



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1092363
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: _____

1092363

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> _____	PRODUCTION INTERVAL: _____ _____
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#1 Voran 16D
615' FSL & 2290' FEL
45' S & 20' E W/2 SW SE Section 16-25S-27W
Gray County, Kansas
API# 15-069-20374-00-00
Elevation: 2706' GL, 2717' KB

Sample Tops			Ref. Well
Anhydrite	1805'	+912	+8
B/Anhydrite	1821'	+896	+7
Stotler	3550'	-833	-1
Heebner	4110'	-1393	+9
Lansing	4183'	-1466	+17
Muncie Shale	4384'	-1667	-6
Stark Shale	4502'	-1785	+11
BKC	4582'	-1865	+18
Altamont	4640'	-1923	+21
Pawnee	4726'	-2009	+17
Myrick	4763'	-2046	+14
Fort Scott	4776'	-2059	+18
Cherokee Shale	4802'	-2085	+16
Atoka Shale	4878'	-2161	+15
Mississippian	4902'	-2185	+16
RTD	5160'	-2443	

ALLIED OIL & GAS SERVICES, LLC 053224

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 31
RUSSELL, KANSAS 67665

SERVICE POINT:
LIBERAL, KS

DATE <u>5/30/12</u>	SEC <u>16</u>	TWP. <u>25s</u>	RANGE <u>27w</u>	CALLED OUT	ON LOCATION <u>2:30am</u>	JOB START <u>7:30</u>	JOB FINISH <u>4:00</u>
LEASE <u>VORAN</u>	WELL # <u>1-16D</u>	LOCATION <u>N. Cimarron 15 to Rd M</u>			COUNTY <u>GRAY</u>	STATE <u>KS</u>	
OLD OR NEW (circle one) <u>NEW</u>		LOCATION <u>2E to Rd 21, 3N to Rd J 1/2 E N into</u>					

CONTRACTOR Murkin Drilling #22 OWNER Richie Exploration

TYPE OF JOB Plug

HOLE SIZE 7 7/8 T.D. _____ CEMENT AMOUNT ORDERED 230 sk 60/40/4

CASING SIZE 8 5/8 DEPTH 353 AMOUNT ORDERED 1/4" Flo-Seal

TUBING SIZE _____ DEPTH _____

DRILL PIPE 4 1/2 DEPTH 1790

TOOL _____ DEPTH _____

PRES. MAX _____ MINIMUM _____

MEAS. LINE _____ SHOE JOINT _____

CEMENT LEFT IN CSG. 200' 240' 190' 60'

PERFS. _____

DISPLACEMENT 2266L 1068L 2486L

EQUIPMENT

PUMP TRUCK # <u>549/530</u>	CEMENTER <u>Virgil N.</u>	HELPER <u>Lenny B.</u>	
BULK TRUCK # <u>470/528</u>	DRIVER <u>Daniel P.</u>		
BULK TRUCK # _____	DRIVER _____		

COMMON <u>Class A 138</u>	@ <u>16.25</u>	<u>2242.50</u>
POZMIX <u>92</u>	@ <u>8.50</u>	<u>782.00</u>
GEL <u>10</u>	@ <u>21.25</u>	<u>212.50</u>
CHLORIDE _____	@ _____	_____
ASC _____	@ _____	_____
<u>Flo-Seal 57.5</u>	@ <u>2.70</u>	<u>155.25</u>
_____	@ _____	_____
_____	@ _____	_____
_____	@ _____	_____
_____	@ _____	_____
_____	@ _____	_____
HANDLING <u>230</u>	@ <u>2.25</u>	<u>517.50</u>
MILEAGE <u>11,500</u>	@ <u>0.11</u>	<u>1265.00</u>
TOTAL		<u>5774.75</u>

REMARKS:

Comp 1000 Water @ 1790' Mix & Pump 50 sk cement, Pump 2 sk water, Rig Pump 20 BBL mud @ 1000' Mix & Pump 60 sk cement, Pump 1000 Water @ 390' Mix & Pump 50 sk cement, Pump 2 sk water @ 60' Mix & Pump 20 sk cement - circulated cement Mix & Pump 30 sk cement - filled Rat Hole. Mix & Pump 20 sk cement - filled Mouse Hole.

SERVICE

DEPTH OF JOB <u>1790</u>		
PUMP TRUCK CHARGE <u>Plug</u>		<u>1250.00</u>
EXTRA FOOTAGE _____	@ _____	_____
MILEAGE (H) <u>8100</u>	@ <u>7.00</u>	<u>700.00</u>
MANIFOLD _____	@ _____	_____
Mileage (L) <u>100</u>	@ <u>4.00</u>	<u>400.00</u>
_____	@ _____	_____

TOTAL 2350.00

CHARGE TO: Richie Exploration
STREET _____
CITY _____ STATE _____ ZIP _____

PLUG & FLOAT EQUIPMENT

Thank You!!!

TOTAL 2350.00

To: Allied Oil & Gas Services, LLC.
You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

SALES TAX (if Any) _____
TOTAL CHARGES \$2524.75
DISCOUNT \$609.80 IF PAID IN 30 DAYS

PRINTED NAME _____

SIGNATURE Tom Zerk

[Handwritten Signature]

GENERAL INFORMATION

Client Information:

Company: RITCHIE EXPLORATION

Contact:

Phone: Fax: e-mail:

Site Information:

Contact: DAVE WILLIAMS

Phone: Fax: e-mail:

Well Information:

Name: VORAN 16 D #1

Operator: RITCHIE EXPLORATION

Location-Downhole:

Location-Surface: S16/25S/27W

Test Information:

Company: DIAMOND TESTING

Representative: JOHN RIEDL

Supervisor: DAVE WILLIAMS

Test Type: CONVENTIONAL Job Number: D1139

Test Unit:

Start Date: 2012/05/27 Start Time: 02:00:00

End Date: 2012/05/27 End Time: 09:10:00

Report Date: 2012/05/27 Prepared By: JOHN RIEDL

Qualified By: DAVE WILLIAMS

Remarks:

RECOVERY:70' OIL SPECKED DRILLING MUD



DIAMOND TESTING

P.O. Box 157

HOISINGTON, KANSAS 67544

(620) 653-7550 • (800) 542-7313

DRILL-STEM TEST TICKET

Company _____ Lease & Well No. _____
 Contractor _____ Charge to _____
 Elevation _____ Formation _____ Effective Pay _____ Ft. Ticket No. _____
 Date _____ Sec. _____ Twp. _____ S Range _____ W County _____ State _____
 Test Approved By _____ Diamond Representative **JOHN C. RIEDL**

Formation Test No. _____ Interval Tested from _____ ft. to _____ ft. Total Depth _____ ft.
 Packer Depth _____ ft. Size _____ in. Packer Depth _____ ft. Size _____ in.
 Packer Depth _____ ft. Size _____ in. Packer Depth _____ ft. Size _____ in.
 Depth of Selective Zone Set _____

Top Recorder Depth (Inside) _____ ft. Recorder Number _____ Cap. _____ P.S.I.
 Bottom Recorder Depth (Outside) _____ ft. Recorder Number _____ Cap. _____ P.S.I.
 Below Straddle Recorder Depth _____ ft. Recorder Number _____ Cap. _____ P.S.I.

Mud Type _____ Viscosity _____ Drill Collar Length _____ ft. I.D. 2 1/4 in.
 Weight _____ Water Loss _____ cc. Weight Pipe Length _____ ft. I.D. 2 7/8 in.
 Chlorides _____ P.P.M. Drill Pipe Length _____ ft. I.D. 3 1/2 in.
 Jars: Make BOWEN Serial Number _____ Test Tool Length _____ ft. Tool Size 3 1/2-IF in.
 Did Well Flow? _____ Reversed Out _____ Anchor Length _____ ft. Size 4 1/2-FH in.
 Main Hole Size 7 7/8 Tool Joint Size 4 1/2 in. Surface Choke Size 1 in. Bottom Choke Size 5/8 in.

