

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)</i> <i>(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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Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
 County: NORTON
 State: Kansas
 Drilling Contractor: L. D. Drilling, Inc - Rig 1
 Elevation: 2269 EGL
 Field Name: Voss NW
 Pool: Infield
 Job Number: 434
 API #: 15-137-20755-00-00

Operation:
 Uploading recovery & pressures

DATE
 February
11
 2020

DST #1 **Formation: Toronto - LKC "A"** **Test Interval: 3385 - 3442'** **Total Depth: 3442'**
 Time On: 01:31 02/11 Time Off: 09:44 02/11
 Time On Bottom: 04:08 02/11 Time Off Bottom: 07:08 02/11

Electronic Volume Estimate:
 1342'

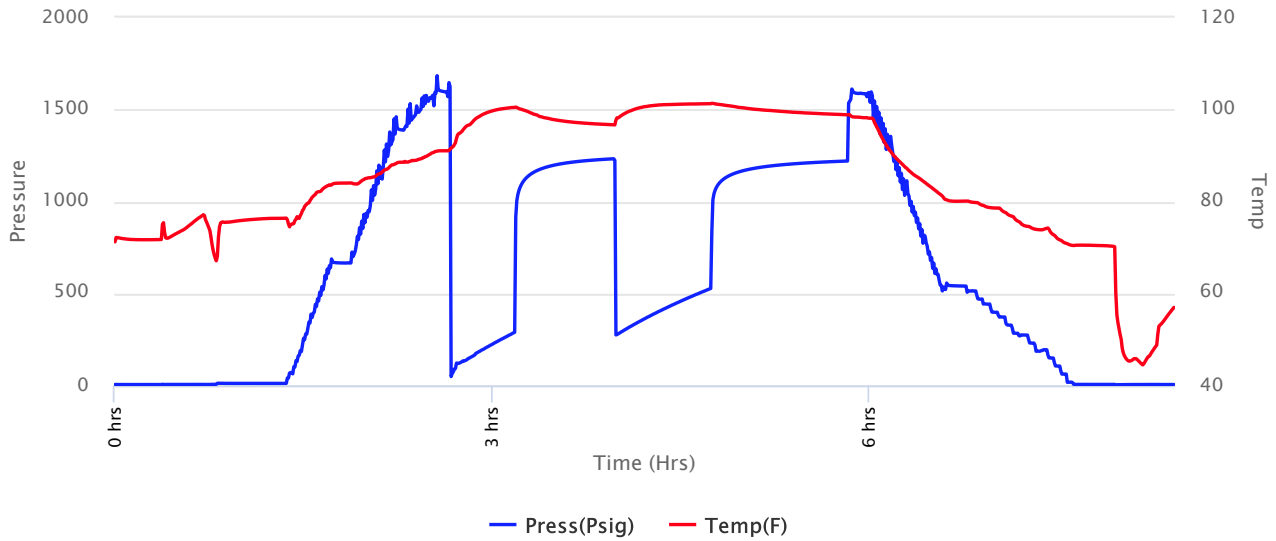
1st Open
 Minutes: 30
 Current Reading: 72.3" at 30 min
 Max Reading: 72.3"

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

2nd Open
 Minutes: 45
 Current Reading: 95.1" at 45 min
 Max Reading: 95.1"

2nd Close
 Minutes: 60
 Current Reading: 0" at 60 min
 Max Reading: 0"

Inside Recorder





Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
 County: NORTON
 State: Kansas
 Drilling Contractor: L. D. Drilling, Inc - Rig 1
 Elevation: 2269 EGL
 Field Name: Voss NW
 Pool: Infield
 Job Number: 434
 API #: 15-137-20755-00-00

Operation:
 Uploading recovery & pressures

DATE
 February
11
 2020

DST #1 **Formation: Toronto - LKC "A"** **Test Interval: 3385 - 3442'** **Total Depth: 3442'**
 Time On: 01:31 02/11 Time Off: 09:44 02/11
 Time On Bottom: 04:08 02/11 Time Off Bottom: 07:08 02/11

Recovered

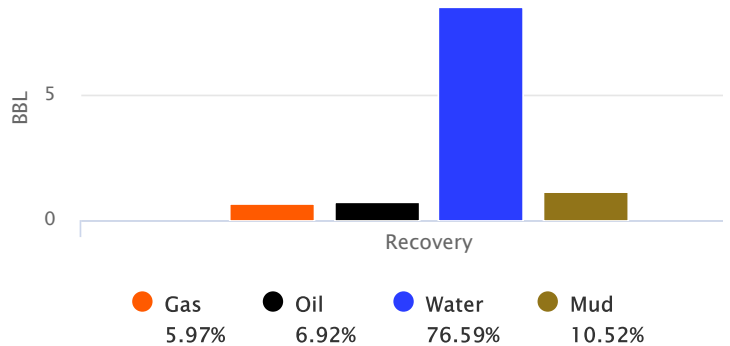
Foot	BBLs	Description of Fluid	Gas %	Oil %	Water %	Mud %
78	0.80028	SLGCSLMCOCW	10	20	55	15
189	1.93914	SLGCSLOCHMCW	5	10	55	30
189	1.93914	SLMCSLOCGCW	20	10	60	10
63	0.64638	SLGCSLMCHOCW	15	30	40	15
126	1.29276	SLOCSLMCW	0	2	88	10
436	4.47336	SLMCW	0	0	99	1

Total Recovered: 1081 ft
 Total Barrels Recovered: 11.09106

Reversed Out
NO

Initial Hydrostatic Pressure	1607	PSI
Initial Flow	49 to 287	PSI
Initial Closed in Pressure	1233	PSI
Final Flow Pressure	277 to 523	PSI
Final Closed in Pressure	1220	PSI
Final Hydrostatic Pressure	1590	PSI
Temperature	102	°F
Pressure Change Initial Close / Final Close	1.0	%

Recovery at a glance



GIP cubic foot volume: 3.71551



Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
 County: NORTON
 State: Kansas
 Drilling Contractor: L. D. Drilling, Inc - Rig 1
 Elevation: 2269 EGL
 Field Name: Voss NW
 Pool: Infield
 Job Number: 434
 API #: 15-137-20755-00-00

Operation:
 Uploading recovery & pressures

DATE
 February
11
 2020

DST #1 **Formation: Toronto - LKC "A"** **Test Interval: 3385 - 3442'** **Total Depth: 3442'**
 Time On: 01:31 02/11 Time Off: 09:44 02/11
 Time On Bottom: 04:08 02/11 Time Off Bottom: 07:08 02/11

Down Hole Makeup

Heads Up: 19.04 FT	Packer 1: 3380.45 FT
Drill Pipe: 3371.92 FT <i>ID-3 1/4</i>	Packer 2: 3385.45 FT
Weight Pipe: 0 FT <i>ID-2 7/8</i>	Top Recorder: 3369.87 FT
Collars: 0 FT <i>ID-2 1/4</i>	Bottom Recorder: 3389 FT
Test Tool: 33.57 FT <i>ID-3 1/2-FH</i> <i>Jars</i> <i>Safety Joint</i>	Well Bore Size: 7 7/8
Total Anchor: 56.55	Surface Choke: 1"
Anchor Makeup	Bottom Choke: 5/8"
Packer Sub: 1 FT	
Perforations: (top): 20 FT <i>4 1/2-FH</i>	
Change Over: .5 FT	
Drill Pipe: (in anchor): 31.55 FT <i>ID-3 1/4</i>	
Change Over: .5 FT	
Perforations: (below): 3 FT <i>4 1/2-FH</i>	



Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
 County: NORTON
 State: Kansas
 Drilling Contractor: L. D. Drilling, Inc - Rig 1
 Elevation: 2269 EGL

Uploading recovery & pressures

Pool: Infield
Job Number: 434
API #: 15-137-20755-00-00

DATE
February
11
2020

DST #1 **Formation: Toronto - LKC "A"** **Test Interval: 3385 - 3442'** **Total Depth: 3442'**
Time On: 01:31 02/11 Time Off: 09:44 02/11
Time On Bottom: 04:08 02/11 Time Off Bottom: 07:08 02/11

Gas Volume Report

1st Open			
Time	Orifice	PSI	MCF/D

2nd Open			
Time	Orifice	PSI	MCF/D



Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
 County: NORTON
 State: Kansas
 Drilling Contractor: L. D. Drilling, Inc - Rig 1
 Elevation: 2269 EGL
 Field Name: Voss NW
 Pool: Infield
 Job Number: 434
 API #: 15-137-20755-00-00

Operation:
 Uploading recovery & pressures

DATE
 February
11
 2020

DST #2 Formation: LKC "B" Test Interval: 3447 - 3470' Total Depth: 3470'
 Time On: 16:54 02/11 Time Off: 00:12 02/12
 Time On Bottom: 19:00 02/11 Time Off Bottom: 22:00 02/11

Electronic Volume Estimate:
 1192'

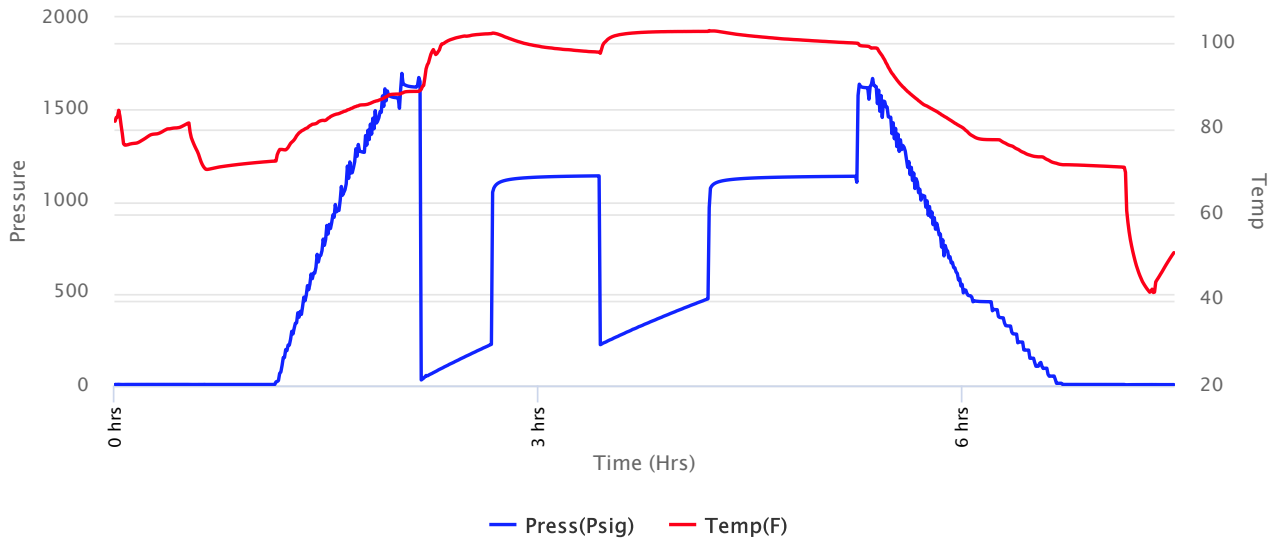
1st Open
 Minutes: 30
 Current Reading: 58.7" at 30 min
 Max Reading: 58.7"

1st Close
 Minutes: 45
 Current Reading: .1" at 45 min
 Max Reading: .2"

2nd Open
 Minutes: 45
 Current Reading: 84.3" at 45 min
 Max Reading: 84.3"

2nd Close
 Minutes: 60
 Current Reading: 0" at 60 min
 Max Reading: 0"

Inside Recorder





Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
 County: NORTON
 State: Kansas
 Drilling Contractor: L. D. Drilling, Inc - Rig 1
 Elevation: 2269 EGL
 Field Name: Voss NW
 Pool: Infield
 Job Number: 434
 API #: 15-137-20755-00-00

Operation:
 Uploading recovery & pressures

DATE
 February
11
 2020

DST #2 Formation: LKC "B" Test Interval: 3447 - Total Depth: 3470'
3470'
 Time On: 16:54 02/11 Time Off: 00:12 02/12
 Time On Bottom: 19:00 02/11 Time Off Bottom: 22:00 02/11

Recovered

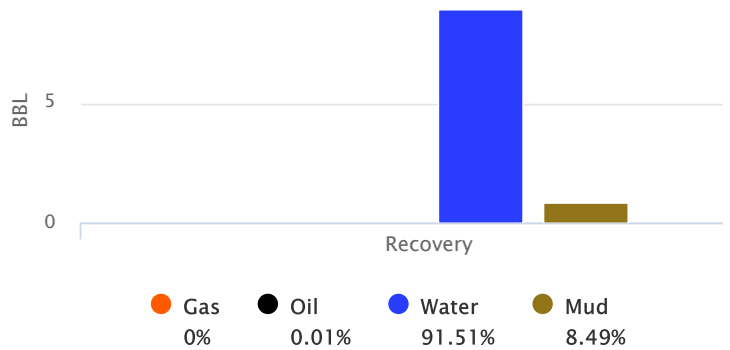
Foot	BCLS	Description of Fluid	Gas %	Oil %	Water %	Mud %
73	0.74898	HWCM (trace O)	0	.1	49.9	50
63	0.64638	SLMCW	0	0	85	15
189	1.93914	SLMCW	0	0	90	10
620	6.3612	SLMCW	0	0	99	1
10	0.1026	M	0	0	0	100

Total Recovered: 955 ft
 Total Barrels Recovered: 9.7983

Reversed Out
NO

Initial Hydrostatic Pressure	1674	PSI
Initial Flow	40 to 218	PSI
Initial Closed in Pressure	1139	PSI
Final Flow Pressure	235 to 467	PSI
Final Closed in Pressure	1137	PSI
Final Hydrostatic Pressure	1626	PSI
Temperature	103	°F
Pressure Change Initial Close / Final Close	0.2	%

Recovery at a glance



GIP cubic foot volume: 0



Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
County: NORTON
State: Kansas
Drilling Contractor: L. D. Drilling, Inc -
Rig 1
Elevation: 2269 EGL
Field Name: Voss NW
Pool: Infield
Job Number: 434
API #: 15-137-20755-00-00

Operation:
Uploading recovery &
pressures

DATE
February
11
2020

DST #2 Formation: LKC "B" Test Interval: 3447 - Total Depth: 3470'
3470'
Time On: 16:54 02/11 Time Off: 00:12 02/12
Time On Bottom: 19:00 02/11 Time Off Bottom: 22:00 02/11

BUCKET MEASUREMENT:

1st Open: Bob in 5 min 45 sec.

