

Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

Form ACO-1

January 2018

Form must be Typed

Form must be Signed

All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

New Well Re-Entry Workover

Oil WSW SWD

Gas DH EOR

OG GSW

CM (Coal Bed Methane)

Cathodic Other (Core, Expl., etc.): _____

If Workover/Re-entry: Old Well Info as follows:

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

Deepening Re-perf. Conv. to EOR Conv. to SWD

Plug Back Liner Conv. to GSW Conv. to Producer

Commingled Permit #: _____

Dual Completion Permit #: _____

SWD Permit #: _____

EOR Permit #: _____

GSW Permit #: _____

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE NW SE SW

GPS Location: Lat: _____, Long: _____
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite:

Operator Name: _____

Lease Name: _____ License #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

Confidentiality Requested

Date: _____

Confidential Release Date: _____

Wireline Log Received Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT I II III Approved by: _____ Date: _____

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i> Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No List All E. Logs Run: _____	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

1. Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? Yes No *(If No, fill out Page Three of the ACO-1)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____			
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5) (Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	IA Operating, Inc.
Well Name	CARRIE 2-4
Doc ID	1418366

All Electric Logs Run

DIL
Micro
CDN
Sonic

Form	ACO1 - Well Completion
Operator	IA Operating, Inc.
Well Name	CARRIE 2-4
Doc ID	1418366

Tops

Name	Top	Datum
Anhydrite	1008	+845
Topeka	2769	-916
Heebner	3020	-1167
Toronto	3040	-1187
Lansing	3068	-1215
BKC	3308	-1455
Simpson Sd	3394	-1541
Arbuckle	3401	-1548
RTD	3448	-1595

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 919

Date	8-4-18	Sec.	2	Twp.	12	Range	16	County	Ellis	State	Ks	On Location		Finish	2:45 PM
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Lease Carrie Location Blue hill School - IE, IN, E/Intro

Well No. 2-4 Owner

Contractor Discovery #2 To Quality Oilwell Cementing, Inc.
Type Job Surface You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.

Hole Size 2 1/4" T.D. 928' Charge To IA Operating

Csg. 8 5/8" Depth 928' Street

Tbg. Size Depth City State

Tool Depth The above was done to satisfaction and supervision of owner agent or contractor.

Cement Left in Csg. 40' Shoe Joint 40' Cement Amount Ordered 375 80/20 3% CC 2% Gel

Meas Line Displace 56 1/2 BLS

EQUIPMENT

Pumptrk <u>16</u> No.	Cementer	Common	<u>300</u>
	Helper <u>David</u>	Poz. Mix	<u>75</u>
Bulktrk <u>21</u> No.	Driver	Gel.	<u>7</u>
	Driver <u>Doug</u>	Calcium	<u>13</u>
Bulktrk <u>p.u.</u> No.	Driver		
	Driver <u>Rick</u>		

JOB SERVICES & REMARKS

Remarks: Cement did Circulate

Rat Hole

Mouse Hole

Centralizers

Baskets

D/V or Port Collar

Handling 395

Mileage

FLOAT EQUIPMENT

Guide Shoe

Centralizer 8 3/8 Rubber plug

Baskets

AFU Inserts

Float Shoe

Latch Down

Pumptrk Charge Long Surface

Mileage 30

Signature [Signature]

Tax

Discount

Total Charge



Company: IA Operating, Inc.
Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
 County: ELLIS
 State: Kansas
 Drilling Contractor: Discovery Drilling
 Company, Inc. - Rig 1
 Elevation: 1845 GL
 Field Name: Blue Hill Northwest
 Pool: Pool Ext
 Job Number: 194

Operation:
 Uploading recovery &
 pressures

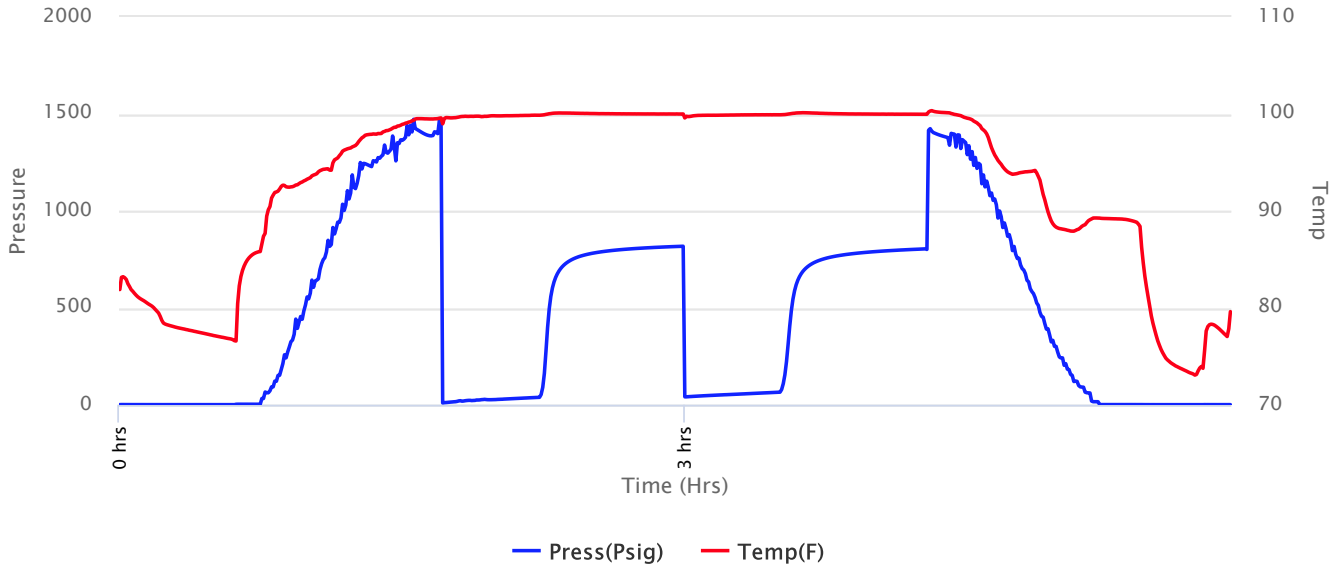
DATE
 August
08
 2018

DST #1 Formation: Toronto-Topeka Test Interval: 2970 - 3048' Total Depth: 3048'
 Time On: 04:34 08/08 Time Off: 10:18 08/08
 Time On Bottom: 06:14 08/08 Time Off Bottom: 08:44 08/08

Electronic Volume
 Estimate:
 113'

<u>1st Open</u>	<u>1st Close</u>	<u>2nd Open</u>	<u>2nd Close</u>
Minutes: 30	Minutes: 45	Minutes: 30	Minutes: 45
Current Reading: 4.4" at 30 min	Current Reading: 0" at 45 min	Current Reading: 3.5" at 30 min	Current Reading: 0" at 45 min
Max Reading: 4.4"	Max Reading: 0"	Max Reading: 3.5"	Max Reading: 0"

Inside Recorder





Company: IA Operating, Inc.
Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
 County: ELLIS
 State: Kansas
 Drilling Contractor: Discovery Drilling
 Company, Inc. - Rig 1
 Elevation: 1845 GL
 Field Name: Blue Hill Northwest
 Pool: Pool Ext
 Job Number: 194

Operation:
 Uploading recovery &
 pressures

DATE
 August
08
 2018

DST #1 **Formation: Toronto-Topeka** **Test Interval: 2970 - 3048'** **Total Depth: 3048'**
 Time On: 04:34 08/08 Time Off: 10:18 08/08
 Time On Bottom: 06:14 08/08 Time Off Bottom: 08:44 08/08

Recovered

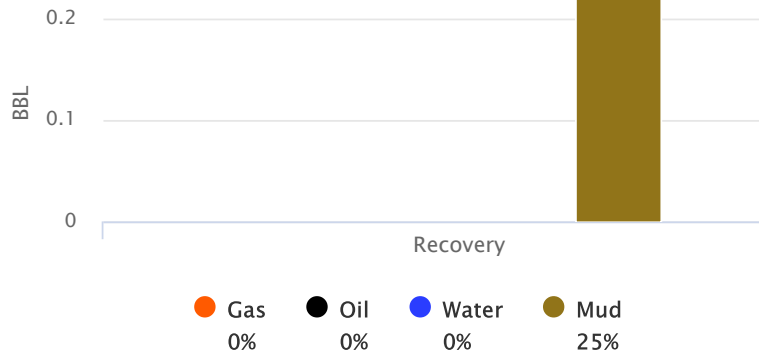
Foot	BBLs	Description of Fluid	Gas %	Oil %	Water %	Mud %
120	0.8904	M	0	0	0	25

