



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1211855
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: _____

1211855

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 <i>(Attach Additional Sheets)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Log	Formation (Top), Depth and Datum	<input type="checkbox"/> Sample
Samples Sent to Geological Survey	<input type="checkbox"/> Yes <input type="checkbox"/> No	Name	Top	Datum
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:				

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

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____ <input type="checkbox"/> Other <i>(Specify)</i> _____	PRODUCTION INTERVAL: _____ _____
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Form	ACO1 - Well Completion
Operator	ESP Development, Inc.
Well Name	Hagaman 5
Doc ID	1211855

Tops

Name	Top	Datum
ANHYDRITE	910	+930
TOPEKA	2680	-840
HEEBNER SHALE	2932	-1092
TORONTO	2952	-1112
LKC	2982	-1142
BKC	3238	-1398
ARBUCKLE	3311	-1471
RTD	3400	-1560

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. 7802

Date	6-13-14	Sec	18	Twp.	11	Range	15	County	Russell	State	KS	On Location	7:15pm	Finish	8:15pm
------	---------	-----	----	------	----	-------	----	--------	---------	-------	----	-------------	--------	--------	--------

Lease Hagaman Well No. 5 Owner Y E N I E into

Contractor Royal 2 Location 60rham N to Curve 1/8 S
 Type Job Surface To Quality Oilwell Cementing, Inc.
 You are hereby requested to rent cementing equipment and furnish
 cementer and helper to assist owner or contractor to do work as listed.

Hole Size 12 1/4 T.D. 213 Charge To ESP
 Csg. 8 7/8 Depth 213 Street _____
 Tbg. Size _____ Depth _____ City _____ State _____

Tool _____ Depth _____ The above was done to satisfaction and supervision of owner agent or contractor.
 Cement Left in Csg. 20 ft Shoe Joint 10 ft Cement Amount Ordered 150 3700 1% gel

Meas Line _____ Displace 12 1/4 BBL

EQUIPMENT

Pumptrk <u>20</u> No.	Cementer	Common
	Helper <u>Ma H</u>	Poz. Mix
Bulktrk <u>1</u> No.	Driver	Gel.
	Driver <u>Nick</u>	Calcium
Bulktrk <u>pu</u> No.	Driver	Hulls
	Driver <u>Ryan</u>	Salt

JOB SERVICES & REMARKS

Remarks:	
Rat Hole	Flowseal
Mouse Hole	Kol-Seal
Centralizers	Mud CLR 48
Baskets	CFL-117 or CD110 CAF 38
D/V or Port Collar	Sand

*Cement did
Circulate
Hunt
you*

FLOAT EQUIPMENT

Guide Shoe
Centralizer
Baskets
AFU Inserts
Float Shoe
Latch Down

Pumptrk Charge
Mileage

Tax
Discount
Total Charge

X Signature Tom Blake

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. 301

Date	6-18-14	Sec.	28	Twp.	11	Range	15	County	Russell	State	KS	On Location	7:00 PM	Finish	9:30 PM
Lease	Hagaman			Well No.	5			Owner	W IV E into						
Contractor	Royal			2			To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.								
Type Job	plug														
Hole Size	7 7/8			T.D.	3400										
Csg.	Dill pipe			Depth											
Tbg. Size				Depth											
Tool				Depth	The above was done to satisfaction and supervision of owner agent or contractor.										
Cement Left in Csg.				Shoe Joint	Cement Amount Ordered 775-6040										
Meas Line				Displace	440 gal V4 flow										
EQUIPMENT												Common			
Pumptrk	20	No.	Cementer	Mitt											
			Helper												
Bulktrk	14	No.	Driver	Nick											
			Driver												
Bulktrk	24	No.	Driver	Doug											
			Driver												
JOB SERVICES & REMARKS												Hulls			
Remarks:															
Rat Hole	30 5/16			Salt											
Mouse Hole	15 5/16			Flowseal											
Centralizers	Kol-Seal														
Baskets	Mud CLR 48														
D/V or Port Collar	CFL-117 or CD110 CAF 38														
1st	33 1/2	50 5/16													
Handling															
2nd	43	50 5/16													
Mileage															
												FLOAT EQUIPMENT			
3rd	50	50 5/16													
Guide Shoe															
Centralizer															
Baskets															
AFU Inserts															
Float Shoe															
Latch Down															
Wood plug															
Pumptrk Charge															
Mileage															
Signature												Tax			
Tom Blake												Discount			
X												Total Charge			

OPERATOR

Company: ESP DEVELOPMENT, INC.
 Address: 1749 250TH AVENUE
 HAYS, KANSAS
 67601 - 9460
 Contact Geologist: LEWIS EULERT
 Contact Phone Nbr: 785-639-1494
 Well Name: HAGAMAN #5
 Location: SW NW SE SE S28 T11S R15W
 API: 15-167-23972-00-00
 Pool:
 State: KANSAS
 Field: HAGAMAN
 Country: USA

Scale 1:240 Imperial

Well Name: HAGAMAN #5
 Surface Location: SW NW SE SE S28 T11S R15W
 Bottom Location:
 API: 15-167-23972-00-00
 License Number: 6194
 Spud Date: 6/13/2014 Time: 9:45 AM
 Region: RUSSELL COUNTY
 Drilling Completed: 6/18/2014 Time: 12:25 AM
 Surface Coordinates: 948 FSL & 1243 FEL
 Bottom Hole Coordinates:
 Ground Elevation: 1833.00ft
 K.B. Elevation: 1840.00ft
 Logged Interval: 2550.00ft To: 3400.00ft
 Total Depth: 3400.00ft
 Formation: ARBUCKLE
 Drilling Fluid Type: CHEMICAL / FRESH WATER GEL