Blow: 1st Open: _____
 2nd Open: _____

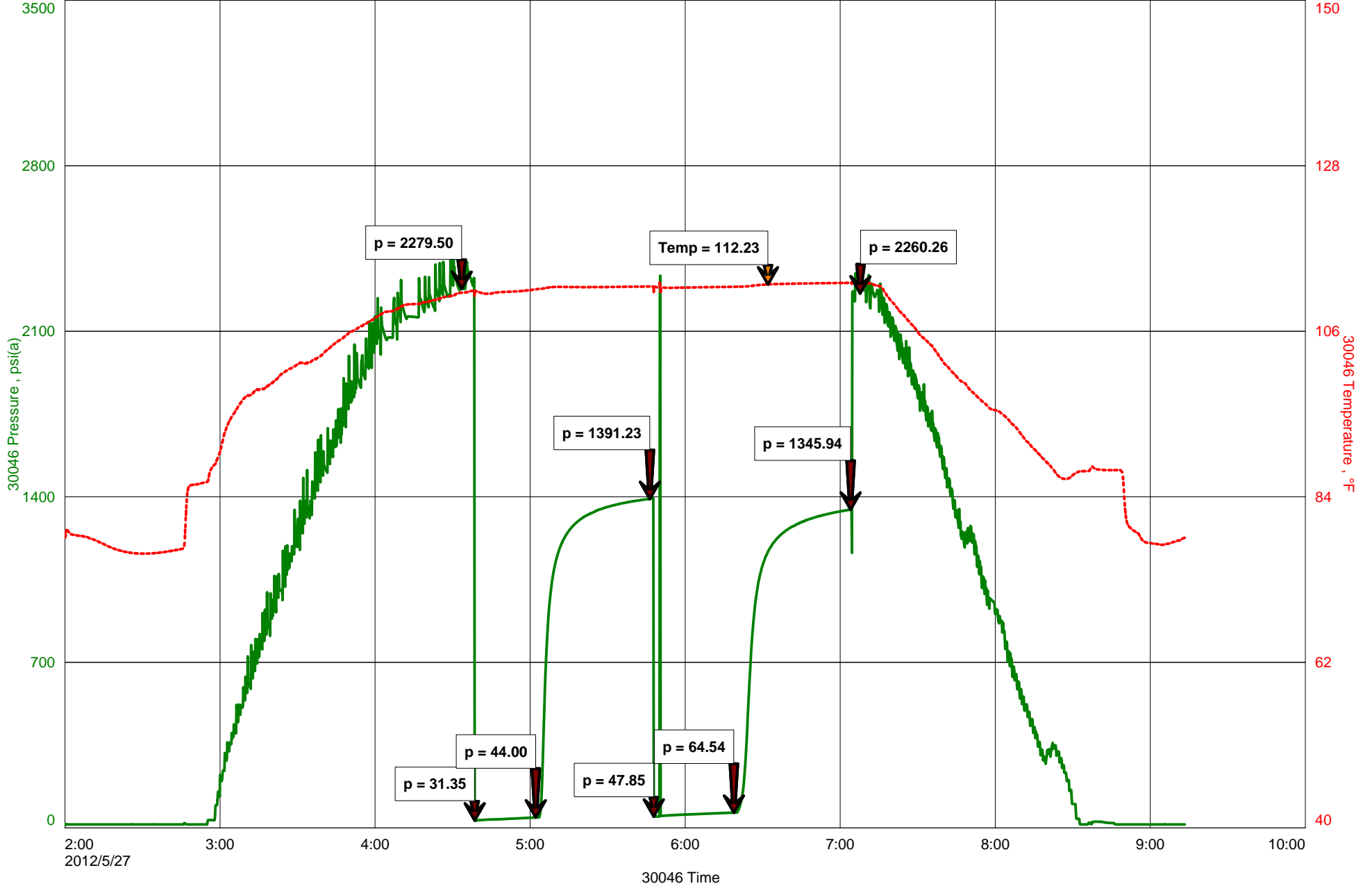
Recovered _____ ft. of _____
 Recovered _____ ft. of _____
 Recovered _____ ft. of _____
 Recovered _____ ft. of _____
 Recovered _____ ft. of _____

Remarks: _____ _____ _____	Price Job
	Other Charges
	Insurance
	Total

Time Set Packer(s) _____	A.M. P.M.	Time Started Off Bottom _____	A.M. P.M.	Maximum Temperature _____
Initial Hydrostatic Pressure _____	(A)	_____	P.S.I.	
Initial Flow Period _____	Minutes	(B)	_____	P.S.I. to (C) _____ P.S.I.
Initial Closed In Period _____	Minutes	(D)	_____	P.S.I.
Final Flow Period _____	Minutes	(E)	_____	P.S.I. to (F) _____ P.S.I.
Final Closed In Period _____	Minutes	(G)	_____	P.S.I.
Final Hydrostatic Pressure _____	(H)	_____	P.S.I.	

Diamond Testing shall not be liable for damages of any kind to 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 statement or opinion concerning the result 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.

VORAN 16 D #1



Conservation Division
Finney State Office Building
130 S. Market, Rm. 2078
Wichita, KS 67202-3802



Phone: 316-337-6200
Fax: 316-337-6211
<http://kcc.ks.gov/>

Mark Sievers, Chairman
Thomas E. Wright, Commissioner

Sam Brownback, Governor

August 30, 2012

John Niernberger
Ritchie Exploration, Inc.
8100 E 22ND ST N # 700
BOX 783188
WICHITA, KS 67278-3188

Re: ACO1
API 15-069-20374-00-00
Vorán 16D 1
SE/4 Sec.16-25S-27W
Gray County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,
John Niernberger



Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name: VORAN 16 D # 1
Location: 45' S. & 20' E. W/2 - SW - SE1/4 OF SEC. 16-T. 25 S. - R. 27 W.
License Number: A.P.I. # 15-069-20,374-00-00 Region: GRAY CO., KANSAS
Spud Date: 5/21/2012 Drilling Completed: 5/29/12
Surface Coordinates: SPOT: 615' FSL & 2290' FEL

Bottom Hole
Coordinates:
Ground Elevation (ft): 2706' K.B. Elevation (ft): 2717'
Logged Interval (ft): Surface CsTo: 5158' Total Depth (ft): 5160'
Formation: Mississippian Salem (Spergen)
Type of Drilling Fluid: CHEMICAL MUD

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: RITCHIE EXPLORATION, INC.
Address: P.O. BOX 783188
WICHITA, KANSAS 67278-3188

GEOLOGIST

Name: David P. Williams
Company: DW Energy, LLC (DWE)
Address: 312 North Broadview Street
Wichita, Kansas 67208

Casings, Formation Tops & Surveys Taken

Ran 8 Jts 8 5/8" (23#) Surface Casing Tallied @ 339' & set at 353'. Cemented w/ 240 sx Common 3% cc 2% Gel By Allied Cementing. Cement Did Circulate to Surface.

Deviation Survey's Taken: @ 355' = 1/4 degree; @ 1074' = 3/4 degree; @ 2230' = 1/2 degree; @ 3600' = 1/4 degree; @ 4746' = 1 degree; @ 4960' = 1/2 degree; @ 5160' = 1 1/2 degrees.

DSTs

DST # 1 4716'-4746'. Times: 30"-45"-30"-45". Blow: IF= Weak Surface Blow; FF= No Blow & Flushed Tool (No Blow).

Recovery: 70' Oil Specked Mud. Pressures: IH= 2279 #; FH = 2260 #; IF= 31-44 #; FF = 48-64#; ISIP = 1391 #; FSIP = 1346#; Temp= 112 Degree"s F.

DST # 2 4831'-4960'. Times: 30"-30"-30"-30". Blow: IF= Weak Surface Blow & Died/1"; FF= Weak Surge & Died (Flushed Tool- Weak Surge & No Blow). Recovery: 40' Drilling Mud.

Pressures: IH= 2309 #; FH = 2303 #; IF= 23-59 #; FF = 62-100#; ISIP = 1185 #; FSIP = 1155#; Temp= 112 Degree"s F.

Comments

ROCK TYPES

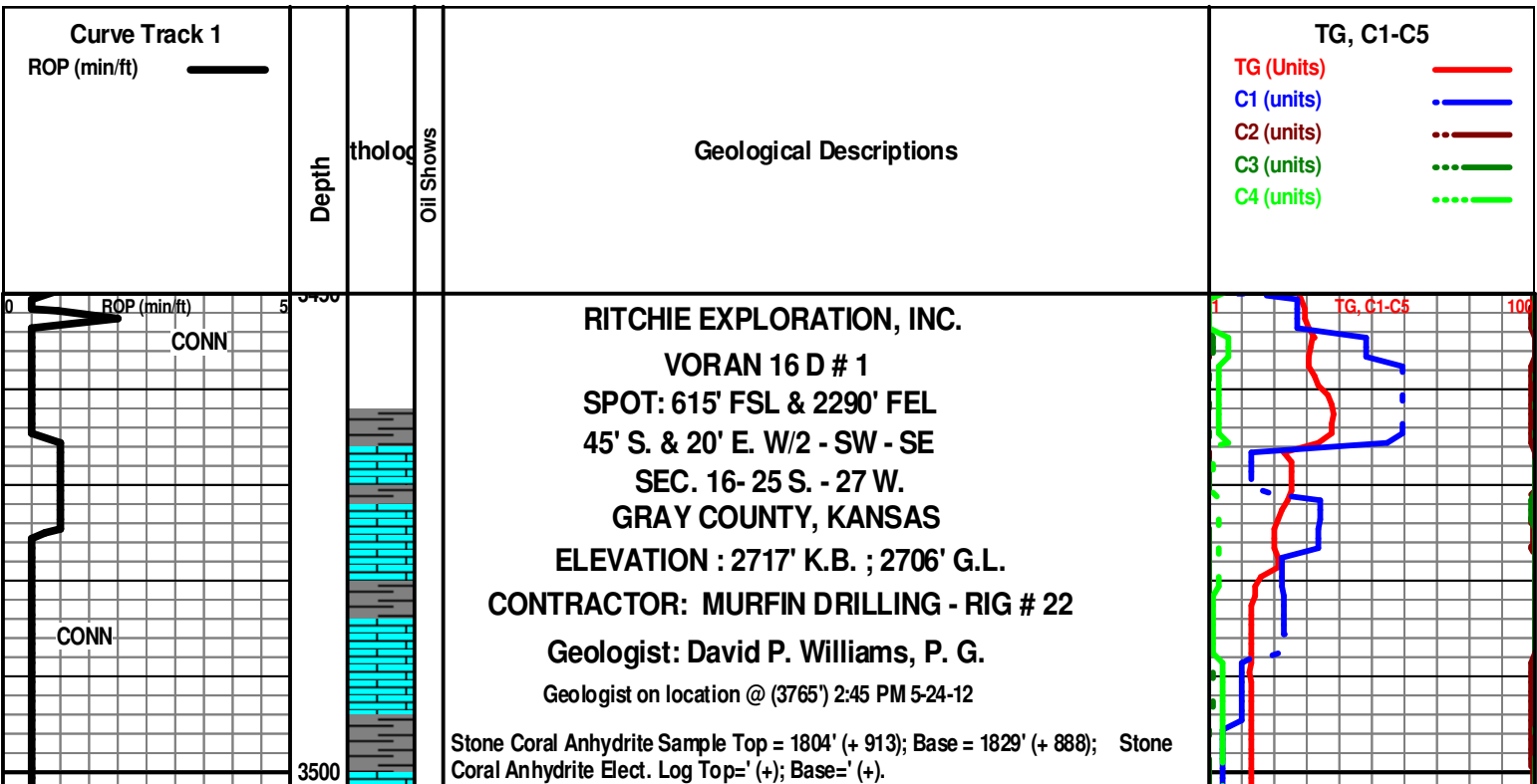
	Anhy		Clyst		Gry shale		Mrlst		Shgy
	Bent		Coal		Gyp		Red shale		Sltst
	Brec		Congl		Igne		Salt		Ss
	Carb sh		Dol		Lmst		Shale		Till
	Cht		Grn sh		Meta		Shcol		