Total Recovered: 120 ft
 Total Barrels Recovered: 0.8904

Reversed Out
 NO

Initial Hydrostatic Pressure	1398	PSI
Initial Flow	10 to 39	PSI
Initial Closed in Pressure	818	PSI
Final Flow Pressure	41 to 65	PSI
Final Closed in Pressure	801	PSI
Final Hydrostatic Pressure	1397	PSI
Temperature	101	°F
Pressure Change Initial Close / Final Close	2.0	%

Recovery at a glance





Company: IA Operating, Inc.
Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
County: ELLIS
State: Kansas
Drilling Contractor: Discovery Drilling
Company, Inc. - Rig 1
Elevation: 1845 GL
Field Name: Blue Hill Northwest
Pool: Pool Ext
Job Number: 194

Operation:
Uploading recovery &
pressures

DATE
August
08
2018

DST #1	Formation: Toronto- Topeka	Test Interval: 2970 - 3048'	Total Depth: 3048'
	Time On: 04:34 08/08	Time Off: 10:18 08/08	
	Time On Bottom: 06:14 08/08	Time Off Bottom: 08:44 08/08	

BUCKET MEASUREMENT:

1st Open: 1/4 to 4 inch blow
1st Close: No BB
2nd Open: Surface to 3 inch blow
2nd Close: No BB

REMARKS:

Ph: 6.0

Measured RW: .28 @ 69 degrees °F

RW at Formation Temp: 0.197 @ 101 °F

Chlorides: 48,000 ppm



Company: IA Operating, Inc.
Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
 County: ELLIS
 State: Kansas
 Drilling Contractor: Discovery Drilling
 Company, Inc. - Rig 1
 Elevation: 1845 GL
 Field Name: Blue Hill Northwest
 Pool: Pool Ext
 Job Number: 194

Operation:
 Uploading recovery &
 pressures

DATE
 August
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DST #1 **Formation: Toronto-
Topeka** **Test Interval: 2970 -
3048'** **Total Depth: 3048'**
 Time On: 04:34 08/08 Time Off: 10:18 08/08
 Time On Bottom: 06:14 08/08 Time Off Bottom: 08:44 08/08

Down Hole Makeup

Heads Up: 28.18 FT	Packer 1: 2964.66 FT
Drill Pipe: 2692.58 FT <i>ID-3 1/2</i>	Packer 2: 2969.66 FT
Weight Pipe: 280.10 FT <i>ID-2 7/8</i>	Top Recorder: 2956.66 FT
Collars: 0 FT <i>ID-2 1/4</i>	Bottom Recorder: 3041 FT
Test Tool: 26.16 FT <i>ID-3 1/2-FH</i>	Well Bore Size: 7 7/8
Total Anchor: 78.34	Surface Choke: 1"
<u>Anchor Makeup</u>	Bottom Choke: 5/8"
Packer Sub: 1 FT	
Perforations: (top): 5 FT <i>4 1/2-FH</i>	
Change Over: 1 FT	
Drill Pipe: (in anchor): 62.34 FT <i>ID-3 1/2</i>	
Change Over: 1 FT	
Perforations: (below): 8 FT <i>4 1/2-FH</i>	



Company: IA Operating, Inc.
Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
County: ELLIS
State: Kansas
Drilling Contractor: Discovery Drilling
Company, Inc. - Rig 1
Elevation: 1845 GL
Field Name: Blue Hill Northwest
Pool: Pool Ext
Job Number: 194

Operation:
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pressures

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DST #1 **Formation: Toronto-
Topeka** **Test Interval: 2970 -
3048'** **Total Depth: 3048'**
Time On: 04:34 08/08 Time Off: 10:18 08/08
Time On Bottom: 06:14 08/08 Time Off Bottom: 08:44 08/08

Mud Properties

Mud Type: Chemical **Weight:** 8.7 **Viscosity:** 57 **Filtrate:** 6.4 **Chlorides:** 4300 ppm



Company: IA Operating, Inc.
Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
County: ELLIS
State: Kansas
Drilling Contractor: Discovery Drilling
Company, Inc. - Rig 1
Elevation: 1845 GL
Field Name: Blue Hill NW
Pool: Pool Ext
Job Number: 194

Operation:
Uploading recovery &
pressures

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DST #2	Formation: Lansing "A-D"	Test Interval: 3046 - 3124'	Total Depth: 3124'
	Time On: 20:55 08/08	Time Off: 03:02 08/09	
	Time On Bottom: 22:42 08/08	Time Off Bottom: 01:12 08/09	

BUCKET MEASUREMENT:

1st Open: Surface to 3 inch blow
1st Close: No BB
2nd Open: Surface to 1 3/4 inch blow
2nd Close: No BB



Company: IA Operating, Inc. Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
County: ELLIS
State: Kansas
Drilling Contractor: Discovery Drilling
Company, Inc. - Rig 1
Elevation: 1845 GL
Field Name: Blue Hill NW
Pool: Pool Ext
Job Number: 194

Operation:
Uploading recovery &
pressures

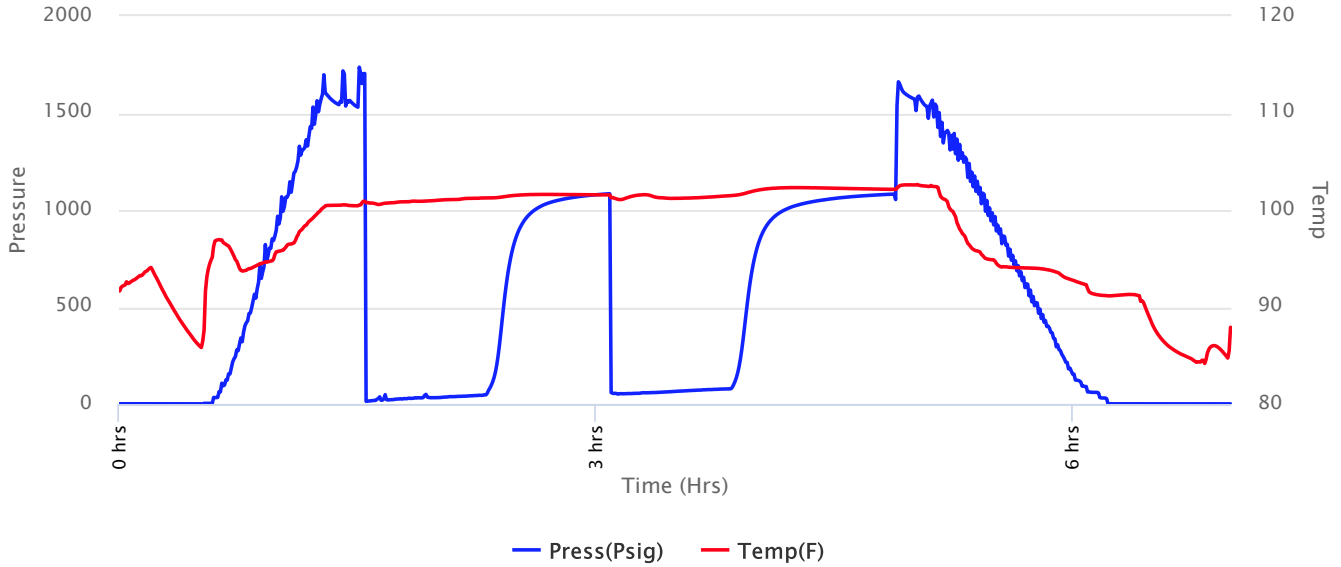
DATE
August
10
2018

DST #4 **Formation:** **Test Interval: 3306 -** **Total Depth: 3402'**
Conglomerate/Simpson
Sand **3402'**
Time On: 13:29 08/10 Time Off: 20:18 08/10
Time On Bottom: 14:59 08/10 Time Off Bottom: 18:14 08/10

Electronic Volume
Estimate:
325'

<u>1st Open</u>	<u>1st Close</u>	<u>2nd Open</u>	<u>2nd Close</u>
Minutes: 45	Minutes: 45	Minutes: 45	Minutes: 60
Current Reading: 10.7" at 45 min	Current Reading: 0" at 45 min	Current Reading: 12.7" at 45 min	Current Reading: 0" at 60 min
Max Reading: 10.7"	Max Reading: 0"	Max Reading: 12.7"	Max Reading: 0"

Inside Recorder





Company: IA Operating, Inc.
Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
 County: ELLIS
 State: Kansas
 Drilling Contractor: Discovery Drilling
 Company, Inc. - Rig 1
 Elevation: 1845 GL
 Field Name: Blue Hill NW
 Pool: Pool Ext
 Job Number: 194

Operation:
 Uploading recovery &
 pressures

DATE
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 2018

DST #4 **Formation:** **Test Interval: 3306 -** **Total Depth: 3402'**
 Conglomerate/Simpson **3402'**
 Sand
 Time On: 13:29 08/10 Time Off: 20:18 08/10
 Time On Bottom: 14:59 08/10 Time Off Bottom: 18:14 08/10