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: -98.9866013
 Latitude: 39.0627611
 N/S Co-ord: 948 FSL
 E/W Co-ord: 1243 FEL

LOGGED BY

Company: SOLUTIONS CONSULTING, INC.
 Address: 108 W 35TH
 HAYS, KS 67601

Phone Nbr: (785) 639-1337
 Logged By: Geologist

Name: STEVE REED / HERB DEINES

CONTRACTOR

Contractor: ROYAL DRILLING, INC.
 Rig #: 2
 Rig Type: MUD ROTARY
 Spud Date: 6/13/2014 Time: 9:45 AM
 TD Date: 6/18/2014 Time: 12:25 AM
 Rig Release: 6/19/2014 Time: 6:00 AM

ELEVATIONS

K.B. Elevation: 1840.00ft Ground Elevation: 1833.00ft
 K.B. to Ground: 7.00ft

NOTES

BASED ON RUNNING STRUCTURALLY LOW TO THE HAGAMAN #1 AND HAGAMAN #2 PRODUCING WELLS, LACK OF SIGNIFICANT SHOWS, AND THE NEGATIVE RESULTS OF DST #1 AFTER WELL LOG ANALYSIS. THE DECISION WAS MADE TO PLUG AND ABANDON HAGAMAN #5.

OPEN HOLE LOGGING PROVIDED BY: GEMINI WIRELINE
 DUAL INDUCTION LOG, DUAL COMPENSATED POROSITY LOG, AND MICRORESISTIVITY LOGS WERE PERFORMED

DRILL STEM TESTING PROVIDED BY: TRILOBITE TESTING, INC.
 ONE (1) STRADDLE TEST COMPLETED

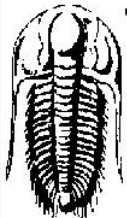
FORMATION TOPS COMPARISON AND DAILY ACTIVITY SUMMARY

	WELL NAME		COMPARISON WELL	COMPARISON WELL
	HAGAMAN #5		HAGAMAN #2	HAGAMAN #1
	API: 15-167-23972		API: 15-167-23205	API: 15-167-00095
FORMATION	SAMPLE TOPS	LOG TOPS	LOG TOPS (DATUM)	LOG TOPS (DATUM)
ANHYDRITE	918' (+922)	910' (+930')	+920	+941'
TOPEKA	2682' (-842')	2680' (-840')	-837'	-835'
HEEBNER	2934' (-1094')	2932' (-1092')	-1088'	-1086'
TORONTO	2955' (-1115')	2952' (-1112')	-1110'	-1104'
LKC	2983' (-1143')	2982' (-1142')	-1139'	-1138'
BKC	3238' (-1398')	3238' (-1398')	-1394'	NA
ARBUCKLE	3312' (-1472')	3311' (-1471')	-1452'	-1447'
RTD	3400' (-1560')	3399' (1559')	-1520'	NA

SUMMARY OF DAILY ACTIVITY

- 6-13-14** R.U., spud, 8 5/8" surface casing set at 213' w/150 sxs common, 2% gel, 3% cc, plug down @ 8:15pm, WOC
- 6-14-14** 408', drilling
- 6-15-14** 1879', drilling
- 6-16-14** 2659', drilling, CFS @ 3050
- 6-17-14** 3115', drilling, CFS @ 3206, CFS @ 3310, TD 3400, CFS @ 3400, Short Trip (20 stands) pulled tight, CTCH, TOWB for logging
- 6-18-14** 3400', logging, DST #1 3150 to 3204 (Straddle), laydown pipe, prepare to plug and abandon
- 6-19-14** release rig

DST # 1 SUMMARY

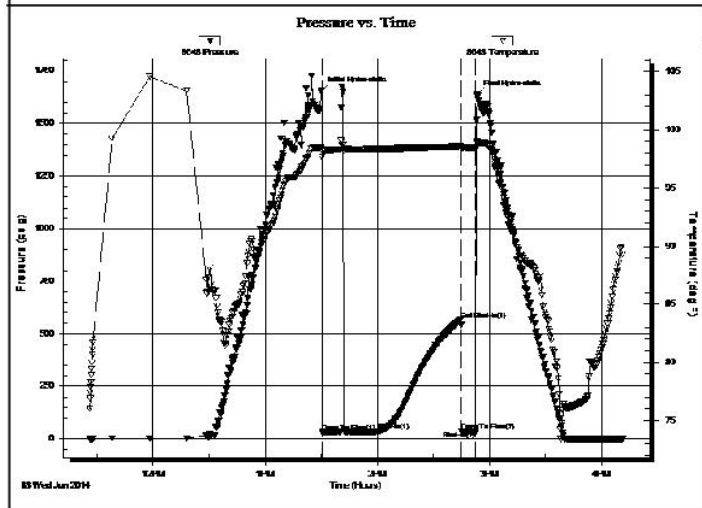
 TRILOBITE TESTING, INC.	DRILL STEM TEST REPORT	
	ESP Development Inc 1749 250TH AVE Hays KS, 67601 ATTN: Steve Reed	28-11s-15w Russell KS Hagaman #5 Job Ticket: 54059 DST#:1 Test Start: 2014.06.18 @ 11:26:00