1st Close: Surface Return started at 7 min. Built to 1/4" then died back to surface return.

2nd Open: BoB in 5 min.

2nd Close: No Return

REMARKS:

Tool Sample: 0% Gas .1% Oil 89.9% Water 10% Mud

Ph: 7

Measured RW: .23 @ 30 degrees °F

RW at Formation Temp: 0.077 @ 103 °F

Chlorides: 44000 ppm



Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
 County: NORTON
 State: Kansas
 Drilling Contractor: L. D. Drilling, Inc - Rig 1
 Elevation: 2269 EGL
 Field Name: Voss NW
 Pool: Infield
 Job Number: 434
 API #: 15-137-20755-00-00

Operation:
 Uploading recovery & pressures

DATE
 February
11
 2020

DST #2 **Formation: LKC "B"** **Test Interval: 3447 - 3470'** **Total Depth: 3470'**
 Time On: 16:54 02/11 Time Off: 00:12 02/12
 Time On Bottom: 19:00 02/11 Time Off Bottom: 22:00 02/11

Down Hole Makeup

Heads Up: 20.6 FT	Packer 1: 3442 FT
Drill Pipe: 3435.03 FT <i>ID-3 1/4</i>	Packer 2: 3447 FT
Weight Pipe: 0 FT <i>ID-2 7/8</i>	Top Recorder: 3431.42 FT
Collars: 0 FT <i>ID-2 1/4</i>	Bottom Recorder: 3450 FT
Test Tool: 33.57 FT <i>ID-3 1/2-FH</i> <i>Jars</i> <i>Safety Joint</i>	Well Bore Size: 7 7/8
Total Anchor: 23	Surface Choke: 1"
Anchor Makeup	Bottom Choke: 5/8"
Packer Sub: 1 FT	
Perforations: (top): 0 FT <i>4 1/2-FH</i>	
Change Over: 0 FT	
Drill Pipe: (in anchor): 0 FT <i>ID-3 1/4</i>	
Change Over: 0 FT	
Perforations: (below): 22 FT <i>4 1/2-FH</i>	



Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
 County: NORTON
 State: Kansas
 Drilling Contractor: L. D. Drilling, Inc - Rig 1
 Elevation: 2269 EGL

Operation:
Uploading recovery &
pressures

Field Name: Voss NW
Pool: Infield
Job Number: 434
API #: 15-137-20755-00-00

DATE
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11
2020

DST #2 Formation: LKC "B" Test Interval: 3447 - Total Depth: 3470'
3470'
Time On: 16:54 02/11 Time Off: 00:12 02/12
Time On Bottom: 19:00 02/11 Time Off Bottom: 22:00 02/11

Mud Properties

Mud Type: Chem **Weight:** 8.9 **Viscosity:** 60 **Filtrate:** 6.0 **Chlorides:** 800 ppm



Operation:

Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
County: NORTON
State: Kansas
Drilling Contractor: L. D. Drilling, Inc -
Rig 1
Elevation: 2269 EGL
Field Name: Voss NW

Uploading recovery & pressures

Pool: Infield
Job Number: 434
API #: 15-137-20755-00-00

DATE
February
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2020

DST #2 Formation: LKC "B" Test Interval: 3447 - Total Depth: 3470'
3470'
Time On: 16:54 02/11 Time Off: 00:12 02/12
Time On Bottom: 19:00 02/11 Time Off Bottom: 22:00 02/11

Gas Volume Report

1st Open			
Time	Orifice	PSI	MCF/D

2nd Open			
Time	Orifice	PSI	MCF/D



Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
 County: NORTON
 State: Kansas
 Drilling Contractor: L. D. Drilling, Inc - Rig 1
 Elevation: 2269 EGL
 Field Name: Voss NW
 Pool: Infield
 Job Number: 434
 API #: 15-137-20755-00-00

Operation:
 Uploading recovery & pressures

DATE
 February
12
 2020

DST #3 **Formation: LKC "G-J"** **Test Interval: 3492 - 3584'** **Total Depth: 3584'**
 Time On: 12:15 02/12 Time Off: 20:15 02/12
 Time On Bottom: 14:08 02/12 Time Off Bottom: 17:08 02/12

Electronic Volume Estimate:
 2095'

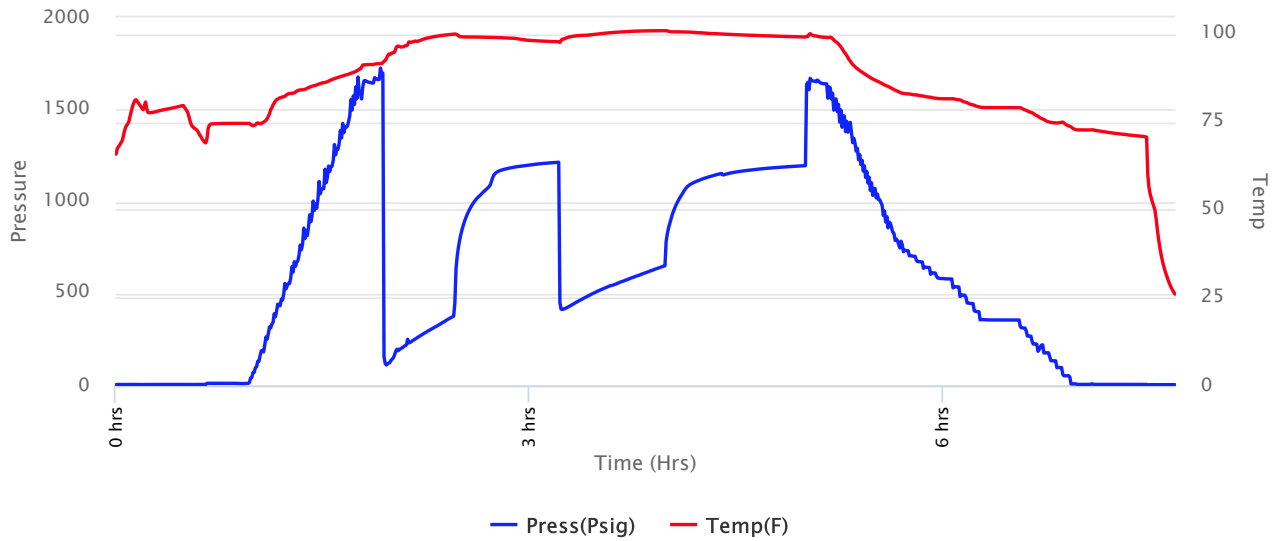
1st Open
 Minutes: 30
 Current Reading:
 129.3" at 30 min
 Max Reading: 129.3"

