

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1246660  
OIL & GAS CONSERVATION DIVISION

Form ACO-1

August 2013

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  SIOW
- Gas  D&A  ENHR  SIGW
- OG  GSW  Temp. Abd.
- 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 ENHR  Conv. to SWD
- Plug Back  Conv. to GSW  Conv. to Producer
- Commingled Permit #: \_\_\_\_\_
- Dual Completion Permit #: \_\_\_\_\_
- SWD Permit #: \_\_\_\_\_
- ENHR Permit #: \_\_\_\_\_
- GSW Permit #: \_\_\_\_\_

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - \_\_\_\_\_

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
- Geologist Report Received
- UIC Distribution
- ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

1246660

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  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				

Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*  
 Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 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)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD:      Size: \_\_\_\_\_ Set At: \_\_\_\_\_ Packer At: \_\_\_\_\_ Liner Run:  Yes  No

Date of First, Resumed Production, SWD or ENHR. \_\_\_\_\_ Producing Method:  
 Flowing  Pumping  Gas Lift  Other *(Explain)* \_\_\_\_\_

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____ <input type="checkbox"/> Other <i>(Specify)</i> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
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Form	ACO1 - Well Completion
Operator	Cobalt Energy LLC
Well Name	Williams-Hess "A" 1-15
Doc ID	1246660

Tops

Name	Top	Datum
Anhydrite	2172	661
Base Anhydrite	2198	635
Heebner	3969	-1136
Lansing	4010	-1177
Muncie Creek	4190	-1357
Stark	4295	-1462
BKC	4374	-1541
Altamont	4447	-1614
Cherokee	4558	-1725
Mississippian	4629	-1796





**BASIC**<sup>SM</sup>  
ENERGY SERVICES  
PRESSURE PUMPING & WIRELINE

10244 NE Hwy. 61  
P.O. Box 8613  
Pratt, Kansas 67124  
Phone 620-672-1201

FIELD SERVICE TICKET  
1718 11662 A

15-19-29

DATE TICKET NO.

DATE OF JOB 12-22-2013		DISTRICT Pratt, KS		NEW WELL <input checked="" type="checkbox"/> OLD WELL <input type="checkbox"/>		PROD <input type="checkbox"/> INJ <input type="checkbox"/> WDW <input type="checkbox"/>		CUSTOMER ORDER NO.:	
CUSTOMER Cobalt Energy LLC				LEASE Williams-Hess A				WELL NO. 1-15	
ADDRESS				COUNTY Lane		STATE KS			
CITY				STATE		SERVICE CREW Dgrin, McGrsu, Beschey			
AUTHORIZED BY				JOB TYPE: CNW 4 1/2 Port + Cells					
EQUIPMENT#	HRS	EQUIPMENT#	HRS	EQUIPMENT#	HRS	TRUCK CALLED	DATE	AM PM	TIME
27283	4 1/2						12-22		5:30
77686	4 1/2					ARRIVED AT JOB	12-22	AM PM	11:00
19905	4 1/2					START OPERATION	12-22	AM PM	11:30
19889	4 1/2					FINISH OPERATION	12-22	AM PM	4:00
19862	4 1/2					RELEASED	12-22	AM PM	5:00
						MILES FROM STATION TO WELL	161		

CONTRACT CONDITIONS: (This contract must be signed before the job is commenced or merchandise is delivered).

The undersigned is authorized to execute this contract as an agent of the customer. As such, the undersigned agrees and acknowledges that this contract for services, materials, products, and/or supplies includes all of and only those terms and conditions appearing on the front and back of this document. No additional or substitute terms and/or conditions shall become a part of this contract without the written consent of an officer of Basic Energy Services LP.

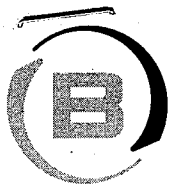
SIGNED: *[Signature]*  
(WELL OWNER, OPERATOR, CONTRACTOR OR AGENT)

ITEM/PRICE REF. NO.	MATERIAL, EQUIPMENT AND SERVICES USED	UNIT	QUANTITY	UNIT PRICE	\$ AMOUNT	
CP101	A-con Blend Common	SK	225		4050 00	
CC102	66 Celloliske	Lb	57		210 90	
CC109	Calcium Chloride	Lb	636		1667 80	
P700	cut 20-40 mesh gns smeller (includes 100 mesh <sup>SS</sup> )	SK	2		107 00	
E100	unit m. lisse chsrse - Pickups smeller <sup>one</sup> + CSIS <sup>WSP</sup>	m	100		450 00	
E101	Hesuy Equipment + m. lisse	m	200		1500 00	
E113	PROPSSn + gns Bulk Delivery chsrse per ton/m	Tn/m	1060		2650 00	
CE203	Depth chsrse; 2001-3000'	4hr	1		1800 00	
CE240	Blenders + mixing Service chsrse	SK	225		315 00	
5003	Service supervisor, first + 8 hrs on loc	ES	1		175 00	
					SUB TOTAL	11,880 70

CHEMICAL / ACID DATA:			

SERVICE & EQUIPMENT	%TAX ON \$		
MATERIALS	%TAX ON \$		
Discarded TOTAL		8,316	49

SERVICE REPRESENTATIVE <i>[Signature]</i>	THE ABOVE MATERIAL AND SERVICE ORDERED BY CUSTOMER AND RECEIVED BY: <i>[Signature]</i>
FIELD SERVICE ORDER NO.	(WELL OWNER OPERATOR CONTRACTOR OR OR AGENT)



**BASIC**<sup>SM</sup>  
ENERGY SERVICES  
PRESSURE PUMPING & WIRELINE

10244 NE Hwy. 61  
P.O. Box 8613  
Pratt, Kansas 67124  
Phone 620-672-1201

FIELD SERVICE TICKET  
1718 11848 A

DATE 12-14-29 TICKET NO.

DATE OF JOB 12/13/14 DISTRICT		NEW WELL <input checked="" type="checkbox"/> OLD WELL <input type="checkbox"/> PROD <input type="checkbox"/> INJ <input type="checkbox"/> WDW <input type="checkbox"/> CUSTOMER ORDER NO.:							
CUSTOMER <i>Cobalt Energy LLC</i>		LEASE <i>Williams-Hess A</i> WELL NO. <i>115</i>							
ADDRESS		COUNTY <i>Lea</i> STATE <i>KS</i>							
CITY STATE		SERVICE CREW <i>Scott, Michael, Cole</i>							
AUTHORIZED BY <i>Rick Papp</i>		JOB TYPE: <i>4 1/2 Long string CNU</i>							
EQUIPMENT#	HRS	EQUIPMENT#	HRS	EQUIPMENT#	HRS	TRUCK CALLED	DATE	AM PM	TIME
<i>38470</i>	<i>.8</i>								
<i>77686 19405</i>	<i>.8</i>					ARRIVED AT JOB	<i>12/13/14</i>	AM PM	<i>7:00</i>
<i>19405 21010</i>	<i>.8</i>					START OPERATION	<i>12/13/14</i>	AM PM	<i>11:20</i>
						FINISH OPERATION	<i>12/13/14</i>	AM PM	<i>12:10</i>
						RELEASED	<i>12/13/14</i>	AM PM	<i>1:00</i>
						MILES FROM STATION TO WELL			

CONTRACT CONDITIONS: (This contract must be signed before the job is commenced or merchandise is delivered).