ACCESSORIES

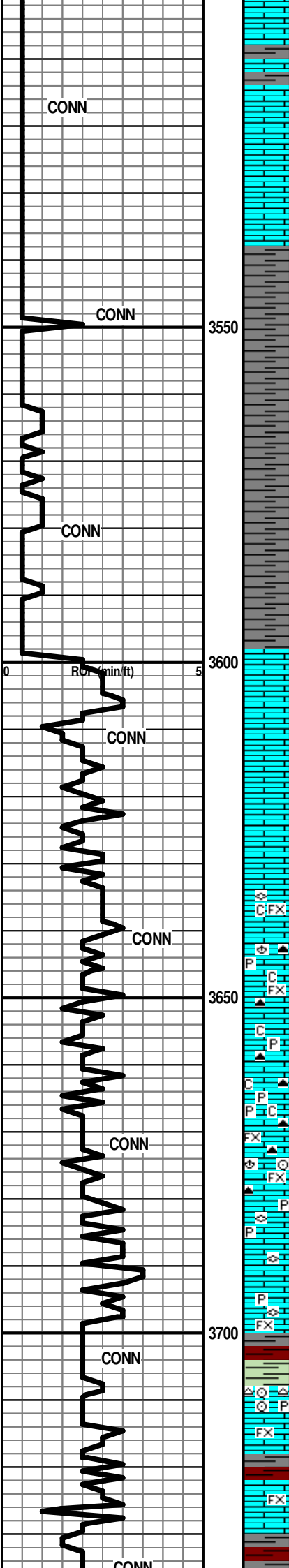
MINERAL		Hvmin		Belm		Pellet	TEXTURE
	Anhy		Kaol		Bioclst		Boundst
	Arggrn		Marl		Brach		Chalky
	Arg		Minxl		Bryozoa		Cryxln
	Bent		Nodule		Cephal		Earthy
	Bit		Phos		Coral	STRINGER	Finexln
	Brecfrag		Pyr		Crin		Grainst
	Calc		Salt		Echin		Lithogr
	Carb		Sandy		Fish		Microxln
	Chtdk		Silt		Foram		Mudst
	Chtlt		Sil		Fossil		Packst
	Dol		Sulphur		Fuss		Wackst
	Feldspar	FOSSIL			Gastro		
	Ferrpel		Algae		Oolite		
	Ferr		Amph		Oomold		
	Glau				Ostra		
	Gyp				Pelec		

OTHER SYMBOLS

POROSITY		Vuggy	ROUNDING		Even		Dst
	Earthy	SORTING		Rounded		Spotted	EVENT
	Fenest			Subrnd		Ques	
	Fracture			Subang		Dead	
	Inter			Angular	INTERVAL		Core
	Moldic					Dst_alt	
	Organic						
	Pinpoint						



Deviation Survey's Taken: @ 355' = 1/4 degree; @ 1074' = 3/4 degree; @ 2230' = 1/2 degree; @ 3600' = 1/4 degree; @ 4746' = 1 degree; @ 4960' = 1/2 degree; @ 5160' = 1 1/2 degrees.



Note: All samples have been lagged to depth by calculated time.

Begin 10' Sample Examination @ 3650'.

Ls Wht-Tan-Lt Grn-Gry Dns FxIn Micrite No Vis Por Barren Fos (Fuss) Chalk Sh
Red-Char-Gry-Grn-Maroon Fissil-Soft No Odor Sli ? Min Flor No Stn NS

Ls Wht-Tan-Lt Grn FxIn Micrite No Vis Por Barren Fos (Brack) Cht Drk Smoky Gry
Transl Vit Shp Abd Chalk Sh Red-Char-Gry-Grn-Maroon Fissil-Soft No Odor Sli ?
Min Flor No Stn NS

Ls Wht-Lt Grn FxIn Micrite No Vis Por Barren Cht Drk Smoky Gry-Lt Gry Transl Vit
Shp Abd Chalk Pyr Mass Sh Red-Char-Gry-Grn-Maroon Fissil-Soft No Odor Sli ?
Min Flor No Stn NS

Ls Wht-Lt Grn FxIn Micrite No Vis Por Barren Cht Drk Smoky Gry-Lt Gry Transl Vit
Shp Abd Chalk Pyr Mass Sh Red-Char-Gry-Grn-Maroon Fissil-Soft No Odor Sli ?
Min Flor No Stn NS

Ls Crm-Tan-Lt Grn FxIn Micrite No Vis Por Barren Fos (Brack, Crin) Sh
Red-Char-Gry-Grn-Maroon Fissil-Soft No Odor Sli ? Min Flor No Stn NS

Ls Wht-Lt Gry Dns FxIn Micrite No Vis Por Barren Fos (Fuss) Pyr Mass Sh
Red-Char-Gry-Grn Fissil-Soft No Odor No Flor No Stn NS

Sh Red Abd-Char-Gry-Grn Fissil-Soft Ls Wht-Lt Gry Dns FxIn Micrite Fos (Fuss)
Pyr Mass No Vis Por Barren No Odor No Flor No Stn NS

Ls Wht-Lt Gry Dns FxIn Micrite No Vis Por Barren Fos (Crin) Cht Wht-Gry Banded
Transl-Op Vit Shp Pyr Mass Sh Red-Char-Gry-Grn Fissil-Soft No Odor No Flor No
Stn NS

Ls Wht-Lt Gry Dns FxIn Micrite No Vis Por Barren Fos (Crin) Sh
Red-Maroon-Char-Gry-Grn Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Lt Gry-Tan Dns FxIn Micrite No Vis Por Barren Sh
Red-Maroon-Char-Gry-Grn Fissil-Soft No Odor No Flor No Stn NS

Ls Gry-Crm Dns FxIn Micrite No Vis Por Barren Sh Red-Char-Gry-Grn Fissil-Soft
No Odor No Flor No Stn NS

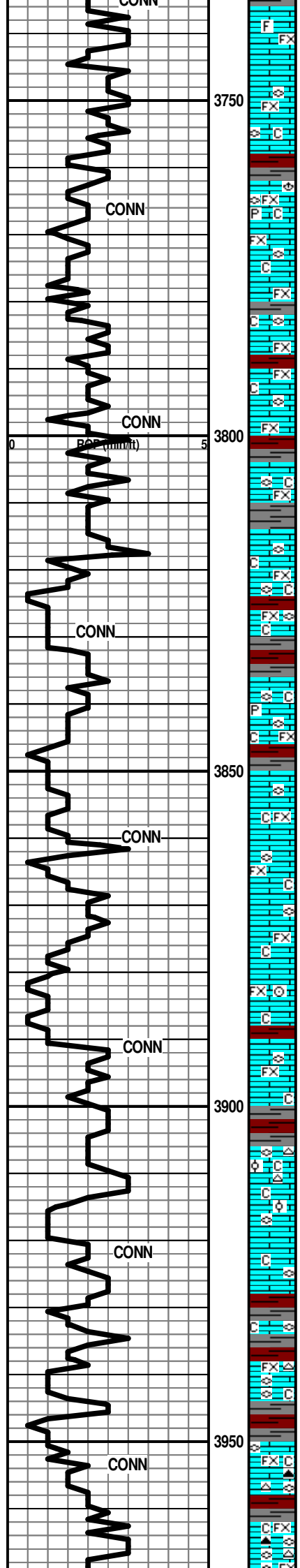
@ 3517' Displace
Mud System.

TOH PDC BIT @
REPLACE WITH
BUTTON BIT.