GENERAL INFORMATION:

Formation: LKC "J,K"	Test Type: Conventional Straddle (Initial)
Deviated: No Whipstock: ft (KB)	Tester: Cody Bloedorn
Time Tool Opened: 13:30:30	Unit No: 73
Time Test Ended: 16:11:15	
Interval: 3150.00 ft (KB) To 3204.00 ft (KB) (TVD)	Reference Elevations: 1840.00 ft (KB)
Total Depth: 3399.00 ft (KB) (TVD)	1833.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Fair	KB to GR/CF: 7.00 ft

Serial #: 8648	Inside				
Press@RunDepth: 35.01 psig @ 3186.00 ft (KB)	Capacity: 8000.00 psig				
Start Date: 2014.06.18	End Date: 2014.06.18	Last Calib.: 2014.06.18			
Start Time: 11:26:05	End Time: 16:11:14	Time On Btm: 2014.06.18 @ 13:30:15			
		Time Off Btm: 2014.06.18 @ 14:53:30			

TEST COMMENT: 30 - IF- NO blow for 10 minutes, flushed tool, surged and died
 45 - IS- No return
 10 - FF- No blow - Pulled Tool



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1657.24	98.54	Initial Hydro-static
1	31.57	97.68	Open To Flow (1)
30	35.01	98.36	Shut-In(1)
75	564.27	98.59	End Shut-In(1)
75	35.07	98.38	Open To Flow (2)
83	35.24	98.48	Shut-In(2)
84	1639.23	98.92	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
10.00	Mud, 100%M	0.14