The undersigned is authorized to execute this contract as an agent of the customer. As such, the undersigned agrees and acknowledges that this contract for services, materials, products, and/or supplies includes all of and only those terms and conditions appearing on the front and back of this document. No additional or substitute terms and/or conditions shall become a part of this contract without the written consent of an officer of Basic Energy Services LP.

SIGNED: *[Signature]*  
(WELL OWNER, OPERATOR, CONTRACTOR OR AGENT)

ITEM/PRICE REF. NO.	MATERIAL, EQUIPMENT AND SERVICES USED	UNIT	QUANTITY	UNIT PRICE	\$ AMOUNT
CP 105	AA2 Cement	SK	125		2125 00
CP 105	60/40 P07	SK	50		600 00
CC 102	Collar Tube	lb	32		118 40
CC 111	S&H	lb	683		341 50
CC 113	Gypsum	lb	590		447 50
CC 179	FLA-722	lb	95		712 50
CC 201	Gubonite	lb	750		502 50
CF 470	Cement Port Collar 4 1/2	SC	1		3886 00
CF 606	Latch down Plug & Baffle 4 1/2	SC	1		370 00
CF 1250	Auto Fill Floater Shank 4 1/2	SC	1		330 00
CF 1650	Turbolizer 4 1/2	SC	1		510 00
CF 1900	4 1/2 Basket	SC	2		540 00
C 704	Chemical KCL Substitute	Gal	4		140 00
CC 151	Mud Flush	Gal	500		750 00
F 100	Local Mileage Charge Pickups	MI	100		450 00
F 101	Heavy equipment Mileage	MI	200		1500 00
E 113	Prod & Bulk Delivery fee Ten Miles	TAM	805		2017 50
CF 205	Depth Charge 4000' - 5000'	Yr	1		2570 00
CF 240	Blending & Mixing Service Charge	SK	175		245 00
SUB TOTAL					

CHEMICAL / ACID DATA:			

SERVICE & EQUIPMENT	%TAX ON \$	
MATERIALS	%TAX ON \$	

TOTAL  
*10*

SERVICE REPRESENTATIVE <i>[Signature]</i>	THE ABOVE MATERIAL AND SERVICE ORDERED BY CUSTOMER AND RECEIVED BY: <i>[Signature]</i> (WELL OWNER OPERATOR CONTRACTOR OR AGENT)
---	---

FIELD SERVICE ORDER NO.





## DRILL STEM TEST REPORT

Prepared For: **Cobalt Energy**

115 S Belmont 12  
Wichita, KS 67208

ATTN: Terry McLeod

### **Williams-Hess A 1-15**

### **15-19s-29w Lane,KS**

Start Date: 2014.12.10 @ 15:56:39

End Date: 2014.12.11 @ 01:21:39

Job Ticket #: 59672                      DST #: 1

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.12.12 @ 16:05:02





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Cobalt Energy

**15-19s-29w Lane, KS**

115 S Belmont 12  
Wichita, KS 67208

**Williams-Hess A 1-15**

Job Ticket: 59672

**DST#: 1**

ATTN: Terry McLeod

Test Start: 2014.12.10 @ 15:56:39

## GENERAL INFORMATION:

Formation: **Altamont**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:10:09

Time Test Ended: 01:21:39

Test Type: Conventional Bottom Hole (Initial)

Tester: Brandon Turley

Unit No: 79

**Interval: 4441.00 ft (KB) To 4460.00 ft (KB) (TVD)**

Reference Elevations: 2833.00 ft (KB)

Total Depth: 4460.00 ft (KB) (TVD)

2823.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 10.00 ft

**Serial #: 8373**

**Inside**

Press@RunDepth: 393.78 psig @ 4446.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.12.10

End Date:

2014.12.11

Last Calib.: 2014.12.11

Start Time: 15:56:44

End Time:

01:21:39

Time On Btm: 2014.12.10 @ 18:09:09

Time Off Btm: 2014.12.10 @ 22:11:09

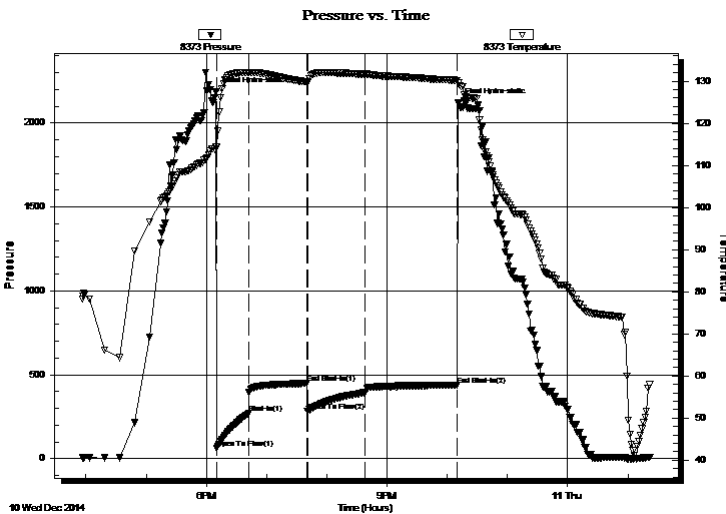
TEST COMMENT: IF: 1/4" blow BOB in 3 1/2 mins.

IS: Surface blow built to 5"

FF: BOB in 10 min.

FS: Surface blow built to 3"

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2189.20	114.34	Initial Hydro-static
1	61.02	114.30	Open To Flow (1)
33	270.64	132.03	Shut-In(1)
91	449.16	129.82	End Shut-In(1)
92	283.67	129.71	Open To Flow (2)
149	393.78	131.65	Shut-In(2)
241	439.26	130.20	End Shut-In(2)
242	2123.71	129.59	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
310.00	mcw 95%w 5%m	4.35
186.00	mcw 80%w 20%m	2.61
248.00	gocmw 10%g 10%o 40%w 40%m	3.48
124.00	go 10%g 90%o	1.74
0.00	372 GIP	0.00

## Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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**TRILOBITE**  
**TESTING, INC**

# DRILL STEM TEST REPORT

Cobalt Energy

15-19s-29w Lane, KS

115 S Belmont 12  
Wichita, KS 67208

**Williams-Hess A 1-15**

Job Ticket: 59672

**DST#: 1**

ATTN: Terry McLeod

Test Start: 2014.12.10 @ 15:56:39

## GENERAL INFORMATION:

Formation: **Altamont**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:10:09

Time Test Ended: 01:21:39

Test Type: Conventional Bottom Hole (Initial)