TG, C1-C5 100

Mudco Ck @
3600' @ 5:50
AM 5/24/12
Vis 52; WT=
8.6#; PV= 16;
YP= 17; WL
8.8; Cake= 1;
Cht= 2700; Cal
= 20; Sol=
2.0%. LCM= 2#;
DMC=\$
4357.25
CMC=\$
9179.65

TOPEKA 373' (- 1020)



Ls Gry-Crm-Brn Dns FxIn Micrite No Vis Por Barren Fos (?) Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Gry-Crm Dns FxIn Micrite No Vis Por Barren Fos (Fuss) Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Crm-Gry Dns FxIn Micrite No Vis Por Barren Fos (Fuss, Brach) Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Crm-Gry Dns FxIn Micrite (w/ Pyr Includ) No Vis Por Barren Fos (Fuss, Brach) Chalk Wht Soft Pyr Mass Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm Dns FxIn Micrite No Vis Por Barren Fos (Fuss) Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm Dns FxIn Micrite No Vis Por Barren Fos (Fuss) Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm Dns FxIn Micrite No Vis Por Barren Fos (Fuss) Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm Dns FxIn Micrite No Vis Por Barren Fos (Fuss) Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm Dns FxIn Micrite No Vis Por Barren Fos (Fuss) Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm Dns FxIn Micrite No Vis Por Barren Fos (Fuss) Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm Dns FxIn Micrite (w/ Pyr Includ) Poor IxIn Por Barren Fos (Fuss) Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm Dns FxIn Micrite Grad Pin-Pt IxIn Por Fos (Fuss) Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm Dns FxIn Micrite Grad Pin-Pt IxIn Por Fos (Fuss) Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm-Yell Dns FxIn Micrite Fos Abd (Fuss) Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm-Tan Dns FxIn Micrite Fos (Crin, Fuss) Pyr Mass Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm-Gry Dns FxIn Micrite Grad Poor Pin-Pt IxIn Por Fos (Fuss) Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm-Gry Dns FxIn Micrite Grad Poor OOL Por (w/OOL in pl) Poor Leaching Poor Dissolu Cht Wht Op Shp Vit Fos (Fuss) Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm-Gry Dns FxIn Micrite Grad Poor-Fair OOL Por (w/OOL in pl) Poor-Fair Leaching Poor-Fair Dissolu Cht Wht Op Shp Vit Fos (Fuss) Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor Sli ? Min Flor No Stn NS

Ls Wht-Crm-Tan Dns FxIn Micrite Fos (Fuss) Chalk Wht Soft Sh Red -Char -Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm-Tan Dns FxIn Micrite Fos (Fuss) Cht Wht- Clear-Tan Translu - Op Shp Vit Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm-Tan Dns FxIn Micrite Fos (Fuss) Cht Wht- Clear-Tan Translu - Op Shp Vit Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

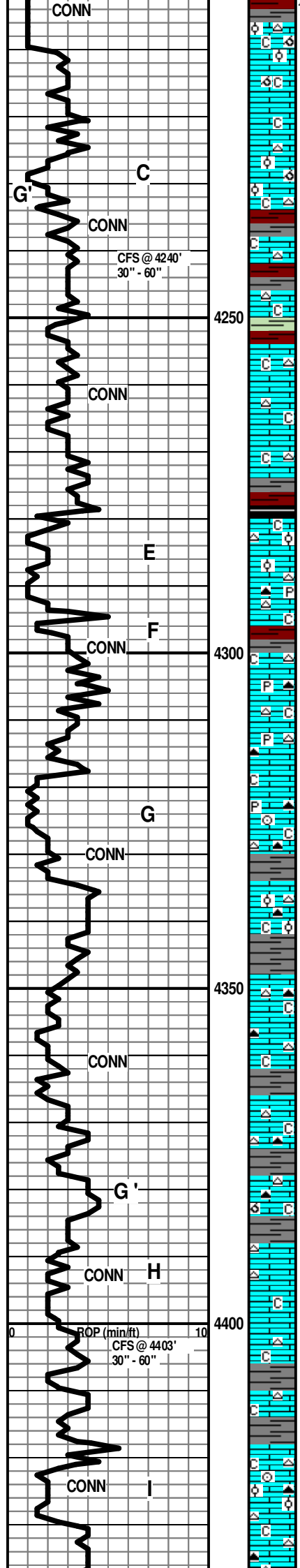
Ls Wht-Crm-Tan Dns FxIn Micrite Fos (Fuss) Cht Wht-Drk Gry Translu - Op Shp Vit Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm-Tan Dns FxIn Micrite Fos (Fuss) Cht Wht Op Shp Vit Chalk Wht Soft Sh Red-Char-Gry-Grn Abd Fissil-Soft No Odor No Flor No Stn NS

TG, C1-C5 100

RE-ZERO TOOKE
DAQ @ 3863' LAG
DEPTH. BLDG
GAS = 12 UNITS.

GAS TEST TOOKE
DAQ IN
GEOTRAILER @
3865' LAG DEPTH=
266 UNITS SEEN.



Wht-Gry Translu-Op Shp Vit Pyr Mass Chalk No Odor Sli ? Min Flor No Stn NS

Ls Wht-Crm Micritic Grad Fair-Med OOL Por (w/Tr OOM/OOL lxn Por) Small OOids Fair Leaching Fair-Poor Dissolu Cht Wht-Gry Translu-Op Shp Vit Pyr Mass Chalk No Odor Sli ? Min Flor No Stn NS

30" CFS @ 4240' Ls Wht-Crm Micritic Grad Med-Good OOL Por (w/OOL in pl) Small-Med OOids w/Tr OOM Por Med InterOOL/OOM Por Med-Good Leaching Med-Good Dissolu Cht Wht-Gry Translu-Op Shp Vit Pyr Mass Chalk No Odor Sli ? Min Flor No Stn NS

60" CFS @ 4240' Ls Wht-Crm Micritic Grad Med-Good OOL Por (w/OOL in pl) Small-Med OOids w/Tr OOM Por Med InterOOL/OOM Por Med-Good Leaching Med-Good Dissolu Cht Wht-Gry Translu-Op Shp Vit Pyr Mass Chalk No Odor Sli ? Min Flor No Stn NS

Ls Wht-Lt Gry Fxln Dns Micrite No Vis Por Barren Cht Tan-Gry Op Shp Vit Sh Char-Gry-Grn-Red-Tr Blk Carb Fissil Mass Chalk No Odor Sli ? Min Flor No Stn NS

Ls Wht-Crm-Lt Gry Fxln Dns Micrite No Vis Por Barren Cht Wht-Tan Op Shp Vit Sh Char-Gry-Grn-Red-Tr Blk Carb Fissil Mass Chalk No Odor Sli ? Min Flor No Stn NS

Ls Wht-Crm-Lt Gry Fxln Dns Micrite No Vis Por Barren Cht Wht-Tan Op Shp Vit Sh Char-Gry-Grn-Red-Tr Blk Carb Fissil Mass Chalk No Odor No Flor No Stn NS

Ls Wht-Crm-Lt Gry Fxln Dns Micrite No Vis Por Barren Cht Wht-Tan Op Shp Vit Sh Char-Gry-Grn-Red-Tr Blk Carb Fissil Mass Chalk No Odor No Flor No Stn NS

Ls Wht-Crm-Lt Gry Fxln Dns Micrite No Vis Por Barren Grad Poor-Fair OOL Por (w/OOL in pl) Poor Dissolu Poor Develop Poor Leaching Cht Wht-Clear Translu-Op Shp Vit Sh Char-Gry-Grn-Red-Aqua-Tr Blk Carb Fissil Mass Chalk No Odor No Flor No Stn NS

Ls Wht-Crm-Gry Dns Fxln Micrite Cht Wht-Drk-Smoky-Gry Translu - Op Shp Vit Pyr Mass Chalk Wht Soft Sh Char-Gry (w/Pyr Inclus)-Grn-Tr Red- Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm-Gry Dns Fxln Micrite Cht Wht-Drk-Smoky-Gry Translu - Op Shp Vit Pyr Mass Chalk Wht Soft Sh Char-Gry (w/Pyr Inclus)-Grn-Tr Red- Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm-Gry Micritic Grad Fair-Med OOL Por (w/OOL in pl) Small-Med OOids Fair-Med InterOOLPor Fair-Med Leaching Fair-Med Dissolu Cht Wht-Drk-Gry/Blk Translu-Op Shp Vit Pyr Mass Chalk No Odor Sli ? Min Flor No Stn NS

Ls Wht-Crm-Gry Dns Fxln Micrite Cht Wht-Drk-Smoky-Gry Translu - Op Shp Vit Pyr Mass Fos (Crin) Chalk Wht Soft Sh Char-Gry (w/Pyr Inclus)-Grn-Tr Red- Fissil-Soft No Odor No Flor No Stn NS

Ls Wht-Crm-Gry Micritic Grad Fair-Med OOL Por (w/OOL in pl) Small-Med OOids Fair-Med InterOOLPor Fair-Med Leaching Fair-Med Dissolu Cht Wht-Tan-Drk Blk Translu-Op Shp Vit Chalk Sh Char-Gry (w/Pyr Inclus)-Aqua-Red- Fissil-Soft No Odor Sli ? Min Flor No Stn NS

Ls Wht-Crm-Gry Micritic Cht Wht-Tan-Drk Blk Translu-Op Shp Vit Chalk Sh Char-Gry (w/Pyr Inclus)-Aqua-Red- Fissil-Soft No Odor Sli ? Min Flor No Stn NS

Ls Wht-Crm-Gry Micritic Cht Wht-Tan-Drk Blk Translu-Op Shp Vit Chalk Sh Char-Gry (w/Pyr Inclus)-Aqua-Red- Fissil-Soft No Odor Sli ? Min Flor No Stn NS

Ls Wht-Crm-Gry Micritic Cht Wht-Tan-Drk Blk Translu-Op Shp Vit Chalk Sh Char-Gry (w/Pyr Inclus)-Aqua-Red- Fissil-Soft No Odor Sli ? Min Flor No Stn NS

