





Form	ACO1 - Well Completion
Operator	Richlan Drilling, a General Partnership
Well Name	HILLERY 1
Doc ID	1415566

All Electric Logs Run

Dual Induction Log
Dual Comp Porosity Log
Microresistivity Log
Borehole Compensated Sonic Log

Form	ACO1 - Well Completion
Operator	Richlan Drilling, a General Partnership
Well Name	HILLERY 1
Doc ID	1415566

#### Tops

Name	Top	Datum
Anhydrite	2469	+678
B. Anhydrite	2488	+659
Heebner	3942	-795
Toronto	3960	-813
Lansing	3985	-838
Stark Sh	4260	-1113
Hushpuckney	4304	-1157
Base KC	4356	-1209
Altamont "A"	4392	-1245
Pawnee	4468	-1321
Ft Scott	4525	-1378
Cherokee Sh	4534	-1407
Miss	4724	-1577
RTD	4800	-1653
LTD	4796	-1649

Form	ACO1 - Well Completion
Operator	Richlan Drilling, a General Partnership
Well Name	HILLERY 1
Doc ID	1415566

#### Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Number of Sacks Used	Type and Percent Additives
Surface	12.25	8.625	20	374	Common Class A	170	3% cc & 2% gel
Production	7.875	5.5	17	4799	EA-2, SMD	225	0



**QUALITY OILWELL CEMENTING, INC.**  
PO Box 32 - 740 WEST WICHITA AVE, RUSSELL KS 67665  
PHONE: 785-324-1041 FAX: 785-483-1087  
EMAIL: cementing@ruraltel.net

Date: 6/5/2018  
Invoice # 838

P.O.#:  
Due Date: 7/5/2018  
Division: Russell

# Invoice

**Contact:**  
RICHLAND DRILLING  
**Address/Job Location:**

598 2ND AVE  
BEAVER, KS 67525

**Reference:**  
HILLERY 1 SEC 19-15-34

**Description of Work:**  
SURFACE JOB

Services / Items Included:	Quantity	Price	Taxable	Item	Quantity	Price	Taxable
Labor		\$ 641.27	No				
Common-Class A	136	\$ 2,013.65	Yes				
Calcium Chloride	6	\$ 241.50	Yes				
POZ Mix-Standard	34	\$ 171.06	Yes				
Pump Truck Mileage-Job to Nearest Camp	55	\$ 177.89	No				
Bulk Truck Mileage-Job to Nearest Bulk Plant	55	\$ 138.36	No				
Bulk Truck Matl-Material Service Charge	179	\$ 128.66	No				
Premium Gel (Bentonite)	3	\$ 62.53	Yes				

**Invoice Terms:**

Net 30

SubTotal: \$ 3,574.92  
Discount Available ONLY if Invoice is Paid & Received  
within listed terms of invoice: \$ (89.37)

---

SubTotal for Taxable Items:	\$ 2,426.53
SubTotal for Non-Taxable Items:	\$ 1,059.02
Total:	\$ 3,485.55
Tax:	\$ 194.12
<b>Amount Due:</b>	<b>\$ 3,679.67</b>
<b>Applied Payments:</b>	
<b>Balance Due:</b>	<b>\$ 3,679.67</b>

8.00% Logan County Sales Tax

**Thank You For Your Business!**

Past Due Invoices are subject to a service charge (annual rate of 24%)  
This does not include any applicable taxes unless it is listed.  
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# 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. 838

Date	6-5-18	Sec.	19	Twp.	15	Range	34	County	Logan	State	KS	On Location		Finish	7:30 PM
Lease								Location							
Hillery								Pence 3w Co. Line 5 1/2" W. into							
Contractor								Owner							
WW #12								To Quality Oilwell Cementing, Inc.							
Type Job								You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.							
Surface															
Hole Size								Charge To							
12 1/4								Richlan Drilling							
Csg.								Depth							
8 5/8								373							
Tbg. Size								Street							
								City							
								State							
Tool								The above was done to satisfaction and supervision of owner agent or contractor.							
Cement Left in Csg.								Cement Amount Ordered							
15								170 80/20 3-1-LL 2-1-6EL							
Meas Line								Displace							
								22 1/2 BCL							
EQUIPMENT								Common							
Pumptrk								136							
No. 20								34							
Cement								Gel.							
Helper								3							
Driver								Calcium							
Bulktrk								6							
No. 14															
Driver															
Driver															
Sack															
JOB SERVICES & REMARKS															
Remarks:															
Rat Hole															
Mouse Hole															
Centralizers															
Baskets															
D/V or Port Collar															
8 5/8 on bottom. Best Circulation.															
Mix 170SK & Displace.															
Cement Circulated															
FLOAT EQUIPMENT															
Guide Shoe															
Centralizer															
Baskets															
AFU Inserts															
Float Shoe															
Latch Down															
Pumptrk Charge															
Surface															
Mileage															
55															
Tax															
Discount															
Total Charge															

X Signature

42



P. O. Box 466  
Ness City, KS 67560  
Off: 785-798-2300



# Invoice

DATE	INVOICE #
6/15/2018	31594

BILL TO
Richlan Drilling 598 2nd Ave. Beaver, KS 67525

- Acidizing
- Cement
- Tool Rental

TERMS	Well No.	Lease	County	Contractor	Well Type	Well Category	Job Purpose	Operator
Net 30	#1	Hillary	Logan	WW Drilling Rig ...	Oil	Development	Cement 5 1/2 Lo...	David K.
PRICE REF.		DESCRIPTION			QTY	UM	UNIT PRICE	AMOUNT
575D	Mileage - 1 Way			80	Miles	5.00	400.00	
578D-L	Pump Charge - Long String			1	Job	1,300.00	1,300.00	
409-5	5 1/2" Turbolizer			9	Each	85.00	765.00T	
403-5	5 1/2" Cement Basket			3	Each	275.00	825.00T	
406-5	5 1/2" Latch Down Plug & Baffle			1	Each	250.00	250.00T	
407-5	5 1/2" Insert Float Shoe With Auto Fill			1	Each	325.00	325.00T	
404-5	5 1/2" Port Collar			1	Each	2,500.00	2,500.00T	
325	Standard Cement			100	Sacks	13.00	1,300.00T	
284	Calseal			5	Sack(s)	35.00	175.00T	
283	Salt			500	Lb(s)	0.20	100.00T	
292	Halad 322			50	Lb(s)	8.00	400.00T	
276	Flocele			50	Lb(s)	2.50	125.00T	
330	Swift Multi-Density Standard (MIDCON II)			125	Sacks	16.25	2,031.25T	
290	D-Air			2	Gallon(s)	42.00	84.00T	
281	Mud Flush			500	Gallon(s)	1.50	750.00T	
221	Liquid KCL (Clayfix)			2	Gallon(s)	25.00	50.00	
581D	Service Charge Cement			225	Sacks	1.75	393.75	
583D	Drayage			914	Ton Miles	0.85	776.90	
Subtotal							12,550.90	
Sales Tax Logan County						8.00%	770.42	
We Appreciate Your Business!						Total	\$13,321.32	





Services, Inc.

CHARGE TO:

Richland Drilling

ADDRESS

CITY, STATE, ZIP CODE

TICKET 031594

PAGE 1 OF 2

SERVICE LOCATIONS

1. Ness City KS

2.

3.

4.

REFERRAL LOCATION

WELL/PROJECT NO.

A1

TICKET TYPE

CONTRACTOR

WELL TYPE

Oil

LEASE

Hillery

WELL CATEGORY

Development

COUNTY/PARISH

Logan

RIG NAME/NO.

A12

STATE

KS

SHIPPED VIA

CT

CITY

Perce

DELIVERED TO

Location

DATE

6-15-18

ORDER NO.

OWNER

Same

WELL LOCATION

Perce - 3 1/2" 5 1/4" 2 1/2" 2 1/2"

INVOICE INSTRUCTIONS

PRICE REFERENCE

SECONDARY REFERENCE/ PART NUMBER

ACCOUNTING LOC ACCT DF

DESCRIPTION

MILEAGE

TRK # 112

Pump Charge - Longshring

Turbolizers

Cement Basket

Latex Down Plug + Baggle

Insert Float Shoe w/ Auto Fill

Port Collar

QTY. U/M

QTY. U/M

QTY. U/M

QTY. U/M

QTY. U/M

QTY. U/M

QTY. U/M

QTY. U/M

QTY. U/M

QTY. U/M

QTY. U/M

QTY. U/M

UNIT PRICE

AMOUNT

AMOUNT

AMOUNT

AMOUNT

AMOUNT

AMOUNT

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AMOUNT

AMOUNT

AMOUNT

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, PAYMENT, RELEASE, INDEMNITY, and LIMITED WARRANTY provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS.

DATE SIGNED

TIME SIGNED

A.M. P.M.

REMIT PAYMENT TO:

SWIFT SERVICES, INC.

P.O. BOX 466

NESS CITY, KS 67560

785-798-2300

SURVEY

AGREE

UNDECIDED

DISAGREE

PAGE TOTAL

AMOUNT

AMOUNT

AMOUNT

AMOUNT

AMOUNT

OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?

WE UNDERSTOOD AND MET YOUR NEEDS?

OUR SERVICE WAS PERFORMED WITHOUT DELAY?

WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?

ARE YOU SATISFIED WITH OUR SERVICE?

CUSTOMER DID NOT WISH TO RESPOND

YES

NO

TOTAL

PAGE TOTAL

AMOUNT

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TICKET CONTINUATION

TICKET  
No. A 31594

[illegible]

6-15-18

1

CUSTOMER

WELL NO.

LEASE

JOB TYPE	
1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16
17	18
19	20
21	22
23	24
25	26
27	28
29	30
31	32
33	34
35	36
37	38
39	40
41	42
43	44
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

TICKET NO

A 31544

CUSTOMER  
Richland Drilling

4

Hillary

5 1/2" Long string

CUSTOMER Richland Drilling		WELL NO. #1		LEASE Hillary		JOB TYPE 5 1/2" Longstring		TICKET NO. #31544	
CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS T C		PRESSURE (PSI) TUBING CASING		DESCRIPTION OF OPERATION AND MATERIALS	
	2300							on location	5 1/2" 17"
								RTD - 4800'	LTD - 4796'
								TP - 4779'	SS - #1 26.85'
								P.C. - #56 2431'	out - #114 #116
								Turbos - #1 3" 5" 8" 10" 14" 23" 55" 18"	
								Basket - #4 #11 #56	
06-16-18	0200							Start 5 1/2" 17" casing in well	
	0415							Drop Ball Circulate	
	0515	6 1/2	12		✓		300	Pump 500 gal Mud Flush	
		6 1/2	20		✓		300	Pump 20 bbl HCL Flush	
			10- <del>8</del>					Plug RH - <del>10-8</del>	(30- <del>8</del> )
	0525	4 1/2	<del>88</del> 35		✓		200	mix 95 sks SMD @ 12.7 ppg	
		4 1/2	24		✓		100	mix 100 sks EA-2 @ 15.5 ppg	
								Wash out Pump & Lines	
								Release Latch Down Plug	
	0540	6 1/2	Ø		✓		100	Start Displacement	
		6 1/2	82		✓		300	Lift Pressure	
		6 1/2	104		✓		900	Max Lift Pressure	
	0600	6 1/2	110		✓		2000	Land Latch Down Plug	
								Release Pressure * Plug Hold *	
								Wash up truck	
	0630							Job Complete	
								Thank You Dave Preston Kirby	

# Mud-Co / Service Mud Inc.

100 S. Main, Suite #310  
Wichita, Ks. 67202  
Ph: 316-264-2814 Fax: 316-264-5024

Mail Payments To: Mud-Co/ Service Mud Inc.  
100 S. Main, Suite #310  
Wichita, Ks. 67202

**Sold To:** RICHLAN DRLG.  
598 2ND AVE.  
BEAVER, KS 67517

**Invoice Date:**  
6/19/2018

**Invoice Number:**  
0039200-IN

**Well No.**  
31724

**Spud Date**  
6/2/2018

**Ship To:** WW DRLG #12  
#1 HILLERY  
19-15S-34W  
LOGAN, KS

**Shipped From** Hays Warehouse

Quantity	Description	Unit Price	Per	Amount
155	COTTON SEED HULLS	16.69	BAG	2,586.95
22	CAUSTIC SODA	62.52	BAG	1,375.44
1	CO-POLY-L	171.12	5GAL	171.12
4	DRILL PAK	306.90	BAG	1,227.60
2	LIME	10.23	BAG	20.46
385	PREMIUM GEL	17.11	BAG	6,587.35
41	SODA ASH #50	24.04	BAG	985.64
15	SUPER LIG	26.60	BAG	399.00

\*\*\* If Paid by 7/19/2018 you are entitled \*\*\*  
\*\*\* to a 15% discount of \$2,235.24\*\*\*

<b>Total Mud Cost:</b>	13,353.56
<b>Trucking Cost:</b>	1,548.06
<b>Sales Tax:</b>	0.00
<b>Invoice Total:</b>	14,901.62

PAST DUE ACCOUNTS ARE SUBJECT TO A SERVICE CHARGE OF 1.25%  
MONTH AND ALL COSTS OF COLLECTION, INCLUDING ATTORNEY'S F

**MUD-CO** / **SERVICE MUD INC.**

100 S. Main, Suite 310 • Wichita, KS 67202 • 316-264-2814

# DELIVERY TICKET

321578

DATE SHIPPED

6-2-18

F.O.B.