Tester: Brandon Turley

Unit No: 79

**Interval: 4441.00 ft (KB) To 4460.00 ft (KB) (TVD)**

Reference Elevations: 2833.00 ft (KB)

Total Depth: 4460.00 ft (KB) (TVD)

2823.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 10.00 ft

**Serial #: 8166 Outside**

Press@RunDepth: psig @ 4446.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.12.10

End Date:

2014.12.11

Last Calib.:

2014.12.11

Start Time: 15:56:23

End Time:

01:21:18

Time On Btm:

Time Off Btm:

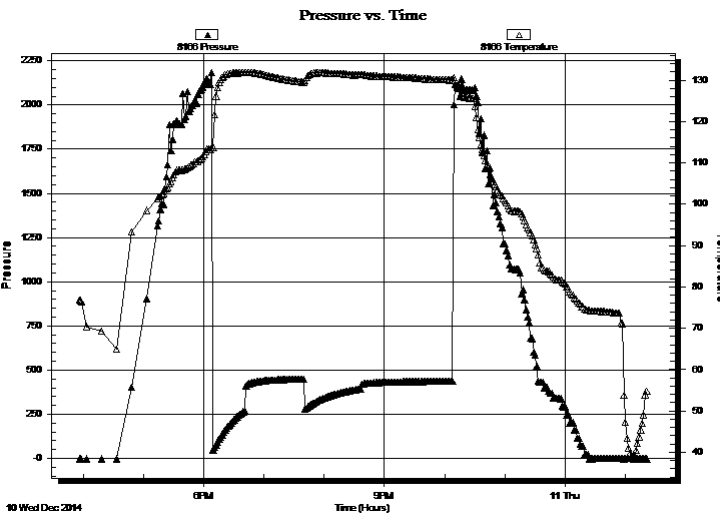
**TEST COMMENT:** IF: 1/4" blow BOB in 3 1/2 mins.

IS: Surface blow built to 5"

FF: BOB in 10 min.

FS: Surface blow built to 3"

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

## Recovery

Length (ft)	Description	Volume (bbl)
310.00	mcw 95%w 5%m	4.35
186.00	mcw 80%w 20%m	2.61
248.00	gocmw 10%g 10%o 40%w 40%m	3.48
124.00	go 10%g 90%o	1.74
0.00	372 GIP	0.00

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Cobalt Energy

**15-19s-29w Lane,KS**

115 S Belmont 12  
Wichita, KS 67208

**Williams-Hess A 1-15**

Job Ticket: 59672

**DST#: 1**

ATTN: Terry McLeod

Test Start: 2014.12.10 @ 15:56:39

## Tool Information

Drill Pipe:	Length: 4445.00 ft	Diameter: 3.80 inches	Volume: 62.35 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 62.35 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4441.00 ft			Final 68000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	23.00 ft			
Tool Length:	41.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Stubb	1.00			4424.00	
Shut In Tool	5.00			4429.00	
Hydraulic tool	5.00			4434.00	
Safety Joint	2.00			4436.00	
Packer	5.00			4441.00	18.00 Bottom Of Top Packer
Packer - Shale	4.00			4445.00	
Stubb	1.00			4446.00	
Recorder	0.00	8373	Inside	4446.00	
Recorder	0.00	8166	Outside	4446.00	
Perforations	13.00			4459.00	
Bullnose	5.00			4464.00	23.00 Anchor Tool

**Total Tool Length: 41.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Cobalt Energy

**15-19s-29w Lane,KS**

115 S Belmont 12  
Wichita, KS 67208

**Williams-Hess A 1-15**

Job Ticket: 59672

**DST#: 1**

ATTN: Terry McLeod

Test Start: 2014.12.10 @ 15:56:39

### Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

33 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

42000 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1900.00 ppm

Filter Cake: 1.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
310.00	mcw 95%w 5%m	4.348
186.00	mcw 80%w 20%m	2.609
248.00	gocmw 10%g 10%o 40%w 40%m	3.479
124.00	go 10%g 90%o	1.739
0.00	372 GIP	0.000

Total Length: 868.00 ft      Total Volume: 12.175 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 32@50=33

.26@47=42000







## DRILL STEM TEST REPORT

Prepared For: **Cobalt Energy**

115 S Belmont 12  
Wichita, KS 67208

ATTN: Terry McLeod

### **Williams-Hess A 1-15**

### **15-19s-29w Lane,KS**

Start Date: 2014.12.12 @ 02:23:14

End Date: 2014.12.12 @ 08:21:14

Job Ticket #: 59673                      DST #: 2

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.12.12 @ 16:04:21



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Cobalt Energy

**15-19s-29w Lane, KS**

115 S Belmont 12  
Wichita, KS 67208

**Williams-Hess A 1-15**

ATTN: Terry McLeod

Job Ticket: 59673

**DST#: 2**

Test Start: 2014.12.12 @ 02:23:14

## GENERAL INFORMATION:

Formation: **Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:31:14

Time Test Ended: 08:21:14

Test Type: Conventional Bottom Hole (Reset)

Tester: Brandon Turley

Unit No: 79

**Interval: 4570.00 ft (KB) To 4615.00 ft (KB) (TVD)**

Reference Elevations: 2833.00 ft (KB)

Total Depth: 4615.00 ft (KB) (TVD)

2823.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 10.00 ft

**Serial #: 8373 Inside**

Press@RunDepth: 28.71 psig @ 4575.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.12.12

End Date:

2014.12.12

Last Calib.:

2014.12.12

Start Time: 02:23:19

End Time:

08:21:13

Time On Btm:

2014.12.12 @ 04:29:44

Time Off Btm:

2014.12.12 @ 06:30:44

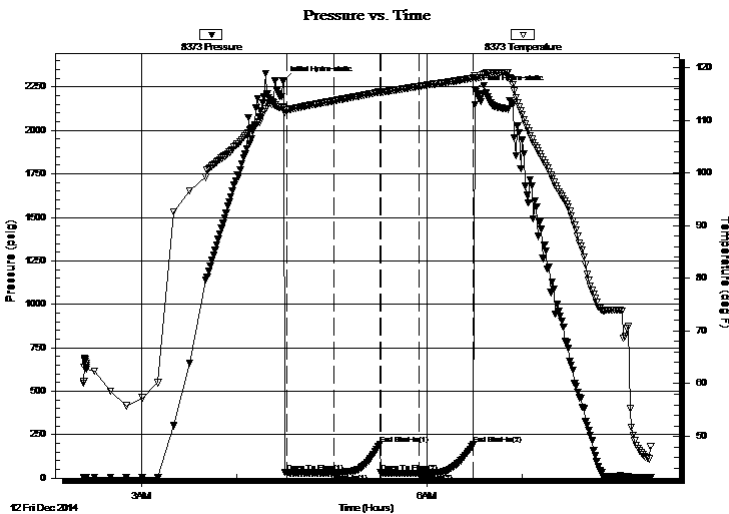
TEST COMMENT: IF: 1/4" blow died in 12 min.

IS: No return.