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

2nd Open
 Minutes: 45
 Current Reading:
 148.1" at 45 min
 Max Reading: 148.1"

2nd Close
 Minutes: 60
 Current Reading:
 0" at 60 min
 Max Reading: 0"

Inside Recorder





Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
 County: NORTON
 State: Kansas
 Drilling Contractor: L. D. Drilling, Inc - Rig 1
 Elevation: 2269 EGL
 Field Name: Voss NW
 Pool: Infield
 Job Number: 434
 API #: 15-137-20755-00-00

Operation:
 Uploading recovery & pressures

DATE
 February
12
 2020

DST #3 Formation: LKC "G-J" Test Interval: 3492 - 3584' Total Depth: 3584'
 Time On: 12:15 02/12 Time Off: 20:15 02/12
 Time On Bottom: 14:08 02/12 Time Off Bottom: 17:08 02/12

Recovered

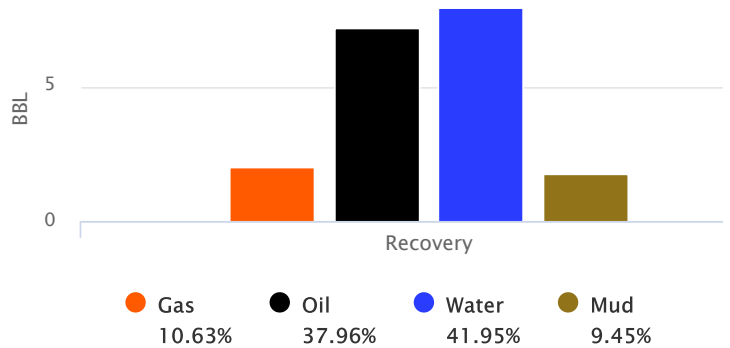
Foot	BBLs	Description of Fluid	Gas %	Oil %	Water %	Mud %
10	0.1026	SLMCHWCO	0	50	40	10
126	1.29276	SLGCSLMCWCO	10	55	20	15
189	1.93914	SLGCMCWCO	5	50	25	20
252	2.58552	SLMCSLGCWCO	10	60	25	5
315	3.2319	SLMCSLGCHWCO	10	50	30	10
252	2.58552	SLGCSLMCHOCW	10	40	40	10
315	3.2319	SLMCGCHOCW	20	30	40	10
189	1.93914	SLMCSLOCSLGCW	10	10	75	5
189	1.93914	SLMCSLOCSLGCW	5	3	89	3

Total Recovered: 1837 ft
 Total Barrels Recovered: 18.84762

Reversed Out
 NO

Initial Hydrostatic Pressure 1665 PSI
 Initial Flow 121 to 377 PSI
Initial Closed in Pressure 1210 PSI
 Final Flow Pressure 420 to 640 PSI
Final Closed in Pressure 1195 PSI
 Final Hydrostatic Pressure 1651 PSI
 Temperature 101 °F
 Pressure Change Initial 1.2 %
 Close / Final Close

Recovery at a glance



GIP cubic foot volume: 11.25021



Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
County: NORTON
State: Kansas
Drilling Contractor: L. D. Drilling, Inc -
Rig 1
Elevation: 2269 EGL
Field Name: Voss NW
Pool: Infield
Job Number: 434
API #: 15-137-20755-00-00

Operation:

Uploading recovery &
pressures

DATE

February
12
2020

DST #3 **Formation: LKC "G-
J"** **Test Interval: 3492 -
3584'** **Total Depth: 3584'**
Time On: 12:15 02/12 Time Off: 20:15 02/12
Time On Bottom: 14:08 02/12 Time Off Bottom: 17:08 02/12

BUCKET MEASUREMENT:

1st Open: BoB in 45 sec.

1st Close: No Return

2nd Open: BoB in 1 min. 53 sec.

2nd Close: No Return

REMARKS:

Chase tol approx 5' to bottom.

Tool Sample: 0% Gas 3% Oil 92% Water 5% Mud

Ph: 7

Measured RW: .24 @ 25 degrees °F

RW at Formation Temp: 0.071 @ 101 °F

Chlorides: 55000 ppm



Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
 County: NORTON
 State: Kansas
 Drilling Contractor: L. D. Drilling, Inc - Rig 1
 Elevation: 2269 EGL
 Field Name: Voss NW
 Pool: Infield
 Job Number: 434
 API #: 15-137-20755-00-00

Operation:
 Uploading recovery & pressures

DATE
 February
12
 2020

DST #3 **Formation: LKC "G-J"** **Test Interval: 3492 - 3584'** **Total Depth: 3584'**
 Time On: 12:15 02/12 Time Off: 20:15 02/12
 Time On Bottom: 14:08 02/12 Time Off Bottom: 17:08 02/12

Down Hole Makeup

Heads Up:	7.159999999999999 FT	Packer 1:	3486.97 FT
Drill Pipe:	3466.56 FT	Packer 2:	3491.97 FT
	<i>ID-3 1/4</i>	Top Recorder:	3476.39 FT
Weight Pipe:	0 FT	Bottom Recorder:	3495 FT
	<i>ID-2 7/8</i>	Well Bore Size:	7 7/8
Collars:	0 FT	Surface Choke:	1"
	<i>ID-2 1/4</i>	Bottom Choke:	5/8"
Test Tool:	33.57 FT		
	<i>ID-3 1/2-FH</i>		
	<i>Jars</i>		
	<i>Safety Joint</i>		
Total Anchor:	92.03		
	<u>Anchor Makeup</u>		
Packer Sub:	1 FT		
Perforations: (top):	24 FT		
	<i>4 1/2-FH</i>		
Change Over:	.5 FT		
Drill Pipe: (in anchor):	63.03 FT		
	<i>ID-3 1/4</i>		
Change Over:	.5 FT		
Perforations: (below):	3 FT		
	<i>4 1/2-FH</i>		



Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
 County: NORTON
 State: Kansas
 Drilling Contractor: L. D. Drilling, Inc - Rig 1
 Elevation: 2269 EGL

Operation:
Uploading recovery &
pressures

Field Name: Voss NW
Pool: Infield
Job Number: 434
API #: 15-137-20755-00-00

DATE
February
12
2020

DST #3 **Formation: LKC "G-
J"** **Test Interval: 3492 -
3584'** **Total Depth: 3584'**
Time On: 12:15 02/12 Time Off: 20:15 02/12
Time On Bottom: 14:08 02/12 Time Off Bottom: 17:08 02/12

Mud Properties

Mud Type: Chem **Weight:** 9.0 **Viscosity:** 60 **Filtrate:** 6.0 **Chlorides:** 1000 ppm



Operation:

Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
County: NORTON
State: Kansas
Drilling Contractor: L. D. Drilling, Inc -
Rig 1
Elevation: 2269 EGL
Field Name: Voss NW



Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
 County: NORTON
 State: Kansas
 Drilling Contractor: L. D. Drilling, Inc - Rig 1
 Elevation: 2269 EGL
 Field Name: Voss NW
 Pool: Infield
 Job Number: 434
 API #: 15-137-20755-00-00