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

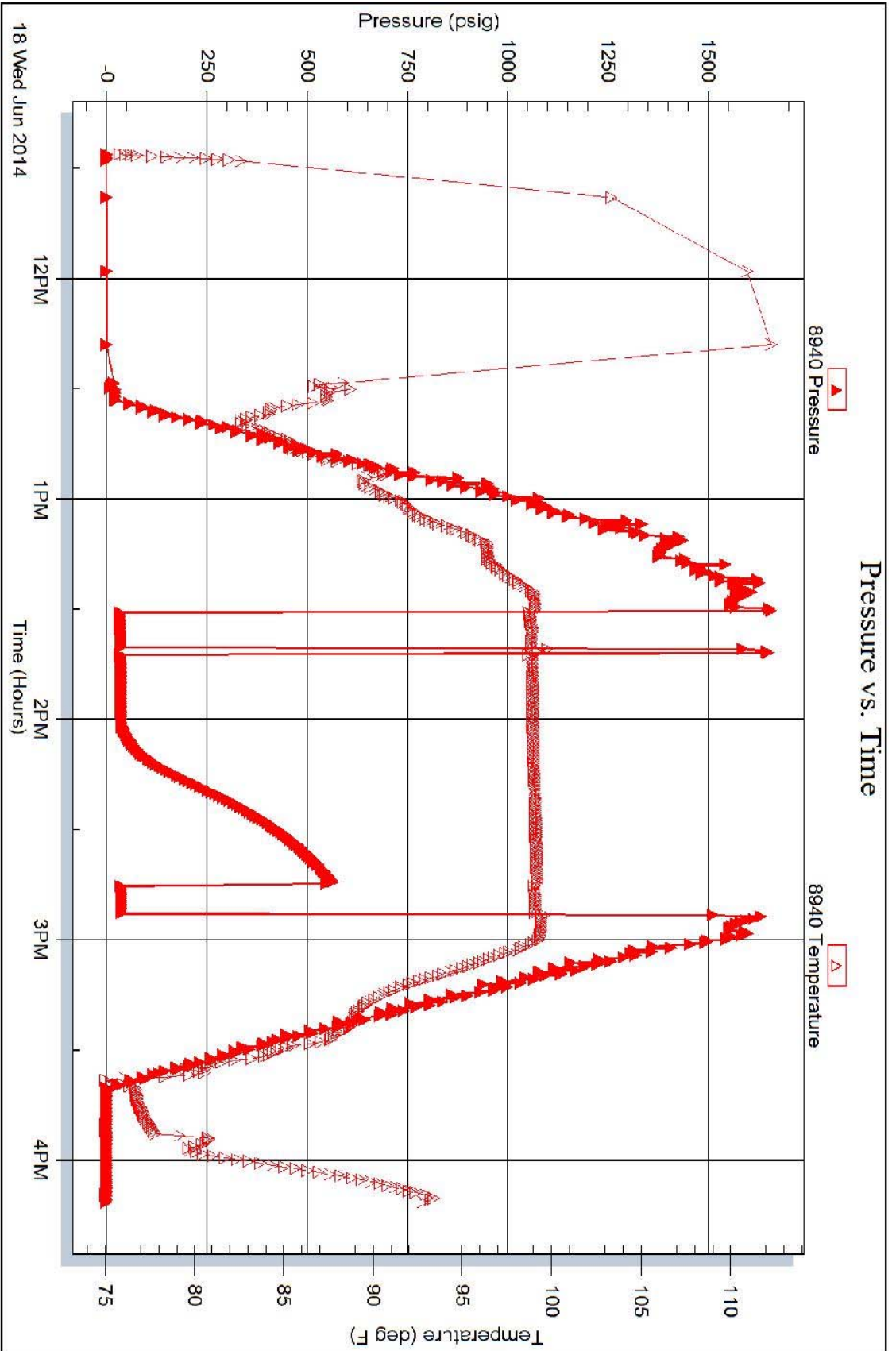
DST #1 TEMPERATURE VS PRESSURE CHART

Serial #: 8940

Outside ESP Development Inc

Hagaman #5

DST Test Number: 1








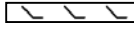




Tribolite Testing, Inc

Ref. No: 54059

Printed: 2014.06.18 @ 20:57:44

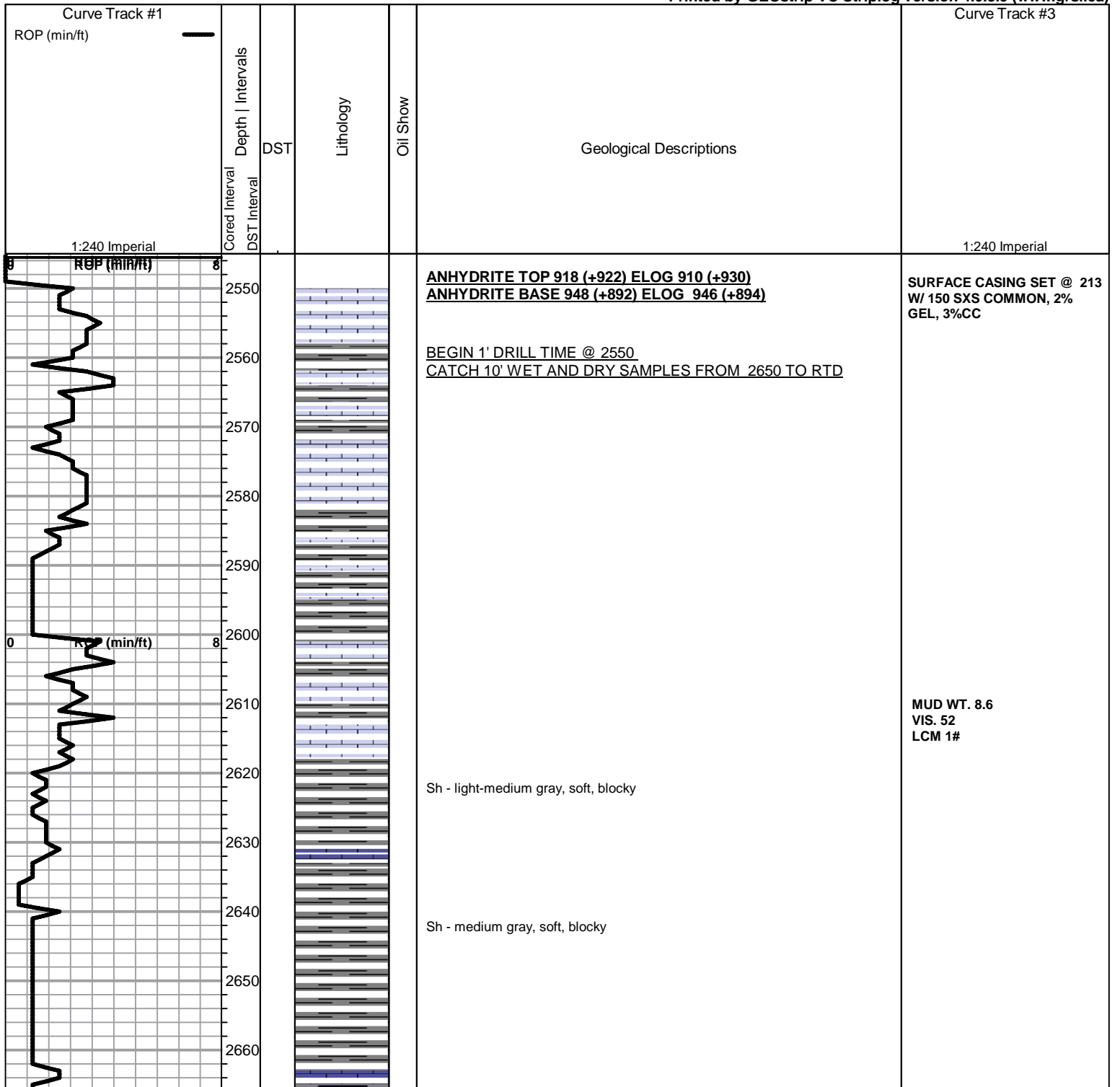
ROCK TYPES

 Chtcong1	 Lmst fw<7	 shale, gry	 Shcol
 Dolprim	 Lmst fw>7	 Carbon Sh	
 Dol Lime	 shale, grn	 shale, red	

