

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1257989  
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
-----------------------------------	-----------------	---

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: \_\_\_\_\_

1257989



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
--	---

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: <input type="checkbox"/> Yes <input type="checkbox"/> No
----------------	-------	---------	------------	---

Date of First, Resumed Production, SWD or ENHR.	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____
---	--

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

<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> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
--	---	---





# 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. 1249

Date	Sec.	Twp.	Range	County	State	On Location	Finish
5-19-15	21	5	21	Norton	KS		6:30 PM
				Location Logan SW E 20 1/2 W 23 1/4 E W into			

Lease Colenne meier A	Well No. 93	Owner
Contractor WW #6		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 Surface		
Hole Size 12 1/4	T.D. 217	Charge To Black Diamond
Csg. 8 7/8	Depth 216	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. 15'	Shoe Joint	Cement Amount Ordered 150 com 80/20 3/CC 2-65C
Meas Line	Displace 13BL	

EQUIPMENT			Common
Pumptrk 18	No. Cementer Helper		120
Bulktrk	No. Driver		Poz. Mix 30
Bulktrk 9	No. Driver		Gel. 3
	No. Driver		Calcium 6

JOB SERVICES & REMARKS		
Remarks:		Hulls
Rat Hole		Salt
Mouse Hole		Flowseal
Centralizers		Kol-Seal
Baskets		Mud CLR 48
D/V or Port Collar		CFL-117 or CD110 CAF 38
8 5/8 on bottom Est. Circulation		Sand
Mix 150SK & Displace		Handling 159
Cement Circulated		Mileage
		FLOAT EQUIPMENT
		Guide Shoe
		Centralizer
		Baskets
		AFU Inserts
		Float Shoe
		Latch Down

Pumptrk Charge Surface	
Mileage 70	
Signature Maul Bgg	
	Tax
	Discount
	Total Charge



# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025

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

No. 1817

Cell 785-324-1041

Date	5-24-15	Sec.	21	Twp.	5	Range	21	County	Noorton	State	Ks	On Location		Finish	4:45 PM
------	---------	------	----	------	---	-------	----	--------	---------	-------	----	-------------	--	--------	---------

Lease **Glennemeier A** Well No. **3** Location **Logan, Ks - W to E12 Rd, 15, 1w, 23/45** Owner **JWI, Intco**

Contractor **WW6** 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 **Longstring** Charge To **Black Diamond oil**

Hole Size **7 7/8"** T.D. **3654'** Depth **3658'** Street

Csg. **5 1/2" new 15.50#** Depth **3658'** City State

Tbg. Size Depth City State

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

Cement Left in Csg. **22'** Shoe Joint **22'** Cement Amount Ordered **450 80/20 QMDC 1/4# Flowseal**

Meas Line Displace **86 1/2 BLS** **150 Com 10% Salt 5% Gilsomite 500 gal mud Clear 48**

**EQUIPMENT** Common **150**

Pumptrk <b>20</b> No.	Cementer	<b>Nick</b>	<b>Rick</b>	Poz. Mix
Bulktrk <b>4</b> No.	Helper	<b>Doney</b>		Gel.
Bulktrk <b>9</b> No.	Driver	<b>Billy</b>		Calcium

**JOB SERVICES & REMARKS** Hulls

Remarks: **30 sx** Salt **13**

Mouse Hole Kol-Seal **750#**

Centralizers **1, 3, 5, 7, 9, 11, 13, 43** Mud CLR 48 **500 gal**

Baskets **2, 4, 6, 8, 10, 44** CFL-117 or CD110 CAF 38

D/V or Port Collar Sand

**pump 500 gal mud Clear 48** Handling **620**

**plug Rathole w/ 30 sx** Mileage

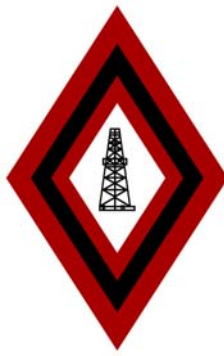
**mix 420 QMDC 1/4# Flowseal** **+ 150 Com 10% Salt 5% Gilsomite** **Shut down wash pump & lines** **Released plug & Displaced w/ 86 1/2 BLS of H2O**

**Lift pressure 1100 #** **Land plug to 2000#** **Cement did circulate** **Plug held** **Rotating head Assy**

**Pumptrk Charge prod string** Mileage **70**

Signature **Mend Busse** Tax Discount Total Charge





# BLACK DIAMOND OIL INCORPORATED

Scale 1:240 Imperial

Well Name: GLENNEMEIER A #3  
Surface Location: NW NW SE SE Sec. 21 - 5S - 21W  
Bottom Location:  
API: 15-137-20730  
License Number: 7076  
Spud Date: 5/19/2015 Time: 1:30 PM  
Region: NORTON COUNTY KANSAS  
Drilling Completed: 5/23/2015 Time: 3:10 AM  
Surface Coordinates: 1005' FSL & 905' FEL  
Bottom Hole Coordinates:  
Ground Elevation: 2211.00ft  
K.B. Elevation: 2216.00ft  
Logged Interval: 3000.00ft To: 3655.00ft  
Total Depth: 3654.00ft  
Formation: GORHAM SAND  
Drilling Fluid Type: FRESH WATER / CHEMICAL GEL