WAREHOUSE ☐

PREPAID ☐

FINAL WELL

DELIVERING WAREHOUSE

Hays

WELL SITE ☐

COLLECT ☐

TICKET

SOLD TO

Richlan Dalling

ADDRESS

SHIPPED TO

WU 12

SHIPPED VIA

65-30

WELL NAME & NO

Hillery 1

COUNTY, STATE

Logan KS

CITY, STATE, ZIP

ORDER NO.

31724

SEC

19

TWN

15

RNG

39

PRODUCT	PACKAGE SIZE	QUANTITY	PRICING LIST	CODE	UNIT PRICE	AMOUNT
1. UN# 1823 SODIUM HYDROXIDE - SOLID 8 II EMERGENCY CONTACT : CHEMTREC 1-800-424-9300 Customer Number: CCN657797	50#	19	Bag			
2. Mud-Co Gel	100#	245	Bag			
3. Salt Clay	50#		Bag			
4. Drill Starch	50#		Bag			
5. Lime	50#	6	Bag			
6. Cotton Seed Hulls	50#	200	Bag			
7. Soda Ash	50#	49	Bag			
8. Lignite	50#	20	Bag			
9. Drill Pac	50#	9	Bag			
10. Desco	25#	2	Bag			
11. Co-Poly L	5gal	2	BKT			
12. X-Cide 102W	5gal		BKT			
13. Milguard	50#		Bag			
14. Flozan	25#		Bag			
15. Barite	100#		Bag			
16. Cedar Fiber	40#		Bag			
17. Multi Seal	40#		Bag			
18. SAPP	50#		Bag			
19. Newport John						
20.						
21.						
22.						

MATERIAL RECEIVED  
IN GOOD ORDER

## TRANSPORTATION CHARGES

TRUCK #

MILEAGE

FROM

SUB TOTAL

DATE RECEIVED

@

SALES TAX

@

@

TRANSPORTATION

PURCHASE AUTHORIZED BY

TOTAL TRANSPORTATION  
CHARGES

TOTAL





100 S. Main, Suite 310 • Wichita, KS 67202 • 316-264-2814

# DELIVERY TICKET

206149

DATE SHIPPED

6-2-18

F.O.B.

WAREHOUSE ☐

PREPAID ☐

COLLECT ☐

FINAL WELL

TICKET

DELIVERING WAREHOUSE

Lamar, Colo.

WELL SITE ☐

SOLD TO

Richland

SHIPPED TO

WW #12

WELL NAME & NO

Hillery #1

ADDRESS

SHIPPED VIA

74

COUNTY, STATE

Logan, KS

CITY, STATE, ZIP

ORDER NO.

SEC

19 TWN

RNG

34

PRODUCT	PACKAGE SIZE	QUANTITY	PRICING LIST	CODE	UNIT PRICE	AMOUNT
1. UN# 1823 SODIUM HYDROXIDE - SOLID 8 II EMERGENCY CONTACT : CHEMTREC 1-800-424-9300 Customer Number: CCN657797	50#	5	Bag			
2. Mud-Co Gel	100#	210	Bag			
3. Salt Clay	50#		Bag			
4. Drill Starch	50#		Bag			
5. Lime	50#		Bag			
6. Cotton Seed Hulls	50#		Bag			
7. Soda Ash	50#		Bag			
8. Lignite	50#		Bag			
9. Drill Pac	50#		Bag			
10. Desco	25#		Bag			
11. Co-Poly L	5gal		BKT			
12. X-Cide 102W	5gal		BKT			
13. Milguard	50#		Bag			
14. Flozan	25#		Bag			
15. Barite	100#		Bag			
16. Cedar Fiber	40#		Bag			
17. Multi Seal	40#		Bag			
18. SAPP	50#		Bag			
19.						
20.						
21.						
22.						

MATERIAL RECEIVED  
IN GOOD ORDER

DATE RECEIVED

PURCHASE AUTHORIZED BY

## TRANSPORTATION CHARGES

TRUCK #

MILEAGE

FROM

@

@

@

TOTAL TRANSPORTATION  
CHARGES

SUB TOTAL

SALES TAX

TRANSPORTATION

TOTAL

# Mud-Co / Service Mud, Inc.

100 S. Main, Suite 310 Wichita, KS 67202 316-264-2814

## DELIVERY TICKET

DATE SHIPPED

6/19/2018

TICKET NUMBER

12547

TICKETS

DELIVERING WAREHOUSE

HAYS

WELL NUMBER

31724

SOLD TO:

**RICHLAND OIL**

SHIPPED TO

WW #12

WELL NAME

#1 HILLERY

ADDRESS:

SHIPPED VIA

MC/SM

CITY, STATE

LOGAN, KS

CITY, ST, ZIP:

ORDER NO

SEC

TWP

RNG

19

15S

34W

### PRODUCT

PACKAGE

QUANTITY

PRICING

CODE

UNIT

EXTENDED

SIZE

LIST

PRICE

AMOUNT

CAUSTIC SODA

50#

2

BAG

PREMIUM GEL

100#

70

BAG

SALT CLAY

50#

BAG

DRILLING STARCH

50#

BAG

LIME

50#

4

BAG

COTTON SEED HULLS

50#

45

BAG

SODA ASH

50#

8

BAG

SUPER LIG

50#

5

BAG

DRILL PAK

50#

5

BAG

DESCO

50#

2

BAG

CO-POLY-L

50#

1

5 GAL

NUT PLUG

50#

BAG

SOAP STICKS

50#

BAG

FLOZAN

50#

BAG

SAPP

50#

BAG

X-CIDE 102W

50#

BAG

50#

BAG

50#

BAG

\*\*\*CREDIT\*\*\*

50#

BAG

MATERIALS RECEIVED IN GOOD ORDER BY:

DATE RECEIVED:

PURCHASE AUTHORIZED BY:

SUBTOTAL

FREIGHT

TOTAL

Operator	Richian Oil Investments, LLC.		County	Logan	State	Kansas	Pump	6	X	14	X	60	SPM	Casing Program	8 5/8"	@	3/4"	ft.
Well	# 1 Hillery		Location										8.22	BPM		@		ft.
Contractor	WWV Drilling Co.		#12	Sec	19	TWP	15S	RNG	34W	D.P.	4.5	in.		203	FTMIN R.A.		@	ft.
Stockpoint	Hays, Ks.	Date	6/5/2018	Engineer	Reid Atkins		Collar	6.25	in	541	ft.	369	FTMIN R.A.	Total Depth	4800"	ft.		

[illegible]





# Company: Richlan Drilling

## Lease: Hillery #1

SEC: 19 TWN: 15 S RNG: 34 W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 Est  
Field Name: Wildcat  
Pool: Wildcat  
Job Number: 167

### DATE

June  
**09**  
2018

DST #1

Formation: Toronto

Test Interval: 3942 -  
3990'

Total Depth: 3990'

Time On: 16:00 06/09

Time Off: 00:31 06/10

Time On Bottom: 19:00 06/09

Time Off Bottom: 21:45 06/09

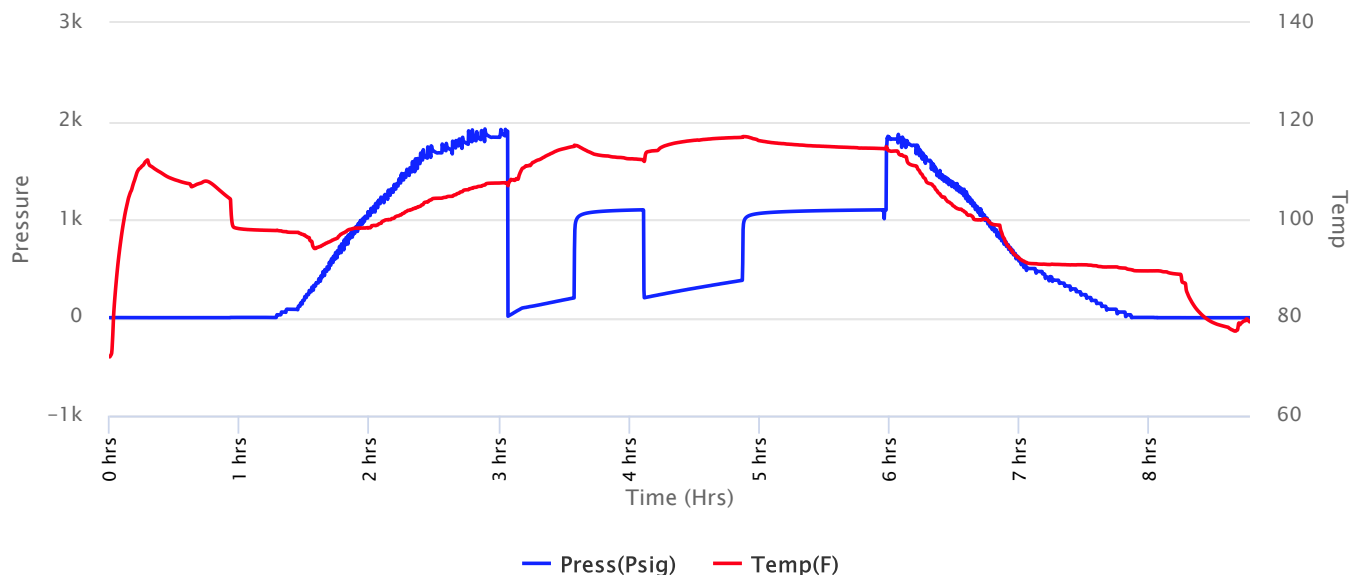
Electronic Volume  
Estimate:  
857'

1st Open  
Minutes: 30  
31.6" at 30 min

1st Close  
Minutes: 30  
0" at 30 min

2nd Open  
Minutes: 45  
42.2" at 45 min

2nd Close  
Minutes: 60  
0" at 60 min





# Company: Richlan Drilling

## Lease: Hillery #1

SEC: 19 TWN: 15 S RNG: 34 W  
 County: LOGAN  
 State: Kansas  
 Drilling Contractor: WW Drilling, LLC -  
 Rig 10  
 Elevation: 3136 Est  
 Field Name: Wildcat  
 Pool: Wildcat  
 Job Number: 167

### DATE

June  
**09**  
 2018

DST #1 Formation: Toronto Test Interval: 3942 - 3990' Total Depth: 3990'

Time On: 16:00 06/09 Time Off: 00:31 06/10  
 Time On Bottom: 19:00 06/09 Time Off Bottom: 21:45 06/09

### Recovered

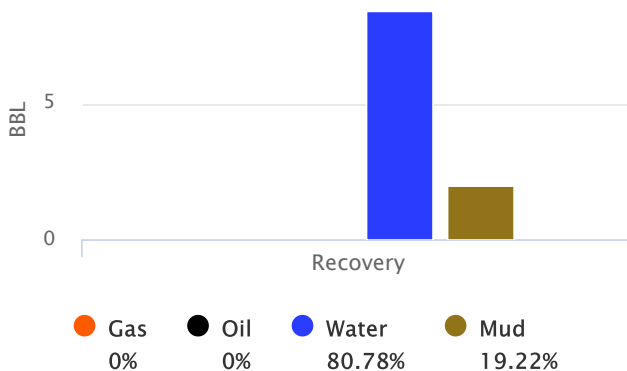
Foot	BBLs	Description of Fluid	Gas %	Oil %	Water %	Mud %
156	2.21988	HMCW	0	0	50	50
189	2.68947	MCW	0	0	75	25
504	5.5116677	SLMCW	0	0	96	4

Total Recovered: 849 ft

Total Barrels Recovered: 10.4210177

Reversed Out  
 NO

### Recovery at a glance



Initial Hydrostatic Pressure	1844	PSI
Initial Flow	13 to 200	PSI
<b>Initial Closed in Pressure</b>	<b>1093</b>	<b>PSI</b>
Final Flow Pressure	202 to 378	PSI
<b>Final Closed in Pressure</b>	<b>1097</b>	<b>PSI</b>
Final Hydrostatic Pressure	1833	PSI
Temperature	117	°F
Pressure Change Initial Close / Final Close	0.0	%



