



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1234770
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: _____



1234770

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> <i>(Submit ACO-4)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	PRODUCTION INTERVAL: _____ _____
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Form	ACO1 - Well Completion
Operator	Empire Energy E&P, LLC
Well Name	Drake 4-9
Doc ID	1234770

All Electric Logs Run

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



COPY FOR FILE
BASIC ENERGY SERVICES
Drilling

PAGE 1 of 1	CUST NO 1007035	YARD # 1718	INVOICE DATE 10/07/2014
INVOICE NUMBER 91615282			

Pratt (620) 672-1201
 B EMPIRE ENERGY E&P LLC
 I PO BOX 548
 L GREAT BEND
 L KS US 67530
 T
 O **ATTN:** KIM HOFFMAN

J LEASE NAME Drake 4-9
O LOCATION
B COUNTY Barton
S STATE KS
I JOB DESCRIPTION Cement-New Well Casing/Pi
T JOB CONTACT

JOB #	EQUIPMENT #	PURCHASE ORDER NO.	TERMS	DUE DATE
40773500	19905		Net - 30 days	11/06/2014

	QTY	U of M	UNIT PRICE	INVOICE AMOUNT
<i>For Service Dates: 10/06/2014 to 10/06/2014</i>				
0040773500				
171811207A Cement-New Well Casing/Pi 10/06/2014 Cement 5 1/2" Longstring				
AA2 Cement	300.00	EA		
Celloflake	75.00	EA		
C-41P	57.00	EA		
Salt	1,381.00	EA		
Cement Friction Reducer	85.00	EA		
FLA-322	141.00	EA		
Gilsonite	1,500.00	EA		
Mud Flush	500.00	EA		
"Latch Down Plug & Baffle, 5 1/2" (Blu	1.00	EA		
"Auto Fill Float Shoe 5 1/2" (Blue)"	1.00	EA		
"Turbolizer, 5 1/2" (Blue)"	10.00	EA		
"5 1/2" Basket (Blue)"	1.00	EA		
"Unit Mileage Chg (PU, cars one way)"	85.00	MI		
Heavy Equipment Mileage	170.00	MI		
"Proppant & Bulk Del. Chgs., per ton mil	1,199.00	EA		
Depth Charge; 3001-4000'	1.00	EA		
Blending & Mixing Service Charge	300.00	BAG		
Plug Container Util. Chg.	1.00	EA		
"Service Supervisor, first 8 hrs on loc.	1.00	EA		

*AFE # 01L34
 9208
 10/09/14
 Richard W. Lucey*

*QA Factoring
 10/15/14*

PLEASE REMIT TO:	SEND OTHER CORRESPONDENCE TO:	SUB TOTAL	
BASIC ENERGY SERVICES, LP PO BOX 841903 DALLAS, TX 75284-1903	BASIC ENERGY SERVICES, LP 801 CHERRY ST, STE 2100 FORT WORTH, TX 76102	TAX	
		INVOICE TOTAL	



BASICSM
ENERGY SERVICES
PRESSURE PUMPING & WIRELINE

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

FIELD SERVICE TICKET

1718 12238 A

DATE _____ TICKET NO. _____

DATE OF JOB: <u>10/6/14</u> DISTRICT: <u>Pratt</u>		NEW WELL <input type="checkbox"/> OLD WELL <input type="checkbox"/> PROD <input type="checkbox"/> INJ <input type="checkbox"/> WDW <input type="checkbox"/> CUSTOMER ORDER NO.:							
CUSTOMER: <u>Lowell Energy Corp</u>		LEASE: <u>1700</u>		WELL NO.:					
ADDRESS:		COUNTY: <u>Pratt</u>		STATE: <u>KS</u>					
CITY: STATE:		SERVICE CREW: <u>Murphy, Mendenhall, ...</u>							
AUTHORIZED BY:		JOB TYPE: <u>Pressure Pumping</u>							
EQUIPMENT#	HRS	EQUIPMENT#	HRS	EQUIPMENT#	HRS	TRUCK CALLED	DATE	AM	TIME
						ARRIVED AT JOB		AM	PM
						START OPERATION		AM	PM
						FINISH OPERATION		AM	PM
						RELEASED		AM	PM
						MILES FROM STATION TO WELL			