## OPERATOR

Company: BLACK DIAMOND OIL, INC.  
Address: P.O. BOX 641  
HAYS, KS 67601

Contact Geologist: KENNETH VEHIGE  
Contact Phone Nbr: (785) 625 - 5891  
Well Name: GLENNEMEIER A #3  
Location: NW NW SE SE Sec. 21 - 5S - 21W  
API: 15-137-20730  
Pool:  
State: KANSAS

Field: WEST UNION  
Country: USA

## SURFACE CO-ORDINATES

Well Type: Vertical  
Longitude: -99.687397  
Latitude: 39.598943  
N/S Co-ord: 1005' FSL  
E/W Co-ord: 905' FEL

## LOGGED BY



Company: BIG CREEK CONSULTING, INC.  
Address: 1909 MAPLE  
ELLIS, KS 67627

Phone Nbr: (785) 259-3737  
 Logged By: Geologist

Name: JEFF LAWLER

**CONTRACTOR**

Contractor: WW DRILLING, LLC  
 Rig #: 6  
 Rig Type: MUD ROTARY  
 Spud Date: 5/19/2015  
 TD Date: 5/23/2015  
 Rig Release: 5/24/2015

Time: 1:30 PM  
 Time: 3:10 AM  
 Time: 7:30 PM

**ELEVATIONS**

K.B. Elevation: 2216.00ft  
 K.B. to Ground: 5.00ft  
 Ground Elevation: 2211.00ft

**NOTES**


DUE TO ECONOMICAL RECOVERY ON DST #1 5 1/2" PRODUCTION CASING WAS RAN TO FURTHER EVALUATE THE GORHAM SAND.

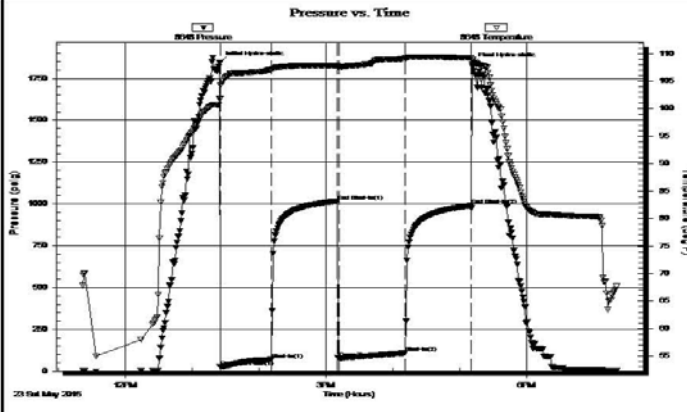
RESPECTFULLY SUBMITTED,  
 JEFF LAWLER

**WELL COMPARISON SHEET**

FORMATION	GLENNEMEIER A #3				W2 SE SW 21-5-21				SE SE SW 21-5-22				P&A 1-84				NE 28-5-21				SW SW SW 22-5-21							
	KB		GL		KB		2266		KB		2215		KB		2324		KB		2261		KB		2261					
	LOG TOPS		SAMPLE TOPS		LOG		LOG		SMPL.		LOG		LOG		SMPL.		COMP. CARD		LOG		SMPL.		COMP. CARD		LOG		SMPL.	
	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.
ANHYDRITE TOP	1814	402	1813	403	1864	402	+ 0 + 1	1813	402	+ 0 + 1																		
BASE	1843	373	1844	372	1892	374	- 1 - 2	1842	373	+ 0 - 1																		
TOPEKA	3165	-949	3164	-948	3213	-947	- 2 - 1	3158	-943	- 6 - 5																		
HEEBNER SHALE	3368	-1152	3367	-1151	3415	-1149	- 3 - 2	3363	-1148	- 4 - 3	3471	-1147	- 5 - 4	3405	-1144	- 8 - 7												
TORONTO	3394	-1178	3392	-1176	3441	-1175	- 3 - 1	3390	-1175	- 3 - 1	3499	-1175	- 3 - 1	3431	-1170	- 8 - 6												
LKC	3413	-1197	3412	-1196	3461	-1195	- 2 - 1	3407	-1192	- 5 - 4	3517	-1193	- 4 - 3	3449	-1188	- 9 - 8												
BKC	3601	-1385	3595	-1379	3646	-1380	- 5 + 1	3593	-1378	- 7 - 1	3700	-1376	- 9 - 3	3636	-1375	- 10 - 4												
GORHAM SAND			3653	-1437					3649	-1434																		
REAGAN					3699	-1433								3751	-1427													
GRANITE																					3750	-1489						
TOTAL DEPTH	3655	-1439	3654	-1438	3700	-1434	- 5 - 4	3648	-1433	- 6 - 5	3757	-1433	- 6 - 5	3757	-1496	+ 57 + 58												