**Company: Richlan Drilling**  
**Lease: Hillery #1**

SEC: 19 TWN: 15 S RNG: 34 W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 Est  
Field Name: Wildcat  
Pool: Wildcat  
Job Number: 167

**DATE**

June  
**09**  
2018

**DST #1      Formation: Toronto      Test Interval: 3942 -      Total Depth: 3990'**  
**3990'**

Time On: 16:00 06/09      Time Off: 00:31 06/10  
Time On Bottom: 19:00 06/09      Time Off Bottom: 21:45 06/09

**REMARKS:**

If: 1/4" Bob in 11min  
Ic: nobb  
Ff: wsb Bob in 12min  
Fc: nobb

Tool sample: 98w - 2m oil spec

Ph: 7

RW: .3 @ 81 degrees F

Chlorides: 9000 ppm



**Company: Richlan Drilling**  
**Lease: Hillery #1**

SEC: 19 TWN: 15 S RNG: 34 W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 Est  
Field Name: Wildcat  
Pool: Wildcat  
Job Number: 167

**DATE**

June

**09**

2018

**DST #1**      **Formation: Toronto**      **Test Interval: 3942 - 3990'**      **Total Depth: 3990'**

Time On: 16:00 06/09

Time Off: 00:31 06/10

Time On Bottom: 19:00 06/09      Time Off Bottom: 21:45 06/09

**Down Hole Makeup**

**Heads Up:** 26.04 FT

**Packer 1:** 3936.78 FT

**Drill Pipe:** 3764.33 FT

**Packer 2:** 3941.78 FT

*ID-3 1/2*

**Top Recorder:** 3928.78 FT

**Weight Pipe:** FT

**Bottom Recorder:** 3980 FT

*ID-2 7/8*

**Collars:** 178.33 FT

**Well Bore Size:** 7 7/8

*ID-2 1/4*

**Surface Choke:** 1"

**Test Tool:** 26.16 FT

**Bottom Choke:** 5/8"

*ID-3 1/2-FH*

**Total Anchor:** 48.22

**Anchor Makeup**

**Packer Sub:** 1 FT

**Perforations: (top):** 3 FT

*4 1/2-FH*

**Change Over:** 1 FT

**Drill Pipe: (in anchor):** 31.22 FT

*ID-3 1/2*

**Change Over:** 1 FT

**Perforations: (below):** 11 FT

*4 1/2-FH*



**Company: Richlan Drilling**  
**Lease: Hillery #1**

SEC: 19 TWN: 15 S RNG: 34 W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 Est  
Field Name: Wildcat  
Pool: Wildcat  
Job Number: 167

**DATE**

June

**09**

2018

**DST #1**      **Formation: Toronto**      **Test Interval: 3942 - 3990'**      **Total Depth: 3990'**

Time On: 16:00 06/09

Time Off: 00:31 06/10

Time On Bottom: 19:00 06/09      Time Off Bottom: 21:45 06/09

**Mud Properties**

**Mud Type:** Chemical

**Weight:** 8.7

**Viscosity:** 46

**Filtrate:** 6.4

**Chlorides:** 1800 ppm



**Company: Richlan Drilling**  
**Lease: Hillery #1**

SEC: 19 TWN: 15 S RNG: 34 W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 Est  
Field Name: Wildcat  
Pool: Wildcat  
Job Number: 167

**DATE**

June

**09**

2018

**DST #1**      **Formation: Toronto**      **Test Interval: 3942 - 3990'**      **Total Depth: 3990'**

Time On: 16:00 06/09

Time Off: 00:31 06/10

Time On Bottom: 19:00 06/09      Time Off Bottom: 21:45 06/09

**Gas Volume Report**

**1st Open**

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

**2nd Open**

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





# Company: Richlan Drilling

## Lease: Hillery #1

SEC: 19 TWN: 15S RNG: 34W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 EGL  
Field Name: Wildcat  
Pool: WILDCAT  
Job Number: 167

### DATE

June  
**10**  
2018

DST #2

Formation: Lansing  
C

Test Interval: 4020 -  
4052'

Total Depth: 4052'

Time On: 10:32 06/10

Time Off: 17:56 06/10

Time On Bottom: 13:00 06/10 Time Off Bottom: 15:45 06/10

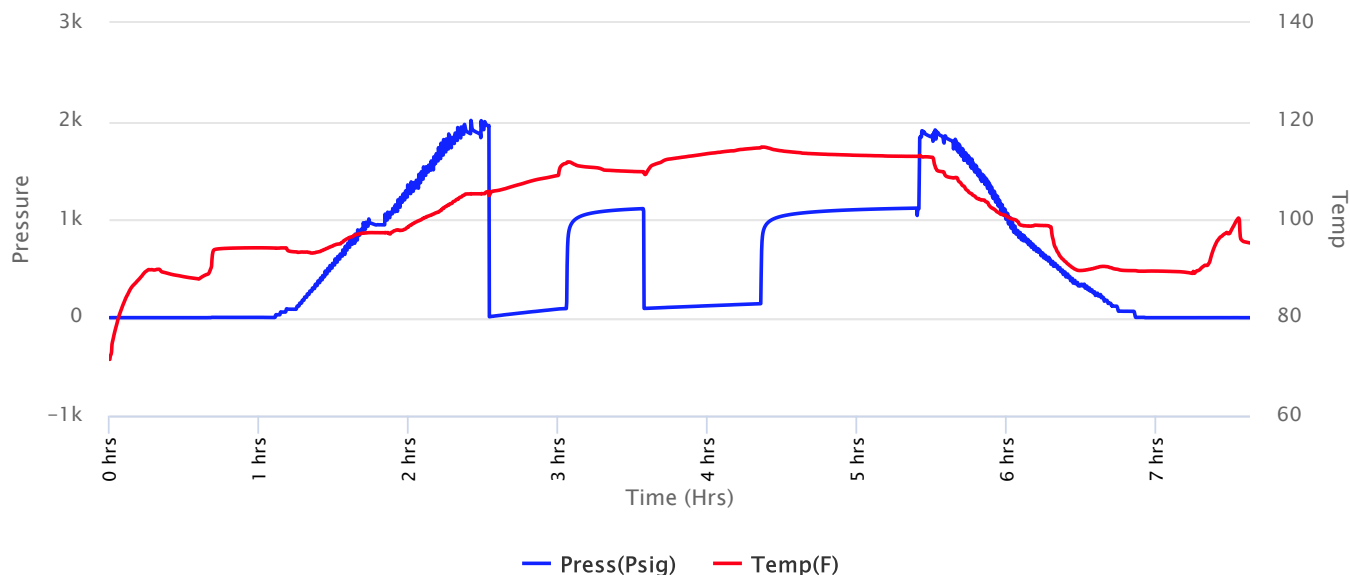
Electronic Volume  
Estimate:  
287'

1st Open  
Minutes: 30  
7.1" at 30 min

1st Close  
Minutes: 30  
0" at 30 min

2nd Open  
Minutes: 45  
9" at 45 min

2nd Close  
Minutes: 60  
0" at 60 min





**Company: Richlan Drilling**  
**Lease: Hillery #1**

**Company: Richlan Drilling**  
**Lease: Hillery #1**

**Company: Richlan Drilling**  
**Lease: Hillery #1**



**Company: Richlan Drilling**  
**Lease: Hillery #1**

SEC: 19 TWN: 15S RNG: 34W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 EGL  
Field Name: Wildcat  
Pool: WILDCAT  
Job Number: 167

**DATE**

June

**10**

2018

**DST #2**      **Formation: Lansing**      **Test Interval: 4020 -**      **Total Depth: 4052'**  
**C**      **4052'**

Time On: 10:32 06/10

Time Off: 17:56 06/10

Time On Bottom: 13:00 06/10      Time Off Bottom: 15:45 06/10

**Mud Properties**

**Mud Type:** Chemical

**Weight:** 8.9

**Viscosity:** 50

**Filtrate:** 8.0

**Chlorides:** 2400 ppm

2nd Open			
Time	Orifice	PSI	MCF/D





# Company: Richlan Drilling

## Lease: Hillery #1

SEC: 19 TWN: 15S RNG: 34W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 EGL  
Field Name: Wildcat  
Pool: WILDCAT  
Job Number: 167

**DATE**

June  
**12**  
2018

**DST #3****Formation:**  
**Marmaton****Test Interval: 4347 -**  
**4444'****Total Depth: 4444'**

Time On: 04:31 06/12

Time Off: 12:53 06/12

Time On Bottom: 08:20 06/12 Time Off Bottom: 10:20 06/12

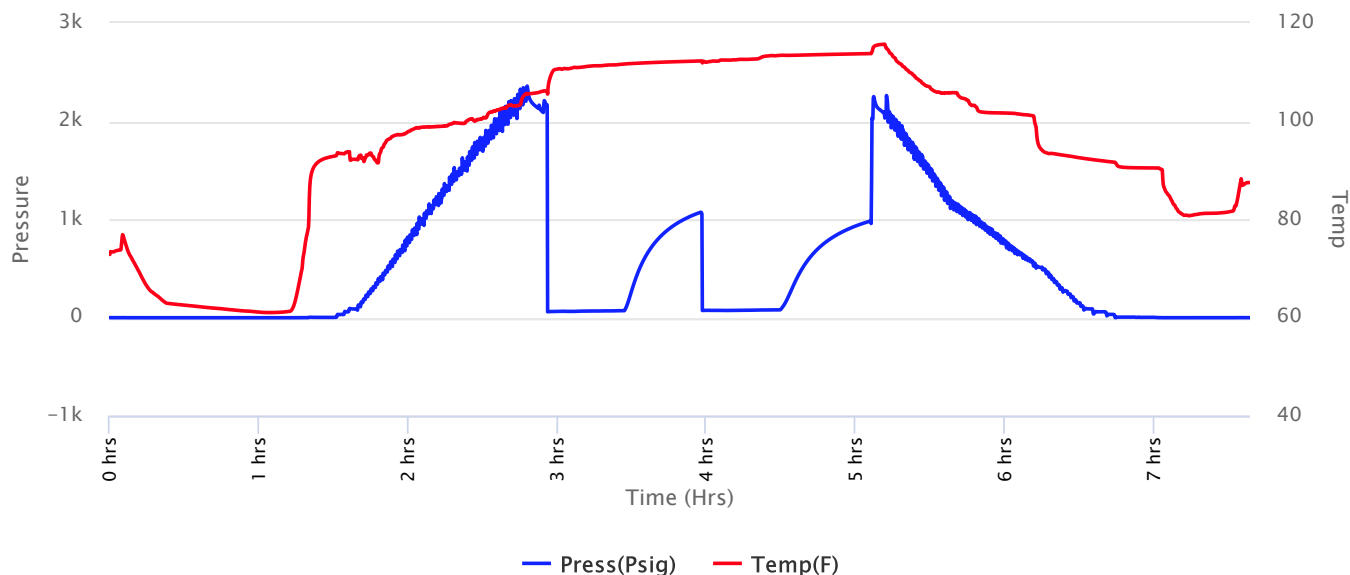
Electronic Volume  
Estimate:  
17'

1st Open  
Minutes: 30  
.5" at 30 min

1st Close  
Minutes: 30  
0" at 30 min

2nd Open  
Minutes: 30  
0" at 30 min

2nd Close  
Minutes: 30  
0" at 30 min





# Company: Richlan Drilling

## Lease: Hillery #1

SEC: 19 TWN: 15S RNG: 34W  
 County: LOGAN  
 State: Kansas  
 Drilling Contractor: WW Drilling, LLC -  
 Rig 10  
 Elevation: 3136 EGL  
 Field Name: Wildcat  
 Pool: WILDCAT  
 Job Number: 167

**DATE**  
 June  
**12**  
 2018

**DST #3**      **Formation: Marmaton**      **Test Interval: 4347 - 4444'**      **Total Depth: 4444'**

Time On: 04:31 06/12      Time Off: 12:53 06/12  
 Time On Bottom: 08:20 06/12      Time Off Bottom: 10:20 06/12

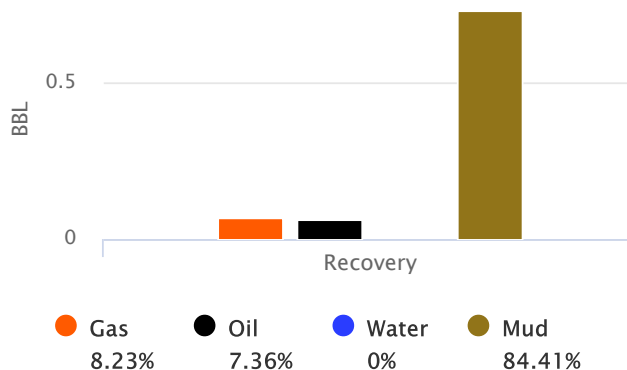
### Recovered

Foot	BBLs	Description of Fluid	Gas %	Oil %	Water %	Mud %
2	0.00984	O	0	100	0	0
48	0.23616	SLOCM	0	11	0	89
63	0.30996	SLGCSLOCM	3	5	0	92
63	0.30996	SLOGCM	20	4	0	76