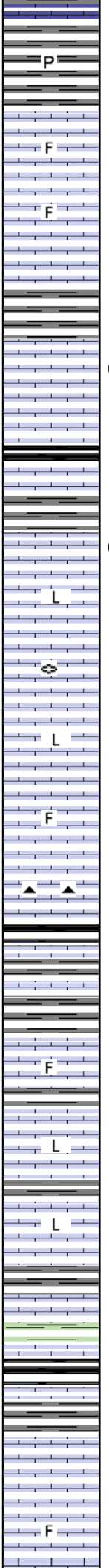
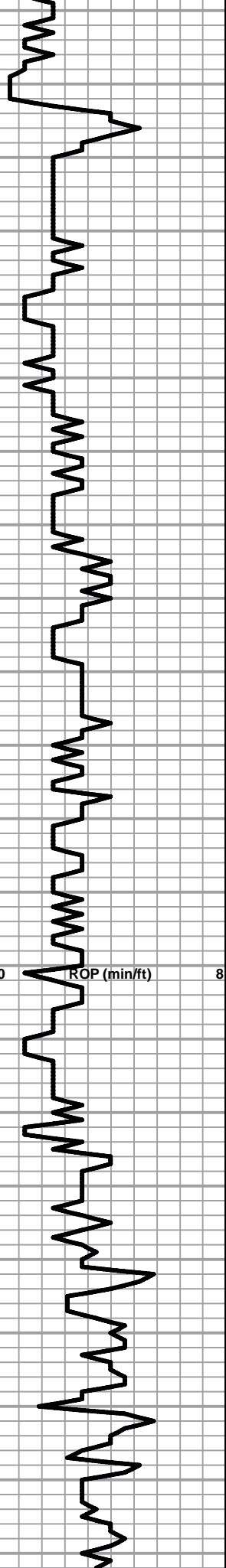
ACCESSORIES

MINERAL	FOSSIL	STRINGER	TEXTURE
▲ Chert, dark	F Fossils < 20%	~ Chert	C Chalky
P Pyrite	○ Oolite	— green shale	L Lithogr
△ Chert White	⊕ Oomoldic		
	⊕ Fossilinid		

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2870
2880



Lm - light gray, soft, mottled, friable

Sh - medium gray, soft, blocky, some becoming sticky clumps, pyrite

TOPEKA SPL 2682 (-842) ELOG 2680 (-840)

Lm - cream-tan, slightly fossiliferous, vfxln, dense, very hard

Lm - tan-light brown, fnxln, slightly fossiliferous with secondary recrystallization, hard, brittle

Sh - medium gray, soft, blocky, with light gray sticky clumps

O Lm - light gray-brown, vfxln, slightly fossiliferous, dense, hard, brittle, no appreciable staining, NSFO, faint odor

Lm - cream-light gray, vfxln, slightly fossiliferous, dense, brittle, bedded chalk in part

Sh - light-medium gray, soft, blocky

O Lm - medium brown, fine pinpoint porosity, sucrosic upon crush, saturated light brown stain, SFO, good odor, friable, only a couple chips

Lm - tan-light brown, vfxln to lithographic, hard, brittle, no visible porosity

Lm - light brown-gray, fnxln, brittle, fusulinids

Lm - light-medium gray, vfxln to lithographic, brittle, hard

Lm - medium gray, vfxln, slightly fossiliferous, dense, very hard

Lm - tan, fnxln, slightly fossiliferous, brittle, bedded chalk, black chert

Sh - black, carbonaceous, waxy

Sh - dark gray, firm, blocky

F Lm - light gray-cream, fnxln, slightly fossiliferous, brittle

Lm - ivory, lithographic, dense, brittle, clean and bright, no visible porosity

Lm - tan, lithographic, brittle, bedded chalk in part

Lm - cream, fnxln to lithographic, brittle

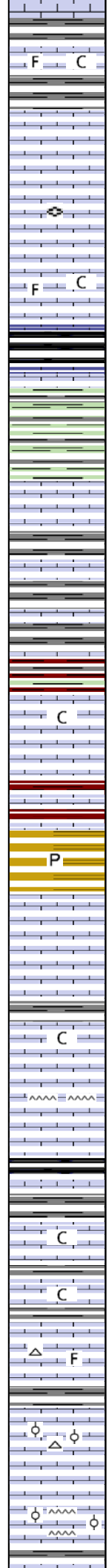
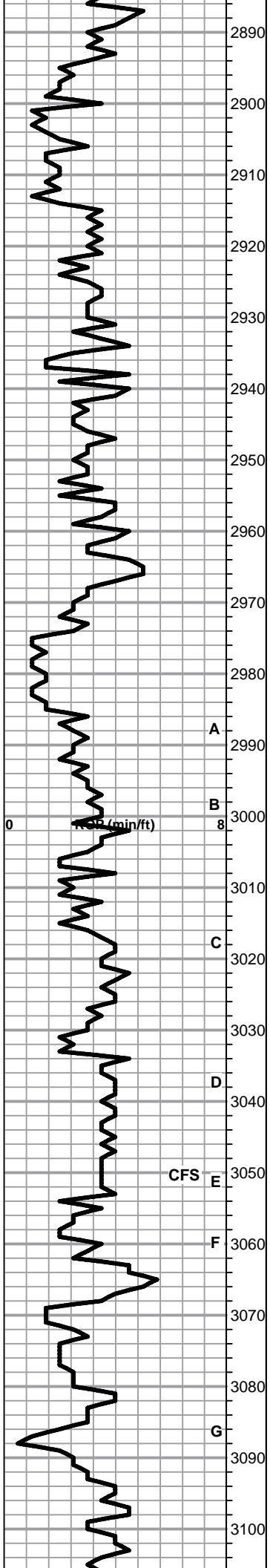
Sh - light green, soft, sticky clumps

Sh - black, carbonaceous, soft, waxy, copper colored specks

Lm - medium brown, microxln, dense, very hard, brittle

F Lm - tan, granular, mottled, slightly fossiliferous, bedded chalk, moderate hardness

MUD WT. 8.8
VIS. 60
LCM 2#



Lm - tan-cream, slightly fossiliferous, brittle, chalky in part

○ Lm - light brown, granular, saturated light brown stain, good odor, friable, fine pinpoint porosity, NSFO, UV fluorescence, streaming wet cut