Operation:
 Uploading recovery & pressures

DATE
 February
13
 2020

DST #4 Formation: LKC " K Test Interval: 3580 - Total Depth: 3625'
 " **3625'**
 Time On: 07:04 02/13 Time Off: 14:24 02/13
 Time On Bottom: 08:53 02/13 Time Off Bottom: 11:53 02/13

Recovered

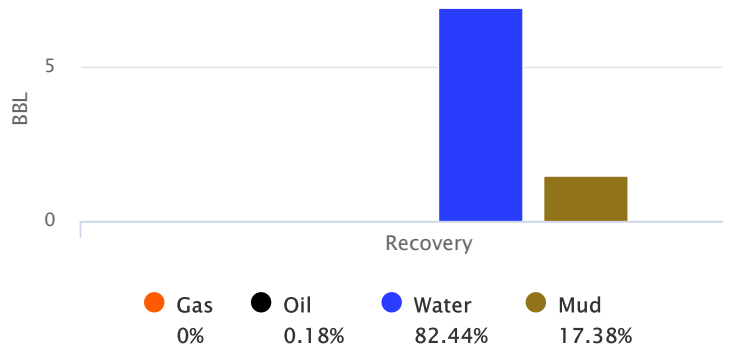
Foot	BCLS	Description of Fluid	Gas %	Oil %	Water %	Mud %
126	1.29276	SLOCHWCM	0	1	39	60
189	1.93914	HMCW (trace O)	0	.1	69.9	30
126	1.29276	SLMCW	0	0	95	5
378	3.87828	SLMCW	0	0	99	1

Total Recovered: 819 ft
 Total Barrels Recovered: 8.40294

Reversed Out
 NO

Initial Hydrostatic Pressure	1700	PSI
Initial Flow	35 to 199	PSI
Initial Closed in Pressure	1213	PSI
Final Flow Pressure	211 to 395	PSI
Final Closed in Pressure	1196	PSI
Final Hydrostatic Pressure	1694	PSI
Temperature	104	°F
Pressure Change Initial Close / Final Close	1.4	%

Recovery at a glance



GIP cubic foot volume: 0



Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
County: NORTON
State: Kansas
Drilling Contractor: L. D. Drilling, Inc -
Rig 1
Elevation: 2269 EGL
Field Name: Voss NW
Pool: Infield
Job Number: 434
API #: 15-137-20755-00-00

Operation:

Uploading recovery &
pressures

DATE

February
13
2020

DST #4	Formation: LKC " K	Test Interval: 3580 -	Total Depth: 3625'
	"	3625'	
	Time On: 07:04 02/13	Time Off: 14:24 02/13	
	Time On Bottom: 08:53 02/13	Time Off Bottom: 11:53 02/13	

BUCKET MEASUREMENT:

Diesel in Bucket

1st Open: BoB in 4 min. 32 sec.

1st Close: Surface return started at 7 min. Built to 1/8" over 45 min.

2nd Open: Bob in 10 min 13 sec.

2nd Close: No Return

REMARKS:

Tool Sample: 0% Gas 1% Oil 89% Water 10% Mud

Ph: 7

Measured RW: .22 @ 25 degrees °F

RW at Formation Temp: 0.063 @ 104 °F

Chlorides: 50000 ppm



Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
 County: NORTON
 State: Kansas
 Drilling Contractor: L. D. Drilling, Inc - Rig 1
 Elevation: 2269 EGL
 Field Name: Voss NW
 Pool: Infield
 Job Number: 434
 API #: 15-137-20755-00-00

Operation:
 Uploading recovery & pressures

DATE
 February
14
 2020

DST #5 Formation: Gorham snd. Test Interval: 3682 - 3700' Total Depth: 3700'
 Time On: 01:09 02/14 Time Off: 09:37 02/14
 Time On Bottom: 03:40 02/14 Time Off Bottom: 06:40 02/14

Electronic Volume Estimate:
 44'

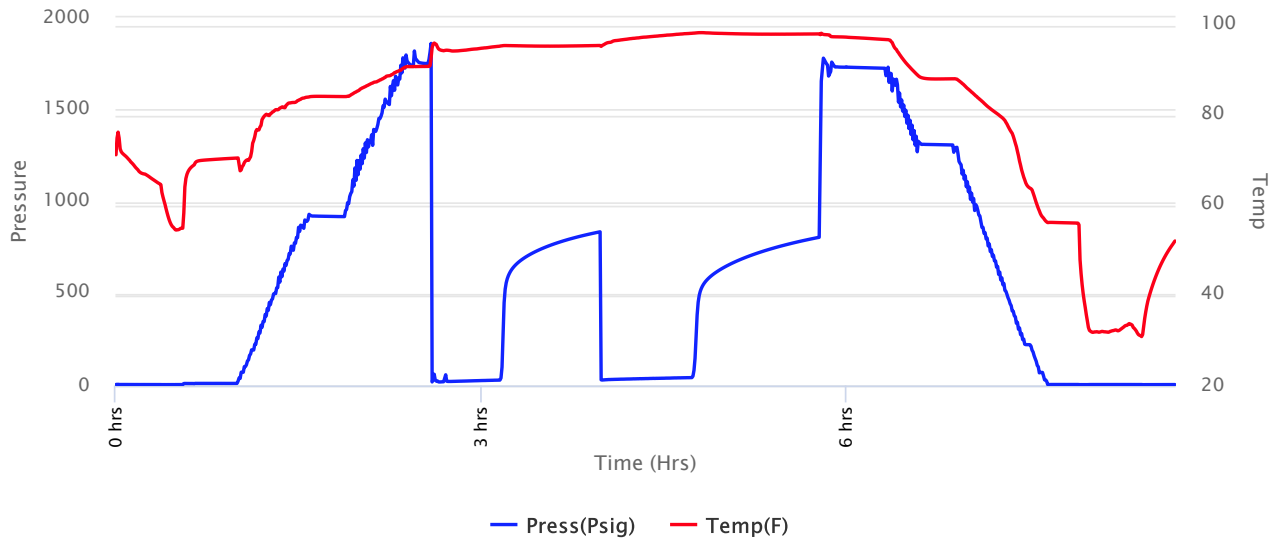
1st Open
 Minutes: 30
 Current Reading: 3" at 30 min
 Max Reading: 3"

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

2nd Open
 Minutes: 45
 Current Reading: 1.5" at 45 min
 Max Reading: 1.5"

2nd Close
 Minutes: 60
 Current Reading: 0" at 60 min
 Max Reading: 0"

Inside Recorder





Company: L. D. Drilling, Inc
Lease: Watson #1-31

SEC: 31 TWN: 4S RNG: 22W
 County: NORTON
 State: Kansas
 Drilling Contractor: L. D. Drilling, Inc - Rig 1
 Elevation: 2269 EGL
 Field Name: Voss NW
 Pool: Infield
 Job Number: 434
 API #: 15-137-20755-00-00

Operation:
 Uploading recovery & pressures

DATE
 February
14
 2020

DST #5 Formation: Gorham snd. Test Interval: 3682 - 3700' Total Depth: 3700'
 Time On: 01:09 02/14 Time Off: 09:37 02/14
 Time On Bottom: 03:40 02/14 Time Off Bottom: 06:40 02/14