Recovered

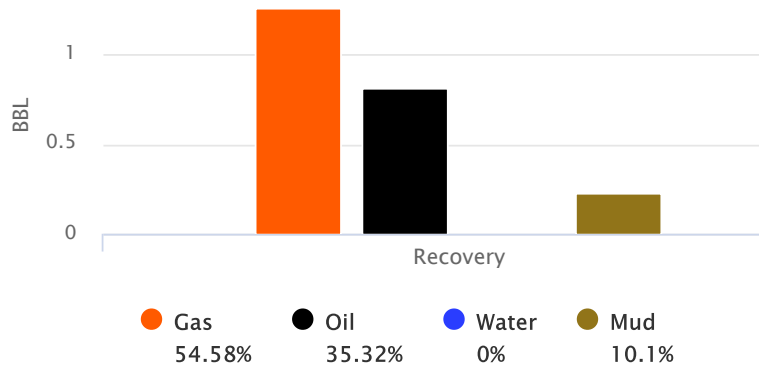
Foot	BBLs	Description of Fluid	Gas %	Oil %	Water %	Mud %
155	1.1501	G	100	0	0	0
30	0.2226	SLGCO	3	97	0	0
65	0.4823	SLGCSLMCO	2	96	0	2
60	0.4452	GCHOCM	20	30	0	50

Total Recovered: 310 ft
 Total Barrels Recovered: 2.3002

Reversed Out
 NO

Initial Hydrostatic Pressure	1653	PSI
Initial Flow	14 to 48	PSI
Initial Closed in Pressure	1084	PSI
Final Flow Pressure	54 to 79	PSI
Final Closed in Pressure	1083	PSI
Final Hydrostatic Pressure	1649	PSI
Temperature	103	°F
Pressure Change Initial Close / Final Close	0.2	%

Recovery at a glance





Company: IA Operating, Inc.
Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
County: ELLIS
State: Kansas
Drilling Contractor: Discovery Drilling
Company, Inc. - Rig 1
Elevation: 1845 GL
Field Name: Blue Hill NW
Pool: Pool Ext
Job Number: 194

Operation:
Uploading recovery &
pressures

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DST #4 **Formation:** **Test Interval: 3306 -** **Total Depth: 3402'**
Conglomerate/Simpson **3402'**
Sand
Time On: 13:29 08/10 Time Off: 20:18 08/10
Time On Bottom: 14:59 08/10 Time Off Bottom: 18:14 08/10

BUCKET MEASUREMENT:

1st Open: 1/4 to 10 1/4 inch blow
1st Close: No BB
2nd Open: Surface to BOB 43 1/2 min.
2nd Close: No BB



Company: IA Operating, Inc.
Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
 County: ELLIS
 State: Kansas
 Drilling Contractor: Discovery Drilling
 Company, Inc. - Rig 1
 Elevation: 1845 GL
 Field Name: Blue Hill NW
 Pool: Pool Ext
 Job Number: 194

Operation:
 Uploading recovery &
 pressures

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DST #4 **Formation:** **Test Interval: 3306 -** **Total Depth: 3402'**
 Conglomerate/Simpson **3402'**
 Sand
 Time On: 13:29 08/10 Time Off: 20:18 08/10
 Time On Bottom: 14:59 08/10 Time Off Bottom: 18:14 08/10

Down Hole Makeup

Heads Up: 4.6300000000001 FT	Packer 1: 3300.63 FT
Drill Pipe: 3005 FT <i>ID-3 1/2</i>	Packer 2: 3305.63 FT
Weight Pipe: 280.10 FT <i>ID-2 7/8</i>	Top Recorder: 3292.63 FT
Collars: 0 FT <i>ID-2 1/4</i>	Bottom Recorder: 3377 FT
Test Tool: 26.16 FT <i>ID-3 1/2-FH</i>	Well Bore Size: 7 7/8
Total Anchor: 96.37	Surface Choke: 1"
Anchor Makeup	Bottom Choke: 5/8"
Packer Sub: 1 FT	
Perforations: (top): 5 FT <i>4 1/2-FH</i>	
Change Over: 1 FT	
Drill Pipe: (in anchor): 62.37 FT <i>ID-3 1/2</i>	
Change Over: 1 FT	
Perforations: (below): 26 FT <i>4 1/2-FH</i>	



Company: IA Operating, Inc.
Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
County: ELLIS
State: Kansas
Drilling Contractor: Discovery Drilling
Company, Inc. - Rig 1
Elevation: 1845 GL
Field Name: Blue Hill NW
Pool: Pool Ext
Job Number: 194

Operation:
Uploading recovery &
pressures

DATE
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DST #4 **Formation:** **Test Interval: 3306 -** **Total Depth: 3402'**
Conglomerate/Simpson **3402'**
Sand
Time On: 13:29 08/10 Time Off: 20:18 08/10
Time On Bottom: 14:59 08/10 Time Off Bottom: 18:14 08/10

Mud Properties

Mud Type: Chemical **Weight:** 9.1 **Viscosity:** 54 **Filtrate:** 7.2 **Chlorides:** 9,300 ppm



Company: IA Operating, Inc.
Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
 County: ELLIS
 State: Kansas
 Drilling Contractor: Discovery Drilling
 Company, Inc. - Rig 1
 Elevation: 1845 GL
 Field Name: Blue Hill NW
 Pool: Pool Ext
 Job Number: 194

Operation:
 Uploading recovery &
 pressures

DATE
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10
 2018

DST #4 **Formation:** **Test Interval: 3306 -** **Total Depth: 3402'**
 Conglomerate/Simpson **3402'**
 Sand
 Time On: 13:29 08/10 Time Off: 20:18 08/10
 Time On Bottom: 14:59 08/10 Time Off Bottom: 18:14 08/10

Gas Volume Report

1st Open

2nd Open

Time	Orifice	PSI	MCF/D
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Time	Orifice	PSI	MCF/D
------	---------	-----	-------



Company: IA Operating, Inc.
Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
 County: ELLIS
 State: Kansas
 Drilling Contractor: Discovery Drilling
 Company, Inc. - Rig 1
 Elevation: 1845 GL
 Field Name: Blue Hill NW
 Pool: Pool Ext
 Job Number: 194

Operation:
 Uploading recovery &
 pressures

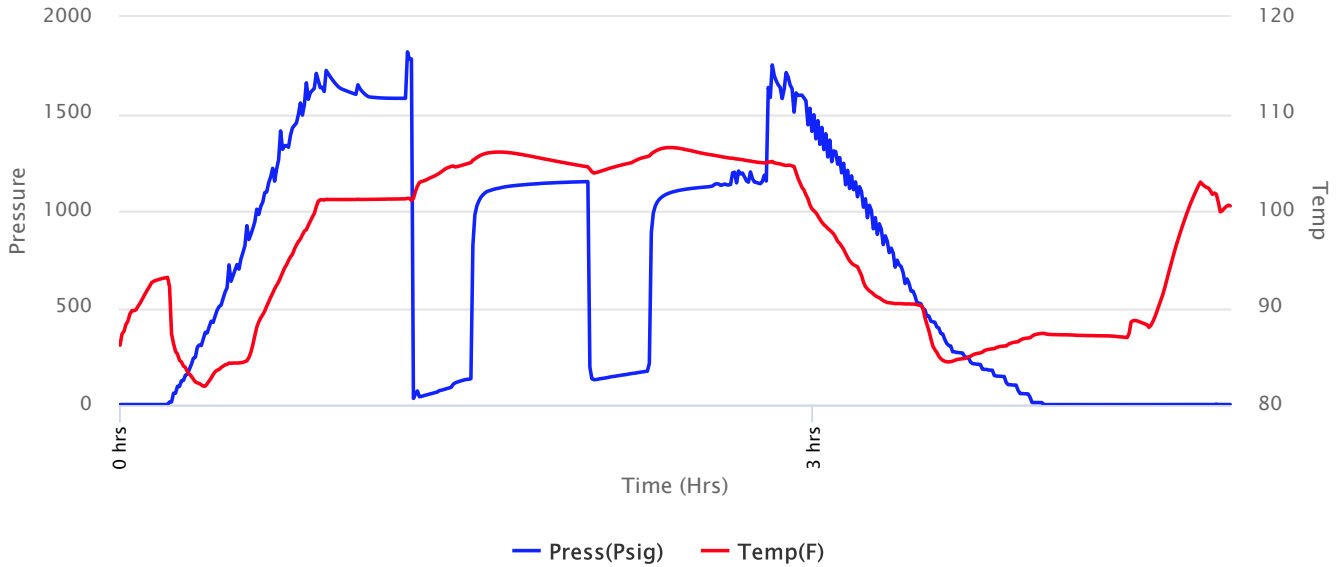
DATE
 August
11
 2018

DST #5 **Formation: Arbuckle** **Test Interval: 3404 - 3413'** **Total Depth: 3450'**
 Time On: 11:20 08/11 Time Off: 16:01 08/11
 Time On Bottom: 12:34 08/11 Time Off Bottom: 14:04 08/11