**DST #1 GORHAM SAND 3644' - 3654'**

	<b>DRILL STEM TEST REPORT</b>	
	Black Diamond Oil Po Box 641 Hays KS, 67601 ATTN: Jeff Lawler	<b>21-5s-21w Norton KS</b> <b>Glennemeier A #3</b> Job Ticket: 62711 Test Start: 2015.05.23 @ 11:22:00 <b>DST#: 1</b>
<b>GENERAL INFORMATION:</b>		
Formation: <b>Gorham Sand</b> Deviated: No Whipstock ft (KB) Time Tool Opened: 13:25:00 Time Test Ended: 19:21:15	Test Type: Conventional Bottom Hole (Initial) Tester: Cody Bloedorn Unit No: 73	
Interval: <b>3644.00 ft (KB) To 3654.00 ft (KB) (TVD)</b> Total Depth: 3654.00 ft (KB) (TVD) Hole Diameter: 7.88 inches Hole Condition: Fair	Reference Elevations: 2216.00 ft (KB) 2211.00 ft (CF) KB to GR/CF: 5.00 ft	
<b>Serial #: 8648</b> Inside Press@RunDepth: 109.59 psig @ 3645.00 ft (KB) Start Date: 2015.05.23 Start Time: 11:22:05	End Date: 2015.05.23 End Time: 19:21:14	Capacity: 8000.00 psig Last Calib.: 2015.05.23 Time On Btm: 2015.05.23 @ 13:24:45 Time Off Btm: 2015.05.23 @ 17:11:30
<b>TEST COMMENT:</b> 45 - IF- 6" blow 60 - IS- No return 60 - FF- 3.5" blow 60 - FS- No return		



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1844.17	101.76	Initial Hydro-static
1	26.25	101.82	Open To Flow (1)
46	70.58	107.07	Shut-In(1)
106	1014.76	107.81	End Shut-In(1)
107	79.92	107.67	Open To Flow (2)
167	109.59	109.09	Shut-In(2)
226	989.70	109.21	End Shut-In(2)
227	1834.10	108.95	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbt)
62.00	HOCMV, 10%M, 40%O, 50%W	0.30
62.00	HOCVM, 10%W, 40%O, 50%M	0.34
62.00	GMCO, 10%G, 20%M, 70%O	0.87
93.00	GO, 30%G, 70%O	1.30
0.00	62' of G.I.P.	0.00

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

Trilobite Testing, Inc

Ref. No: 62711

Printed: 2015.05.23 @ 22:44:54

### ROCK TYPES

Cht	Lmst fw7>	shale, gry	Shbck	Ss
Dolsec	shale, grn	Carbon Sh	shale, red	

### ACCESSORIES

#### MINERAL

- \* Sandy
- Detrital limestone

#### STRINGER

- Sandstone
- Shale

### OTHER SYMBOLS

#### MISC

- Daily Report
- Digital Photo
- Document
- Folder
- Link
- Vertical Log File
- Horizontal Log File
- Core Log File
- Drill Cuttings Rpt

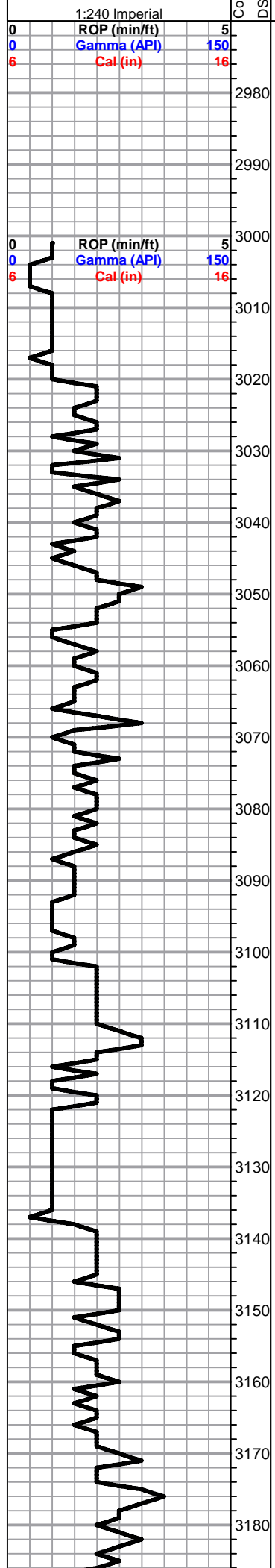
#### DST

- DST Int
- DST alt

Printed by GEOstrip VC Striplog version 4.0.8.15 (www.grsi.ca)

Curve Track #1						Curve Track #3
ROP (min/ft)		Depth   Intervals	DST	Lithology	Oil Show	Geological Descriptions
Gamma (API)						
Cal (in)						
		Interval				