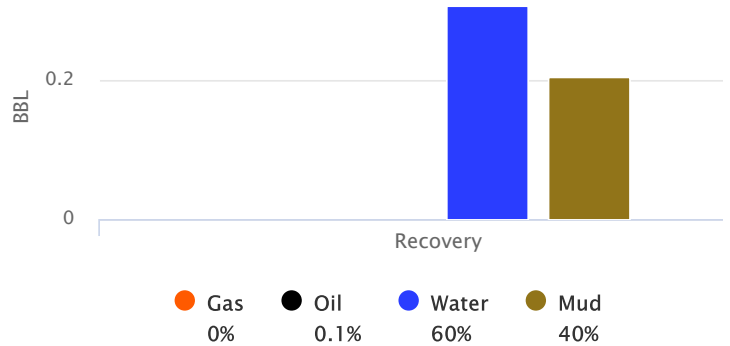
Recovered		Description of Fluid	Gas %	Oil %	Water %	Mud %
Foot	BBLs					
50	0.513	HMCW (trace O)	0	.1	60	40

Total Recovered: 50 ft
 Total Barrels Recovered: 0.513

Reversed Out
NO

Initial Hydrostatic Pressure	1751	PSI
Initial Flow	21 to 29	PSI
Initial Closed in Pressure	836	PSI
Final Flow Pressure	30 to 43	PSI
Final Closed in Pressure	795	PSI
Final Hydrostatic Pressure	1730	PSI
Temperature	99	°F
Pressure Change Initial Close / Final Close	4.8	%

Recovery at a glance



GIP cubic foot volume: 0



HURRICANE SERVICES INC

Customer	L D Drilling		Lease & Well #	Watson 1-31		Date	2/15/2020	
Service District	Oakley KS		County & State	Norton KS		Legals S/T/R	31-4S-22W	
Job Type	Longstring	<input checked="" type="checkbox"/> PROD	<input type="checkbox"/> INJ	<input type="checkbox"/> SWD	New Well?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> No	Ticket #
								ICT 3262

Equipment #	Driver	Job Safety Analysis - A Discussion of Hazards & Safety Procedures					
73	Jimmie Cottrell	<input checked="" type="checkbox"/> Hard hat	<input checked="" type="checkbox"/> Gloves	<input type="checkbox"/> Lockout/Tagout	<input type="checkbox"/> Warning Signs & Flagging		
208	Jesse Jones	<input checked="" type="checkbox"/> H2S Monitor	<input checked="" type="checkbox"/> Eye Protection	<input type="checkbox"/> Required Permits		<input type="checkbox"/> Fall Protection	
242	Jeff Jackson	<input checked="" type="checkbox"/> Safety Footwear	<input type="checkbox"/> Respiratory Protection	<input checked="" type="checkbox"/> Slip/Trip/Fall Hazards		<input type="checkbox"/> Specific Job Sequence/Expectations	
194/254	John Polley	<input checked="" type="checkbox"/> FRC/Protective Clothing	<input type="checkbox"/> Additional Chemical/Acid PPE	<input checked="" type="checkbox"/> Overhead Hazards		<input checked="" type="checkbox"/> Muster Point/Medical Locations	
	Scotty	<input type="checkbox"/> Hearing Protection	<input checked="" type="checkbox"/> Fire Extinguisher	<input type="checkbox"/> Additional concerns or issues noted below			

Comments	

Product/ Service Code	Description	Unit of Measure	Quantity	Net Amount
C010	Cement Pump	ea	1.00	\$637.50
M010	Heavy Equipment Mileage	mi	84.00	\$285.60
M015	Light Equipment Mileage	mi	84.00	\$142.80
M020	Ton Mileage	lm	2,130.00	\$2,715.75
CP025	H-Con	sack	330.00	\$6,732.00
CP085	Type H Cement	sack	150.00	\$2,422.50
CP105	Gypsum	lb	1,410.00	\$1,057.50
CP135	Defoamer	lb	56.00	\$380.80
CP130	Fluid Loss Additive	lb	92.00	\$508.30
CP140	Salt	sack	17.00	\$144.50
CP120	Flo-Seal	lb	37.50	\$55.78
CP110	Kol Seal	lb	900.00	\$675.00
CP170	Mud Flush	gal	1,000.00	\$1,850.00
FE145	5 1/2" Float Shoe - AFU Flapper Type	ea	1.00	\$375.00
FE135	5 1/2 Turbolizers	ea	9.00	\$720.00
FE130	5 1/2" Cement Basket	ea	4.00	\$1,200.00
FE170	5 1/2" Latch Down Plug & Baffle	ea	1.00	\$350.00

Customer Section: On the following scale how would you rate Hurricane Services Inc.?		Total Taxable	\$ -	Tax Rate:		Net:	\$20,253.03
Based on this job, how likely is it you would recommend HSI to a colleague?		State tax laws deem certain products and services used on new wells to be sales tax exempt. Hurricane Services relies on the customer provided well information above to make a determination if services and/or products are tax exempt.		Sale Tax:	\$ -	Total:	\$ 20,253.03
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Unlikely 1 2 3 4 5 6 7 8 9 10 Extremely Likely		HSI Representative: <i>Jimmie Cottrell</i>					

TERMS: Cash in advance unless Hurricane Services Inc. (HSI) has approved credit prior to sale. Credit terms of sale for approved accounts are total invoice due on or before the 30th day from the date of invoice. Past due accounts shall pay interest on the balance past due at the rate of 1 1/2% per month or the maximum allowable by applicable state or federal laws. In the event it is necessary to employ an agency and/or attorney to affect the collection, Customer hereby agrees to pay all fees directly or indirectly incurred for such collection. In the event that Customer's account with HSI becomes delinquent, HSI has the right to revoke any discounts previously applied in arriving at net invoice price. Upon revocation, the full invoice price without discount is immediately due and subject to collection. Prices quoted are estimates only and are good for 30 days from the date of issue. Pricing does not include federal, state, or local taxes, or royalties and stated price adjustments. Actual charges may vary depending upon time, equipment, and material ultimately required to perform these services. Any discount is based on 30 days net payment terms or cash. **DISCLAIMER NOTICE:** Technical data is presented in good faith, but no warranty is stated or implied. HSI assumes no liability for advice or recommendations made concerning the results from the use of any product or service. The information presented is a best estimate of the actual results that may be achieved and should be used for comparison purposes and HSI makes no guarantee of future production performance. Customer represents and warrants that well and all associated equipment in acceptable condition to receive services by HSI. Likewise, the customer guarantees proper operational care of all customer owned equipment and property while HSI is on location performing services. The authorization below acknowledges the receipt and acceptance of all terms/conditions stated above, and Hurricane has been provided accurate well information in determining taxable services.