Electronic Volume
 Estimate:
 622'

<u>1st Open</u>	<u>1st Close</u>	<u>2nd Open</u>	<u>2nd Close</u>
Minutes: 15	Minutes: 30	Minutes: 15	Minutes: 30
Current Reading: 29.2" at 15 min	Current Reading: 4." at 30 min	Current Reading: 26.0" at 15 min	Current Reading: 0" at 30 min
Max Reading: 29.2"	Max Reading: 4."	Max Reading: 26.0"	Max Reading: 0"

Inside Recorder





Company: IA Operating, Inc.
Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
 County: ELLIS
 State: Kansas
 Drilling Contractor: Discovery Drilling
 Company, Inc. - Rig 1
 Elevation: 1845 GL
 Field Name: Blue Hill NW
 Pool: Pool Ext
 Job Number: 194

Operation:
 Uploading recovery &
 pressures

DATE
 August
11
 2018

DST #5 Formation: Arbuckle Test Interval: 3404 - 3413' Total Depth: 3450'
 Time On: 11:20 08/11 Time Off: 16:01 08/11
 Time On Bottom: 12:34 08/11 Time Off Bottom: 14:04 08/11

Recovered

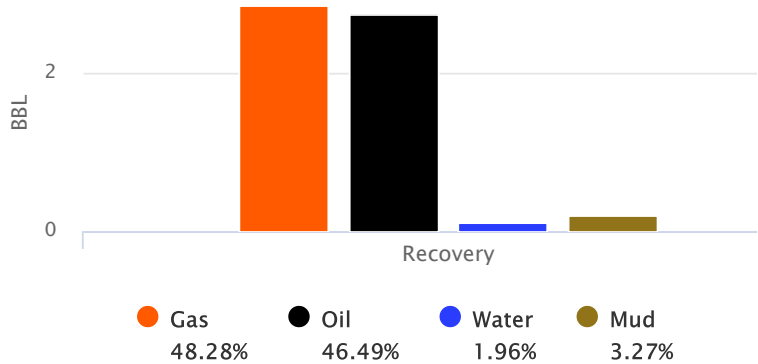
Foot	BBLs	Description of Fluid	Gas %	Oil %	Water %	Mud %
305	2.432669	G	100	0	0	0
310	2.503819	SLGCO	7	93	0	0
130	0.9646	SLWCMGCO	25	43	12	20

Total Recovered: 745 ft
 Total Barrels Recovered: 5.901088

Reversed Out
 NO

Initial Hydrostatic Pressure	1580	PSI
Initial Flow	33 to 135	PSI
Initial Closed in Pressure	1151	PSI
Final Flow Pressure	130 to 173	PSI
Final Closed in Pressure	1154	PSI
Final Hydrostatic Pressure	1579	PSI
Temperature	107	°F
Pressure Change Initial Close / Final Close	0.0	%

Recovery at a glance





Company: IA Operating, Inc. Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
County: ELLIS
State: Kansas
Drilling Contractor: Discovery Drilling
Company, Inc. - Rig 1
Elevation: 1845 GL
Field Name: Blue Hill NW
Pool: Pool Ext
Job Number: 194

Operation:
Uploading recovery &
pressures

DATE
August
11
2018

DST #5 Formation: Arbuckle Test Interval: 3404 - 3413' Total Depth: 3450'
Time On: 11:20 08/11 Time Off: 16:01 08/11
Time On Bottom: 12:34 08/11 Time Off Bottom: 14:04 08/11

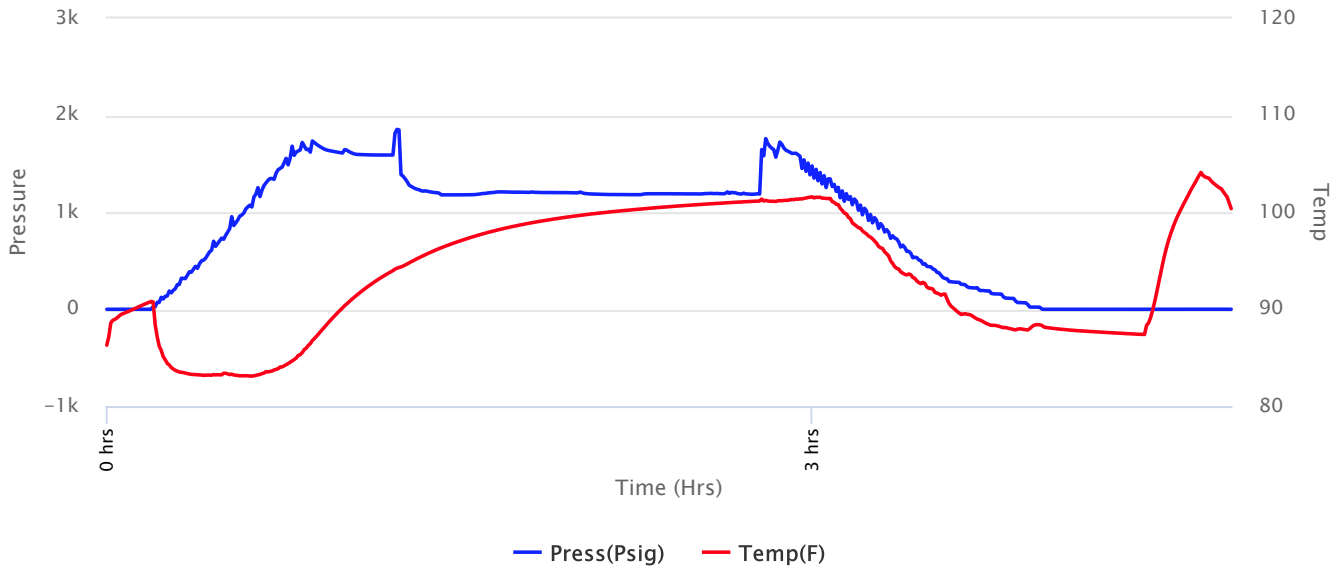
BUCKET MEASUREMENT:

1st Open: 1/2 " to BOB6 min
1st Close: Surface to 4" BB
2nd Open: Surface to BOB 7 min.
2nd Close: No BB

REMARKS:

Tool Sample: 8% Gas 90% Oil 1% Water 1% Mud
Gravity: 33.4 @ 60 °F
Ph: 7.5
Measured RW: 2.8 @ 88 degrees °F
RW at Formation Temp: 2.332 @ 107 °F
Chlorides: 12,000 ppm

Below Straddle Recorder





Company: IA Operating, Inc.
Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
 County: ELLIS
 State: Kansas
 Drilling Contractor: Discovery Drilling
 Company, Inc. - Rig 1
 Elevation: 1845 GL
 Field Name: Blue Hill NW
 Pool: Pool Ext
 Job Number: 194

Operation:
 Uploading recovery &
 pressures

DATE
 August
11
 2018

DST #5 Formation: Arbuckle Test Interval: 3404 - 3413' Total Depth: 3450'
 Time On: 11:20 08/11 Time Off: 16:01 08/11
 Time On Bottom: 12:34 08/11 Time Off Bottom: 14:04 08/11

Down Hole Makeup

Heads Up: 31.87 FT	Packer 1: 3398.5 FT
Drill Pipe: 3130.11 FT <i>ID-3 1/2</i>	Packer 2: 3404 FT
Weight Pipe: 280.10 FT <i>ID-2 7/8</i>	Packer 3: 3413 FT
Collars: 0 FT <i>ID-2 1/4</i>	Top Recorder: 3390.5 FT
Test Tool: 26.66 FT <i>ID-3 1/2-FH</i>	Bottom Recorder: 3406 FT
Total Anchor: 9	Below Straddle Recorder: 3448 FT
Anchor Makeup	Well Bore Size: 7 7/8
Packer Sub: 1 FT	Surface Choke: 1"
Perforations: (top): 0 FT <i>4 1/2-FH</i>	Bottom Choke: 5/8"
Change Over: 0 FT	
Drill Pipe: (in anchor): 0 FT <i>ID-3 1/2</i>	
Change Over: 0 FT	
Perforations: (below): 8 FT <i>4 1/2-FH</i>	
STRADDLE	
Straddle Packer(s): 1 FT	
Change Over: 1 FT	
Drill Pipe: 31.11 FT <i>ID-3 1/2"</i>	
Change Over: 1 FT	
Perforations (in tail pipe): 3 FT <i>4 1/2-FH</i>	