FF: No blow.

FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2285.84	112.58	Initial Hydro-static
2	32.12	111.96	Open To Flow (1)
32	29.86	113.74	Shut-In(1)
61	195.46	115.40	End Shut-In(1)
61	30.63	115.32	Open To Flow (2)
86	28.71	116.46	Shut-In(2)
120	192.40	118.02	End Shut-In(2)
121	2232.41	118.11	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
3.00	mud 100%m	0.04

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Cobalt Energy

**15-19s-29w Lane, KS**

115 S Belmont 12  
Wichita, KS 67208

**Williams-Hess A 1-15**

ATTN: Terry McLeod

Job Ticket: 59673

**DST#: 2**

Test Start: 2014.12.12 @ 02:23:14

## GENERAL INFORMATION:

Formation: **Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:31:14

Time Test Ended: 08:21:14

**Interval: 4570.00 ft (KB) To 4615.00 ft (KB) (TVD)**

Total Depth: 4615.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Test Type: Conventional Bottom Hole (Reset)

Tester: Brandon Turley

Unit No: 79

Reference Elevations: 2833.00 ft (KB)

2823.00 ft (CF)

KB to GR/CF: 10.00 ft

**Serial #: 8166 Outside**

Press@RunDepth: psig @ 4575.00 ft (KB)

Start Date: 2014.12.12

End Date: 2014.12.12

Start Time: 02:23:07

End Time: 08:20:31

Capacity: 8000.00 psig

Last Calib.: 2014.12.12

Time On Btm:

Time Off Btm:

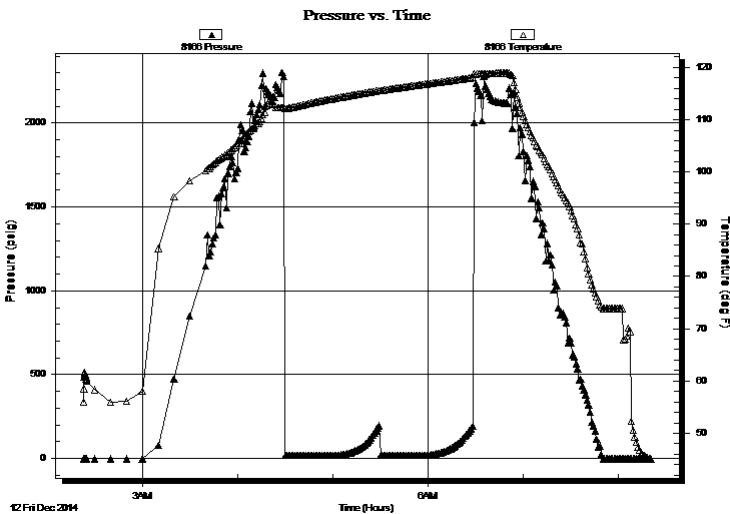
TEST COMMENT: IF: 1/4" blow died in 12 min.

IS: No return.

FF: No blow.

FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

## Recovery

Length (ft)	Description	Volume (bbl)
3.00	mud 100%m	0.04

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Cobalt Energy

**15-19s-29w Lane,KS**

115 S Belmont 12  
Wichita, KS 67208

**Williams-Hess A 1-15**

Job Ticket: 59673

**DST#: 2**

ATTN: Terry McLeod

Test Start: 2014.12.12 @ 02:23:14

## Tool Information

Drill Pipe:	Length: 4569.00 ft	Diameter: 3.80 inches	Volume: 64.09 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 64.09 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	4570.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	49.00 ft			
Tool Length:	67.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Stubb	1.00			4553.00	
Shut In Tool	5.00			4558.00	
Hydraulic tool	5.00			4563.00	
Safety Joint	2.00			4565.00	
Packer	5.00			4570.00	18.00 Bottom Of Top Packer
Packer - Shale	4.00			4574.00	
Stubb	1.00			4575.00	
Recorder	0.00	8373	Inside	4575.00	
Recorder	0.00	8166	Outside	4575.00	
Perforations	5.00			4580.00	
Change Over Sub	1.00			4581.00	
Drill Pipe	32.00			4613.00	
Change Over Sub	1.00			4614.00	
Bullnose	5.00			4619.00	49.00 Anchor Tool

**Total Tool Length: 67.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Cobalt Energy

**15-19s-29w Lane, KS**

115 S Bellmont 12  
Wichita, KS 67208

**Williams-Hess A 1-15**

Job Ticket: 59673

**DST#: 2**

ATTN: Terry McLeod

Test Start: 2014.12.12 @ 02:23:14

### Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 47.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2300.00 ppm

Filter Cake: 1.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
3.00	mud 100%m	0.042

Total Length: 3.00 ft      Total Volume: 0.042 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

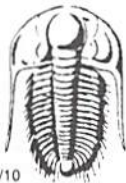
Laboratory Name:

Laboratory Location:

Recovery Comments:







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 59672

Well Name & No. Williams-Hess A 1-15 Test No. 1 Date 12-10-14  
 Company LOBBIT Energy LLC Elevation 2833 KB 2823 GL  
 Address 115 S. Belmont 12 Wichita, KS 67208  
 Co. Rep / Geo. Terry McLeod Rig Southwind 70  
 Location: Sec. 15 Twp. 19S Rge. 29W Co. Lame State KS

Interval Tested 4441 4460 Zone Tested AL+9MONT  
 Anchor Length 19 Drill Pipe Run 4445 Mud Wt. 9.25  
 Top Packer Depth 4436 Drill Collars Run — Vis 50  
 Bottom Packer Depth 4441 Wt. Pipe Run — WL 6.0  
 Total Depth 4460 Chlorides 1900 ppm System LCM 2  
 Blow Description IF: 1/4 blow BoB in 3 1/2 min.  
FS: surface blow built to 5.  
FF: BoB in 10 min.  
FS: surface blow built to 3.

Rec	Feet of	%gas	%oil	%water	%mud
<u>124</u>	<u>90</u>	<u>10</u>	<u>90</u>		
<u>248</u>	<u>90cmw</u>	<u>10</u>	<u>10</u>	<u>40</u>	<u>40</u>
<u>186</u>	<u>MLW</u>			<u>80</u>	<u>20</u>
<u>310</u>	<u>MLW</u>			<u>95</u>	<u>5</u>
<u>372</u>	<u>GIP</u>				

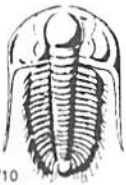
Rec Total 868 BHT 130 Gravity 33 API RW .26 @ 47 °F Chlorides 42,000 ppm

(A) Initial Hydrostatic 2189  Test 1250 T-On Location 13:45  
 (B) First Initial Flow 61  Jars T-Started 15:36  
 (C) First Final Flow 270  Safety Joint 75 T-Open 17:48  
 (D) Initial Shut-In 449  Circ Sub NIL T-Pulled 21:48  
 (E) Second Initial Flow 283  Hourly Standby T-Out 1:00  
 (F) Second Final Flow 393  Mileage 72- 111.60 Comments \_\_\_\_\_  
 (G) Final Shut-In 439  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2123  Straddle \_\_\_\_\_  
 Shale Packer 250  Ruined Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Open 30  Day Standby \_\_\_\_\_ Sub Total 0  
 Initial Shut-In 60  Accessibility \_\_\_\_\_ Total 1686.60  
 Final Flow 60 Sub Total 1686.60 MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 90