Total Recovered: 176 ft  
 Total Barrels Recovered: 0.86592

Reversed Out  
 NO

### Recovery at a glance



Initial Hydrostatic Pressure	2175	PSI
Initial Flow	58 to 69	PSI
<b>Initial Closed in Pressure</b>	<b>1072</b>	<b>PSI</b>
Final Flow Pressure	72 to 78	PSI
<b>Final Closed in Pressure</b>	<b>984</b>	<b>PSI</b>
Final Hydrostatic Pressure	2169	PSI
Temperature	114	°F
Pressure Change Initial	8.3	%
Close / Final Close		





**Company: Richlan Drilling**  
**Lease: Hillery #1**

SEC: 19 TWN: 15S RNG: 34W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 EGL  
Field Name: Wildcat  
Pool: WILDCAT  
Job Number: 167

**DATE**

June

**12**

2018

**DST #3**

**Formation:**  
**Marmaton**

**Test Interval: 4347 -**  
**4444'**

**Total Depth: 4444'**

Time On: 04:31 06/12

Time Off: 12:53 06/12

Time On Bottom: 08:20 06/12    Time Off Bottom: 10:20 06/12

**REMARKS:**

If:wsb built to 1/2" in 30min

Lc:nobb

Ff: no blow no build

Fc: nobb

Tool sample: 7o - 93m

Gravity: 27 @ 60 degrees F



# Company: Richlan Drilling

## Lease: Hillery #1

SEC: 19 TWN: 15S RNG: 34W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 EGL  
Field Name: Wildcat  
Pool: WILDCAT  
Job Number: 167

**DATE**

June

**12**

2018

**DST #3****Formation:**  
**Marmaton****Test Interval: 4347 -**  
**4444'****Total Depth: 4444'**

Time On: 04:31 06/12

Time Off: 12:53 06/12

Time On Bottom: 08:20 06/12 Time Off Bottom: 10:20 06/12

### Down Hole Makeup

**Heads Up:** 33.16 FT**Packer 1:** 4342 FT**Drill Pipe:** 4169.26 FT**Packer 2:** 4347 FT*ID-3 1/2***Top Recorder:** 4331.42 FT**Weight Pipe:** FT**Bottom Recorder:** 4417 FT*ID-2 7/8***Collars:** 178.33 FT**Well Bore Size:** 7 7/8*ID-2 1/4***Surface Choke:** 1"**Test Tool:** 33.57 FT**Bottom Choke:** 5/8"*ID-3 1/2-FH**Jars**Safety Joint***Total Anchor:** 97**Anchor Makeup****Packer Sub:** 1 FT**Perforations: (top):** 2 FT*4 1/2-FH***Change Over:** 1 FT**Drill Pipe: (in anchor):** 64 FT*ID-3 1/2***Change Over:** 1 FT**Perforations: (below):** 28 FT*4 1/2-FH*



**Company: Richlan Drilling**  
**Lease: Hillery #1**

SEC: 19 TWN: 15S RNG: 34W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 EGL  
Field Name: Wildcat  
Pool: WILDCAT  
Job Number: 167

**DATE**

June

**12**

2018

**DST #3**

**Formation:**  
**Marmaton**

**Test Interval: 4347 -**  
**4444'**

**Total Depth: 4444'**

Time On: 04:31 06/12

Time Off: 12:53 06/12

Time On Bottom: 08:20 06/12 Time Off Bottom: 10:20 06/12

**Mud Properties**

**Mud Type:** Chemical

**Weight:** 9.0

**Viscosity:** 60

**Filtrate:** 9.6

**Chlorides:** 4400 ppm



**Company: Richlan Drilling**  
**Lease: Hillery #1**

SEC: 19 TWN: 15S RNG: 34W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 EGL  
Field Name: Wildcat  
Pool: WILDCAT  
Job Number: 167

**DATE**

June

**12**

2018

**DST #3**

**Formation:**  
**Marmaton**

**Test Interval: 4347 -**  
**4444'**

**Total Depth: 4444'**

Time On: 04:31 06/12

Time Off: 12:53 06/12

Time On Bottom: 08:20 06/12 Time Off Bottom: 10:20 06/12

**Gas Volume Report**

**1st Open**

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

**2nd Open**

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





# Company: Richlan Drilling

## Lease: Hillery #1

SEC: 19 TWN: 15S RNG: 34W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 EGL  
Field Name: Wildcat  
Pool: WILDCAT  
Job Number: 167

### DATE

June  
**13**  
2018

DST #4

Formation: Myrick  
station, fort scott

Test Interval: 4495 -  
4560'

Total Depth: 4560'

Time On: 08:28 06/13

Time Off: 15:11 06/13

Time On Bottom: 10:55 06/13

Time Off Bottom: 13:10 06/13

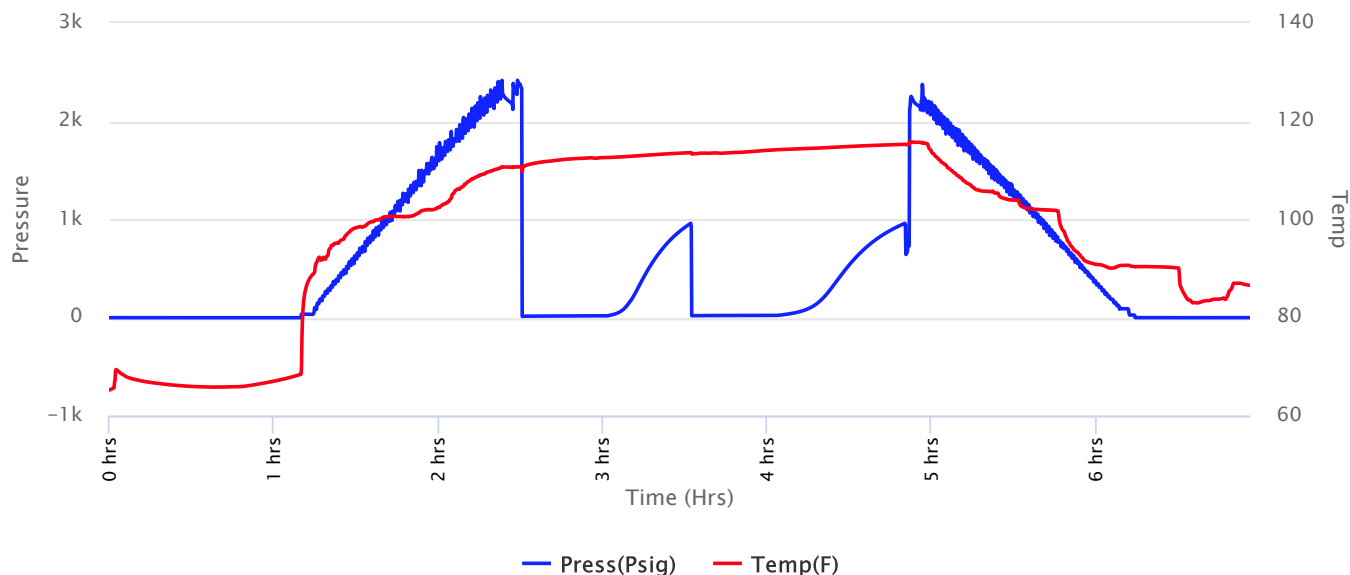
Electronic Volume  
Estimate:  
3'

1st Open  
Minutes: 30  
.1" at 30 min

1st Close  
Minutes: 30  
0" at 30 min

2nd Open  
Minutes: 30  
0" at 30 min

2nd Close  
Minutes: 45  
0" at 45 min





# Company: Richlan Drilling

## Lease: Hillery #1

SEC: 19 TWN: 15S RNG: 34W  
 County: LOGAN  
 State: Kansas  
 Drilling Contractor: WW Drilling, LLC -  
 Rig 10  
 Elevation: 3136 EGL  
 Field Name: Wildcat  
 Pool: WILDCAT  
 Job Number: 167

**DATE**  
 June  
**13**  
 2018

**DST #4**      **Formation: Myrick station, fort scott**      **Test Interval: 4495 - 4560'**      **Total Depth: 4560'**  
 Time On: 08:28 06/13      Time Off: 15:11 06/13  
 Time On Bottom: 10:55 06/13      Time Off Bottom: 13:10 06/13

### Recovered

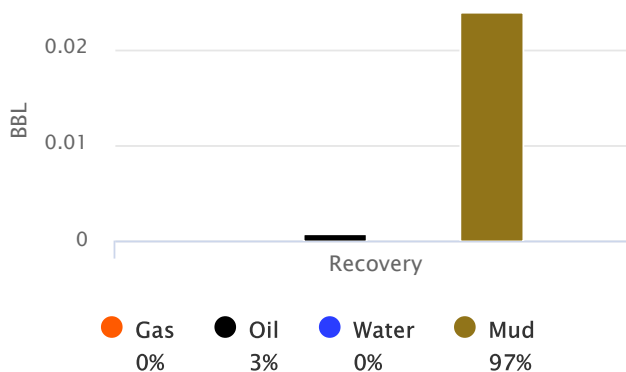
<u>Foot</u>	<u>BBLs</u>	<u>Description of Fluid</u>	<u>Gas %</u>	<u>Oil %</u>	<u>Water %</u>	<u>Mud %</u>
5	0.0246	SLOCM	0	3	0	97

Total Recovered: 5 ft  
 Total Barrels Recovered: 0.0246

Reversed Out  
 NO

Initial Hydrostatic Pressure	2223	PSI
Initial Flow	12 to 17	PSI
<b>Initial Closed in Pressure</b>	<b>960</b>	<b>PSI</b>
Final Flow Pressure	18 to 22	PSI
<b>Final Closed in Pressure</b>	<b>959</b>	<b>PSI</b>
Final Hydrostatic Pressure	2205	PSI
Temperature	116	°F
Pressure Change Initial Close / Final Close	0.1	%

### Recovery at a glance





**Company: Richlan Drilling**  
**Lease: Hillery #1**

SEC: 19 TWN: 15S RNG: 34W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 EGL  
Field Name: Wildcat  
Pool: WILDCAT  
Job Number: 167

**DATE**

June

**13**

2018

**DST #4**

**Formation: Myrick  
station, fort scott**

**Test Interval: 4495 -  
4560'**

**Total Depth: 4560'**

Time On: 08:28 06/13

Time Off: 15:11 06/13

Time On Bottom: 10:55 06/13 Time Off Bottom: 13:10 06/13

**REMARKS:**

If:wsb no build

Ic:nobb

Ff:no blow no bluild

Fc:nobb

Tool sample: 3o - 97m





**Company: Richlan Drilling**  
**Lease: Hillery #1**

SEC: 19 TWN: 15S RNG: 34W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 EGL  
Field Name: Wildcat  
Pool: WILDCAT  
Job Number: 167

**DATE**

June

**13**

2018

**DST #4**

**Formation: Myrick  
station, fort scott**

**Test Interval: 4495 -  
4560'**

**Total Depth: 4560'**

Time On: 08:28 06/13

Time Off: 15:11 06/13

Time On Bottom: 10:55 06/13 Time Off Bottom: 13:10 06/13

**Down Hole Makeup**

**Heads Up:** 11.97 FT

**Packer 1:** 4490 FT

**Drill Pipe:** 4296.07 FT

**Packer 2:** 4495 FT

*ID-3 1/2*

**Top Recorder:** 4479.42 FT

**Weight Pipe:** FT

**Bottom Recorder:** 4533 FT

*ID-2 7/8*

**Collars:** 178.33 FT

**Well Bore Size:** 7 7/8

*ID-2 1/4*

**Surface Choke:** 1"

**Test Tool:** 33.57 FT

**Bottom Choke:** 5/8"

*ID-3 1/2-FH*

*Jars*

*Safety Joint*

**Total Anchor:** 65

**Anchor Makeup**

**Packer Sub:** 1 FT

**Perforations: (top):** 3 FT

*4 1/2-FH*

**Change Over:** .5 FT

**Drill Pipe: (in anchor):** 31.5 FT

*ID-3 1/2*

**Change Over:** 1 FT

**Perforations: (below):** 28 FT

*4 1/2-FH*



**Company: Richlan Drilling**  
**Lease: Hillery #1**

SEC: 19 TWN: 15S RNG: 34W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 EGL  
Field Name: Wildcat  
Pool: WILDCAT  
Job Number: 167