X _____ **CUSTOMER AUTHORIZATION SIGNATURE**



CEMENT TREATMENT REPORT

Customer: L D Drilling	Well: Watson 1-31	Ticket: ICT 3262
City, State:	County: Norton KS	Date: 2/15/2020
Field Rep:	S-T-R: 31-4S-22W	Service: Longstring

Downhole Information	
Hole Size:	7 7/8 in
Hole Depth:	3760 ft
Casing Size:	5 1/2 in
Casing Depth:	3755 ft
Tubing / Liner:	in
Depth:	ft
Tool / Packer:	
Depth:	ft
Displacement:	88.3 bbls

Calculated Slurry	
Weight:	14.8 # / sx
Water / Sx:	6.78 gal / sx
Yield:	1.56 ft ³ / sx
Bbls / Ft.:	
Depth:	ft
Annular Volume:	0 bbls
Excess:	
Total Slurry:	41.6 bbls
Total Sacks:	150 sx

Product	% / #	#
Class A		
Poz		
Gel		
CaCl		
Gypsum		
Metso		
Kol Seal		
Flo Seal		
Salt (bww)		

Total -

TIME	RATE	PSI	BBLs	REMARKS
530A				ON LOCATION
540A				SAFETY MEETING
550A				GET THE FOLLOWING FROM CO MAN 7 7/8 OPEN HOLE 3760 FT TD 3755 FT TOTAL PIPE 5 1/2 15.5# CASING VERIFIED ON RACK 42.8 FT SHOE JOINT BASKETS ON JOINTS 4, 45, 61, 46 TURBOLIZERS ON JOINTS 1,3,4,5,6,7,8,9,46
605A				RIG UP
915A				CASING ON BOTTOM
920A				CIRCULATE 1 HR
1005A	4.0	200.0	5.0	H2O AHEAD
1007A	4.0	200.0	24.0	MUDFLUSH
1013A	4.0	200.0	5.0	H2O SPACER
1014A	6.0	200.0	171.0	CEMENT 330 SKS H-CON 20 SKS H-CON DOWN RATHOLE
1043A	6.0	225.0	41.6	CEMENT 150 SKS CLASS H
1050A				WASH PUMP AND LINES/DROP PLUG
1055A	6.0	200.0	15.0	DISPLACE H2O
1058A	6.0	450.0	15.0	DISPLACE H2O
1100A	6.0	600.0	15.0	DISPLACE H2O
1103A	6.0	950.0	15.0	DISPLACE H2O
1106A	6.0	1,400.0	18.0	DISPLACE H2O
1109A	3.5	1,200.0	10.0	DISPLACE H2O
1113A		2,400.0		PLUG LANDED
1115A				CHECK FLOATS THEY HELD
1120A				WASH UP
1130A				RIG DOWN
1150A				LEFT LOCATION

CREW		UNIT	SUMMARY		
Cementer:	Jimmie Cottrell	73	Average Rate	Average Pressure	Total Fluid
Pump Operator:	Jesse Jones	208	5.22727 bpm	685 psi	335 bbls
Bulk #1:	Jeff Jackson	242			
Bulk #2:	John Polley	194/254			

KIM B. SHOEMAKER

CONSULTING GEOLOGIST

316-884-9709 * WICHITA, KS

GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

COMPANY: L. D. DRILLING, INC.
 LOG # 1-31 WATSON
 FIELD WILDCAT
 LOCATION 860' FNL ± 1288' FWL
 SEC 31 TWP 4s RGE 22W
 COUNTY NORTON STATE KANSAS
 CONTRACTOR L. D. DRILLING, INC.
 START DATE 2-6-2020 END DATE 2-15-2020
 JOB # 3760 EST # 3758
 MUD # 3068 TYPE CHEMICAL

SURFACE 2273
 MEASUREMENTS ARE IN FEET
 FROM 2273 KB
 DIAMETER 8 5/8" @ 250'
5 1/2" @
 LOGGING EQUIPMENT DUAL IND., DENS-N., MICRO

SAMPLES SHOWN FROM 3200 TO 3760
 DRILLING TIME KEPT FROM 3100 TO 3760
 SAMPLES EXAMINED FROM 3200 TO 3760
 GEOLOGICAL SUPERVISION FROM 3300 TO 3760
 GEOLOGIST ON WELL KIM B. SHOEMAKER

FORMATION TESTS	LOG	SAMPLES
ANHYDRITE	1861+412	1861+412
B/ ANH.	1893+380	1893+380
HEEBNER	3389-1114	3387-1114
LANSING	3431-1158	3432-1159
BIK	3620-1347	3619-1341
PRECAMBRIAN	3742-1469	3744-1471



REMARKS

- 2-6-20 SPUD
- 2-7 @ 257'
- 2-8 @ 1750'
- 2-9 @ 2646'
- 2-10 @ 3185'
- 2-11 @ 3442'
- 2-12 @ 3540'
- 2-13 @ 3625'
- 2-14 @ 3700'
- 2-15 @ 3760'

API: 15-137-20755

Lithology column with 15 numbered boxes (1-15) corresponding to the drilling schedule. Each box contains a small lithological sketch or symbol.



ANHYDRITE 1861+412

B/ ANH. 1893+380

LITHOLOGY

1950

3100

3200

3300



Samples are lagged

15. RT to Sil Foss.

Sh. Rd.

VIS: 6.0 WT: 8.7
WIL: 6.0 CML: 900

15. Ltg. VSI Foss.

15. wt to Foss. Calvardia

15 wt Foss Sil A

15. wt chly.

Sh. Rd.

Sh. Rd. Silty-sdy

Sh. Rd. VSI Foss Sil Rd.

Sh. Rd. Silty. sd Ltg VSI Foss Rd.

Sh. Rd. Sdr

15. wt VSI Foss. Sil chly.

Sh. Rd. Silty

15. Silty Foss

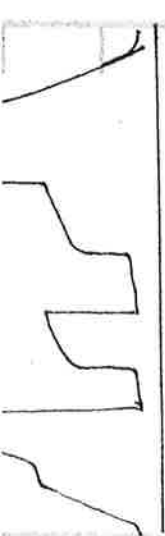
Sh. Rd. Sdy

15. To VSI Foss Sil A

15 wt Foss Sil A

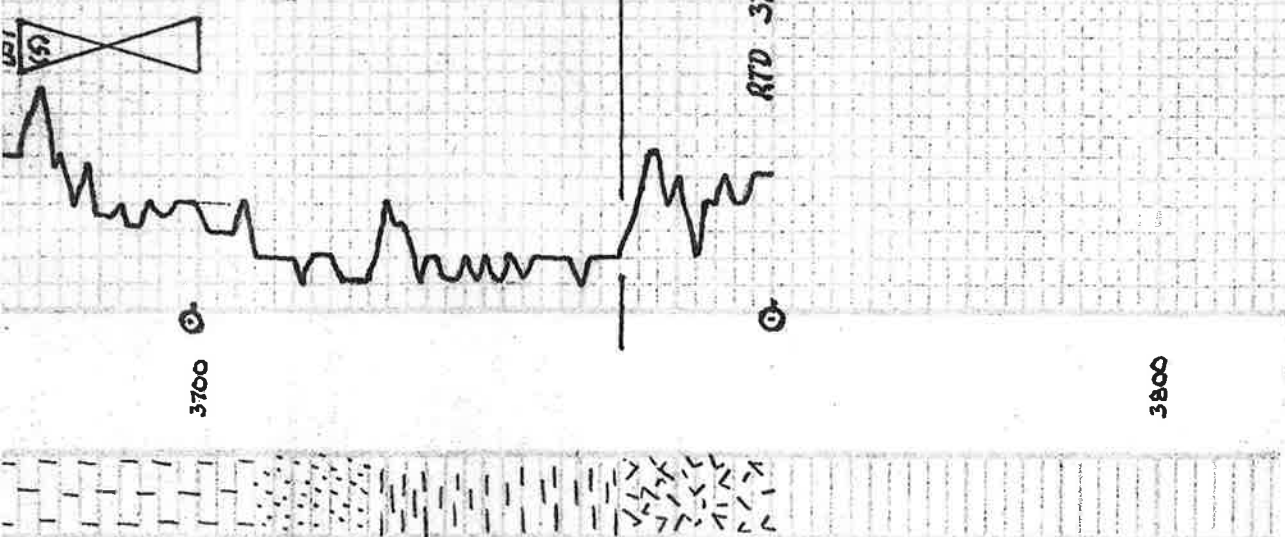
15. wt 50 Foss VSI chly.