**1' DRILL TIME THROUGH THE ANHYDRITE FROM 1800' - 1850'**  
**1' DRILL TIME FROM 3000' - RTD**  
**10' WET/DRY SAMPLES FROM 3050' - RTD**

**GEOLOGICAL SUPERVISION BY JEFF LAWLER FROM 3050' - RTD**

**8 5/8" SURFACE PIPE SET @ 217' SURVEY 3/4 dgr.**

**ANHYDRITE TOP 1813' (+403) E-LOG 1814' (+402)**  
**ANHYDRITE BASE 1844' (+372) E-LOG 1843' (+373)**

Lm- Cream Gray, VFXLN, dense, well cemented, mostly tight w/ poor vis. porosity, some loosely cemented gray siltstone & gummy gray wash shale

Sh- Gray Maroon, silty & semi-arenaceous, gummy wash

Sh- A/A w/ dense fissile black shale

Lm- Cream Tan, FXLN, dense, mostly well cemented, massive, fsl w/ fusulinid casts, sctrd ppt porosity, barren, much soft white chalk

Lm- Lt Gray, VFXLN, dense, well cemented, fsl, tight w/ min. vis. porosity

Sh- Green Gray Maroon, gummy argillaceous clumps, silty & calcareous, gummy wash

Lm- Cream Buff Gray, FXLN Fn Grn, dense tight mix of well cemented, sl fsl, w/ dense XLN porosity, sctrd reXLN, chalky mud supported matrix, loosely cemented, & chalky siltstone w/ min. vis. porosity

Sh- Maroon Gray, gritty & earthy, gummy argillaceous clumps

Sh- A/A w/ influx of gray clumps

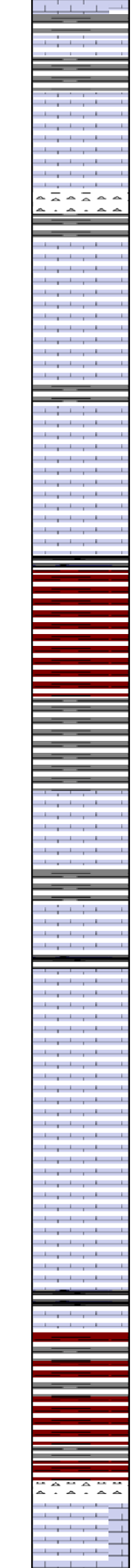
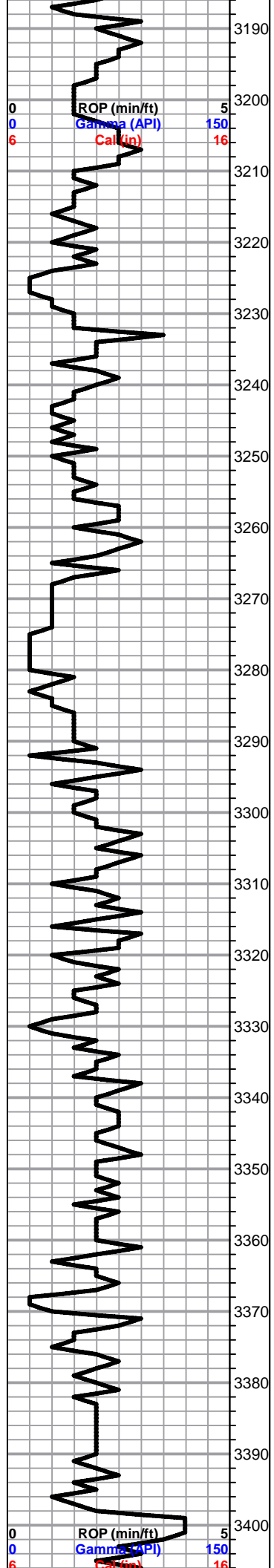
Lm- Cream, FXLN, sl fsl, abundant dense XLN porosity, loosely cemented, barren

Lm- Cream Off White, FXLN Vf Grn, dense, loosely cemented, sl fsl, heavily mottled & spotted, poor vis. porosity, some chalky in part

**TOPEKA 3164' (-948) E-LOG 3165' (-949)** Lm- Cream Off White, Fn Grn, well cemented limey arenaceous Ls w/ consistent intergranular porosity, barren

Lm- Cream Off White, FXLN, sl fsl, well cemented, sctrd reXLN, sctrd to dense XLN porosity, vry clean & barren

Lm- Cream Buff. VFXLN. dense. well cemented. mostly tight w/ poor vis. porosity.



some sl fsl w/ sctrd XLN porosity

Lm- Tan Cream, FXLN, fsl, dense XLN porosity & clear replacement cementation, barren

Lm- Gray, VF-FXLN, dense, well cemented, mostly tight, high-energy w/ fsl fragments, micro XLN porosity

Lm/Chert- Cream Off White mix, cryptoXLN vitreous chert w/o vis. porosity & grainy, semi-granular loosely cemented, sl chalky Ls w/ no vis. porosity, all vry clean & barren