Company: IA Operating, Inc.
Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
County: ELLIS
State: Kansas
Drilling Contractor: Discovery Drilling
Company, Inc. - Rig 1
Elevation: 1845 GL
Field Name: Blue Hill NW
Pool: Pool Ext
Job Number: 194

Operation:
Uploading recovery &
pressures

DATE
August
11
2018

DST #5 **Formation: Arbuckle** **Test Interval: 3404 - 3413'** **Total Depth: 3450'**
Time On: 11:20 08/11 Time Off: 16:01 08/11
Time On Bottom: 12:34 08/11 Time Off Bottom: 14:04 08/11

Mud Properties

Mud Type: Chemical **Weight:** 9.1 **Viscosity:** 54 **Filtrate:** 7.2 **Chlorides:** 9,300 ppm

Scale 1:240 Imperial

Well Name: CARRIE #2-4
Surface Location: E2 SW SE SW S2 T12S R16W
Bottom Location:
API: 15-051-26929-00-00
License Number: 33335
Spud Date: 8/3/2018 Time: 3:15 PM
Region: ELLIS COUNTY
Drilling Completed: 8/11/2018 Time: 12:26 AM
Surface Coordinates: 330' FSL & 1772' FWL
Bottom Hole Coordinates:
Ground Elevation: 1845.00ft
K.B. Elevation: 1853.00ft
Logged Interval: 2650.00ft To: 3450.00ft
Total Depth: 3450.00ft
Formation: LKC, SIMPSON SAND
Drilling Fluid Type: CHEMICAL / FRESH WATER GEL

OPERATOR

Company: IA OPERATING, INC.
Address: 785 WEST COVELL ROAD, SUITE 200
EDMOND, OK 73003

Contact Geologist: JON ALLEN
Contact Phone Nbr: 316-721-0036
Well Name: CARRIE #2-4
Location: E2 SW SE SW S2 T12S R16W
API: 15-051-26929-00-00
Pool: State: KANSAS Field: BLUE HILL NW
Country: USA

SURFACE CO-ORDINATES

Well Type: Vertical
Longitude: -99.06920
Latitude: 39.03172
N/S Co-ord: 330' FSL
E/W Co-ord: 1772' FWL

LOGGED BY

Company: FOSSIL FUEL GEOLOGICAL SERVICES
Address: 1626 MOUNT PLEASANT ROAD
HAYS, KS 67601

Phone Nbr: (785) 650-4540
Logged By: Geologist Name: STEVE REED

CONTRACTOR

Contractor: DISCOVERY DRILLING
Rig #: 2
Rig Type: MUD ROTARY
Spud Date: 8/3/2018 Time: 3:15 PM
TD Date: 8/11/2018 Time: 12:26 AM
Rig Release: 8/12/2018 Time: 5:00 AM

ELEVATIONS

K.B. Elevation: 1853.00ft Ground Elevation: 1845.00ft
K.B. to Ground: 8.00ft

NOTES

BASED ON POSITIVE RESULTS FROM DRILL STEM TESTS #4 AND #5, THE DECISION WAS MADE TO SET 5.5" PRODUCTION CASING TO FURTHER TEST WELL POTENTIAL.

OPEN HOLE LOGGING PROVIDED BY: ELI WIRELINE
A FULL LOG SUITE WAS PERFORMED

DRILL STEM TESTING PROVIDED BY: DIAMOND TESTERS, INC

WELL COMPARISON CHART

	●								●				✕				●			
	IA OPERATING, INC.								DREILING OIL CO.				IA OPERATING, INC.				IA OPERATING, INC.			
	CARRIE #2-1								DREILING 'F' #34				CARRIE #11-1				CARRIE #2-2			
	CARRIE #2-4				NE SE NW NW S2 T12S R16W				SW NE NE SE S3 T12S R16W				NW SW NE S11 T12S R16W				S2 N2 N2 N2 S2 T12S R16W			
	KB	1853	GL	1845	KB	1765	KB	1803	KB	1843	KB	1752								
	LOG TOPS		SAMPLE TOPS		LOG		LOG	SMPL.	LOGS		LOG	SMPL.	LOGS		LOG	SMPL.	COMP. CARD		LOG	SMPL.
FORMATION	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.
ANHYDRITE TOP	1008	845	1012	841	923	842			954	849			998	845			918	834		
BASE	1044	809	1046	807	960	805							1035	808	+ 1	- 4	952	800	+ 9	+ 7
TOPEKA	2769	-916	2768	-915	2684	-919	+ 3	+ 4	2719	-916	+ 0	+ 1	2758	-915	- 1	+ 0	2676	-924	+ 8	+ 9
HEEBNER SHALE	3020	-1167	3017	-1164	2930	-1165	- 2	+ 1	2968	-1165	- 2	+ 1	3008	-1165	- 2	+ 1	2923	-1171	+ 4	+ 7
TORONTO	3040	-1187	3035	-1182	2948	-1183	- 4	+ 1	2986	-1183	- 4	+ 1	3027	-1184	- 3	+ 2	2946	-1194	+ 7	+ 12
LKC	3068	-1215	3062	-1209	2975	-1210	- 5	+ 1	3011	-1208	- 7	- 1	3056	-1213	- 2	+ 2	2970	-1218	+ 3	+ 9
BKC	3308	-1455	3308	-1455	3220	-1455	+ 0	+ 0	3254	-1451	- 4	- 4	3296	-1453	- 2	- 2	3212	-1460	+ 5	+ 5
SIMPSON SAND	3394	-1541	3392	-1539	3311	-1546	+ 5	+ 7	3324	-1521	- 20	- 18	3385	-1542	+ 1	+ 3				
ARBUCKLE	3401	-1548	3403	-1550	3319	-1554	+ 6	+ 4	3331	-1528	- 20	- 22	3395	-1552	+ 4	+ 2	3322	-1570	+ 22	+ 20
TOTAL DEPTH	3448	-1595	3450	-1597	3425	-1660	+ 65	+ 63	3420	-1617	+ 22	+ 20	3494	-1651	+ 56	+ 54	3400	-1648	+ 53	+ 51

DST #2 SUMMARY



Company: IA Operating, Inc.
Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
 County: ELLIS
 State: Kansas
 Drilling Contractor: Discovery Drilling Company, Inc. - Rig 1
 Elevation: 1845 GL
 Field Name: Blue Hill NW
 Pool: Pool Ext
 Job Number: 194

Operation:
 Uploading recovery & pressures

DATE
 August
08
 2018

DST #2 **Formation: Lansing "A-D"** **Test Interval: 3046 - 3124'** **Total Depth: 3124'**
 Time On: 20:55 08/08 Time Off: 03:02 08/09
 Time On Bottom: 22:42 08/08 Time Off Bottom: 01:12 08/09

Electronic Volume Estimate:
 70'

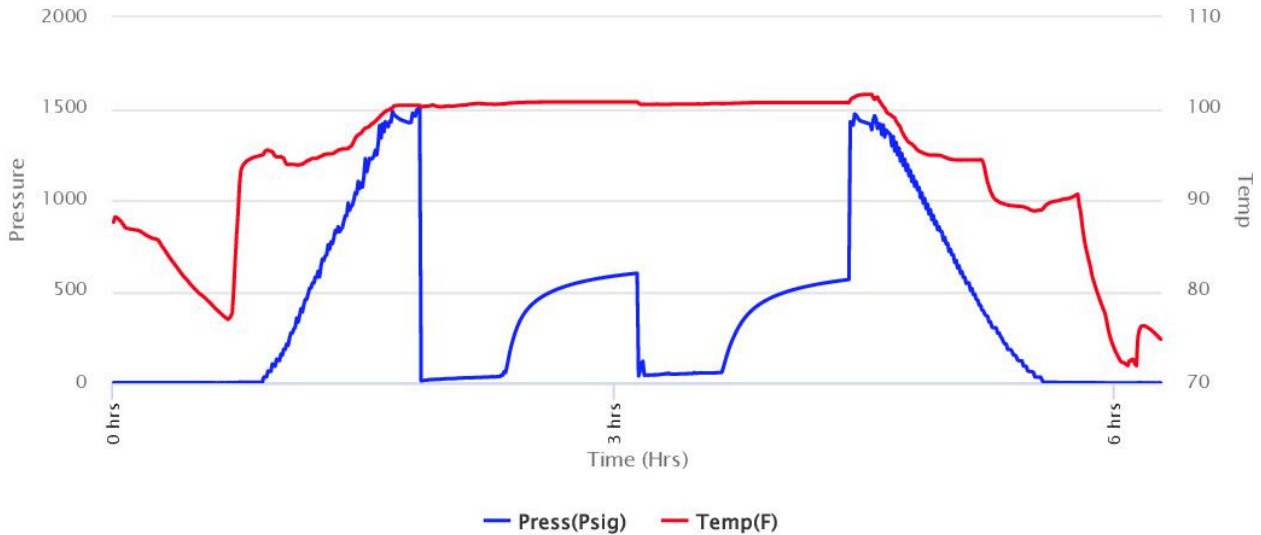
1st Open
 Minutes: 30
 Current Reading:
 2.8" at 30 min
 Max Reading: 2.8"