Approved By Terry McLeod

Our Representative [Signature]

Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 59673

Well Name & No. Williams-Hess A-1-15 Test No. 2 Date 12-12-14  
 Company Cobalt Energy LLC Elevation 2833 KB 2823 GL  
 Address \_\_\_\_\_  
 Co. Rep / Geo. Terry McLeod Rig Southwind 70  
 Location: Sec. 15 Twp. 19S Rge. 29W Co. Lane State KS

Interval Tested 4570 4615 Zone Tested Cherokee  
 Anchor Length \_\_\_\_\_ 45 Drill Pipe Run 4569 Mud Wt. 9.2  
 Top Packer Depth \_\_\_\_\_ 4565 Drill Collars Run \_\_\_\_\_ Vis 47  
 Bottom Packer Depth \_\_\_\_\_ 4570 Wt. Pipe Run \_\_\_\_\_ WL 8.0  
 Total Depth \_\_\_\_\_ 4615 Chlorides 2300 ppm System LCM 2

Blow Description IF: 1/4 blow died in 12 min.  
IS: No return.  
FF: No blow.  
FS: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>3</u>	<u>Mud</u>			<u>100</u>	
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Rec Total 3 BHT 118 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ ° F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2285  Test 1250 T-On Location 2:00  
 (B) First Initial Flow 32  Jars \_\_\_\_\_ T-Started 2:23  
 (C) First Final Flow 29  Safety Joint 75 T-Open 4:29  
 (D) Initial Shut-In 195  Circ Sub NIC T-Pulled 6:29  
 (E) Second Initial Flow 30  Hourly Standby \_\_\_\_\_ T-Out 8:20  
 (F) Second Final Flow 28  Mileage 72- 223.20 Comments \_\_\_\_\_  
 (G) Final Shut-In 192  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2232  Straddle \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_

Initial Open 30  Shale Packer 250  
 Initial Shut-In 30  Extra Packer \_\_\_\_\_  
 Final Flow 30  Extra Recorder \_\_\_\_\_  
 Final Shut-In 30  Day Standby 1d 1h  
 Accessibility \_\_\_\_\_  
 Sub Total 1798.20 Total 1831.53  
 MP/DST Disc't \_\_\_\_\_

Approved By Terry L. McLeod Our Representative \_\_\_\_\_

TriLOBITE TESTING INC. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.

# Terry McLeod

Consulting Geologist  
 P.O. Box 503  
 Wichita, Kansas 67201  
 316-265-6431

## GEOLOGIST'S REPORT DRILLING TIME AND SAMPLE LOG

OPERATOR Cobalt Energy L.L.C.  
 LEASE Williams - Hess WELL NO. 1-15  
 FIELD \_\_\_\_\_  
 LOCATION 330' FNL & 1250' EEL  
 SEC. 15 TWP. 19S RGE. 29W  
 COUNTY Lane STATE Kansas

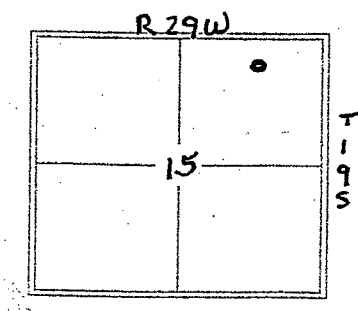
ELEVATION  
 KB 2833'  
 DF \_\_\_\_\_  
 GL 2821'  
 Measurements Are All  
 From KB

CONTRACTOR Southwind #70  
 COMM. 12-2-2014 COMP. 12-13-2014  
 RTD 4700 LOG TD 4702'  
 SAMPLES SAVED FROM 3700' TO RTD  
 DRILLING TIME KEPT FROM 3700' TO RTD  
 SAMPLES EXAMINED FROM 3700' TO RTD  
 GEOLOGICAL SUPERVISION FROM 3686' TO RTD  
 MUD UP 3500' TYPE MUD chemical

CASING RECORD  
 SURFACE 8 5/8" @ 265'  
w/195 SX-Com  
 PRODUCTION 4 1/2

FORMATION	LOG		SAMPLE		STRUCT. COMP.
	TOP	DATUM	TOP	DATUM	
Anhydrite	2172	+661	2174	+659	-1
Base Anhydrite	2198	+635	2199	+634	-3
Heebner	3969	-1136	3969	-1136	-1
Lansing	4010	-1177	4010	-1177	-1
stark sh.	4295	-1462	4295	-1462	-5
Base K.C.	4374	-1541	4374	-1541	-2
Marmaton	4426	-1593	4429	-1596	-3
Altamont	4447	-1614	4447	-1614	+2
Pawnee	4486	-1653	4486	-1653	+2
Fort Scott	4534	-1701	4534	-1701	+5
Cherokee sh.	4558	-1725	4558	-1725	+5
MISSISSIPPI	4628	-1795	4628	-1795	+2

ELECTRICAL SURVEYS  
 Pioneer Energy  
 Dual Induction  
 Density - Neutron  
 Microlog



REFERENCE WELL FOR STRUCTURAL COMPARISON Abercrombie drlg Co. No. 1 East  
Splitter, 110' E, Nw-Nw Nw, 14-19S-29W, 2824 KB



DATE	DEPTH	NO.	SIZE	TYPE	DEPTH CUT	FEET	PIECES
12-02-14	MULET	A	12 1/2	RR	265	265	13 1/4
12-03-14	265' surf						
12-04-14	1413' drlg	1	7/8	Reed	4100	4435'	N/A
12-05-14	2448' drlg						
12-06-14	3094' drlg						
12-07-14	3548' drlg		Sunkeys	265' 1/2			
12-08-14	3910' drlg	2		446' 1/2			
12-09-14	4245' drlg	3		4700'			
12-10-14	4445' dst. 1	4					
12-11-14	4475' drlg	5					
12-12-14	4616' dst-2	6	Board	4489.98'			
12-13-14	4700' TP, Log	7	Strap	4487.78			
	Run Pipe			2.20' short			
DESCRIPTION	INTERVAL	DESCRIPTION OF SPEC	LOG NUMBER				
Atkamt	4446-4448	Limestone, tan to brown, fine xln. foss w/ 4-5 pieces w/ fair spotted stain + 4-5 to 10 fair foss. - fair odor	dst-1				
cher. Lime	4596-4603	Limestone, tan - H. brown xln - oolitic w/ 2-3 pieces w/ show free oil when broken open + faint increasing odor all in poor oolitic q	dst-2				