Lm- Cream Off White, F-MED XLN, massive, well cemented, fsl w/ fusulinids, sctrd XLN & ppt porosity, some sctrd clear replacement cementation, barren

Lm- Cream Buff, VF-FXLN, dense, well cemented, poorly dev. w/ sctrd XLN porosity, barren

Lm- Cream Buff, VF-FXLN, dense, well cemented, mostly tight w/ sctrd XLN porosity, some chalky in part, all clean & barren, few pcs of chert/cherty Ls w/o vis. porosity

Sh- Black, fissile & carbonaceous

Sh- White Maroon, abundant argillaceous clumps, few pcs of shaley frosted Ss, consolidated & sorted, poor intergranular porosity, barren

Sh- Gray Maroon, silty & soft, gritty & earthy, some sandy shale

Lm- Cream Tan, FXLN, dense, well cemented, sl fsl, sctrd XLN porosity, barren

Lm- Cream Off White, VF-FXLN, dense, well cemented, mostly tight w/ poor vis. to sctrd XLN porosity, all vry clean & barren

Lm- Cream Off White, FXLN, fsl, mod. dev. w/ sctrd vry fn ppt porosity, some sl chalky in part, SCTRDR TO SUB SAT STN, TR FO, FR ODR, HVY OIL SHEEN

Lm- Cream Off White, FXLN, fsl & sl oolitic, dense XLN porosity, loosely cemented & crumbly, barren

Lm- Cream Buff, VFXLN, dense, well cemented, mostly tight w/ poor vis. porosity

Lm- A/A

**HEEBNER 3367' (-1151) E-LOG 3368' (-1152)** Sh- Black, fissile & carbonaceous

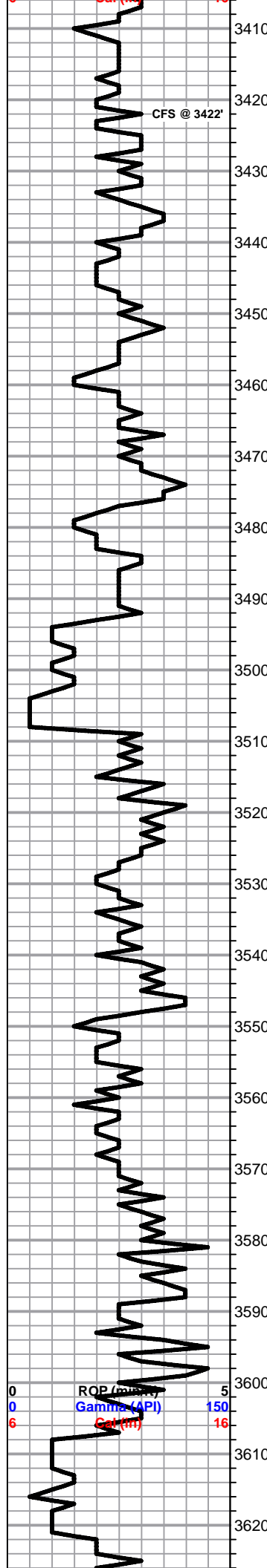
Sh- Maroon Gray, gummy argillaceous clumps, gritty & earthy

**TORONTO 3392' (-1176) E-LOG 3394' (-1178)** Chert- Translucent Cream, sharp vitreous fresh bedded w/o vis. porosity

Lm- White Off White Tan, F-MED XLN, fsl & oolitic, mod. dev. w/ sctrd inter oolite ppt porosity, SCTRDR DRK STN, TR FO, SOME SL GSY BUBBLES UPON CRUSH, MOD. ODR, MOD. OILY SHEEN, some sctrd reXLN w/in porosity





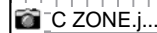


**LKC 3412' (-1196) E-LOG 3413' (-1197)** Lm- Cream Off White, VF-FXLN, dense, most well cemented, sl fsl & oolitic, poorly dev. w/ sctrd micro XLN & XLN porosity, some chalky & loosely cemented, all clean & barren

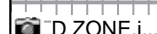
Lm- Cream Off White, VF-FXLN, sl fsl, poorly dev. & mostly tight w/ micro XLN porosity, vry clean & barren

Sh- Maroon Gray, gritty & earthy, silty & micaceous

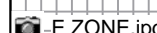
● Lm- Cream Off White, FXLN, fsl & oolitic, sctrd dev. w/ sctrd vry fn to fn ppt inter oolite porosity, some w/ reXLN, LT SCTRD STN, NSFO, FR ODR



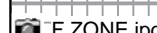
● Lm/Chert- Cream Off White, FXLN, mod. well oolitic dev. & mostly consistent fn ppt inter oolite porosity, LT SCTRD STN, NSFO, FR ODR, translucent fresh bedded vitreous chert



● Lm- Cream Off White, FXLN, oolitic w/ sctrd dev. most poorly dev. w/ sctrd XLN porosity & barren, 4-5 pcs w/ sctrd ppt inter oolite porosity, SCTRD DRK STN, TR FO, WK ODR