Ls Wht-Crm-Gry Micritic Cht Wht-Tan-Drk Blk Translu-Op Shp Vit Chalk Sh Char-Gry-Grn-Aqua-Red Fissil-Soft No Odor Sli ? Min Flor No Stn NS

MUNCIE CREEK 4374' (- 1657)

30" CFS @ 4403' Sh Char-Drk Gry-Lt Gry-(w/Pyr Inclus)-Aqua-Red- Fissil-Soft Ls Wht-Crm-Gry Micritic Tr/ Poor OOM Por Poor InterOOM Por Cht Wht-Tan-Drk Blk-Org Translu-Op Shp Vit Chalk No Odor Sli ? Min Flor No Stn NS

KANSAS CITY "H" (DRUM) 4388' (- 1671)

60" CFS @ 4403' Ls Wht-Crm-Gry Micritic Grad Fair-Med OOL Por (w/OOL in pl) Small-Med OOids Fair-Med InterOOLPor Fair-Med Leaching Fair-Med Dissolu Cht Wht (w/Fos Inclus)-Tan-Drk Blk Translu-Op Shp Vit Chalk Sh Char-Gry (w/Pyr Inclus)-Aqua-Red- Fissil-Soft No Odor Sli ? Min Flor No Stn NS

Ls Wht-Gry Micritic Cht Wht-Amber Translu-Op Shp Vit Chalk Sh Char- Gry/Grn - Red Fissil-Soft No Odor Sli ? Min Flor (Lt Wht) No Stn NS

KANSAS CITY "I" (BLOCK) 4418' (- 1701)

Ls Wht-Crm-Gry Micritic Grad Fxln Pin-Pt Vug Por Grad Fair OOL Por (w/OOL in pl) ? Uncleite?) Small-Med-V Lg OOids Fair Inter OOL Por Fair Leaching Fair Dissolu Cht Wht-Amber Translu-Op Shp Vit Chalk Fos (Crin) Sh Char-Gry/Grn-Red- Fissil-Soft No Odor Sli ? Min Flor AA No Stn NS

Ls Wht-Gry Micritic Cht Wht-Amber Translu-Op Shp Vit Chalk Sh Char- Gry/Grn - Red Fissil-Soft No Odor Sli ? Min Flor (Lt Wht) No Stn NS

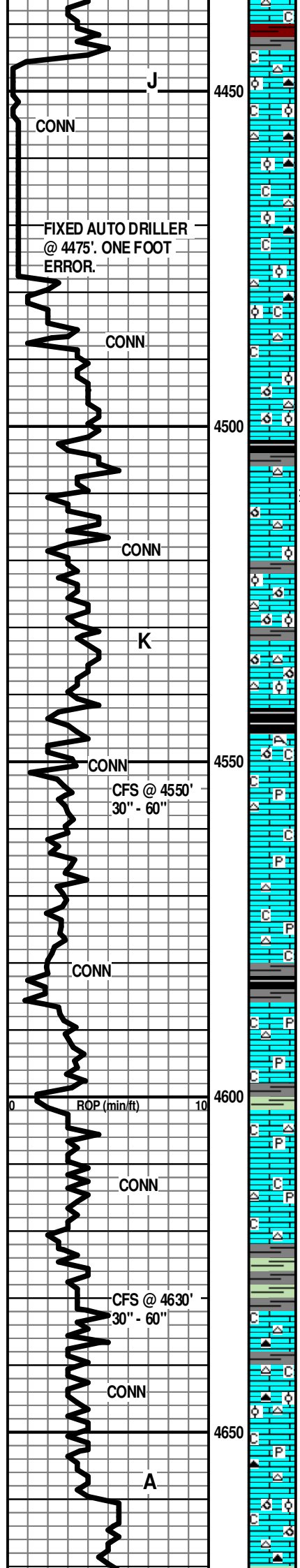
GAS KICK = 27 UNITS

BKGD GAS = 18 UNITS

RE-ZERO TOOKE DAQ @ 4319' LAG DEPTH. BKGD GAS = 12 UNITS.

BKGD GAS = 18 UNITS

TG, C1-C5 100



KANSAS CITY "J" (DENNIS) 4444' (- 1727)

Ls Wht-Gry Micritic Grad Fair OOL Por (w/OOL in pl) Small OOids Fair InterOOLPor Fair Leaching Fair Dissolu Cht Wht-Amber Translu-Op Shp Vit Fos (Crin) Chalk Sh Char- Gry/Grn - Aqua-Red Fissil-Soft No Odor Sli ? Min Flor (Lt Wht) No Stn NS

Ls Wht-Gry Micritic Grad FxIn Pin-Pt Por Barren Grad Fair OOL Por (w/OOL in pl) Small OOids Fair InterOOLPor Fair Leaching Fair Dissolu Cht Wht-Amber Translu-Op Shp Vit Chalk Sh Char- Gry/Grn-Red Fissil-Soft No Odor Sli ? Min Flor (Lt Wht) No Stn NS

Ls Wht-Gry Micritic Grad FxIn Pin-Pt Por Barren Grad Fair OOL Por (w/OOL in pl) Small OOids Fair InterOOLPor Fair Leaching Fair Dissolu Cht Wht-Amber Translu-Op Shp Vit Chalk Sh Char- Gry/Grn-Red Fissil-Soft No Odor Sli ? Min Flor (Lt Wht) No Stn NS

Ls Wht-Gry Micritic Grad FxIn Pin-Pt Por Barren Grad Fair OOL Por (w/OOL in pl) Small OOids Fair InterOOLPor Fair Leaching Fair Dissolu Cht Wht-Amber Translu-Op Shp Vit Chalk Sh Char- Gry/Grn-Red Fissil-Soft No Odor Sli ? Min Flor (Lt Wht) No Stn NS

Ls Wht-Gry Micritic Grad Fair OOL Por (w/OOL in pl) Small OOids Fair InterOOLPor Fair Leaching Fair Dissolu Cht Wht Translu-Op Shp Vit Chalk Sh Char- Gry/Grn - Aqua-Red Fissil-Soft No Odor Sli ? Min Flor (Lt Wht) No Stn NS

STARK 4502' (- 1785)

KANSAS CITY "K" (SWOPE) 4506' (- 1789)

Ls Wht-Gry Micritic Grad Fair OOL Por (w/OOL in pl) Small OOids Fair InterOOLPor Fair Leaching Fair Dissolu Cht Wht Translu-Op Shp Vit Fos (Crin) Chalk Sh Char- Gry/Grn - Aqua-Red Fissil-Soft No Odor Sli ? Min Flor (Lt Wht) No Stn NS

Ls Wht-Gry Micritic Grad Fair OOL Por (w/OOL in pl) Small OOids Fair InterOOLPor Fair Leaching Fair Dissolu Cht Wht Translu-Op Shp Vit Chalk Sh Char- Gry/Grn - Aqua-Red Fissil-Soft No Odor Sli ? Min Flor (Lt Wht) No Stn NS

30" CFS @ 4550' Ls Crm-Brn-Wht FxIn Good OOM Por (5 Pcs w/OOL in pl) Good Leaching Good Dissolu Barren Fos (? Coral) Grad Micrite Chalky Sh Char-Grn Soft No Odor No Stn Sli ? Min Flor NS

HUSHPUCKNEY 4542' (- 1825)

KANSAS CITY "L" (HERTHA) 4546' (- 1829)

60" CFS @ 4550' Ls Wht-Crm FxIn Good OOM Por (4 Pcs w/OOL in pl) Good Leaching Good Dissolu Barren Fos (? Coral) Grad Micrite Chalky Sh Char-Grn Soft No Odor No Stn Sli ? Min Flor NS

Ls Wht-Crm-Gry Micritic Cht Wht Op Shp Vit Pyr Mass Chalk Sh Blk Carb-Char-Gry Fissil-Soft No Odor Sli ? Min Flor No Stn NS

Ls Wht-Crm-Gry Micritic Cht Wht Op Shp Vit Pyr Mass Chalk Sh Blk Carb-Char-Gry Fissil-Soft No Odor Sli ? Min Flor No Stn NS

Ls Wht-Crm-Gry Micritic Cht Wht Op Shp Vit Pyr Mass Chalk Sh Blk Carb-Char-Gry Fissil-Soft No Odor Sli ? Min Flor No Stn NS

BASE KANSAS CITY 4582' (- 1865)

MARMATON 4586' (- 1869)

Ls Wht-Crm-Gry Micritic Cht Wht Op Shp Vit Pyr Mass Chalk Sh Blk Carb-Char-Gry Fissil-Soft No Odor Sli ? Min Flor No Stn NS

Ls Wht-Crm-Gry Micritic Cht Wht Op Shp Vit Pyr Mass Chalk Sh Blk Carb-Char-Gry Fissil-Soft No Odor Sli ? Min Flor No Stn NS

Ls Wht-Crm-Gry Micritic Cht Wht Op Shp Vit Pyr Mass Chalk Sh Blk Carb-Char-Gry Fissil-Soft No Odor Sli ? Min Flor No Stn NS

30" CFS @ 4630' Ls Wht-Crm-Gry Micritic Cht Wht-Tan-Drk Blk Translu-Op Shp Vit Chalk Sh Char-Gry (w/Pyr Inclus)-Aqua-Red- Fissil-Soft No Odor Sli ? Min Flor No Stn NS