15 wt Sil chly



45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 841. 842. 843. 844. 845. 846. 847. 848. 849. 850. 851. 852. 853. 854. 855. 856. 857. 858. 859. 860. 861. 862. 863. 864. 865. 866. 867. 868. 869. 870. 871. 872. 873. 874. 875. 876. 877. 878. 879. 880. 881. 882. 883. 884. 885. 886. 887. 888. 889. 890. 891. 892. 893. 894. 895. 896. 897. 898. 899. 900. 901. 902. 903. 904. 905. 906. 907. 908. 909. 910. 911. 912. 913. 914. 915. 916. 917. 918. 919. 920. 921. 922. 923. 924. 925. 926. 927. 928. 929. 930. 931. 932. 933. 934. 935. 936. 937. 938. 939. 940. 941. 942. 943. 944. 945. 946. 947. 948. 949. 950. 951. 952. 953. 954. 955. 956. 957. 958. 959. 960. 961. 962. 963. 964. 965. 966. 967. 968. 969. 970. 971. 972. 973. 974. 975. 976. 977. 978. 979. 980. 981. 982. 983. 984. 985. 986. 987. 988. 989. 990. 991. 992. 993. 994. 995. 996. 997. 998. 999. 1000.

VIS: 58
 WT: 9.2
 ML: 6.4
 CMC: 1400



Sh. Rd. Pink Orange
PRE CAMBRIAN 3744-1471
 Quarry Pink. Cls. Orange w/ BLE Mica
 Quarry Ch. w/ Scab. Blue Mica

Sh. L. Blue: Tan
 loose Qty Frags

Sed. Ch. L. G. M. L. G. S. S. Rd. No. Shows Vis.



CEMENT TREATMENT REPORT

| | | |
|----------------------------------|--------------------------|-------------------------------|
| Customer: LD DRILLING INC | Well: WATSON 1-31 | Ticket: ICT3406 |
| City, State: NORTON CO KS | County: NORTON | Date: 3/12/2020 |
| Field Rep: MIKE MATTAL | S-T-R: 3/4/2022 | Service: SQUEEZE PERFS |

| Downhole Information | |
|----------------------|-----------|
| Hole Size: | in |
| Hole Depth: | ft |
| Casing Size: | 5 1/2 in |
| Casing Depth: | ft |
| Tubing / Liner: | 2 7/8 in |
| Depth: | ft |
| Tool / Packer: | |
| Depth: | 3390 ft |
| Displacement: | 19.6 bbls |

| Calculated Slurry | |
|-------------------|---------------------------|
| Weight: | 15 # / sx |
| Water / Sx: | 6.02 gal / sx |
| Yield: | 1.28 ft ³ / sx |
| Bbls / Ft.: | |
| Depth: | ft |
| Annular Volume: | 0 bbls |
| Excess: | |
| Total Slurry: | 33.0 bbls |
| Total Sacks: | 150 sx |

| Product | % / # | # |
|------------|-------|---|
| Class A | | |
| Poz | | |
| Gel | | |
| CaCl | | |
| Gypsum | | |
| Metso | | |
| Kol Seal | | |
| Flo Seal | | |
| Salt (bww) | | |

| | | | | | | | |
|--|--|--|--|--|--|--------------|---|
| | | | | | | Total | - |
|--|--|--|--|--|--|--------------|---|

| TIME | RATE | PSI | BBLs | REMARKS |
|----------|------|---------|------|---|
| 10:00 AM | | | | ON LOCATION/SAFTEY MEETING |
| 10:27 AM | 3.0 | 120.0 | 14.0 | LOAD TUBING, TEST PLUG TO 2000 PSI TUBING AT 3520' |
| | | 2,000.0 | | HOLDING 2000 PSI |
| 10:39 AM | 3.2 | 180.0 | 36.0 | BREAK CIRCULATION |
| 10:51 AM | 2.6 | 150.0 | 5.0 | PUMP 200 GALLONS 15% HCL ACID |
| 10:54 AM | 3.0 | 400.0 | 9.5 | DISPLACE ACID |
| | | | | PULL UP TO 3390 |
| 11:10 AM | | 500.0 | | PUT 500 PSI ON BACKSIDE |
| 11:15 AM | 3.0 | 1,400.0 | | INJECTION RATE OF 3 BPM AT 1400 PSI |
| 11:21 AM | | | | started to mix cement, recirculator eas cement up. Call for a different truck |
| 4:30 PM | | | | replacement truck arrived |
| 4:49 PM | | 500.0 | | 500 on backside |
| 4:51 PM | 2.7 | 500.0 | | injection rate of 2.7 at 500 psi |
| 4:55 PM | 1.3 | 300.0 | 5.7 | mix 25 sks class a with .3% fluid loss & .5% defoamer |
| 5:00 PM | 3.2 | 550.0 | 27.0 | mix 125 sks class a cement |
| 5:08 PM | 3.0 | | 5.0 | wash pump and lines |
| 5:12 PM | 2.0 | 30.0 | | start displcement |
| 5:25 PM | | 400.0 | 13.0 | |
| 5:48 PM | | 600.0 | 20.0 | |
| 6:16 PM | | 880.0 | 21.5 | |
| 6:30 PM | | 1,100.0 | 21.5 | released and held |
| 6:41 PM | | | 40.0 | wash through squeeze/well clean |
| 7:15 PM | | 300.0 | | pull up and pressure well to 300 psi |
| | | | | job complete/thank you! |
| | | | | Mike Mattal |
| | | | | Scotty, Mike, Brian, Jesse, Travis |

| CREW | | UNIT | SUMMARY | | |
|----------------|----------------|---------|--------------|------------------|-------------|
| Cementer: | MATTAL | 912 | Average Rate | Average Pressure | Total Fluid |
| Pump Operator: | MCGRAW | 266 | 2.7 bpm | 583 psi | 218 bbls |
| Bulk #1: | JONES/THRASHER | 221 | | | |
| Bulk #2: | WHITFIELD | 182/256 | | | |