● Lm- Cream Off White, fsl, poorly dev. w/ sctrd micro XLN porosity, many pcs of fresh bedded translucent & cream colored chert, 1 pc of cream Ls w/ consistent ppt porosity throughout, SCTRD LT STN, NSFO, NO ODR



Lm- Cream, dense well cemented, semi-gritty dolomitic Ls w/ no vis. porosity, chert A/A

Lm- A/A w/ influx of cream colored fresh bedded chert

Lm- Cream, VFXLN, dense, well cemented dolomitic Ls w/ poor vis. porosity

Sh- Black Gray Green, fissile & carbonaceous, silty & calcareous, sl fsl

● Lm- Cream Off White, FXLN, dense, some loosely cemented & chalky, poorly dev. sctrd XLN porosity, LT SCTRD STN, NSFO, WK-MOD. ODR



Sh- Green, gummy argillaceous clumps

● Lm- Cream Off White, FXLN, sl fsl, poorly dev. w/ sctrd vry fn ppt porosity, 1 pc w/ SCTRD TR STN, NSFO, NO ODR

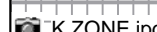


● Lm- Cream Off White, FXLN, oolitic, mod. well dev. w/ consistent ppt inter oolite porosity, DRK STN, SUB-SAT, SOME SL BLEEDING W/ FO, MOD. OILY SHEEN, MOD. ODR



Sh- Black Maroon, soft & carbonaceous, gummy argillaceous clumps

● Lm- White Off White, FXLN, oolitic, chalky & mod. dev. w/ sctrd ppt inter oolite porosity, some soft & crumbly, SCTRD STN, FLAKY STN, NSFO, NO ODR



Sh- Black Maroon Gray, fissile & carbonaceous, gritty & earthy, gummy argillaceous clumps

Lm- Cream Off White, VF-FXLN, dense, well cemented, poorly dev. & mostly tight w/ sctrd micro XLN & XLN porosity, barren

**BKC 3596' (-1379) E-LOG 3601' (-1385)** Sh- Maroon, abundant gummy argillaceous clumps

Sh- A/A

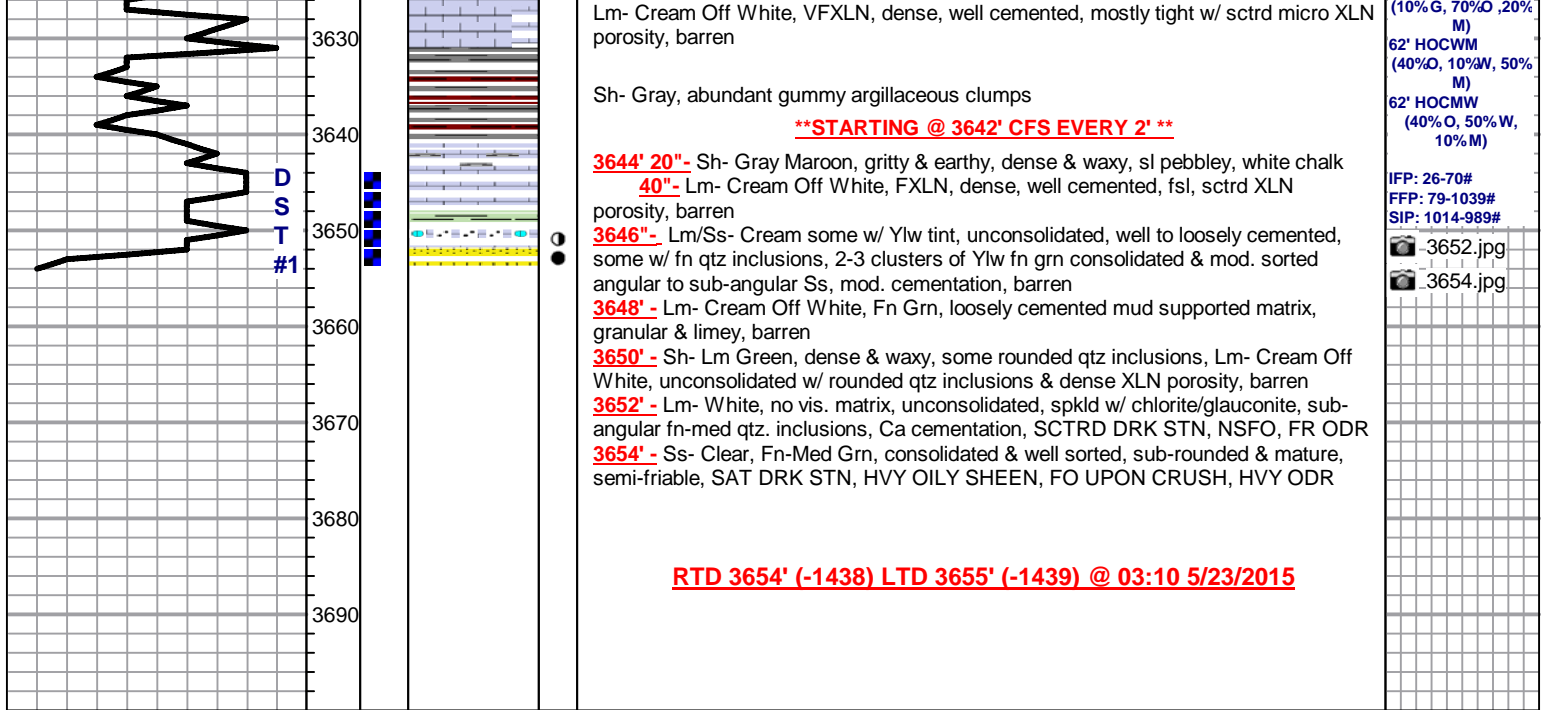
Sh- Maroon Gray, gritty & earthy, semi-waxy slivers, maroon arenaceous Ls/limey Ss, barren

