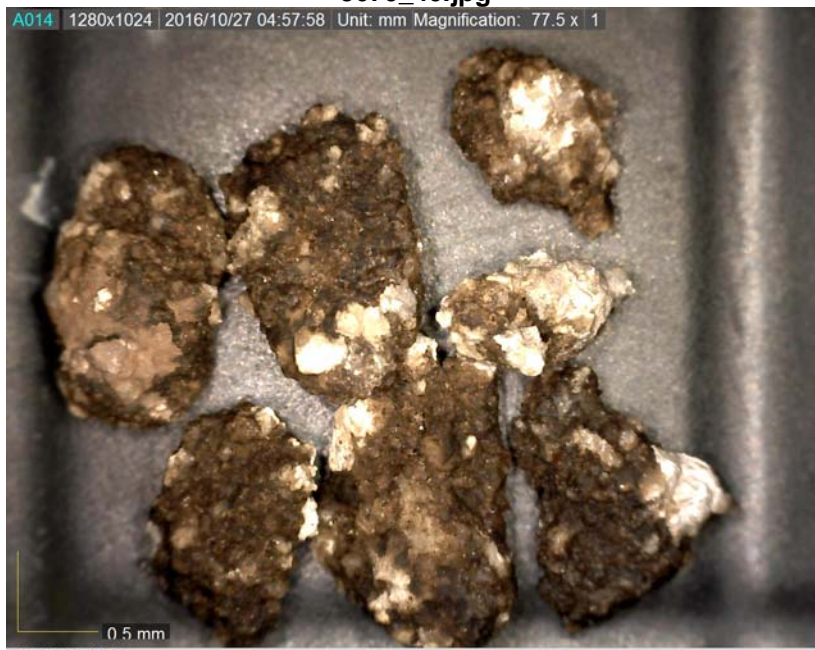


0.2 mm

3655' X 30

3670_40.jpg

A014 1280x1024 2016/10/27 04:57:58 Unit: mm Magnification: 77.5 x 1



0.5 mm

3670' 40" X 20