60" CFS @ 4630' Ls Gry FxIn Cht Wht-Amber Translu-Op Shp Vit Chalk Sh Char-Grn Soft No Odor No Stn Sli ? Min Flor NS

Ls Wht-Crm-Tan FxIn Micritic Cht Wht-Gry-Drk Amber Translu-Op Shp Vit Chalky Sh Char-Gry/Grn-Red Soft- Fissil No Odor No Stn Sli ? Min Flor NS

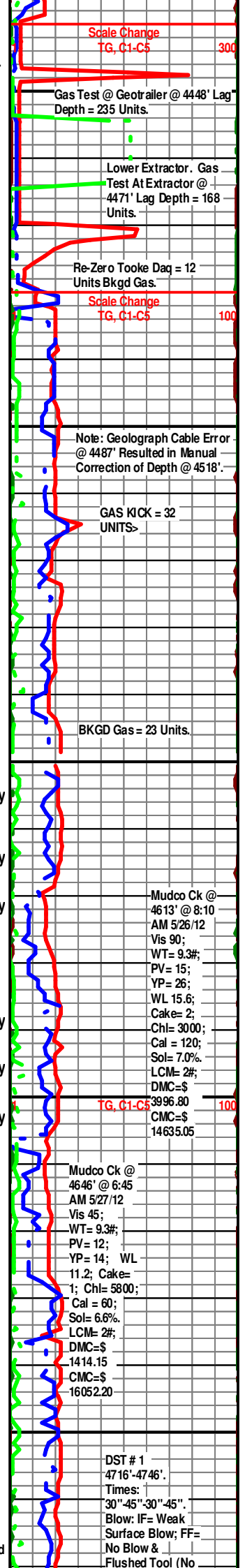
ALTAMONT "A" 4640' (- 1923)

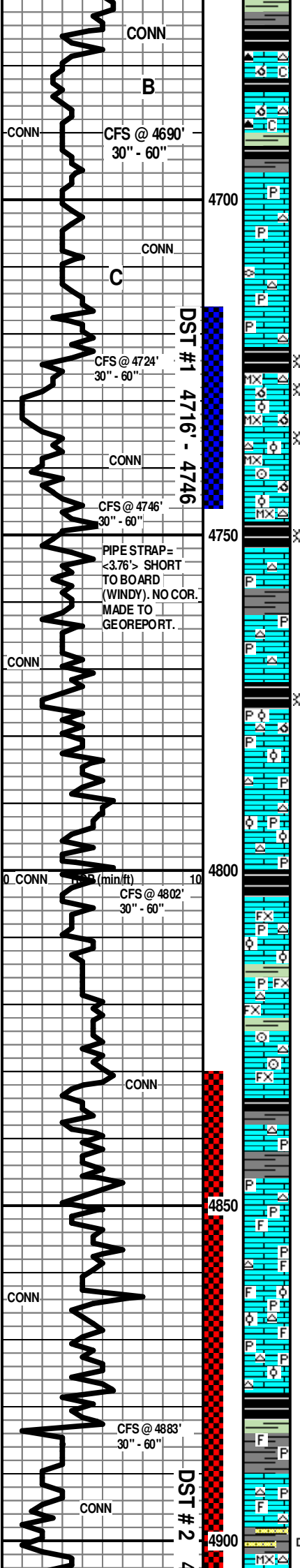
Ls Wht-Gry FxIn Micritic Grad Tr V Poor OOL Por (w/OOL in pl) Poor Vis Por Barren Cht Wht-Drk Amber Translu-Op Shp Vit Chalky Sh Char-Gry/Grn-Tr Aqua-Tr Red Soft- Fissil No Odor No Stn Sli ? Min Flor NS

Ls Wht-Gry FxIn Micritic Cht Wht-Drk Amber Translu-Op Shp Vit Pyr Mass Chalky Sh Char-Gry/Grn-Red Soft- Fissil No Odor No Stn Sli ? Min Flor NS

Ls Wht-Gry-Crm FxIn Micritic Grad Tr Poor OOL Por (w/OOL in pl) Poor Dissolu Poor InterOOL Por Poor Leaching Tr Poor Vug Por Cht Wht-Drk Amber Translu-Op Shp Vit Pyr Mass Chalky Sh Char-Gry/Grn-Red Soft- Fissil No Odor No Stn Sli ? Min Flor NS

30" CFS @ 4690' Sh Char-Gry/Grn-Aqua Red-Tr Blk Carb Soft- Fissil Ls Wht-Crm FxIn Micritic AA Grad Tr Poor OOM Por (w/OOL in pl) Poor Dissolu Poor InterOOL Por Poor Leaching Cht Wht-Drk Amber





Translu-Op Shp Vit Pyr Mass Chalky No Odor No Stn Sli ? Min Flor NS

ALTAMONT "B" 4678' (- 1961)

60" CFS @ 4690' Sh Char-Gry/Grn-Aqua Red-Tr Blk Carb Soft- Fissil Ls Wht-Crm Fxln Micritic AA Grad Tr Poor OOM Por (w/OOL in pl) Poor Dissolu Poor InterOOM Por Poor Leaching Cht Wht-Drk Amber Translu-Op Shp Vit Pyr Mass Chalky No Odor No Stn Sli ? Min Flor NS

ALTAMONT "C" 4693' (- 1976)

Sh Char Gry-Grn-Blk Carb Abd Ls Wht-Crm Fxln Micrite Cht Wht Op Shp Vit Pyr Mass No Odor No Stn Sli ? Min Flor NS

30" CFS @ 4724' Sh Char Gry-Grn-Blk Carb Abd Ls Wht-Crm Fxln Micrite Grad Poor - Fair OOL Por (w/OOL in pl) Poor-Tr Leaching Poor-Fair InterOOL Vug Por Barren Cht Wht Op Shp Vit Fos (Fuss) Pyr Mass No Odor No Stn Sli ? Min Flor NS

60" CFS @ 4724' Sh Char Gry-Grn-Blk Carb Abd Ls Wht-Crm Fxln Micrite Cht Wht-Clear Translu-Op Shp Vit Pyr Mass No Odor No Stn Sli ? Min Flor NS

PAWNEE 4726' (- 2009')

30" CFS @ 4746' Ls Wht Microxln Poor-Fair-OOL/OOM Por (w OOL in pl Poor-Fair Leaching Poor-Fair InterOOL/OOM Por Chalky Abd Cht Wht Op Shp Vit Faint Odor Sli ? Min ? Flor No Stn SG

60" CFS @ 4746' Ls Wht Microxln Poor-Fair-OOL/OOM Por (w OOL in pl Poor-Fair Leaching Poor-Fair InterOOL/OOM Por Chalky Abd Cht Wht Op Shp Vit Fos (Crin) Faint Odor Sli ? Min? Flor No Stn SSG

Sh Blk Carb (w/SG)-Char-Gry-Lt Grn Carb-Red Ls Wht-Crm Fxln Micrite Barren Cht Clear Op Shp Vit Pyr Mass No Odor No Stn No Flor NS

MYRIC 4763' (- 2046)

Sh Char Carb-Gry-Grn-Red Fissil Ls Wht-Crm Fxln Micrite Barren Cht Wht Op Shp Vit Pyr Mass Fos (Crin) No Odor No Stn No Flor NS

CHEROKEE SHALE 4773' (- 2056)

FORT SCOTT 4776' (- 2059)

30" CFS @ 4802' Ls Wht-Crm-Gry Fxln Micrite w/ Pyr Inclus Barren Grad Tr OOL Por (w/OOL in pl) Poor Develop Poor-No Vis Por Cht Wht Op Shp Vit Pyr Mass Sh Blk Carb-Char-Aqua-Grn-Red Fissil No Odor No Stn No Flor NS

60" CFS @ 4802' Ls Wht-Crm-Gry Fxln Micrite w/ Pyr Inclus Barren Grad Tr OOL Por (w/OOL in pl) Poor Develop Poor-No Vis Por Cht Wht Op Shp Vit Pyr Mass Abd Sh Blk Carb-Char-Aqua-Grn-Red Fissil No Odor No Stn No Flor NS

CHEROKEE SHALE (LOWER) 4801' (- 2084)

Ls Wht-Crm Fxln Micrite Barren Grad Fair Pin-Pt Ixln Por w/ Tr Fair Vug Leaching Por Cht Wht Op Shp Vit Pyr Mass Sh Char Carb - Gry - Grn-Maroon - Red Fissil No Odor No Stn No Flor NS

Ls Wht-Crm Fxln Micrite Barren (w/ Pyr Inclu) Cht Wht-Tan Translu-Op Shp Vit(w/OOL Inclus) No Vis Por Fresh Pyr Mass Sh Char Carb - Gry-Grn - Aqua - Maroon - Red Fissil No Odor No Stn No Flor NS

Ls Wht-Crm Fxln Micrite Barren Cht Wht (? Frac Por) Op Shp Vit Pyr Mass Fos Crin) Sh Char Carb-Gry-Grn-Maroon-Red Fissil No Odor No Stn No Flor NS

Ls Wht-Crm Fxln Micrite Barren Cht Wht (? Frac Por) Op Shp Vit Pyr Mass Fos Crin) Sh Blk Carb Char-Gry-Grn-Maroon-Red Fissil No Odor No Stn No Flor NS

HUCK 4846' (- 2129)