SHORT TRIP  
STRAP -0.89-  
SURVEY 1 dgr.

DST #1  
GORHAM SAND  
3644' - 3654'  
45-60-60-60

279' TOTAL FLUID  
62' GIP  
93' GSY OIL  
(30%G, 70%O)  
62' GMCO

0  
6  
ROP (mho-ft)  
Gamma (API)  
Cal (mm)  
5  
150  
16



OREAD.jpg

A001 1280x1024 2015/05/22 07:23:16 Unit: mm Magnification: 77.5 x 1



0.5 mm

3330' x 20





TORONTO X 25



0.5 mm

C.ZONE X 25





0.5 mm

D ZONE X 25



F\_ZONE X 25





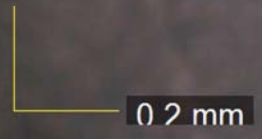
0.5 mm

F\_ZONE X 25



H ZONE X 25





I ZONE X 35



.J ZONE X 20





0.5 mm

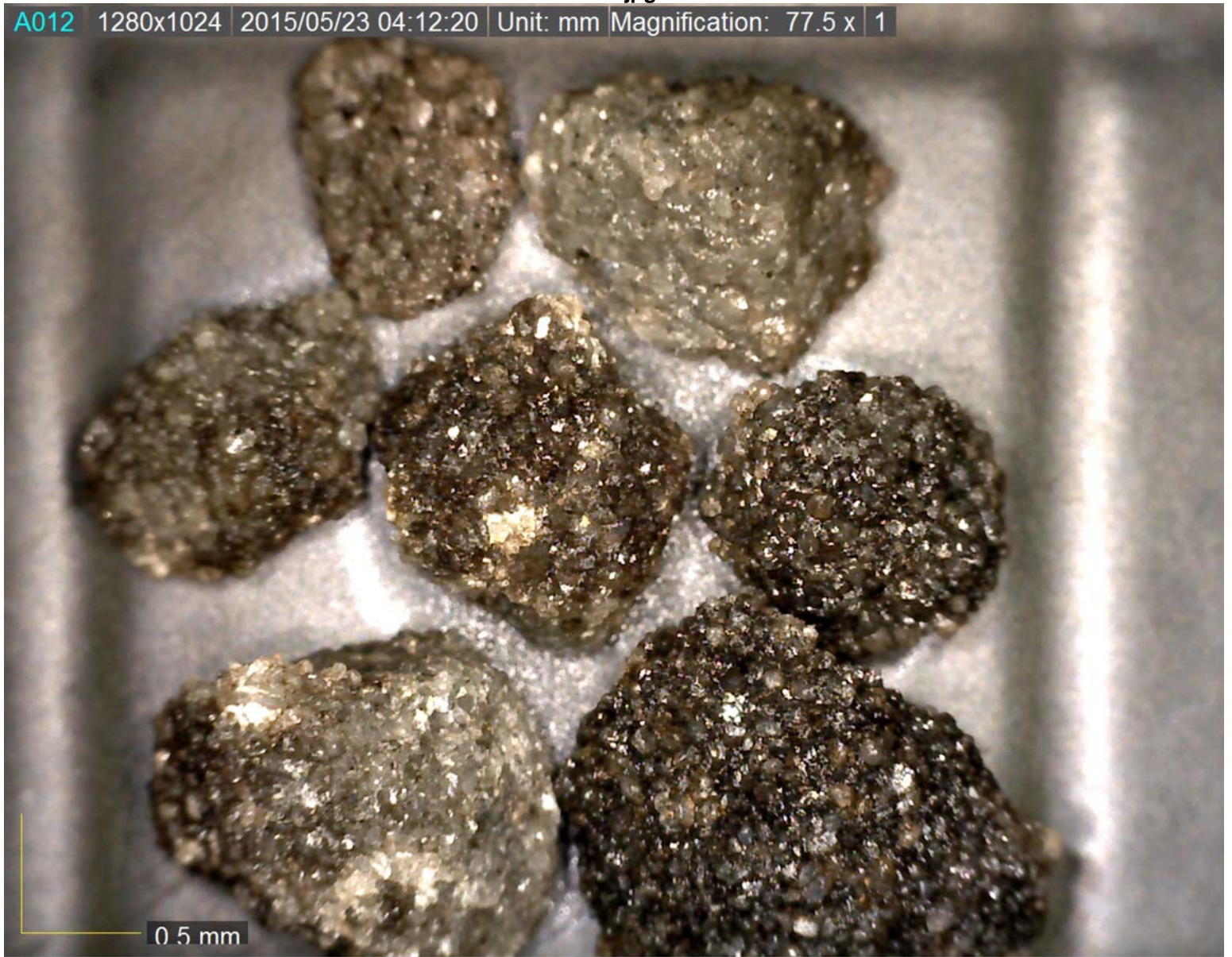
K ZONE X 25



0.5 mm

3652' X 25







**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Black Diamond Oil

21-5s-21w Norton KS

Po Box 641  
Hays KS, 67601

**Glennemeier A #3**

ATTN: Jeff Lawler

Job Ticket: 62711

**DST#: 1**

Test Start: 2015.05.23 @ 11:22:00

## GENERAL INFORMATION:

Formation: **Gorham Sand**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:25:00

Time Test Ended: 19:21:15

Test Type: Conventional Bottom Hole (Initial)

Tester: Cody Bloedorn

Unit No: 73

Interval: **3644.00 ft (KB) To 3654.00 ft (KB) (TVD)**

Reference Elevations: 2216.00 ft (KB)

Total Depth: 3654.00 ft (KB) (TVD)

2211.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8648**

**Inside**

Press @ Run Depth: 109.59 psig @ 3645.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.05.23

End Date: 2015.05.23

Last Calib.: 2015.05.23

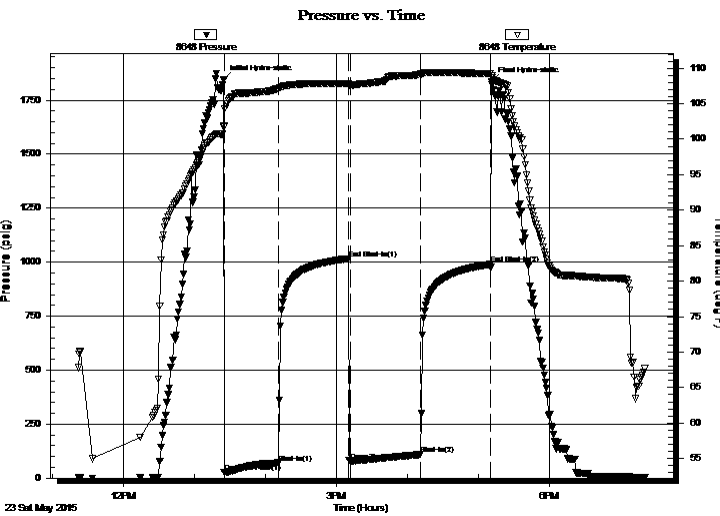