**DATE**

June

**13**

2018

**DST #4**

**Formation: Myrick  
station, fort scott**

**Test Interval: 4495 -  
4560'**

**Total Depth: 4560'**

Time On: 08:28 06/13

Time Off: 15:11 06/13

Time On Bottom: 10:55 06/13 Time Off Bottom: 13:10 06/13

**Mud Properties**

**Mud Type:** CHEMICAL

**Weight:** 9.2

**Viscosity:** 61

**Filtrate:** 7.2

**Chlorides:** 5000 ppm



**Company: Richlan Drilling**  
**Lease: Hillery #1**

SEC: 19 TWN: 15S RNG: 34W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 EGL  
Field Name: Wildcat  
Pool: WILDCAT  
Job Number: 167

**DATE**

June

**13**

2018

**DST #4**

**Formation: Myrick  
station, fort scott**

**Test Interval: 4495 -  
4560'**

**Total Depth: 4560'**

Time On: 08:28 06/13

Time Off: 15:11 06/13

Time On Bottom: 10:55 06/13 Time Off Bottom: 13:10 06/13

**Gas Volume Report**

**1st Open**

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

**2nd Open**

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





# Company: Richlan Drilling

## Lease: Hillery #1

SEC: 19 TWN: 15S RNG: 34W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 EGL  
Field Name: Wildcat  
Pool: WILDCAT  
Job Number: 167

### DATE

June  
**14**  
2018

DST #5

Formation:  
Cherokee lime,  
johnson

Test Interval: 4549 -  
4640'

Total Depth: 4640'

Time On: 05:45 06/14

Time Off: 15:35 06/14

Time On Bottom: 10:05 06/14

Time Off Bottom: 13:05 06/14

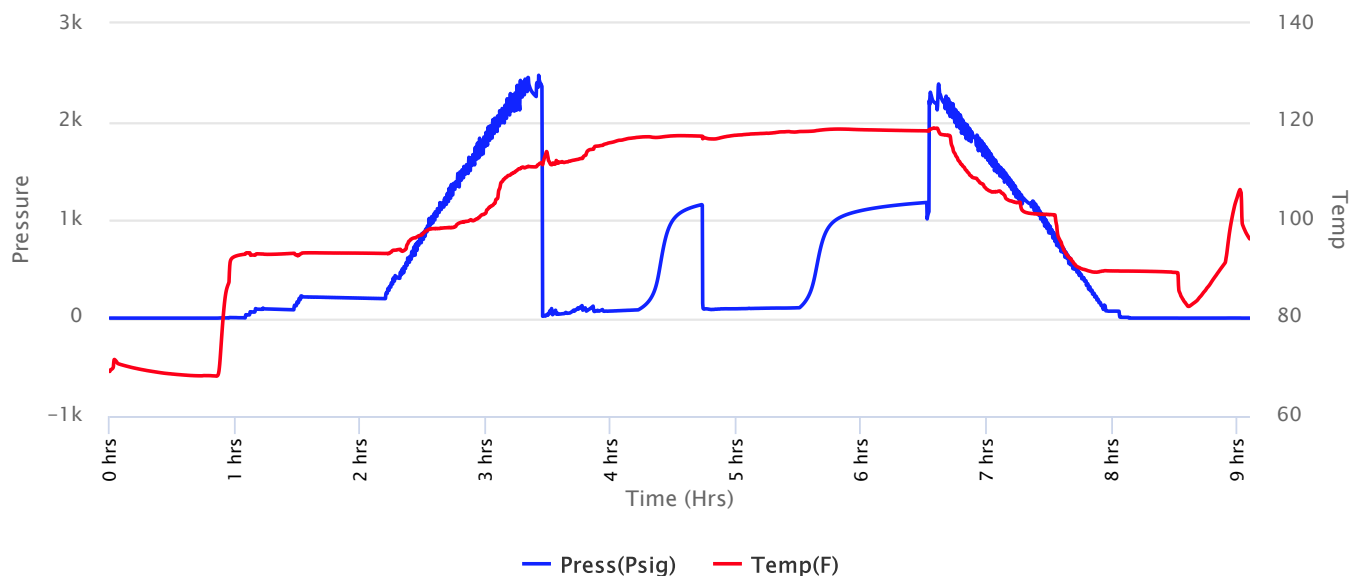
Electronic Volume  
Estimate:  
499'

1st Open  
Minutes: 45  
11" at 45 min

1st Close  
Minutes: 30  
1.75" at 30 min

2nd Open  
Minutes: 45  
18.5" at 45 min

2nd Close  
Minutes: 60  
.9" at 60 min





# Company: Richlan Drilling

## Lease: Hillery #1

SEC: 19 TWN: 15S RNG: 34W  
 County: LOGAN  
 State: Kansas  
 Drilling Contractor: WW Drilling, LLC -  
 Rig 10  
 Elevation: 3136 EGL  
 Field Name: Wildcat  
 Pool: WILDCAT  
 Job Number: 167

### DATE

June  
**14**  
 2018

DST #5

Formation:  
 Cherokee lime,  
 johnson

Test Interval: 4549 -  
 4640'

Total Depth: 4640'

Time On: 05:45 06/14

Time Off: 15:35 06/14

Time On Bottom: 10:05 06/14

Time Off Bottom: 13:05 06/14

### Recovered

Foot	BBLs	Description of Fluid	Gas %	Oil %	Water %	Mud %
391	5.56393	G	100	0	0	0
50	0.7115	SLWCHMCO	0	60	10	30
63	0.4092977	SLWCHMCHOCG	5g	55	10	30
63	0.30996	SLWCHMCO	0	45	10	45
63	0.30996	SLWCSLGCHMCO	10	45	10	35

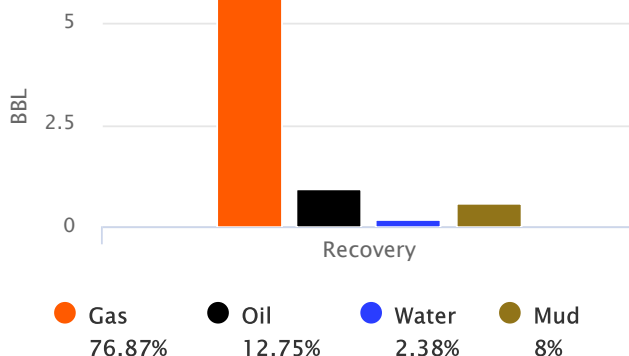
Total Recovered: 630 ft

Total Barrels Recovered: 7.3046477

Reversed Out  
 NO

Initial Hydrostatic Pressure	2310	PSI
Initial Flow	17 to 82	PSI
<b>Initial Closed in Pressure</b>	<b>1153</b>	<b>PSI</b>
Final Flow Pressure	93 to 104	PSI
<b>Final Closed in Pressure</b>	<b>1176</b>	<b>PSI</b>
Final Hydrostatic Pressure	2299	PSI
Temperature	119	°F
Pressure Change Initial	0.0	%
Close / Final Close		

### Recovery at a glance





**Company: Richlan Drilling**  
**Lease: Hillery #1**

SEC: 19 TWN: 15S RNG: 34W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 EGL  
Field Name: Wildcat  
Pool: WILDCAT  
Job Number: 167

**DATE**

June  
**14**  
2018

**DST #5**

**Formation:**  
**Cherokee lime,**  
**johnson**

**Test Interval: 4549 -**  
**4640'**

**Total Depth: 4640'**

Time On: 05:45 06/14

Time Off: 15:35 06/14

Time On Bottom: 10:05 06/14 Time Off Bottom: 13:05 06/14

**REMARKS:**

If:wsb built to 11" in 45min

Ic: 1 3/4" bb

Ff:1" Bob in 26min

Fc: .9" bb

Tool sample: 95o - 2w - 3m



**Company: Richlan Drilling**  
**Lease: Hillery #1**

SEC: 19 TWN: 15S RNG: 34W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 EGL  
Field Name: Wildcat  
Pool: WILDCAT  
Job Number: 167

**DATE**

June

**14**

2018

**DST #5**

**Formation:**  
**Cherokee lime,**  
**johnson**

**Test Interval: 4549 -**  
**4640'**

**Total Depth: 4640'**

Time On: 05:45 06/14

Time Off: 15:35 06/14

Time On Bottom: 10:05 06/14 Time Off Bottom: 13:05 06/14

**Down Hole Makeup**

**Heads Up:** 20.09 FT

**Packer 1:** 4544 FT

**Drill Pipe:** 4358.19 FT

**Packer 2:** 4549 FT

*ID-3 1/2*

**Top Recorder:** 4533.42 FT

**Weight Pipe:** FT

**Bottom Recorder:** 4620 FT

*ID-2 7/8*

**Collars:** 178.33 FT

**Well Bore Size:** 7 7/8

*ID-2 1/4*

**Surface Choke:** 1"

**Test Tool:** 33.57 FT

**Bottom Choke:** 5/8"

*ID-3 1/2-FH*

*Jars*

*Safety Joint*

**Total Anchor:** 91

**Anchor Makeup**

**Packer Sub:** 1 FT

**Perforations: (top):** 3 FT

*4 1/2-FH*

**Change Over:** 1 FT

**Drill Pipe: (in anchor):** 64 FT

*ID-3 1/2*

**Change Over:** 1 FT

**Perforations: (below):** 21 FT

*4 1/2-FH*





**Company: Richlan Drilling**  
**Lease: Hillery #1**

SEC: 19 TWN: 15S RNG: 34W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 EGL  
Field Name: Wildcat  
Pool: WILDCAT  
Job Number: 167

**DATE**

June

**14**

2018

**DST #5**

**Formation:**  
**Cherokee lime,**  
**johnson**

**Test Interval: 4549 -**  
**4640'**

**Total Depth: 4640'**

Time On: 05:45 06/14

Time Off: 15:35 06/14

Time On Bottom: 10:05 06/14 Time Off Bottom: 13:05 06/14

**Mud Properties**

**Mud Type:** Chemical

**Weight:** 9.3

**Viscosity:** 57

**Filtrate:** 8.0

**Chlorides:** 4500 ppm



**Company: Richlan Drilling**  
**Lease: Hillery #1**

SEC: 19 TWN: 15S RNG: 34W  
County: LOGAN  
State: Kansas  
Drilling Contractor: WW Drilling, LLC -  
Rig 10  
Elevation: 3136 EGL  
Field Name: Wildcat  
Pool: WILDCAT  
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**DATE**

June  
**14**  
2018

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**Formation:**  
**Cherokee lime,**  
**johnson**

**Test Interval: 4549 -**  
**4640'**

**Total Depth: 4640'**

Time On: 05:45 06/14

Time Off: 15:35 06/14

Time On Bottom: 10:05 06/14 Time Off Bottom: 13:05 06/14

**Gas Volume Report**

**1st Open**

Time	Orifice	PSI	MCF/D
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**2nd Open**

Time	Orifice	PSI	MCF/D
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P. O. Box 466  
Ness City, KS 67560  
Off: 785-798-2300



# Invoice

DATE	INVOICE #
6/22/2018	27316

BILL TO
Richlan Drilling 598 2nd Ave. Beaver, KS 67525

- Acidizing
- Cement
- Tool Rental

TERMS	Well No.	Lease	County	Contractor	Well Type	Well Category	Job Purpose	Operator
Net 30	#1	Hillary	Logan	DS & W	Oil	Workover	Cement Port Collar	Jonathan
PRICE REF.		DESCRIPTION			QTY	UM	UNIT PRICE	AMOUNT
575W	Mileage - 1 Way			80	Miles	5.00	400.00T	
576W-D	Pump Charge - Deep Surface (> 500 Ft.) & Port Collars			1	Job	1,300.00	1,300.00T	
290	D-Air			3	Gallon(s)	42.00	126.00T	
105	Port Collar Tool Rental With Man			1	Each	275.00	275.00T	
330	Swift Multi-Density Standard (MIDCON II)			300	Sacks	16.25	4,875.00T	
276	Flocele			75	Lb(s)	2.50	187.50T	
581W	Service Charge Cement			350	Sacks	1.75	612.50T	
583W	Drayage			1,393.2	Ton Miles	0.85	1,184.22T	
Subtotal							8,960.22	
Sales Tax Logan County						8.00%	716.82	
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PA 7-2-18  
CK 9562



Services, Inc.