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

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

SIGNED: _____
(WELL OWNER, OPERATOR, CONTRACTOR OR AGENT)

ITEM/PRICE REF. NO.	MATERIAL, EQUIPMENT AND SERVICES USED	UNIT	QUANTITY	UNIT PRICE	\$ AMOUNT
100	Pressure Pumping	hr	5		300
101	Water	gal	100		1,000
102	Pressure Pumping	hr	11		660
103	Pressure Pumping	hr	1		60
104	Water	gal	5		50
105	Pressure Pumping	hr	1		60
106	Water	gal	1		10

SUB TOTAL 1360

CHEMICAL / ACID DATA:			

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

SERVICE REPRESENTATIVE: <u>[Signature]</u>	THE ABOVE MATERIAL AND SERVICE ORDERED BY CUSTOMER AND RECEIVED BY: <u>[Signature]</u>
--	--

FIELD SERVICE ORDER NO. _____ (WELL OWNER OPERATOR CONTRACTOR OR AGENT)

Customer EPM Energy E:P HC	Lease No.	Date 10-6-14
Lease Drove	Well # 4-9	
Field Order # 11207	Station Pratt	Casing 5 1/2
		Depth
Type Job COW Logging	Formation	County Bartles
		State KS
		Legal Description 4-17-15

PIPE DATA		PERFORATING DATA		FLUID USED		TREATMENT RESUME		
Casing Size 5 1/2	Tubing Size	Shots/Ft		Acid 250 gal	RATE 11.1	PRESS 200	ISIP	
Depth 3531.78	Depth	From	To	Pre Pad	Max 11.1		5 Min.	
Volume 86.2	Volume	From	To	Pad	Min		10 Min.	
Max Press 1500	Max Press	From	To	Frac	Avg		15 Min.	
Well Connection	Annulus Vol.	From	To		HHP Used		Annulus Pressure	
Plug Depth 347.77	Packer Depth	From	To	Flush 35.1	Gas Volume		Total Load	

Customer Representative Rick	Station Manager Kevin Country	Treater Mike Martin
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Service Units 37556	77696	19905	19959	73708
Driver Names MANN	RIE	PO	COBB	

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
2:00					On location / Safety checks
3:15					Run 5 1/2 casing, down to 11
4:55					run 2 1/2 casing, down to 10, 11, 12, 13, 14
5:15					Casing on bottom
5:45					Have 1 casing, down to 10, 11, 12, 13, 14
6:34	200		1	5	Pump 1 shot 11
6:37	200		12	6	Pump 1 shot 11
6:38	200		3	5	Pump 1 shot 11
6:39	300		61	6	Run 250 gal Acid
6:49			4	3	With pump 1 shot 11, 12, 13, 14
6:57	200		-	6.0	stop 2.0 pressure
7:01	200		45	6	11.0 pressure
7:06	200		75	3	slow rate
7:10	600/1500		56.1	-	plug pump, pressure 6.0
7:20			7.0	-	plug 250 gal acid 11
					11.0 pressure
					2.0 pressure
					Thank You!
					Mike Martin
					10/6/14

AFE OIL 34

KSBADDD304



BASIC
ENERGY SERVICES

COPY FOR FILE
Drilling

PAGE	*ST NO	YARD #	INVOICE DATE
107	1007035	1718	10/02/2014
INVOICE NUMBER			91612402

Pratt (620) 672-1201
 B EMPIRE ENERGY E&P LLC
 I PO BOX 548
 L GREAT BEND
 L KS US 67530
 T
 O ATTN: KIM HOFFMAN

J LEASE NAME Drake 4-9
 O LOCATION
 B COUNTY Russell Barton
 S STATE KS
 I JOB DESCRIPTION Cement-New Well Casing/Pi
 T
 E JOB CONTACT