1st Close
 Minutes: 45
 Current Reading:
 0" at 45 min
 Max Reading: 0"

2nd Open
 Minutes: 30
 Current Reading:
 2.0" at 30 min
 Max Reading: 2.0"

2nd Close
 Minutes: 45
 Current Reading:
 0" at 45 min
 Max Reading: 0"

Inside Recorder



DST #3 SUMMARY



Company: IA Operating, Inc.
Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
 County: ELLIS
 State: Kansas
 Drilling Contractor: Discovery Drilling Company, Inc. - Rig 1
 Elevation: 1845 GL
 Field Name: Blue Hill NW
 Pool: Pool Ext
 Job Number: 194

Operation:
 Uploading recovery & pressures

DATE
 August
09
 2018

DST #3 Formation: KANSAS CITY "H-K" Test Interval: 3188 - 3285' Total Depth: 3285'
 Time On: 18:43 08/09 Time Off: 01:03 08/10
 Time On Bottom: 20:34 08/09 Time Off Bottom: 23:04 08/09

Electronic Volume Estimate:
 111'

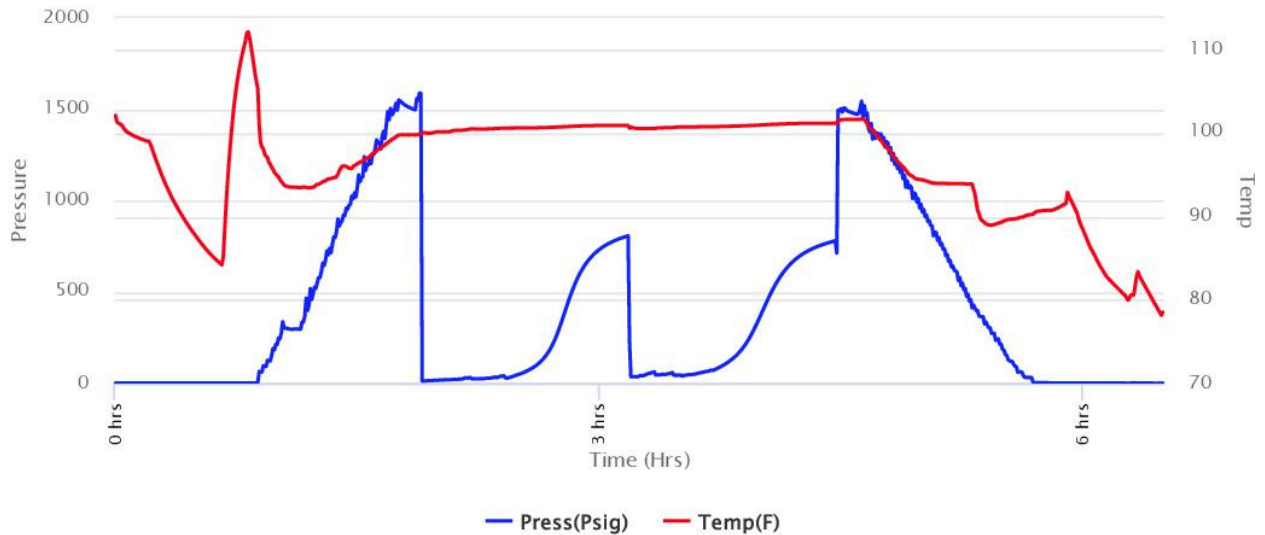
1st Open
 Minutes: 30
 Current Reading:
 3.2" at 30 min
 Max Reading: 3.2"

1st Close
 Minutes: 45
 Current Reading:
 0" at 45 min
 Max Reading: 0"

2nd Open
 Minutes: 30
 Current Reading:
 4.0" at 30 min
 Max Reading: 4.0"

2nd Close
 Minutes: 45
 Current Reading:
 0" at 45 min
 Max Reading: 0"

Inside Recorder



DST #4 SUMMARY

8/10



Company: IA Operating, Inc.
Lease: Carrie #2-4

SEC: 2 TWN: 12S RNG: 16W
 County: ELLIS
 State: Kansas
 Drilling Contractor: Discovery Drilling
 Company, Inc. - Rig 1
 Elevation: 1845 GL
 Field Name: Blue Hill NW
 Pool: Pool Ext
 Job Number: 194

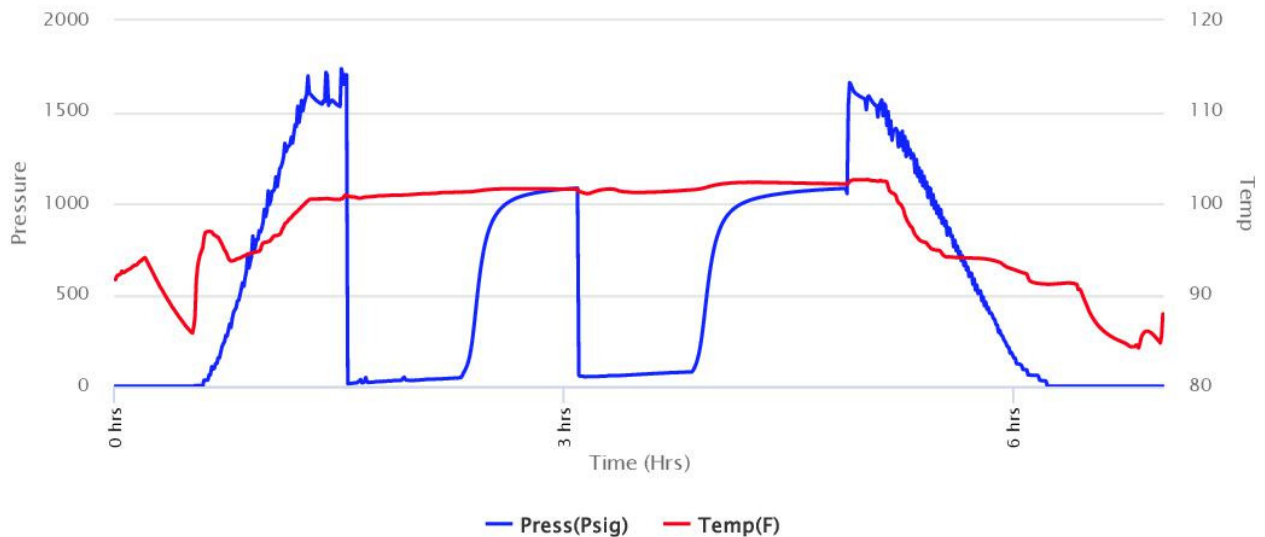
Operation:
 Uploading recovery &
 pressures

DATE
 August
10
 2018

DST #4 **Formation:** **Test Interval: 3306 -** **Total Depth: 3402'**
 Conglomerate/Simpson **3402'**
 Sand
 Time On: 13:29 08/10 Time Off: 20:18 08/10
 Time On Bottom: 14:59 08/10 Time Off Bottom: 18:14 08/10

Electronic Volume Estimate:	<u>1st Open</u> Minutes: 45 Current Reading: 10.7" at 45 min Max Reading: 10.7"	<u>1st Close</u> Minutes: 45 Current Reading: 0" at 45 min Max Reading: 0"	<u>2nd Open</u> Minutes: 45 Current Reading: 12.7" at 45 min Max Reading: 12.7"	<u>2nd Close</u> Minutes: 60 Current Reading: 0" at 60 min Max Reading: 0"
325'				