Ls Wht-Crm Fxln Micrite Barren Cht Wht (w/ Fos Inclus) Pyr Mass Abd Sh Grn/Gry Siltstone w/Varicoloeed Sh Blk Carb Char -Aqua - Red Fissil AA No Odor No Stn Scat Sli ? Min Flor NS

30" CFS @ 4883' Sh Grn/Gry Siltstone w/Varicoloeed Sh Blk Carb Char -Aqua - Red Fissil AA Ls Wht-Crm Fxln Micrite Barren Grad Fxln Pin-Pt Por Grad Tr OOL Por Poor InterOOL Por Cht Wht (w/ Fos Inclus) Pyr Mass Abd No Odor No Stn Scat Sli ? Min Flor NS

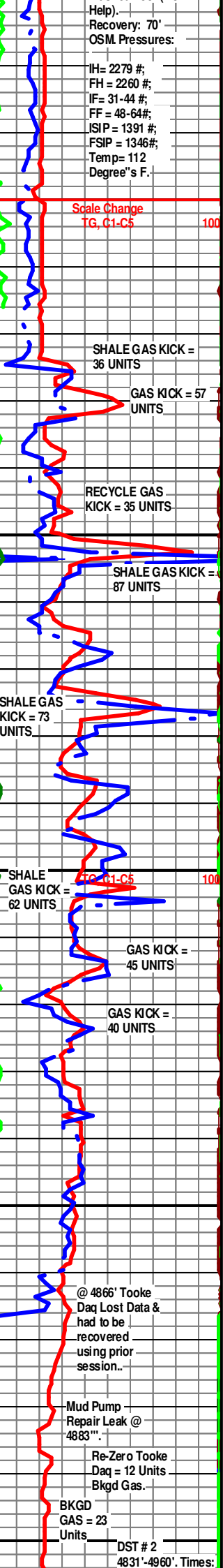
ATOKA 4878' (- 2161)

60" CFS @ 4883' Sh Grn/Gry Siltstone (w/Carb Banded) w/Varicoloeed Sh Blk Carb -Aqua - Char - Red Fissil AA Ls Wht-Crm Fxln Micrite Barren Cht Wht (w/ Fos Inclus) Pyr Mass Abd No Odor No Stn Scat Sli ? Min Flor NS

Sh Char-Gry-Grn-Aqua Ls Wht-Tan-Crm Fxln Dns Micrite Cht Tan-Wht (w/Fos (Spic)) Transl-Op Shp Vit Pyr Mass Abd Chalky Qtz Ss FGM Poor Soet In Aqua Clay Matrix No Vis Por Friable No Odor Sli Scatt ? Min Flor (Lt Wht) NS

MISSISSIPPIAN 4902' (- 2185)

Ls Wht-Tan-Crm Microxln Dns Micrite Cht Tan-Wht (w/Fos (Spic)) Transl-Op Shp



Help):
 Recovery: 70'
 OSM Pressures:

IH= 2279 #;
 FH = 2260 #;
 IF= 31-44 #;
 FF = 48-64#;
 ISIP = 1391 #;
 FSIP = 1346#;
 Temp= 112 Degree's F.

Scale Change
 TG, C1-C5 100

SHALE GAS KICK = 36 UNITS

GAS KICK = 57 UNITS

RECYCLE GAS KICK = 35 UNITS

SHALE GAS KICK = 87 UNITS

SHALE GAS KICK = 73 UNITS

SHALE GAS KICK = 62 UNITS

GAS KICK = 45 UNITS

GAS KICK = 40 UNITS

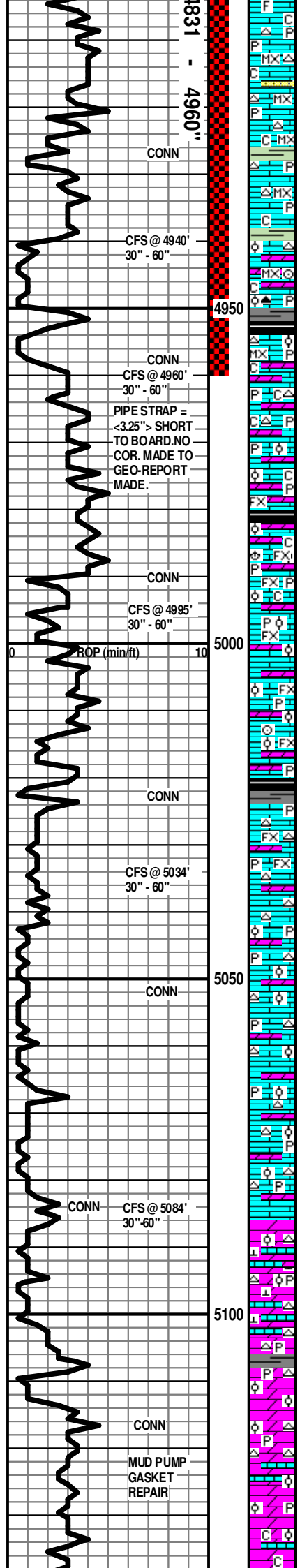
@ 4866' Tooke Daq Lost Data & had to be recovered using prior session..

Mud Pump Repair Leak @ 4883'.

Re-Zero Tooke Daq = 12 Units Bkgd Gas.

BKGD GAS = 23 Units

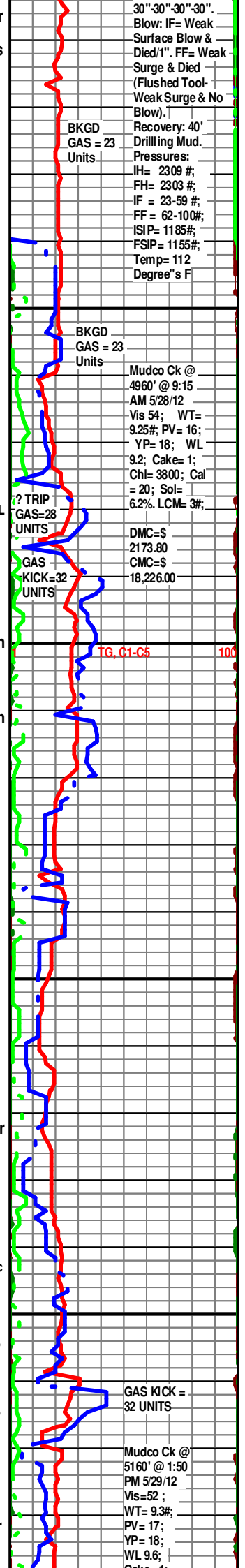
DST # 2 4831'-4960'. Times:



Vit Pyr Mass Abd Chalky Sh Char-Gry-Grn-Aqua-Olive No Odor Sli Scatt ? Min Flor (Lt Wht) No Stn NS
 Ls Wht-Tan MicroIn Dns Micrite Cht Wht-Lt Tan-Clear Transl-Op Shp Vit Pyr Mass Chalky Qtz Ss FGrn Well Sort Sub Ang Friable (w/Gills "Dead" Stn ? Sluff AA) Sh Char-Gry/Grn-Aqua (w Qtz Ss Fgrn Includ) Tr Blk Carb Fissil No Odor Fair Inc Scatt ? Min Flor (Lt Wht) No Stn NS
 30" CFS @ 4940' Ls Wht-Tan MicroIn Dns Micrite Cht Wht-Lt Tan-Clear Transl-Op Shp Vit Pyr Mass Chalky Sh Char-Gry/Grn-Aqua Fissill No Odor Fair Inc Scatt ? Min Flor (Lt Wht) No Stn NS
 60" CFS @ 4940' Ls Wht-Tan MicroIn Dns Micrite Cht Wht-Lt Tan-Clear Transl-Op Shp Vit Pyr Mass Chalky Sh Char-Gry/Grn-Aqua Fissill No Odor Fair Inc Scatt ? Min Flor (Lt Wht) No Stn NS
 30" CFS @ 4960' Ls Wht MicroIn/FxIn Micrite Grad Dolo Wht "Sandy" OOL Por (w/OOL in pl) V Small OOids Poor Inter OOL Friable Por Barren Cht Wht-Tan Transl-Op Shp Vit Pyr Mass Chalky Fos (Crin) Sh Char-Gry/Grn-Aqua Fissill No Odor Fair Inc Scatt Dec ? Min Flor (Lt Wht) No Stn NS
 60" CFS @ 4960' Ls Wht MicroIn/FxIn Micrite Grad Dolo Wht "Sandy" OOL Por (w/OOL in pl) V Small OOids Poor Inter OOL Friable Por Barren Cht Wht-Tan Transl-Op Shp Vit Pyr Mass Chalky Fos (Crin) Sh Char-Gry/Grn-Aqua Fissill No Odor Fair Inc Scatt Dec ? Min Flor (Lt Wht) No Stn NS
 Ls Wht-Gry FxIn Micrite Grad Poor-Fair Pin-Pt IxIn Por Grad Dolo Gry "Sandy" OOL Por (w/OOL in pl) V Small OOids Poor Inter OOL Friable Por Barren Cht Wht-Tan-Gry Transl-Op Shp Vit Pyr Mass Chalk Inc Abd Sh Char-Gry/Grn-Aqua-Blk Carb Fissil No Odor Scatt Inc ? Min Flor (Lt Wht) No Stn NS
 Ls Wht-Gry FxIn Micrite Grad Poor-Fair Pin-Pt IxIn Por Grad Dolo Gry "Sandy" OOL Por (w/OOL in pl) V Small OOids Poor Inter OOL Friable Por Barren Cht Wht-Tan-Gry Transl-Op Shp Vit Pyr Mass Chalk Inc Abd Sh Aqua-Char-Gry/Grn-Blk Carb Fissil No Odor Scatt Inc ? Min Flor (Lt Wht) No Stn NS
 30" CFS @ 4995' Ls Wht-Gry FxIn Micrite w/ Poor-Fair Pin-Pt IxIn Por Grad Dolo Gry-Grn "Sandy" OOL Por (w/OOL in pl) V Small OOids Poor Inter OOL Friable Por Barren Cht Wht-Peach/Org-Clear Transl-Op Shp Vit Pyr Mass Chalk Abd Fos (Brach) Sh Char-Gry/Grn-Aqua-Blk Carb Fissil No Odor Scatt Inc ? Min Flor (Lt Wht) No Stn NS
 60" CFS @ 4995' Ls Wht FxIn w/Pin-Pt Por Barren Grad Micrite AA Tr Dolo AA Cht Wht-Clear-Gry Op Shp Vit Pyr Mass Abd Fos (Brach) Sh AA No Odor Scatt ? Min Flor No Stn NS
 Ls Wht FxIn w/Pin-Pt Por Barren Grad Micrite Tr Dolo Gry-Grn (w/V Small OOids in pl) Fair Inter OOL Por Cht Wht-Clear-Gry Op Shp Vit Pyr Mass Abd Sh Aqua-Char-Gry Blk Carb AA Fissil No Odor Scatt ? Min Flor No Stn NS
 Ls Wht FxIn w/Pin-Pt Por Barren Grad Micrite Tr Dolo Gry-Grn (w/V Small OOids in pl) Fair Inter OOL Por Cht Wht-Clear-Gry Op Shp Vit Pyr Mass Abd Fos (Crin) Sh Aqua - Char - Gry AA Fissil No Odor Scatt ? Min Flor No Stn NS
 30" CFS @ 5034' Ls Wht FxIn w/Pin-Pt Por Barren Grad Micrite Cht Wht-Clear Op Shp Vit Pyr Mass Abd Sh Aqua-Char-Gry AA Fissil No Odor Scatt ? Min Flor No Stn NS
 60" CFS @ 5034' Ls Wht FxIn w/Pin-Pt Por Barren Grad Micrite Cht Wht-Clear Op Shp Vit Pyr Mass Abd Sh Aqua-Char-Gry AA Fissil No Odor Scatt ? Min Flor No Stn NS
 Ls Wht FxIn w/Pin-Pt Por Barren Grad Micrite Cht Wht-Clear Op Shp Vit Pyr Mass Abd Sh Aqua-Char-Gry AA Fissil No Odor Scatt ? Min Flor No Stn NS
 30" CFS @ 5084' Ls Wht-Crm FxIn Med Pin-Pt IxIn Por Grad "Sandy" OOL Por (w/OOL in pl) V Small-Med OOids Med-Good Inter OOL Friable Por Barren Cht Wht-Clear Transl-Op Shp Vit Pyr Mass Abd Chalk Tr Sh Char-Gry/Grn-Aqua-Blk Carb Fissil No Odor Scatt Inc ? Min Flor (Lt Wht) No Stn NS
 60" CFS @ 5084' Ls Wht-Crm FxIn Good Pin-Pt IxIn Por Grad "Sandy" OOL Por (w/OOL in pl) V Small-Med OOids Good Inter OOL Friable Por Barren Cht Wht-Clear Transl-Op Shp Vit Pyr Mass Abd Chalk Tr Sh Char-Gry/Grn-Aqua-Blk Carb Fissil No Odor Scatt Inc ? Min Flor (Lt Wht) No Stn NS

SALEM (SPERGEN) 5087' (- 2370)

Dolo/Ls Wht FxIn Good Vug Pin-Pt IxIn Por Grad Dolo Wht-Gry "Sandy" OOL Por (w/OOL in pl) Tr Calcite OverGroth Xls In Vug Por Med-Lg OOids Good Inter OOL Vug Leaching Por Friable Barren Cht Wht-Clear Transl-Op Shp Vit Pyr Mass Sh Char-Gry/Grn-Aqua-Blk Carb Fissil Tr Only No Odor Sli Dec Tr Scatt ? Min Flor (Lt Wht) No Stn NS
 Dolo Wht-Gry FxIn Good Vug Pin-Pt IxIn Por Grad Good OOL Por (w/OOL in pl) Tr Calcite OverGroth Xls In Vug Por Med-Lg OOids Good Inter OOL Vug Leaching Por Friable Barren Cht Wht-Clear Transl-Op Shp Vit Pyr Mass Sh Char-Gry/Grn-Aqua-Blk Carb Fissil Tr Only No Odor Sli Dec Tr Scatt ? Min Flor (Lt Wht) No Stn NS
 Dolo Wht-Gry FxIn Good Vug Pin-Pt IxIn Por Grad Good OOL Por (w/OOL in pl) Tr Calcite OverGroth Xls In Vug Por Med-Lg OOids Good Inter OOL Vug Leaching Por Friable Barren Cht Wht-Clear Transl-Op Shp Vit Pyr Mass Sh Char-Gry/Grn-Aqua-Blk Carb Fissil Tr Only No Odor Sli Dec Tr Scatt ? Min Flor (Lt Wht) No Stn NS
 Dolo Wht-Gry FxIn Good Vug Pin-Pt IxIn Por Grad Good OOL Por (w/OOL in pl) Med-Lg OOids Good Inter OOL Vug Leaching Por Friable Barren Ls Wht-Crm FxIn Micrite Barren Cht Wht-Clear Transl-Op Shp Vit Pyr Mass Sh Char-Gry/Grn-Aqua-Blk Carb Fissil Tr Only No Odor Sli Dec Tr Scatt ? Min Flor (Lt Wht) No Stn NS
 30" CFS @ 5130' Dolo Wht-Gry FxIn Good Vug Pin-Pt IxIn Por Grad Good OOL Por (w/OOL in pl) Small-Med OOids Good Inter OOL Vug Leaching Por Friable Barren Ls Wht-Crm FxIn Micrite (w/Pvr Includ) Barren Cht Wht-Clear Transl-Op Shp Vit



30"30"30"30"
 Blow: IF= Weak Surface Blow & Died/1". FF= Weak Surge & Died (Flushed Tool-Weak Surge & No Blow).
 Recovery: 40'
 Drilling Mud.
 Pressures:
 IH= 2309 #;
 FH= 2303 #;
 IF = 23-59 #;
 FF = 62-100#;
 ISIP= 1185#;
 FSIIP= 1155#;
 Temp= 112 Degree's F

BKGD GAS = 23 Units
 Recovery: 40'
 Drilling Mud.
 Pressures:
 IH= 2309 #;
 FH= 2303 #;
 IF = 23-59 #;
 FF = 62-100#;
 ISIP= 1185#;
 FSIIP= 1155#;
 Temp= 112 Degree's F

BKGD GAS = 23 Units
 Recovery: 40'
 Drilling Mud.
 Pressures:
 IH= 2309 #;
 FH= 2303 #;
 IF = 23-59 #;
 FF = 62-100#;
 ISIP= 1185#;
 FSIIP= 1155#;
 Temp= 112 Degree's F

Mudco Ck @ 4960' @ 9:15 AM 5/28/12
 Vis 54; WT= 9.25#; PV= 16; YP= 18; WL 9.2; Cake= 1; Chl= 3800; Cal = 20; Sol= 6.2%. LCM= 3#;
 DMC=\$ 2173.80
 CMC=\$ 18,226.00

GAS KICK = 32 UNITS
 Recovery: 40'
 Drilling Mud.
 Pressures:
 IH= 2309 #;
 FH= 2303 #;
 IF = 23-59 #;
 FF = 62-100#;
 ISIP= 1185#;
 FSIIP= 1155#;
 Temp= 112 Degree's F

Mudco Ck @ 5160' @ 1:50 PM 5/29/12
 Vis=52;
 WT= 9.3#;
 PV= 17;
 YP= 18;
 WL 9.6;

CONN

5150



Chalk Pyr Mass Sh Char-Gry/Grn-Aqua-Blk Carb Fissil Tr Only No Odor Sli Dec Tr
 Scatt ? Min Flor (Lt Wht) No Stn NS

60" CFS @ 5130' Dolo Wht-Gry Fxln Good Vug Pin-Pt lxn Por Grad Good OOL Por
 (w/OOL in pl) Small-Med OOids Good InterOOL Vug Leaching Por Friable Barren
 Ls Wht-Crm Fxln Micrite (w/Pyr Inclus) Barren Cht Wht-Clear Transl-Op Shp Vit
 Chalk Pyr Mass Sh Char-Gry/Grn-Aqua-Blk Carb Fissil Tr Only No Odor Sli Dec Tr
 Scatt ? Min Flor (Lt Wht) No Stn NS

Case= 1;
 Chl= 3300;
 Cal = 20;
 Sol= 7.0%
 LCM= 2#;
 DMC=\$
 1175.20
 CMC=\$
 19,401.20



R.T.D. = 5160' (- 2443)
 L.T.D. = 5158' (- 2441)

Electric Logs Run: By Superior Logging:

Dual Induction and Compensated Density-Neutron Logs.

Geologist Left Location at: P.M. 5/29/2012

5200

ROP (min/ft)

5250

5300

TG, C1-C5

100