Lm - light gray, medxln, brittle, bedded chalk, fusulinids

Lm - tan-cream, fnxn, fossiliferous, brittle, chalky in part

HEEBNER SPL 2934 (-1094) ELOG 2932 (-1092)
 Sh - black, carbonaceous, waxy, firm

Sh - greenish gray, soft, sticky

TORONTO SPL 2955 (-1115) ELOG 2952 (-1112)
 ○ Lm - tan-cream, granular, pinpoint porosity, slight scattered stain, faint odor, NSFO

Lm - ivory, vfxln, dense, very hard, clean and barren

Lm - cream-tan, fnxn, brittle, bedded chalky

Sh - maroon/gray/green, soft, sticky clumps
LKC SPL 2983 (-1143) ELOG 2982 (-1142)
 Lm - tan, fnxn, brittle, chalky in part

Sh - maroon, soft, blocky, forming sticky clumps

Sh - medium brown, soft, blocky, some sticky, pyrite

○ Lm - cream-tan, fine interxln porosity, brittle, chalky in part, some pinpoint porosity with scattered light brown stain, NSFO, no odor

Lm - tan, fnxn, brittle, chalk in part

○ Lm - light brown, slightly fossiliferous, moderate hardness, slight scattered light brown stain, NSFO, questionable odor, cherty, bedded chalk

Sh - black, carbonaceous, waxy

○ Lm - cream-light brown, fnxn, scattered pinpoint porosity, scattered light brown stain, NSFO, no odor, chalky

Lm - tan, fnxn, dense, very hard, slightly chalky

○ Lm - offwhite, fossiliferous, fine interxln porosity with scattered vugs, light golden brown stain, NSFO, no odor, gray chert

○ Lm - cream, oolitic, scattered interxln porosity with light golden brown stain, SFO upon crush, faint odor, bedded chalk, white chert

Lm - cream-tan, fnxn, dense, hard, bedded chalk in part, oolitic chert, no shows

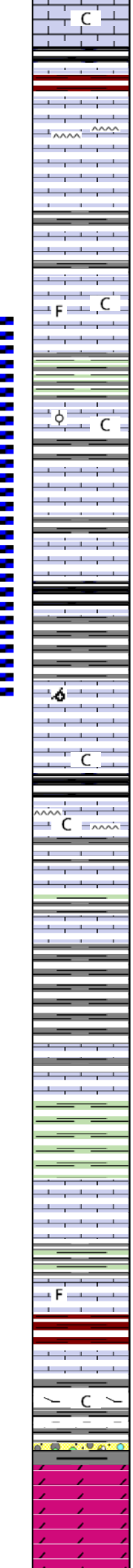
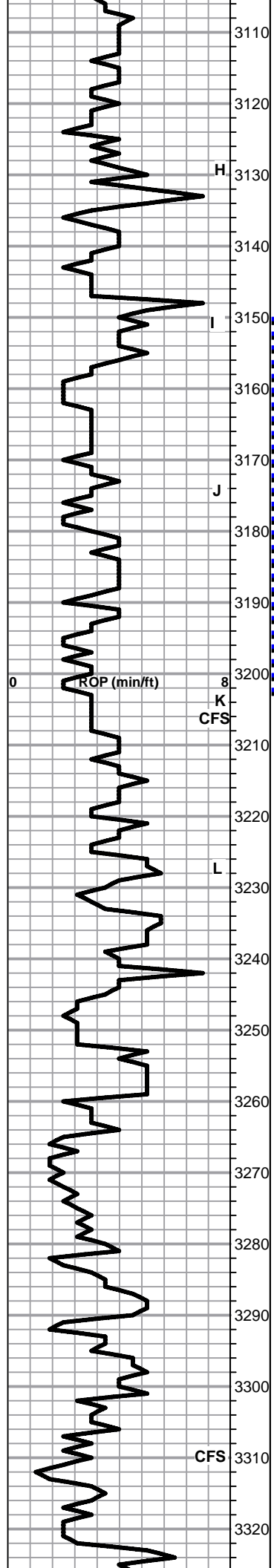
MUD WT. 9.0
 VIS. 65
 LCM 2#

2890
2900
2910
2920
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2940
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2970
2980
2990
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3010
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152
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168
176
184
192
200
208
216
224
232
240
248
256
264
272
280
288
296
304
312

CFS



Lm - cream-light gray, fnxn, hard, brittle, chalky in part

Sh - black carbonaceous, firm, fissile

Sh - maroon, soft, blocky

D Lm - tan, fnxn, brittle, bedded chalk, cherty, slight gilsonitic stain, NSFO, no odor

Sh - light gray-medium brown, soft, blocky

Lm - tan-light brown, fossiliferous, fnxn, slightly chalky, hard

Sh - gray/green, soft, blocky, forming sticky clumps

Lm - offwhite-tan, oolitic, poor development, no visible porosity, hard, chalky in part, cherty

O Lm - offwhite-light gray, mostly fnxn, slightly oolitic / oomoldic, fine interxn porosity, slightly scattered light brown stain, NSFO, faint odor

O Lm - A/A with SFO upon crush, very limited amount, chalky

Sh - black, carbonaceous, waxy

O Lm - light gray, fossiliferous with fine interxn porosity, good saturated stain, SFO, faint odor, bedded chalk