Start Time: 11:22:05

End Time: 19:21:14

Time On Btm: 2015.05.23 @ 13:24:45

Time Off Btm: 2015.05.23 @ 17:11:30

TEST COMMENT: 45 - IF- 6" blow  
60 - IS- No return  
60 - FF- 3.5" blow  
60 - FS- No return



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1844.17	101.76	Initial Hydro-static
1	26.25	101.82	Open To Flow (1)
46	70.58	107.07	Shut-In(1)
106	1014.76	107.81	End Shut-In(1)
107	79.92	107.67	Open To Flow (2)
167	109.59	109.09	Shut-In(2)
226	989.70	109.21	End Shut-In(2)
227	1834.10	108.95	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
62.00	HOCMW, 10%M, 40%O, 50%W	0.30
62.00	HOCWM, 10%W, 40%O, 50%M	0.34
62.00	GMCO, 10%G, 20%M, 70%O	0.87
93.00	GO, 30%G, 70%O	1.30
0.00	62' of G.I.P.	0.00

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Black Diamond Oil

**21-5s-21w Norton KS**

Po Box 641  
Hays KS, 67601

**Glennemeier A #3**

Job Ticket: 62711

**DST#: 1**

ATTN: Jeff Lawler

Test Start: 2015.05.23 @ 11:22:00

## 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: 54.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 750.00 ppm

Filter Cake: 2.50 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
62.00	HOCMW, 10%M, 40%O, 50%W	0.305
62.00	HOCWM, 10%W, 40%O, 50%M	0.341
62.00	GMCO, 10%G, 20%M, 70%O	0.870
93.00	GO, 30%G, 70%O	1.305
0.00	62' of G.I.P.	0.000

Total Length: 279.00 ft

Total Volume: 2.821 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 8648

Inside

Black Diamond Oil

Glennreier A #3

DST Test Number: 1