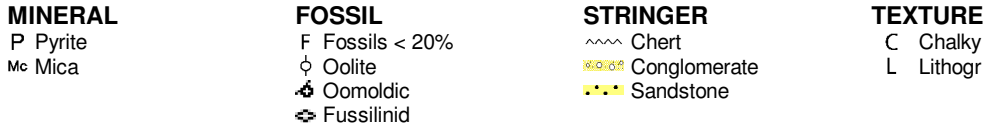
Inside Recorder



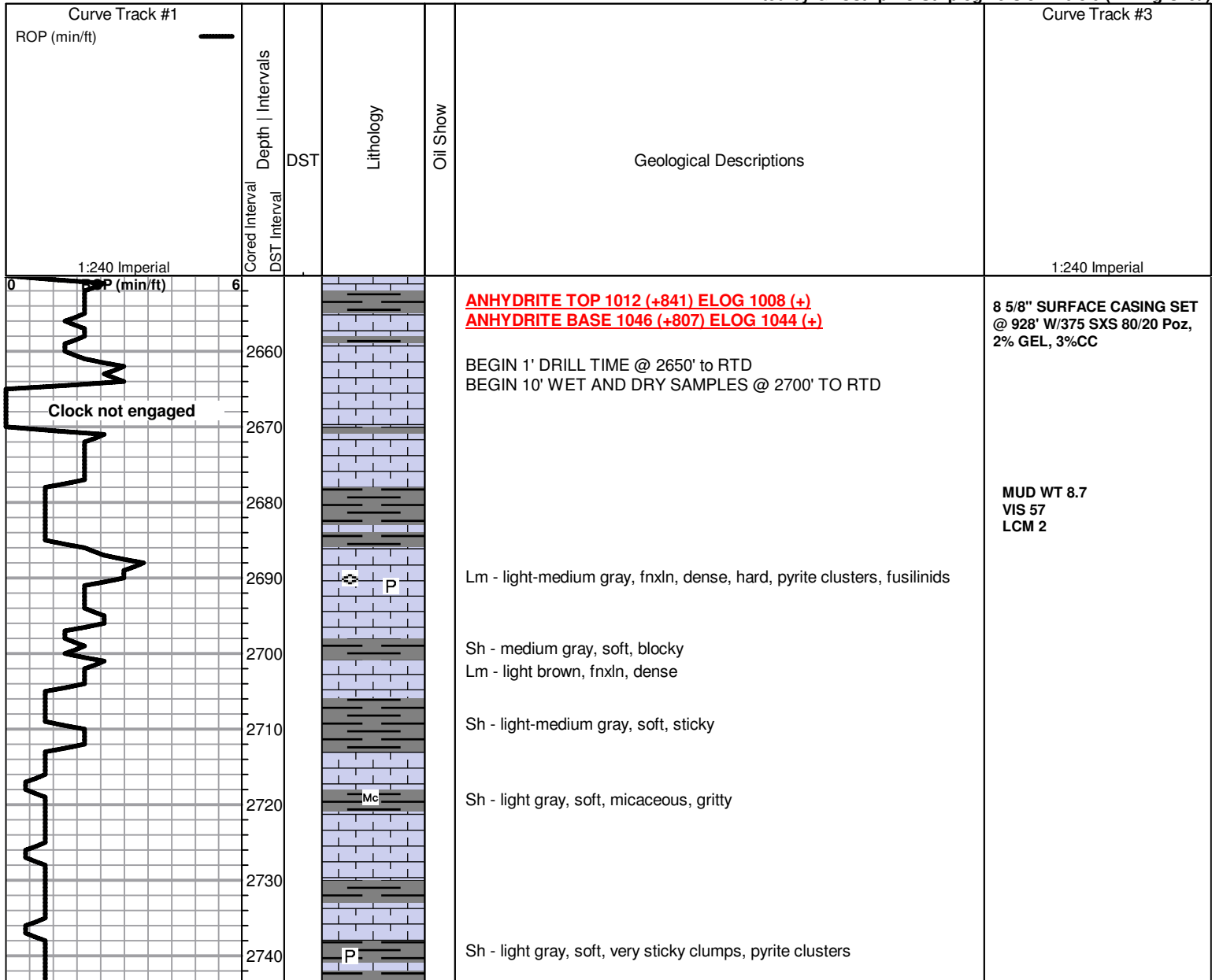
ROCK TYPES

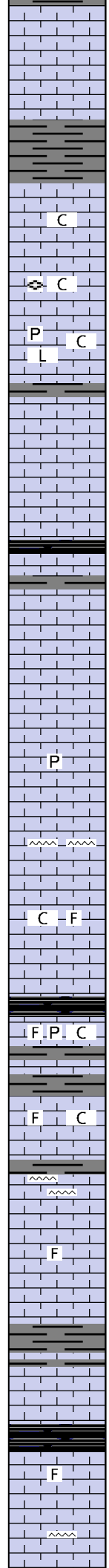
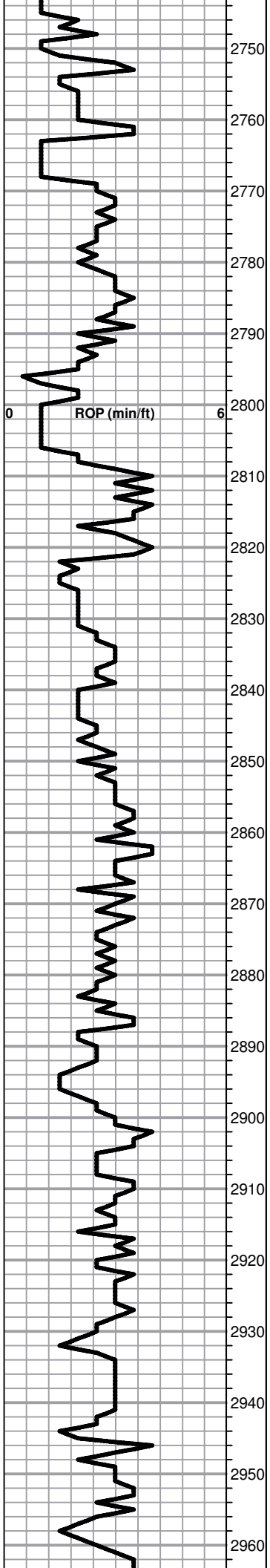


ACCESSORIES



Printed by GEOstrip VC Striplog version 4.0.8.9 (www.grsi.ca)





Lm - tan-cream, fnxn, dense, hard, limited porosity

TOPEKA SPL 2768 (-915) ELOG 2769 (-916)

Lm - cream,fnxn with secondary recrystallization, slightly chalky, no shows.

Lm - cream-light brown, fnxn, brittle, slightly chalky, fusilinids

Lm - tan, vfxln to lithographic, brittle, hard, slight chalk, pyrite

Sh - light gray, soft, blocky

Lm - light brown stain, fine intercrystalline porosity, no odor, NSFO, soft

Sh - dark gray, carbonaceous, fissile, soft

Lm - cream-light brown, fnxn, hard upon crush, limited porosity

Lm - tan, fnxn, dense, brittle upon crush

Lm - light brown-tan, vfxln, dense, hard, some with pyrite inclusions

Lm - tan-cream, vfxln, dense, hard, cherty

Lm - cream, vfxln, slightly chalky, some fossiliferous, limited porosity

Sh - black, carbonaceous, firm, fissile, gold specks

Lm - tan, slightly fossiliferous, brittle, no shows, bedded chalk, pyrite

Lm - cream, fnxn, sharp, fossiliferous in part, slight bedded chalk

Lm - AA with various colored cherts

Lm - cream, vfxln, some secondary recrystallization, slightly fossiliferous, brittle, hard

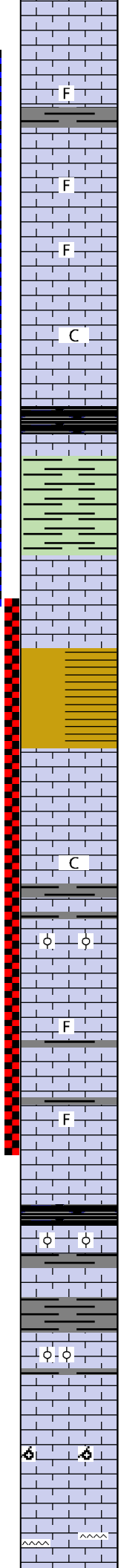
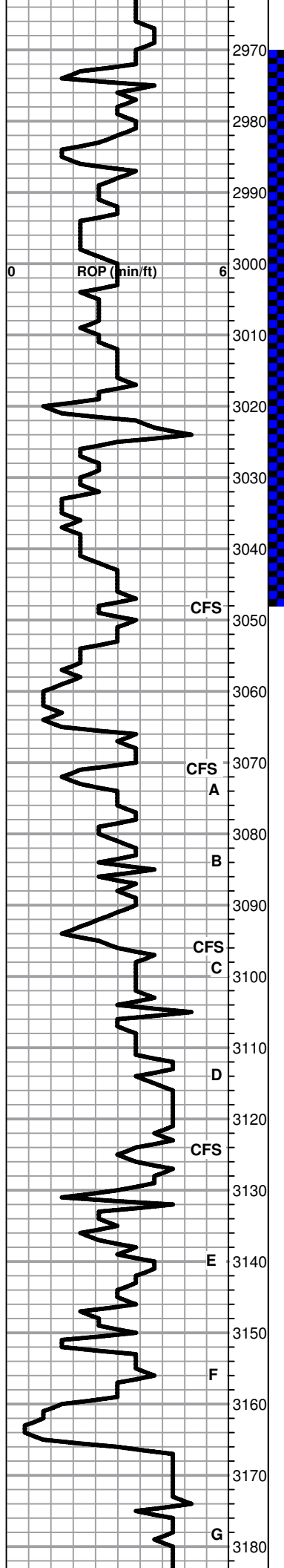
Sh - dark gray, firm, blocky