DRILL STEM TESTS									
No.	Interval	ISD/Time	ISD/Time	FR/Time	FR/Time	FR/Time	RES-FTH	RES-FTH	REMARKS
1	4441-4460 O.H.	# 61.270 30"	# 449 60"	# 283-393 60"	# 439 90"	# 2189 2123	# 372' GIP 124' G.O. 90% O 744' 50cmw		
2	4570-4615 cher.	# 32.29 30"	# 195 30"	# 30-28 30"	# 192 30"	# 2285 2232	# 3' MUD		

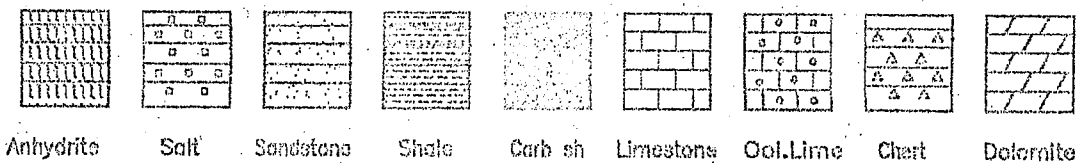
RESULTS AND RECOMMENDATIONS will be run to further evaluate.

Respect fully

Jay D. McLeod  
Petroleum Geologist

12-13-14

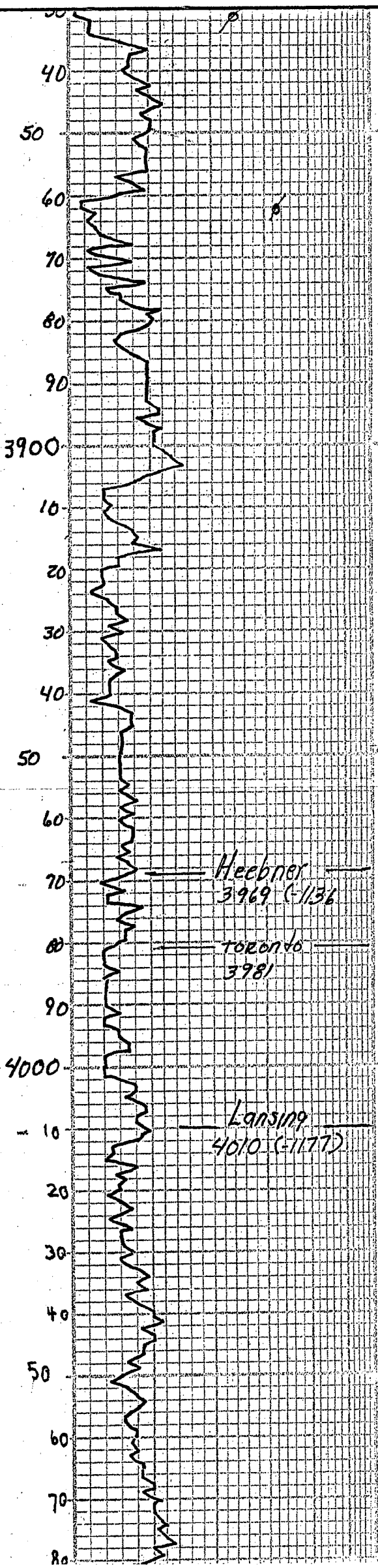
# LEGEND



SCALE " = 100'

L. 21-50-035

DEPTH	DRILLING TIME IN MINUTES PER FOOT Rate of Penetration Increases	LITHOLOGY	SAMPLE DESCRIPTIONS	REMARKS
2170	5" 10" 15" 20" 25"			
80		Anhydrite		
		2174 + 659		
90				
2200		Base Anhydrite		
		2199 + 634		
3700				
10			sh. dk. GR.	
			ls. tan. dse, NYØ N.S.	
20			sh. varicolore. l	
		TOPEKA		
		3722		
30			ls. tan. fn. xln. foss w/	
			scat. foss. p. N.S.	
40			ls. brn. dse, NYØ N.S.	
50			sh. - gry	
60			ls. brn. fn. xln. dse, SLI	
			foss. pr. NYØ N.S.	
70			ls. brn. GR. fn. xln. dse	
			pr. foss. p. N.S.	
80			ls. tan. brn, dse, NYØ N.S.	
90			ls. brn. GR. fn. xln. dse	
			sl. foss. - moth, NYØ N.S.	
3800			ls. brn. foss. eol. pr. p.	
			N.S. tight r/y	
10			ls. tan. H. brn. xln. foss w/	
			fair foss. p. N.S.	
20			ls. tan. H. brn. fn. xln. foss	
			w/ fair foss. p. N.S.	
30			ls. tan. H. brn. foss w/ fair	
			foss. p. N.S.	



sh. gry

ls. tan. dse, NVP, N.S.

ls. tan. fn. xln. foss w/ pr. fr. foss p. N.S.

ls. q/a + some ool. ls. w/ pr. fr. ool. p. N.S.

ls. tan. fn. xln. dse, NVP N.S.

sh. drk GRy - mar

ls. tan. brn. GRy. fn. xln. dse, sl. foss. NVP N.S.

sh. drk GRy

ls. tan. ool. foss w/ fr. ool. + foss p. N.S.

ls. H. tan. - Crm, fn. xln. foss w/ fr. foss p. N.S.

ls. H. tan. Crm, GRy. fn. xln. foss w/ fair. foss p. N.S.

ls. brn. fn. xln. sl. foss - NVP N.S.

ls. q/a + drk GRy shale

sh. blk Carb.

ls. tan. brn. - dse, NVP, N.S.

sh. gry's

ls. H. tan. fn. xln. foss - ool w/ fair. foss + ool. p. ehky N.S.

ls. H. tan. + Crm. fn. xln. foss - ool. w/ pr. p. N.S. fr. Δ

sh. gry.

ls. Crm. ool. w/ fair. ool. p. N.S. wh. op. Δ, N.S.

ls. Crm. + H. tan. fn. xln. - sl. foss, N.S. Scott Δ.

ls. tan. brn. - fn. xln. - dse, NVP N.S.