CHARGE TO  
ADDRESS  
CITY, STATE, ZIP CODE

TICKET 27316

Richard Drilling Co  
CITY, STATE, ZIP CODE

PAGE 1 OF 1

SERVICE LOCATIONS		WELL/PROJECT NO.		LEASE		COUNTY/PARISH		STATE		CITY		DATE		OWNER	
1. Hays, KS		#1		Hilary		Logan		KS				06/22/18			
2. Ness City, KS		TICKET TYPE SERVICE SALES		CONTRACTOR D.S. + W		RIG NAME/NO.		SHIPPED VIA		DELIVERED TO LOCATION		ORDER NO.			
3.		WELL TYPE D:1		WELL CATEGORY Ouvro		JOB PURPOSE Current Port Collar		WELL PERMIT NO.		WELL LOCATION					
4.		INVOICE INSTRUCTIONS													

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.			UNIT			UNIT PRICE	AMOUNT
		LOC	ACCT	DF									
575		1			MILEAGE #113	80	mi		5	00		400	00
576D		1			Pump Charge - Port Collar	1	EA		1300	00		1300	00
290		1			D-Air	3	gal		42	00		126	00
105		2			Port Collar Tool Rental w/man	1	EA		275	00		275	00
330		2			Swift Multi-Density Standard	300	SKS		16	25		4875	00
276		2			Flocele	75	lbs		2	50		187	50
581		2			Service Charge Current	350	SKS	34830	1bs	1	75	612	50
583		2			Drayage	80	mi	1373.2	7m	0	85	1184	22
TOTAL												91677	04

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, PAYMENT, RELEASE, INDEMNITY, and LIMITED WARRANTY provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS

X  
DATE SIGNED  
TIME SIGNED  
A.M.  
P.M.

REMIT PAYMENT TO:  
SWIFT SERVICES, INC.  
P.O. BOX 466  
NESS CITY, KS 67560  
785-798-2300

SURVEY  
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?  
WE UNDERSTOOD AND MET YOUR NEEDS?  
OUR SERVICE WAS PERFORMED WITHOUT DELAY?  
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?  
ARE YOU SATISFIED WITH OUR SERVICE?  
YES  
NO  
CUSTOMER DID NOT WISH TO RESPOND

SWIFT OPERATOR  
for Swift  
APPROVAL  
Thank You!

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.

# SWIFT Services, Inc.

06/22/18

2

CUSTOMER  
Richland Drilling Co

#1

Hillary

Sub Title  
Aunt Callan

TICKET NO. 27316

280 SKs in well.  
Circ. 20 SKs to pit  
300 Total.



# Musgrove

Petroleum Geology  
212 Main Street, Claflin KS

## GEOLOGIST'S REPORT

### DRILLING TIME AND SAMPLE LOG

COMPANY Richlan Drilling, Co.  
LEASE Hillery #1  
FIELD Wildcat  
LOCATION W/2-NW-NW-SE (2310' FSL & 2500' FEL)  
SEC 19 TWSP 15S RGE 34W  
COUNTY Logan STATE Kansas

#### ELEVATIONS

KB 3147'  
DF \_\_\_\_\_  
GL 3137'  
Measurements Are All  
From KB

CONTRACTOR W.W. Drilling (Rig #12)  
SPUD 06/05/2018 COMP 06/15/2018  
RTD 4800' LTD 4796'  
MUD UP 3600' TYPE MUD Chemical

#### CASING

SURFACE 8 5/8"@374'  
PRODUCTION 5 1/2"@4799'

#### ELECTRICAL SURVEYS

Pioneer; Dual Induction,  
Dual compensated porosity,  
& Micro

SAMPLES SAVED FROM 3650' TO RTD  
DRILLING TIME KEPT FROM 3650' TO RTD  
SAMPLES EXAMINED FROM 3650' TO RTD  
GEOLOGICAL SUPERVISION FROM 3850' TO RTD  
GEOLOGIST ON WELL Jim Musgrove

FORMATION TOPS	LOG	<del>SAMPLES</del>
Anhydrite	2469 (+678)	Ft. Scott 4525 (-1378)
B. Anhydrite	2488 +659	Cherokee Sh. 4534(-1407)
Heebner	3942 (-795)	Miss. 4724(-1577)
Toronto	3960 (-813)	RTD 4800(-1653)
Lansing	3985 (-838)	LTD 4796(-1649)
Stark Sh.	4260 (-1113)	





	19		



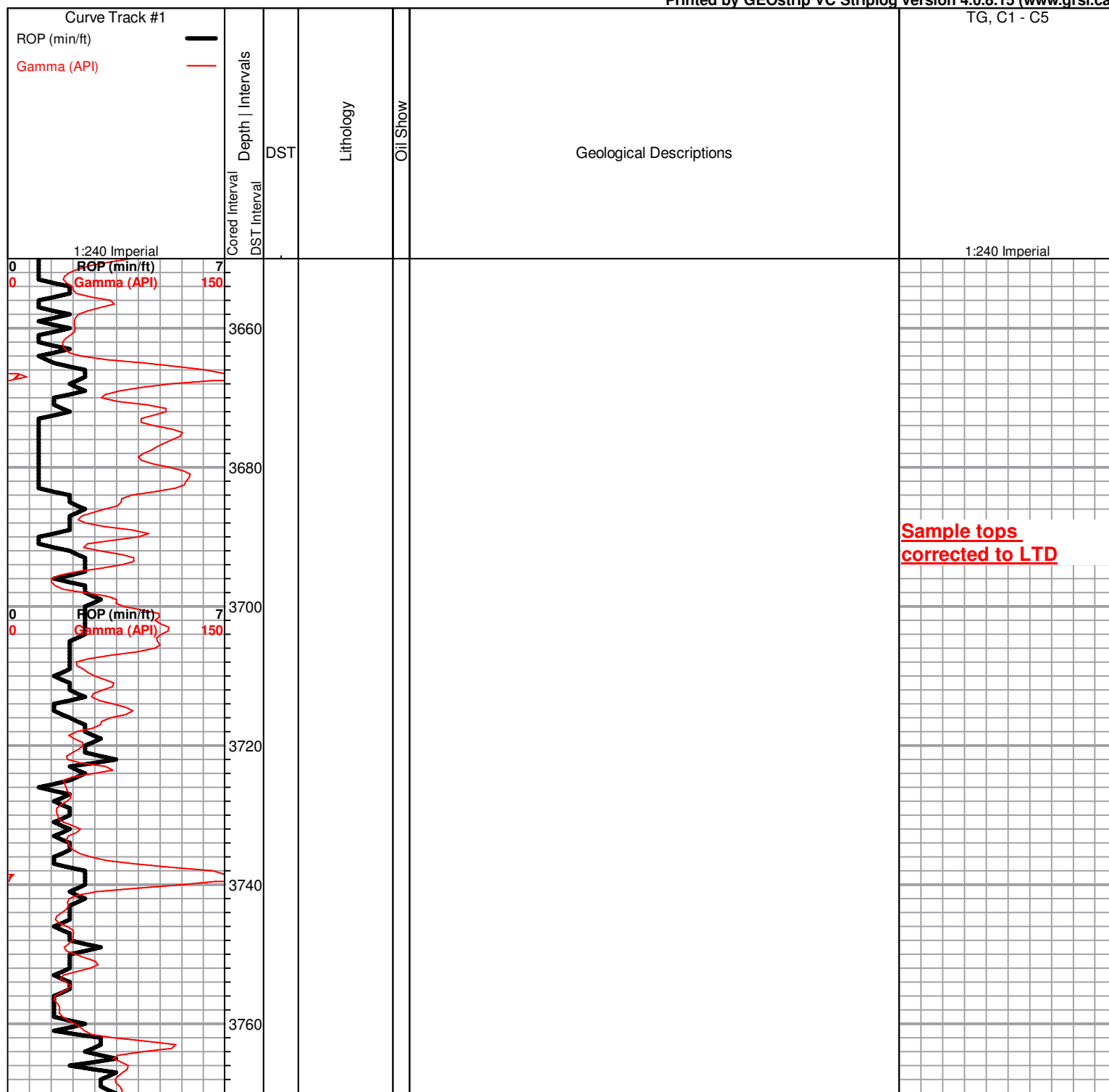
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## Oil Show

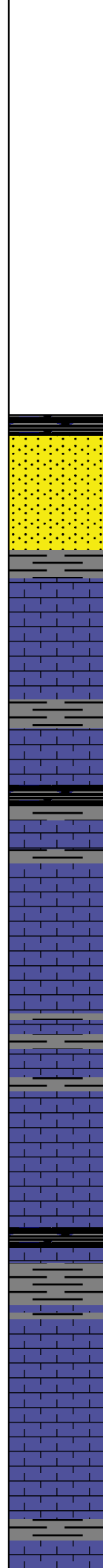
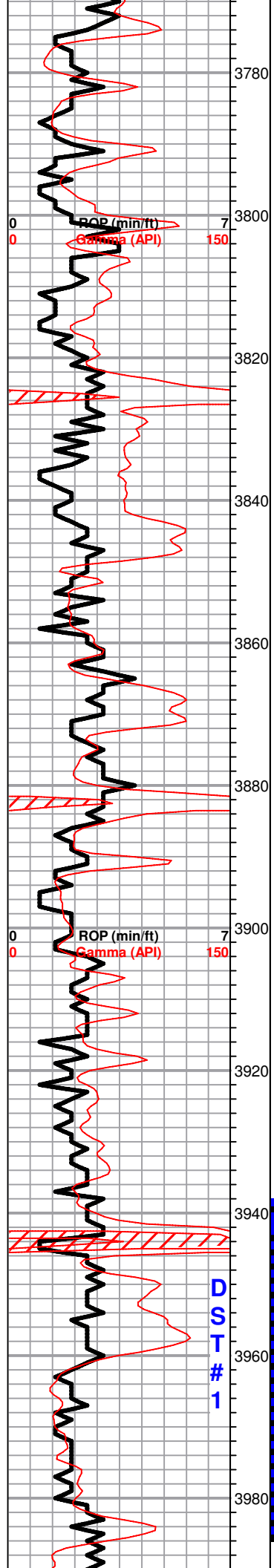
- DST

-  DST Int
-  DST alt
-  Core
-  tail pipe

TG, C1 - C5







Sd. gry/ lime green, cal., poor vis. porosity, no shows

LS, tan, cream, fxl, foss in pt, chalky, poorly developed

LS, tan/ gry, foss, scatt porosity, no show

Sh. black carb

LS, white, gry, foss, slightly chlky-cherty, + tr. white chert

LS, white, gry, foss, chlky, + gry foss. boney chert

LS, cream, white, chlky

**Heebner 3943.0 (-796.0)**

Sh. black carb

Sh, gry, silty

**Toronto 3960.0 (-813.0)**

LS, tan, gry, fxl, slightly cherty, scattered porosity, fracture porosity, (stain; sfo) no odor

LS, white/ cream, fxl, fossil, scattered porosity, no shows

+ white boney chert & tr. tan, ool chert; Ls @ base

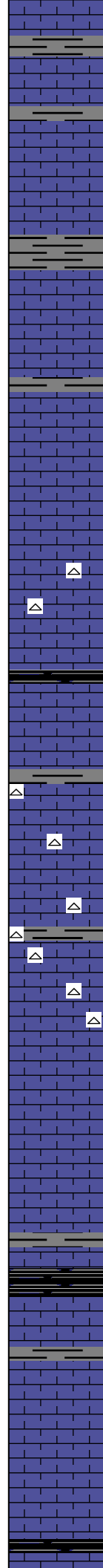
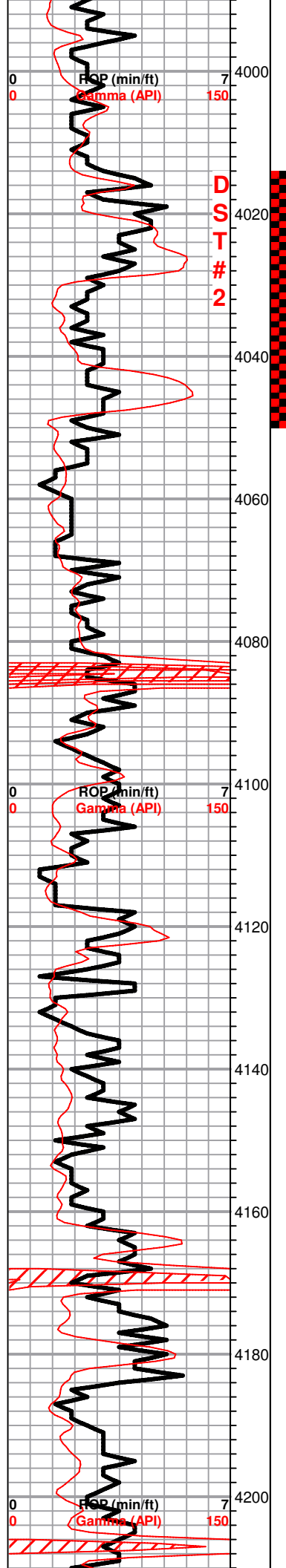
**Lansing 3992.0 (-847.0)**