Lm - tan, vfxln, brittle, hard

Sh - black, carbonaceous, fissile, soft

Lm - tan, fnxn, slightly fossiliferous, brittle, no shows

Lm - light brown, fine pinpoint porosity, cherty, NSFO, no odor



Lm - medium brown, vfxln, some secondary recrystallization, dense, hard

F

Lm - medium-dark brown, fossiliferous, brittle, limited porosity

●

Lm - cream, fine interparticle porosity, light brown staining, SFO, good odor, slightly fossiliferous

F

F

Lm - cream - light brown, fnxln, slightly fossiliferous

C

Lm - cream-tan, fnxln, slightly chalky, no shows

HEEBNER SPL 3017 (-1164) ELOG 3020 (-1167)

Sh - black carbonaceous, fissile, soft, waxy
Lm - dove gray, fnxln, dense, hard

Sh - light green/gray, soft, blocky, some sticky

TORONTO SPL 3035 (-1082) ELOG 3040 (-1187)

●

Lm - buff, fine pinpoint porosity, SFO, fair odor, some with saturated staining

Lm - white-buff, vfxln, dense, clean, no shows

Sh - medium brown, green, gray, maroon, soft, blocky some forming very sticky clumps

LKC SPL3062 (-1209) ELOG 3068 (-1215)

●

Lm - light brown, fine pinpoint porosity, light brown staining, faint odor, good streaming wet cut under uv light, NSFO

Lm - tan, vfxln, dense, hard, no development

●

Lm - fine pinpoint porosity, saturated staining, gassy sheen, chalky in part

○

Lm - Dolomitic, cream, oolitic, with scattered staining, scattered vuggy porosity, fair odor, good streaming wet cut, gassy sheen, NSFO

F

Lm - cream, fossiliferous, limited porosity, poorly developed, no shows

○

Lm - tan, fossiliferous, interfossil porosity, scattered staining, fair odor, NSFO, some very hard due to secondary recrystallization.

Sh - black, carbonaceous, firm

●

Lm - medium brown, oolitic, fine interoolitic porosity, dark stain, fair odor, NSFO, good streaming wet cut

Sh - light-medium gray, soft, blocky

●

Lm - cream, oolitic, fossiliferous, interparticle porosity, scattered staining, NSFO, faint odor

●

Lm - cream-buff, oomoldic porosity, clean, slightly scattered stain, NSFO, no odor, friable

G

Lm - white, vfxln, very hard, dense, cherty

DST #1 TOPEKA - TORONTO
2970'-3048'
30-45-30-45

120' MUD

IFP: 10-39#
FFP: 41-65#
SIP: 818-801#

MUD WT 9.0
VIS 53
LCM 2

SURVEY @ 3048 1/2 DEGREE STRAP .47' LONG TO BOARD

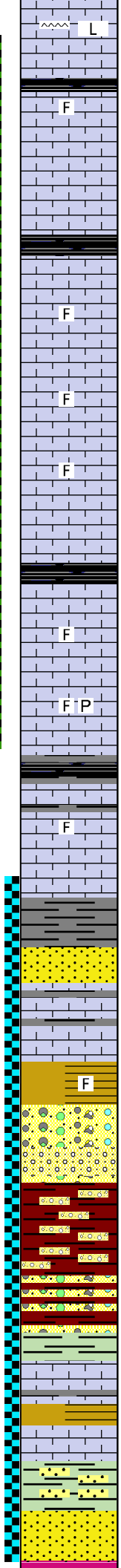
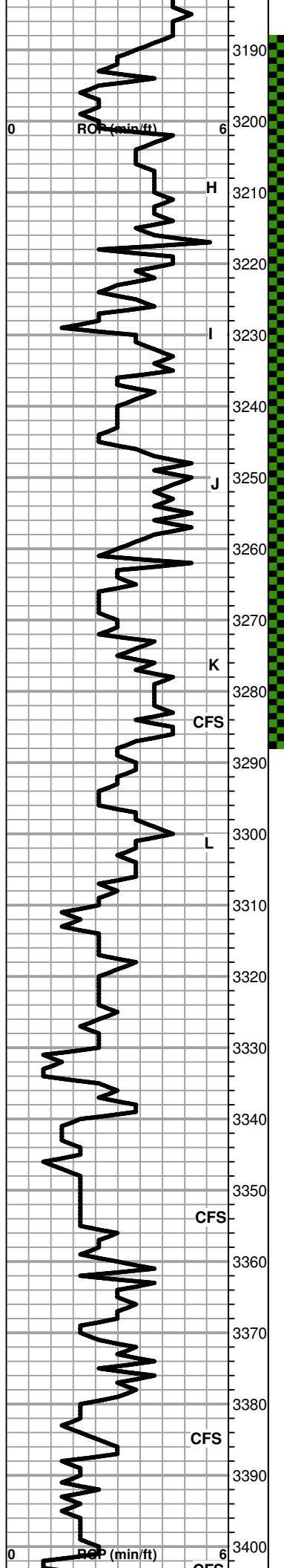
DST #2 LANSING A-D
3046'-3124'
30-45-30-45

80' MUD

IFP: 12-34#
FFP: 38-56#
SIP: 600-565#

SEE HEADER FOR CHART

MUD WT 9.2
VIS 46
LCM 1



Lm - tan, vfxln to lithographic, dense, hard, white chert

Lm - cream-tan, light golden brown stain, fossiliferous, fine interparticle porosity, questionable odor, NSFO, tight

Lm - tan, vfxln, dense, hard, slightly cherty

Sh - black, carbonaceous, waxy, soft

Lm - cream, fossiliferous, fine pinpoint porosity, scattered light brown stain, NSFO, faint odor

Lm - tan, fossiliferous, fnxln, limited porosity, brittle

Lm - off white, fossiliferous, scattered staining, fine pinpoint porosity, fair odor, NSFO, good streaming wet cut

Sh - black, carbonaceous

Lm - tan, fossiliferous, clastic, fine interparticle porosity, scattered stain, SFO, good odor, limited total porosity.

Lm - cream, slightly fossiliferous, vfxln, dense, hard, pyrite inclusions

Sh - dark gray- black, soft, blocky

Lm - tan, fossiliferous, slight interparticle porosity, scattered stain, NSFO, no odor, hard

BKC SPL 3308 (-1455) ELOG 3308 (-1455)

Sh - medium gray, soft, blocky

Sd - fn grained, well sorted, well rounded, friable, saturated stain, sl SFO, no odor, good wet cut.

Lm - light gray-tan, fnxln, dense

Sh - brown orange, soft, blocky, some sticky

CONGLOMERATE SPL 3337 (-1484) ELOG 3338 (-1485)

Chty Con - various colored cherts, shales, and limestones

Sd - fn grained, dark saturated stain with SFO and faint odor, streaming wet cut. well rounded, well sorted, friable

Conglomerate A/A very cherty, red wash forming from orange reddish brown sticky shale

Sh - aqua green, soft, waxy, pyrite specks

Lm - cream granular, soft on crush, no shows

Sh - brown-gray, soft, waxy, some sticky

Lm - dolomitic, cream-buff, slightly fossiliferous, vfxln, hard

Sd-Sh - green, sucrosic, friable, waxy, no shows

SIMPSON SAND SPL 3392 (-1539) ELOG 3394 (-1541)

Sd - clear clusters, med grained, well sorted, angular, very well cemented, saturated with free oil, fair odor

ARBUCKLE SPL 3403 (-1550) ELOG 3401 (-1548)

DST #3 KC H-K
 3188'-3285'
 30-45-30-45

70' SLOCM
 (15%O, 85%M)

IFP: 12-29#
FFP: 36-72#
SIP: 807-780#

SEE HEADER FOR CHART

DST #4 CONGLOMERATE AND SIMPSON SAND

3306'-3402'
 45-45-45-60

310' total fluid
 155' GIP
 30' SLGCO
 (97%O, 3%M)
 65 SLGCSLMCO
 (96%O, 2%G, 2%M)
 60' GCOCM
 (20%G, 30%O, 50%M)

IFP: 14-48#
FFP: 54-79#
SIP: 1084-1083#

SEE HEADER FOR CHART

MUD WT 9.1
VIS 54
LCM 1

DST #5 ARBUCKLE