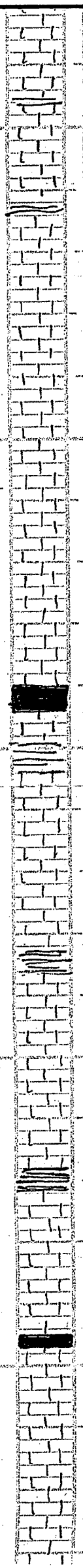
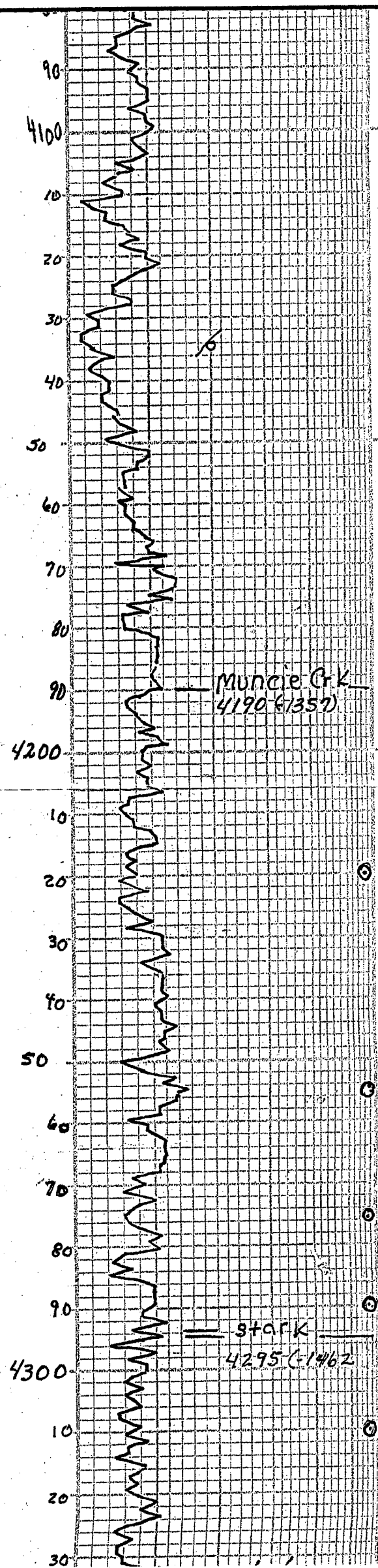
sh. drk GRy

sh. ly gry's

ls. tan. GRy. fn. xln. sl. foss. mar. NVP N.S.

sh. gry

ls. tan. brn. - dse, NVP N.S.



ls. tan-gry. fn-xln. foss. scott. p. N.S.

ls. tan-GRY. fn-xln-dse N.V.P. N.S.

ls. tan-GRY. fn-xln. foss. scott. p. N.S.

ls. crm. fn-xln. foss. w/ fr. foss. p. N.S.

ls. crm-GRY. fn-xln. foss. scott. p. N.S.

ls. tan. H. brn. ool. w/ good ool. p. N.S.

ls. H. tan. some ool. fr. from above. + dse. b. w/ N.V.P. N.S.

ls. tan. fn-xln-dse, N.V.P. N.S.

ls. tan-GRY, dse, N.V.P. N.S.

ls. tan-GRY, fn-xln-dse N.V.P. N.S.

sh. gry → blk carb.

ls. brn-dse, N.V.P. N.S.

sh. gry's

ls. tan-gry, fn-xln-dse sl. foss. N.V.P. N.S.

ls. H. tan. fn-xln. sl. foss w/ pr. foss. p. N.S.

ls. H. tan, fn-xln. sl. foss scott. p. N.S.

sh. med gry

ls. tan. brn. xln-dse, N.V.P. N.S.

sh. l.

ls. H. tan → brn. xln-dse N.V.P. N.S.

ls. crm-H. tan. fn-xln. v. sl. ool. fr. p. N.S. No ool.

ls. tan. brn, fn-xln-dse sl. foss, pr. p. N.V.P. N.S.

ls. tan. brn. fn-xln. - sl. foss pr. p. N.S.

ls. tan. brn. fn. xln. sl. foss scott. p. N.S.

ls. H. tan. fn-xln. sl. foss. scott. p. N.S. No ool.

sh. blk carb.

ls. brn. fn-xln. sl. foss pr. N.V.P. N.S. + sh-gry

ls. H. brn. fn-xln. sl. foss scott. foss. p. N.S. No ool.

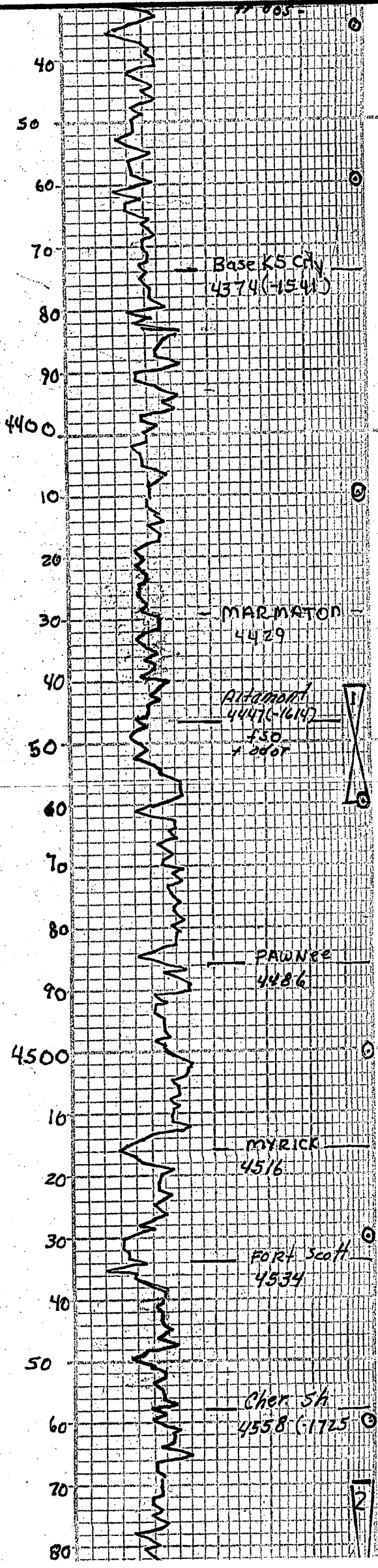
ls. tan. H. brn. foss. ool. w/ poor ool. foss. p. N.S. No ool.

ls. tan. GRY. - fn-xln. foss. w/ pr. foss. p. N.S. No ool.

ls. tan. fn-xln. foss. - w/ 3-4 acs w/ dead oil stain on

Muncie Crk  
4190-41357

Stark  
4295-41462



thin edges, NFB, 0-Point odor

shly - blk - gray

ls. tan - brn - fn - xln, foss  
scat, pr - fr - foss, N.S.  
No odor

ls. tan - fn - xln, foss w/ fr  
pp - foss, N.S. No odor

ls. lt. brn - GRAY, dse, NFB  
N.S.

fr sh - GRAY - Mar

ls. brn - GRAY, dse, NFB  
N.S.

sh, GRYS

ls. tan - GRAY, fn - xln + foss  
to - dse w/ NFB. Scat poor  
foss of N.S. No odor

shly

ls. brn - fn - xln - dse, sl. foss  
NFB N.S. tr Δ

shly - varicolored

ls. tan - brn - fn - xln -  
dse, NFB N.S.

ls. tan - brn - dse NFB  
scat chert xln N.S.

ls. tan - brn - fn - xln - foss w/  
4-5 pc's w/ fair sp'd sh  
LSFO in fair foss of fair  
odor

shly

ls. tan - fn - xln, tight, NFB  
N.S.

ls. tan - brn - fn - xln -  
dse, NFB N.S.

sh. drk GRAY - blk carb

ls. tan - fn - xln, tight &  
wh - tan - op Δ, N.S.

ls. tan - brn - fn - xln, tight  
RX - tan op Δ N.S.