**DST#1 3938-3986**  
**30-30-45-60**

**Blow:**  
**Strong**  
**(BOB 11 mins)**

**Recovery :**  
**245 muddy water**  
**504 ' water tr. mud**

**Pressures:**  
**ISIP 1093 psi**  
**FSIP 1097 psi**



LS, white, cream, ool, fair porosity, chalky in pts, no shows

LS,a/a

LS, cream, fxl, slightly foss/ ool; poor vis porosity, no shows

● LS, white/ cream, fxl, foss in pt, slightly chalky, scattered vuggy type porosity, few sparry calcite, brn/blk stain, sfo (heavy blk) no odor

LS, tan, fxl, slightly cherty, poor vis. porosity, no shows

LS, a/a, slightly dol. tr. white/ gry, dolomitic chert

Tr. white chert

Sh . black carb

LS, tan, dense, no shows

LS, white, cream, fxl, foss, chalky, scattered porosity, tr. pyrite inclusions

+ white, boney/ opaque cherts

LS, a/a

LS, tan, white, few ool, few dolomitic , poor vis. porosity, tr. white chalk & white/ gry trans. chert

LS, white, tan, fxl, slightly ool, chalky, few cherty ( dense) no shows

LS, a/a, + white / gry chert

**Muncie Creek 4168.0 (-1021.0)**

Sh. black carb

○ LS, gry, ool, dense, + tr. orange chalky LS, poor porosity, blk dead stain, nsfo, no odor

LS, gry, white, fxl, ool in pt poor vis porosity, no shows

Tr. black carb sh

FFP 13-200 psi  
FFP 202-378 psi  
HSH 1844-1833 psi

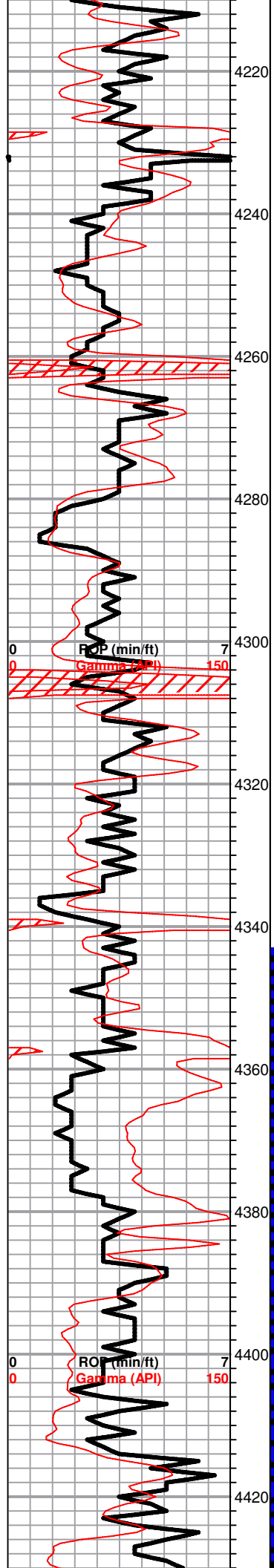
**DST# 2 4016-4048**  
30-30-45-60

**1st Open:**  
**Good blow**  
(7.1 inches)

**2nd Open:**  
**Good Blow**  
(9 inches)

**Recovery:**  
**305' of muddy water**

**Pressures:**  
ISIP 1108 psi  
FSIP 1114 psi  
IFP 18-91 psi  
FFP 93-141 psi  
HSH 1894-1874 psi



LS, tan, foss, chalky in pt, poorly developed porosity, no shows

Sh gry/blk

LS, gry, white, oom (barren)

**Stark 4261.0 (-1114.0)**

Sh black carb

LS white gry oom , slightly cherty poor vis. porosity

LS, tan, ool, sparry calc. cement in some porosity, no shows

**Hushpuckney 4303.0 (-1156.0)**

Sh black carb

LS, white, gry, highly ool, poor vis porosity, no shows

LS, a/a , tr. gry-blk sh.

**BKC 4356.0 (-1209.0)**

Sh, gry, silty

Tr. sh. gry silty sh.

**Marmaton 4392.0 (-1245.0)**

LS, white, tan, fxl, slightly foss, poor vis. porosity, brn stain, sfo, ??? odor

LS, white, tan, corraline, foss, few dolomitic, poor vis. porosity, no shows

+ tr. yellow chert

LS, white, cream, ool, chalky, poor vis. porosity

LS, white, tan, corr. foss, few dolomitic, poor vis. porosity, no shows

**DST#3 4343-4440**  
30-30-30-30

**1st Open:**  
weak blow 1/2"

**Final , no blow**

**Recovery:**

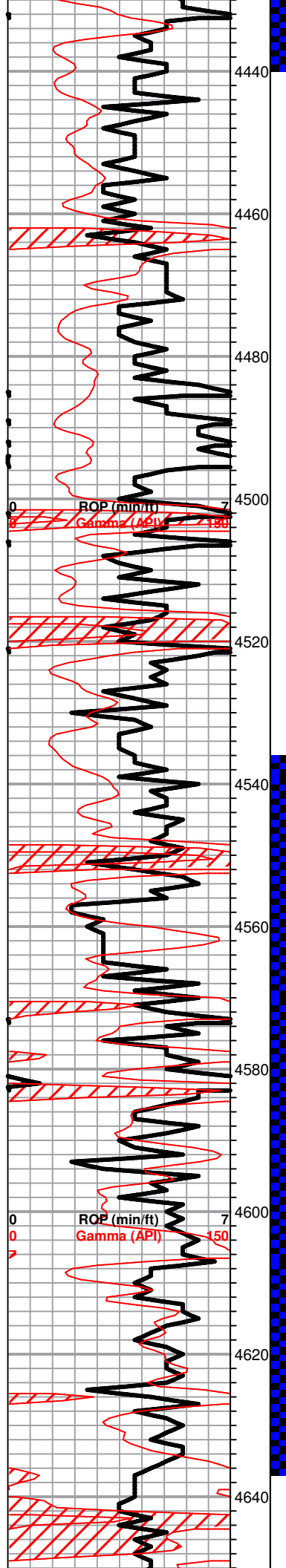
**2' Clean Oil**

**48' SLOCM**  
(11%O, 89%M)

**63' SLO&GCM**  
(3%G, 5%O, 92%M)

**63' SLO&GCM**  
(20%G, 4%O, 76%M)

**Pressures:**  
ISIP 1072 psi  
FSIP 984 psi  
IFP 58-69 psi  
FFP 72-78 psi  
HSH 2175-2169 psi



LS, a/a, chalky, few cherty, dense, ??? edge staining, nsfo or odor

LS, tan, white, ool, dense

LS, white, gry, ool, poor vis. porosity

Sh, blk/ gry, green

Tr. black carb shale

**Pawnee 4464.0 (-1317.0)**

LS, tan, fxl, slightly cherty, + tr. tan chert

Tr. black carb sh.

**Myrick Station 4504.0 (-1354.0)**

LS, tan, fxl, slightly foss, no shows

Sh, black carb

**Ft. Scott 4521.0 (-1374.0)**

LS, tan, ool, fair - good porosity, fair stain & sat. , ft. odor

LS, tan, ool dense

**Cherokee Sh. 4550.0 (-1403.0)**

Sh. black carb

LS, gry, tan, slightly ool, dense, poorly dev. porosity, no shows

A/a .few scattered vuggy porosity a/a ??? brn stain, nsfo

Tr. gry- dk gry shales

A/a

LS, tan, fxl, slightly foss, slightly cherty, scattered fine p.p./ vuggy porosity, brn stain, sfo, faint odor

**Johnson Zone 4608.0 (-1461.0)**

LS, gry, foss, scattered vuggy porosity, chalky in pt, brn stain/ sat. sfo (gassy), ft. odor

LS, tan, fxl, few slightly cherty, poor vis. porosity, no shows

LS, a/a, + white, gry, ls, few glauc. tr. vfg, dense, sd. +tr. white chert

1317-2109 psi

**POOR SAMPLES  
ABUNDANT SHALES**

**DST#4 4491-4546**  
30-30-30-45

**1st Open:**  
Weak blow

**Recovery:**  
5' SLOCM  
(3%O, 97%M)

**Pressures:**  
ISIP 960 psi  
FSIP 959 psi  
IFP 12-17 psi  
FFP 18-22 psi  
HSH 2223-2205 psi

**DST#5 4545-4636**  
45-30-45-60

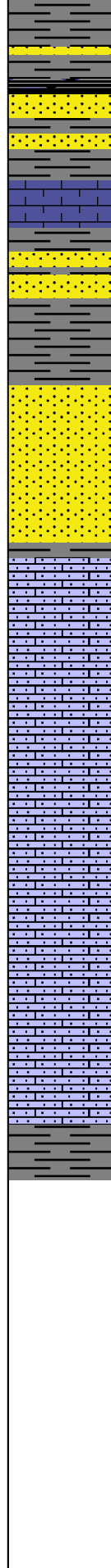
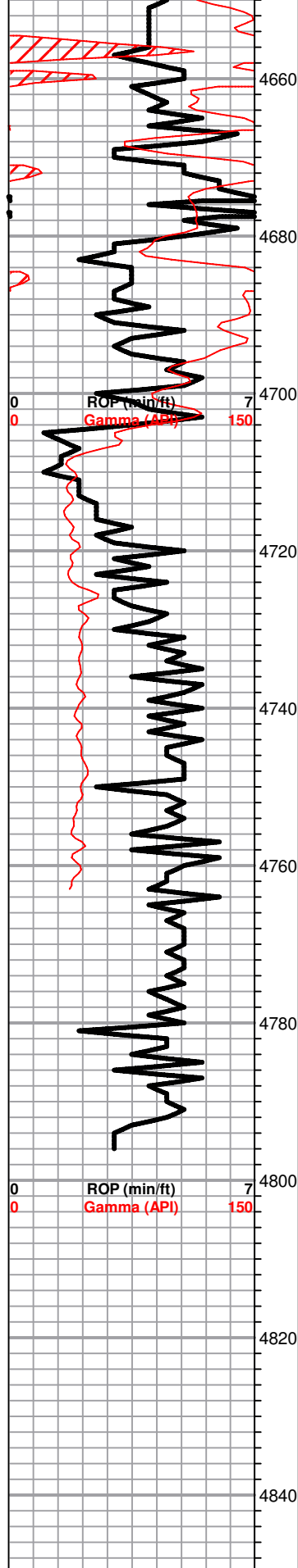
**1st Open:**  
Good blow 11 inches

**2nd Open:**  
BOB 26 mins.

**Recovery:**  
391' GIP

**239' Muddy Oil**  
(50%O,10% W, 40%M)

**Pressures:**  
ISIP 1153 psi  
FSIP 1176 psi  
IFP 17-82 psi  
FFP 93-104 psi  
HSH 2310-2299 psi



Tr. sh, gry, blk

Tr. vfg dense sd. + tr. white chert ???

LS, tan, dense, tr. vfg. sd. pyrite, + blk platy sh.

Sd. vfg. sl. glauc. no shows

Sh, gry, green, + sd. white, gry, f-med grained, sub rounded, friable no shows

### Morrow Sd. 4700.0 (-1553.0)

Slug white vfg. cal. sand no shows

Sd. gry, white, f. grained, sub rounded, "shaley" green sh+green tinted vfg sand, no shows

### Miss. 4720.0 (-1573.0)

Slug white, vfg. sd. no shows + LS, white/ cream, highly s

LS, white, cream, highly sandy, chalky,  
Tr. tan, foss, ls

A/a + tr. tan slightly cherty ( dense ) LS,

LS, a/a, sdy

LS, white, cream, med xln, chalky + sand a/a

### LTD 4796.0 (-1631.0)

### RTD 4800.0 (-1635.0)

\*All Sample tops & DST Intervals are corrected to LTD.