Lm - light gray, microxn, dense, very hard, chalky

Lm - cream-tan, fnxn, hard, cherty, chalky

Sh - lime green/gray/brown, soft, gritty, some sticky

BKC SPL 3238 (-1398) ELOG 3238 (-1398)

Sh - medium-dark gray, soft, blocky, some sticky

Lm - tan-light gray, vfxn, dense, very hard

Sh - medium green, firm, blocky

Lm - cream, fnxn, brittle

Sh - brown/gray/green, soft, blocky

Lm - offwhite, fnxn, slightly fossiliferous, hard, no visible porosity

Sh - maroon, soft, extremely sticky

Lm - cream, oolitic, poor development, dense, hard

Lm - offwhite, slightly dolomitic, fnxn, hard, excessive sticky white chalky clumps

Cong - dark red clusters, hard, brittle, shaley

ARBUCKLE SPL 3312 (-1472) ELOG 3310 (-1470)

O Dolo - tan-light brown, fnxn, saturated light brown stain, good odor, NSFO

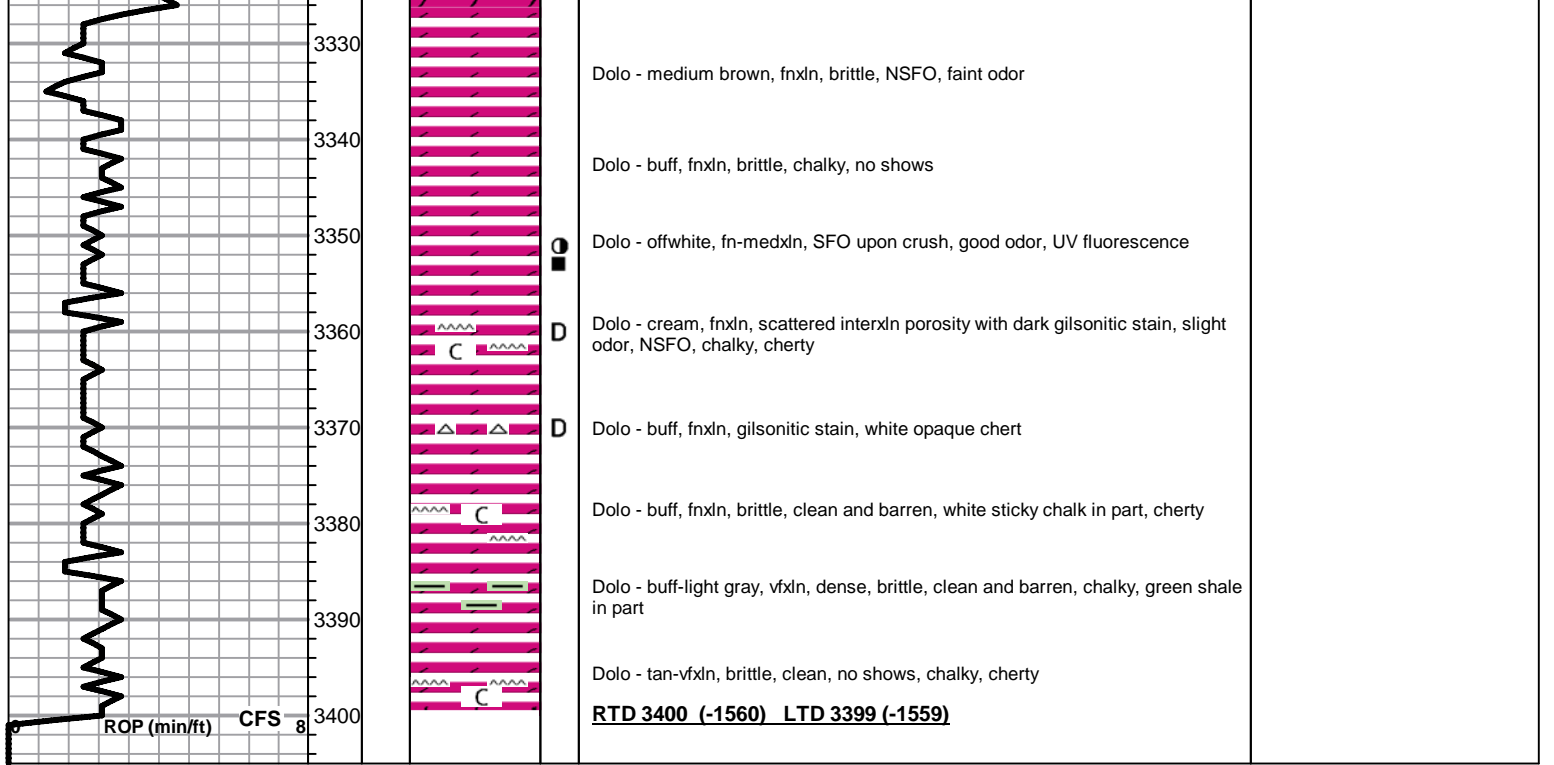
O Dolo - tan, fnxn, scattered light brown stain, well cemented, hard, good odor

MUD WT. 9.1
 VIS. 58
 LCM .5#

DST #1 3150 TO 3204
 (STRADDLE)

SEE HEADER FOR TEST
 SUMMARY

MUD WT. 9.2
 VIS. 55
 LCM 1.5#





TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

ESP Development Inc
 1749 250TH AVE
 Hays KS, 67601
 ATTN: Steve Reed

28-11s-15w Russell KS

Hagaman #5

Job Ticket: 54059

DST#: 1

Test Start: 2014.06.18 @ 11:26:00

GENERAL INFORMATION:

Formation: **LKC "J,K"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:30:30

Time Test Ended: 16:11:15

Test Type: Conventional Straddle (Initial)

Tester: Cody Bloedorn

Unit No: 73

Interval: 3150.00 ft (KB) To 3204.00 ft (KB) (TVD)

Reference Elevations: 1840.00 ft (KB)

Total Depth: 3399.00 ft (KB) (TVD)

1833.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

Serial #: 8648

Inside

Press @ Run Depth: 35.01 psig @ 3186.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.06.18

End Date:

2014.06.18

Last Calib.:

2014.06.18

Start Time: 11:26:05

End Time:

16:11:14

Time On Btm:

2014.06.18 @ 13:30:15

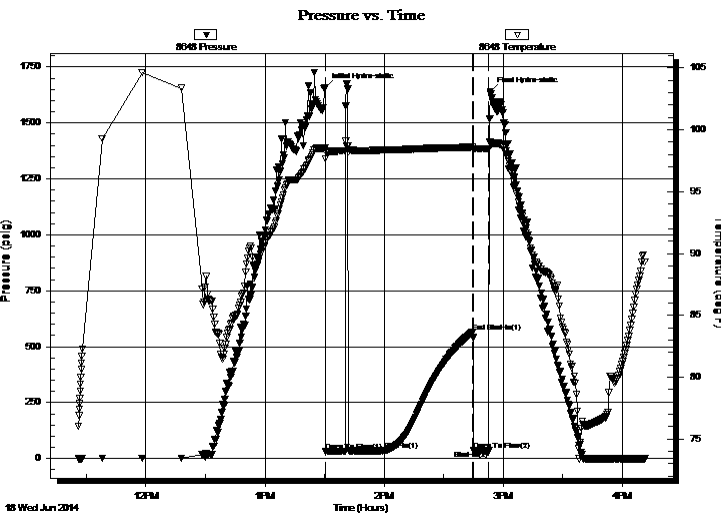
Time Off Btm:

2014.06.18 @ 14:53:30

TEST COMMENT: 30 - IF- NO blow for 10 minutes, flushed tool, surged and died

45 - IS- No return

10 - FF- No blow - Pulled Tool



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1657.24	98.54	Initial Hydro-static
1	31.57	97.68	Open To Flow (1)
30	35.01	98.36	Shut-In(1)
75	564.27	98.59	End Shut-In(1)
75	35.07	98.38	Open To Flow (2)
83	35.24	98.48	Shut-In(2)
84	1639.23	98.92	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud, 100%M	0.14

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

ESP Development Inc
 1749 250TH AVE
 Hays KS, 67601
 ATTN: Steve Reed

28-11s-15w Russell KS
Hagaman #5
 Job Ticket: 54059 **DST#: 1**
 Test Start: 2014.06.18 @ 11:26:00

GENERAL INFORMATION:

Formation: **LKC "J,K"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 13:30:30
 Time Test Ended: 16:11:15
Interval: 3150.00 ft (KB) To 3204.00 ft (KB) (TVD)
 Total Depth: 3399.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Straddle (Initial)
 Tester: Cody Bloedorn
 Unit No: 73
 Reference Elevations: 1840.00 ft (KB)
 1833.00 ft (CF)
 KB to GR/CF: 7.00 ft

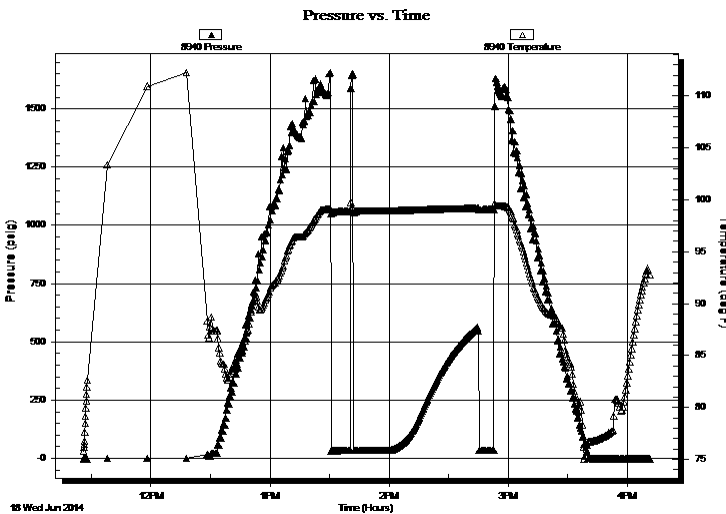
Serial #: 8940

Outside

Press@RunDepth: psig @ 3186.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.06.18 End Date: 2014.06.18 Last Calib.: 2014.06.18
 Start Time: 11:26:05 End Time: 16:11:14 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30 - IF- NO blow for 10 minutes, flushed tool, surged and died
 45 - IS- No return
 10 - FF- No blow - Pulled Tool

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud, 100%M	0.14

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

ESP Development Inc
1749 250TH AVE
Hays KS, 67601
ATTN: Steve Reed

28-11s-15w Russell KS
Hagaman #5
Job Ticket: 54059 **DST#: 1**
Test Start: 2014.06.18 @ 11:26:00

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 55.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.79 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3000.00 ppm			
Filter Cake: 1.50 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	Mud, 100%M	0.140

Total Length: 10.00 ft Total Volume: 0.140 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