ls. brn - fn - xln - dse sl.  
foss - tight - rx, pr NFB  
N.S.

sh. drk GRAY - blk carb

ls. lt. tan - fn - xln - sl. foss  
scat poor d. N.S. tr Δ

sh. black - carb

ls. tan - brn - fn - xln - foss  
w/ scat, foss of - r - foss  
Δ, N.S.

ls. tan - brn - fn - xln - foss  
w/ scat, poor foss of N.S.  
fr - foss Δ

shale blk carb

ls. brn - fn - xln - sl. foss, N.S.

ls. tan - GRAY, fn - xln, sl. ool. w/  
pr ool of N.S.

sh. grys

DST No. 1 4441' - 4460'

BOB 3 1/2 min - Surf - 75" BB

BOB 10 min (2nd op) Surf - 3" BB

30" 60" 60" 90"

Rec: 372' GIP

124' G.O.: 33°

248' gacmw 10% oil

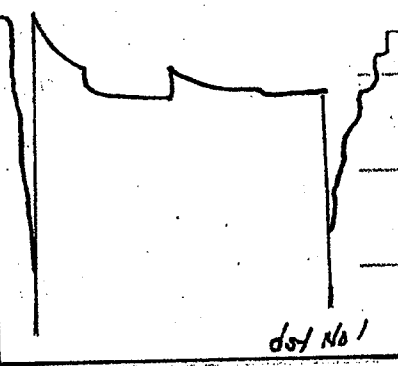
186' mcw 80% wtr

310' mcw 95% wtr

SIP: 449# - 439#

FP: 61" - 270# 4283-439

HP: 2189# - 2123#



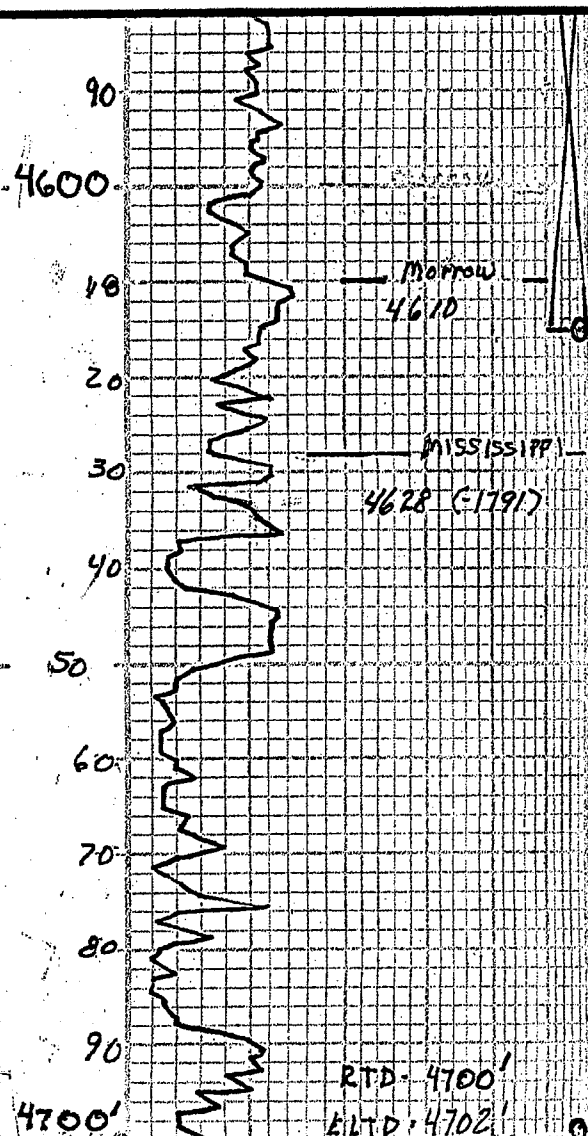
DST No. 2 4570' - 4615'

wk blow died in 12"

30" 30" 30" 30"

Rec: 3' mud

SIP: 195# - 192#



Ls. tan-brn, gry. fr-xln =  
 dsa, NVP, NS.

Ls. tan-H-brn, xln, =ool  
 w/ 2-3 pcs w/ SFO when  
 broken = and faint odor in  
 pr-tr ool p.

Ls. tan-gry fr-xln +  
 sh. very colored.

sh. varicolored

Ls. tan, fr-xln, tight pr-NVP  
 chert-w/ op. fresh NS

ls. dol, tan-H-brn, xln-sli  
 sup, fr-xln-si-foss p. NS  
 scart Δ, fr sup p

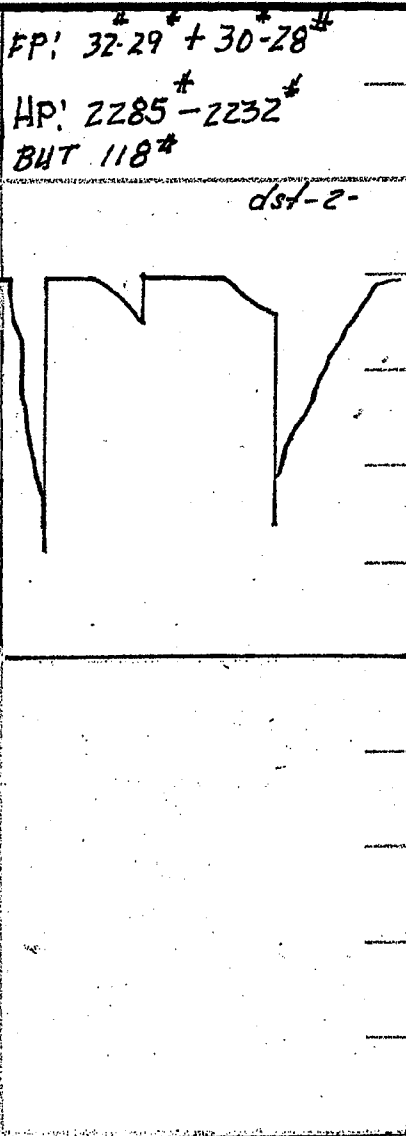
dol. tan-H-brn, xln-tight  
 FX. N.S.

dol. tan-H-brn, fr-xln  
 w/ fair xln p. tr Δ, NS

dol. tan-H-brn, fr-xln-si-foss  
 fair xln-foss p. tr Δ.  
 N.S.

dol. brn, fr-xln-foss + ool  
 w/ good ool-xln p. N.S.

dol, tan-H-brn, foss w/  
 gd foss. v. v. q-p. N.S.



DEPTH	DRILLING TIME Minutes/Foot	LITHOLOGY	SAMPLE DESCRIPTIONS	REMARKS
	5" 10" 15" 20" 25"			
	Rate of Penetration Increases			

COMPANY Cobalt Energy, LLC  
 LEASE Williams-Hess 1-15 ELEVATION: 2833' K.B.  
 LOCATION 330' ENL 1250' P. SEC 15 TWP 19S RNG 29W  
 COUNTY Lane STATE Kansas