# Invoice

Page: 1

**Pioneer Wireline Services, LLC**  
**Service Location: Hays, KS (Wireline)**  
**For questions or comments, please call: (785) 625-3858**

INVOICE NUMBER: 0000009958  
INVOICE DATE: 6/29/2018  
DUE DATE: 7/29/2018  
CLIENT: RICHDRIL

## Sold To

Richlan Drilling  
Atten: Accounts Payable  
598 2nd Avenue  
Claflin, KS 67525 USA

Well Name: HILLERY #1  
Field:  
API/OCSG#:  
Well Stage: Pre-production  
County: Logan  
State: KS

Primary Service: CH Logging  
AFE #:  
Contract #:  
PO #:  
Unit #: P-106  
Last Work Date: 6/29/2018

ITEM CODE	DESCRIPTION	TAX	QTY	UNIT PRICE	AMOUNT
10000	Rig-up on Rig or Crane		1.00	1,399.84	1,399.84
12081	Cement Bond Depth		6,000.00	0.38	2,252.47
12082	Cement Bond Operation		2,000.00	0.38	750.82
17320	Perforate Exp Csg Gun 4-5 1/8" Depth		6,000.00	0.17	1,030.79
17322	Perf Exp Csg Gun 4-5 1/8" 0-6000		1.00	61.08	61.08
15200	Additional Materials Charge		52.00	65.00	3,380.00
	Tickets: T-A65-2BB-9856				
	LAST ITEM				

THANK YOU FOR YOUR BUSINESS

**Please remit payment to one of the following locations:**

**Wire Transfer & ACH:**

Bank: Wells Fargo Bank, N.A.  
Houston, TX 77002

ABA #: 121000248

Acct #: 4121817860

Confirmation: credit@pioneerres.com

**Standard US Mail:**

Pioneer Wireline Services, LLC  
PO Box 202567  
Dallas, TX 75320-2567

Subtotal 8,875.00  
Sales Tax 0.00  
Payment/Credit Amount 0.00  
Balance: 8,875.00

*PA 7-11-18  
OK 9600*

TERMS: If Company has an approved open account with Pioneer, invoices are payable NET 30 days from date of invoice. If Company does not have an approved open account with Pioneer, all sums are payable prior to performance of services or delivery of equipment, products, or materials. Company agrees to pay interest on any unpaid balance from the date payable until paid at the highest lawful contract rate applicable, but never to exceed 18% per annum. In the event Pioneer employs an attorney for collection of any account, Company agrees to pay reasonable attorney fees plus all collection and court costs.



Pioneer Energy Services

DATE: 06/29/2018

LOCATION: Hays, KS (Wireline) Brett Becker (785) 625-3858

UNIT: P-106

ENGINEER: Kyle Pfannenstiel

TICKET NUMBER: T-A65-2BB-9856

CLIENT INFO	COMPANY: Richlan Drilling			PO#:		
	BILLING ADDRESS: 598 2nd Avenue			CITY: Claflin	ST: KS	ZIP: 67525
WELL INFO	WELL NAME: HILLERY #1		FIELD / BLOCK:		COUNTY / PARISH: Logan	ST: KS - Kansas
	API / OCSG#:	AFE#:	PRICE ZONE: LAND			Page 1 of 3

CODE	SERVICE DESCRIPTION	QTY	AMOUNT
<b>Setup Charges - Truck rental</b>			
10000	Rig up on rig	1	\$1,399.84
<b>Run 01 - CEMENT BOND LOG</b>			
12081	CBL	6000	\$2,252.47
12082	Cement Bond Operation	2000	\$750.82
<b>Run 02 - 4" HEC PERF</b>			
17320	CCL@ 4582.4'+11.6' STANDOFF = 4594'-4600'	6000	\$1,030.79
17322	CCL@4604.7'+STANDOFF 2.3' = 4607'-4614 LGT#101160	1	\$61.08
15200	Additional Materials Charge	52	\$3,380.00
<b>FLUID @ 1700'</b>			





Pioneer Energy Services

DATE: 06/29/2018

LOCATION: Hays, KS (Wireline) Brett Becker (785) 625-3858

UNIT: P-106

ENGINEER: Kyle Pfannenstiel

TICKET NUMBER: T-A65-2BB-9856

CLIENT INFO	COMPANY: Richlan Drilling			PO#:		
	BILLING ADDRESS: 598 2nd Avenue			CITY: Claflin	ST: KS	ZIP: 67525
WELL INFO	WELL NAME: HILLERY #1		FIELD / BLOCK:		COUNTY / PARISH: Logan	ST: KS - Kansas
	API / OCSG#:	AFE#:	PRICE ZONE: LAND			Page 2 of 3

**TICKET TOTALS AND RUN SUMMARY**

Run Number	Total
Setup Charges	\$1,399.84
Run 01	\$3,003.29
Run 02	\$4,471.87
SUB TOTAL	\$8,875.00
TAX	TBD
NET TOTAL	\$8,875.00

  
Supervisor

  
RICK SCHREIBER

SIGNED DATE: 06/29/2018 TIME: 02:45 PM

\* Client accepts all terms and conditions of sale and service, including those provided as an addendum to this field ticket.





Pioneer Energy Services

DATE: 06/29/2018

LOCATION: Hays, KS (Wireline) Brett Becker (785) 625-3858

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					Page 3 of 3

#### Work Order Contract / Terms and Conditions

A. CUSTOMER REPRESENTATION: Customer warrants that the well is in proper condition to receive the services, equipment, products and materials to be supplied by Pioneer Wireline Services, LLC (hereinafter "Pioneer").

B. PRICE AND PAYMENT: Pioneer's prices are based on the Customer RELEASING, DEFENDING, INDEMNIFYING AND HOLDING HARMLESS Pioneer from certain liabilities as provided herein. If Pioneer has an approved open account with Customer, invoices are payable Net 30-days from the date of invoice. If Pioneer does not have an approved open account with Customer, all sums are payable prior to performance of services or delivery of equipment, products or materials. Customer agrees to pay interest on any unpaid balance from the date payable until paid at the highest lawful contract rate applicable, but never to exceed 18% per annum. In the event Pioneer employs an attorney for collection of any account, Customer agrees to pay actual attorneys' fees, plus all collection and court costs. Any tax based on or measured by the charges made for the cash receipts from the sale of products and/or services shall be in addition to the charge stated in the price schedule.

C. RELEASE AND INDEMNITY: CUSTOMER AGREES TO RELEASE PIONEER FROM ANY AND ALL LIABILITY FOR ANY AND ALL DAMAGES WHATSOEVER TO PROPERTY OF ANY KIND OWNED BY, IN THE POSSESSION OF, OR LEASED BY CUSTOMER AND THOSE PERSONS AND ENTITIES CUSTOMER HAD THE ABILITY TO BIND BY CONTRACT OR WHICH ARE CO-INTEREST OWNERS OR JOINT VENTURES WITH CUSTOMER. CUSTOMER ALSO AGREES TO DEFEND, INDEMNITY AND HOLD PIONEER HARMLESS FROM AND AGAINST ANY AND ALL LIABILITY, CLAIMS, COSTS, EXPENSES, ATTORNEY FEES AND DAMAGES WHATSOEVER FOR PERSONAL INJURY, ILLNESS, DEATH, PROPERTY DAMAGE AND LOSS RESULTING FROM: LOSS OF WELL CONTROL; SERVICES TO CONTROL A WILD WELL WHETHER UNDERGROUND OR ABOVE THE SURFACE; RESERVOIR OR UNDERGROUND DAMAGE, INCLUDING LOSS OF OIL, GAS, OTHER MINERAL SUBSTANCES OR WATER; SURFACE DAMAGE ARISING FROM UNDERGROUND DAMAGE; DAMAGE TO OR LOSS OF THE WELL BORE; SUBSURFACE TRESPASS OR ANY ACTION IN THE NATURE THEREOF; FIRE; EXPLOSION; SUBSURFACE PRESSURE; RADIOACTIVITY; AND POLLUTION AND CONTAMINATION AND ITS CLEANUP AND CONTROL.

CUSTOMER'S RELEASE, DEFENSE, INDEMNITY AND HOLD OBLIGATIONS WILL APPLY EVEN IF THE LIABILITY AND CLAIMS ARE CAUSED BY THE SOLE, CONCURRENT, ACTIVE OR PASSIVE NEGLIGENCE, FAULT OR STRICT LIABILITY OF ONE OR MORE MEMBERS OF THE PIONEER GROUP, THE UNSEAWORTHINESS OF ANY VESSEL, OR ANY DEFECT IN THE DATA, PRODUCTS, SUPPLIES, MATERIALS OR EQUIPMENT FURNISHED BY ANY MEMBER OR MEMBERS OF THE PIONEER GROUP WHETHER IN THE DESIGN, MANUFACTURE, MAINTENANCE OR MARKETING THEREOF OR FROM A FAILURE TO WARN OF SUCH DEFECT. "PIONEER GROUP" IS DEFINED AS PIONEER WIRELINE SERVICES, LLC, ITS PARENT, SUBSIDIARY, AND AFFILIATED COMPANIES, INSURERS AND SUBCONTRACTORS AND ALL ITS/THEIR OFFICERS, DIRECTORS, EMPLOYEES, CONSULTANTS AND AGENTS. CUSTOMER'S RELEASE, DEFENSE, INDEMNITY AND HOLD HARMLESS OBLIGATIONS APPLY WHETHER THE PERSONAL INJURY, ILLNESS, DEATH, PROPERTY DAMAGE OR LOSS IS SUFFERED BY ONE OR MORE MEMBERS OF THE PIONEER GROUP, CUSTOMER OR ANY OTHER PERSON OR ENTITY. CUSTOMER AGREES TO NAME PIONEER GROUP AS NAMED ADDITIONAL INSURED ON ALL OF ITS GENERAL LIABILITY POLICY(S). CUSTOMER AGREES THAT ITS LIABILITY UNDER THIS CONTRACT IS NOT LIMITED BY THE AMOUNTS OF ITS INSURANCE COVERAGE, EXCEPT WHERE AND AS MAY BE REQUIRED BY APPLICABLE LOCAL LAW FOR THE PROVISIONS OF THIS CONTRACT TO BE ENFORCEABLE.

D. EQUIPMENT LIABILITY: Customer shall at its risk and expense attempt to recover any Pioneer Group equipment lost or lodged in the well. If the equipment is recovered and repairable, Customer shall pay the repair costs. If a radioactive source becomes lost or lodged in the well, Customer shall meet all requirements of Section 39.15(a) of the Nuclear Regulatory Commission regulations and any other applicable laws or regulations concerning retrieval or abandonment and Customer agrees that should a sealed source of radioactive material be lost or lodged in the well, special precautions will be taken by Customer in fishing operations to avoid damage or breakage of source container and that, if source is not recovered, it will be isolated by cementing it in place or fixing it in well by some other appropriate means, in accordance with NRC regulations or any other applicable laws or regulations. Customer shall permit Pioneer to monitor the recovery or abandonment efforts all at no risk or liability to Pioneer Group. Customer shall be responsible for damage to or loss of Pioneer Group equipment, products, and materials while in transit aboard Customer-supplied transportation, even if such is arranged by Pioneer at Customer's request, and during loading and unloading from such transport. Customer will also pay for the repair or replacement of Pioneer Group equipment damaged by corrosion or abrasion due to well effluents.

E. WARRANTY: PIONEER MAKES NO WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE. In no event shall Pioneer be liable for special, incidental, indirect, consequential, or punitive damages. Because of the uncertainty of variable well conditions and the necessity of relying on facts and supporting services furnished by others, PIONEER IS UNABLE TO GUARANTEE THE EFFECTIVENESS OF THE EQUIPMENT, MATERIALS OR SERVICES, NOR THE ACCURACY OF ANY CHART INTERPRETATION, RESEARCH ANALYSIS, JOB RECOMMENDATION OR OTHER DATA FURNISHED BY PIONEER GROUP. Customer agrees that Pioneer Group shall not be liable for and CUSTOMER SHALL INDEMNIFY PIONEER GROUP AGAINST ANY DAMAGES ARISING FROM THE USE OF SUCH INFORMATION, EVEN IF SUCH IS CONTRIBUTED TO OR CAUSED BY THE ACTIVE OR PASSIVE NEGLIGENCE, FAULT OR STRICT LIABILITY OF ANY MEMBER OR MEMBERS OF PIONEER GROUP.

F. SEVERABILITY: If any provision or part thereof of this Contract shall be held to be invalid, void or of no effect for any reason, such holding shall not be deemed to affect the validity of the remaining provisions of this Contract.

G. MODIFICATIONS: Customer agrees that Pioneer shall not be bound to any modifications to this Contract, except where such modification is made in writing by a duly authorized executive officer of Pioneer.

I HAVE READ AND UNDERSTAND THIS WORK ORDER CONTRACT WHICH CONTAINS RELEASE AND INDEMNITY LANGUAGE WHICH CUSTOMER ACKNOWLEDGES IS CONSPICUOUS AND AFFORDS FAIR AND ADEQUATE NOTICE AND I REPRESENT THAT I AM AUTHORIZED TO SIGN THE SAME AS CUSTOMER'S AGENT. I AM SIGNING THIS WORK ORDER CONTRACT WITH THE UNDERSTANDING THAT ITS TERMS AND CONDITIONS WILL NOT APPLY TO THE EXTENT THEY CONFLICT WITH TERMS AND CONDITIONS OF A SIGNED MASTER SERVICE AGREEMENT BETWEEN THE PARTIES.