JOB #	EQUIPMENT #	PURCHASE ORDER NO.	TERMS	DUE DATE
40771795	20920		Net - 30 days	11/01/2014

	QTY	U of M	UNIT PRICE	INVOICE AMOUNT
For Service Dates: 10/01/2014 to 10/01/2014				
0040771795				
171811481A Cement-New Well Casing/Pi 10/01/2014				
Cement 8 5/8 Surface				
A-Cn Blend Common	175.00	EA		
Common Cement	175.00	EA		
Celloflake	88.00	EA		
Calcium Chloride	825.00	EA		
"Top Rubber Cmt Plug, 8 5/8""	1.00	EA		
"Baffle Plate Alum., 8 5/8" (Blue)"	1.00	EA		
"Unit Mileage Chg (PU, cars one way)"	85.00	MI		
Heavy Equipment Mileage	170.00	MI		
"Proppant & Bulk Del. Chgs., per ton mil	1,403.00	EA		
Depth Charge; 501'-1000'	1.00	EA		
Blending & Mixing Service Charge	350.00	BAG		
Plug Container Util. Chg.	1.00	EA		
Service Supervisor	1.00	HR		

AFE # OIL 34
 9208
 10/02/14
 Richard M. Lacy
 A. Anthony 10/15/14

PLEASE REMIT TO:	SEND OTHER CORRESPONDENCE TO:	SUB TOTAL	
BASIC ENERGY SERVICES, LP	BASIC ENERGY SERVICES, LP	TAX	
PO BOX 841903	801 CHERRY ST, STE 2100	INVOICE TOTAL	
DALLAS, TX 75284-1903	FORT WORTH, TX 76102		

RECEIVED OCT - 6 2014

Customer <i>EMPIRE ENERGY</i>	Lease No.	Date <i>10-01-14</i>
Lease <i>DRIVE</i>	Well # <i>4-7</i>	
Field Order # <i>11781</i>	Station <i>PRATT KS</i>	Casing <i>7 7/8</i>
	Depth <i>846'</i>	County <i>Russell</i>
Type Job <i>200' 8 7/8' sandpac</i>	Formation	Legal Description <i>4-17-13</i>

PIPE DATA		PERFORATING DATA		FLUID USED		TREATMENT RESUME		
Casing Size <i>8 7/8"</i>	Tubing Size	Shots/Ft		Acid		RATE	PRESS	ISIP
Depth <i>846'</i>	Depth	From	To	Pre Pad	Max			5 Min.
Volume <i>321</i>	Volume	From	To	Pad	Min			10 Min.
Max Press <i>500</i>	Max Press	From	To	Frac	Avg			15 Min.
Well Connection <i>PC</i>	Annulus Vol.	From	To		HHP Used			Annulus Pressure
Plug Depth <i>846'</i>	Packer Depth	From	To	Flush	Gas Volume			Total Load

Customer Representative	Station Manager <i>DANE SCOTT</i>	Treater <i>Robert Sullivan</i>
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Service Units	<i>31900</i>	<i>3370.5</i>	<i>20920</i>	<i>40959</i>	<i>19948</i>				
Driver Names	<i>Sullivan</i>	<i>Erwin</i>		<i>Phye</i>					

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
<i>11:30</i>					<i>200' pad</i>
					<i>Pad 8 7/8 esp.</i>
					<i>Case on Bottom</i>
<i>4:15</i>					<i>1100' 1 1/2" dia. eq.</i>
<i>4:30</i>			<i>3</i>	<i>2.5</i>	<i>At surface</i>
			<i>77</i>	<i>4.5</i>	<i>mix 175 mix 4-lane with 3-lane back</i>
			<i>37</i>		<i>mix 175 of cement 20-lane back</i>
					<i>over mix 20 shot down</i>
					<i>Balance Plus</i>
<i>5:15</i>				<i>5</i>	<i>14 down</i>
			<i>52</i>		<i>down down</i>
					<i>Case 200' Pit</i>
					<i>JOB complete</i>



BASICSM
ENERGY SERVICES
PRESSURE PUMPING & WIRELINE

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

FIELD SERVICE TICKET

1718 11/11/15 A

DATE _____ TICKET NO. _____

DATE OF JOB: 10/6/15 DISTRICT: Pratt		NEW WELL <input checked="" type="checkbox"/> OLD WELL <input type="checkbox"/> PROD <input type="checkbox"/> INJ <input type="checkbox"/> WDW <input type="checkbox"/> CUSTOMER ORDER NO.:								
CUSTOMER: [Handwritten]		LEASE: [Handwritten]		WELL NO.:						
ADDRESS:		COUNTY: [Handwritten]		STATE: [Handwritten]						
CITY: _____ STATE: _____		SERVICE CREW: [Handwritten]								
AUTHORIZED BY:		JOB TYPE: [Handwritten]								
EQUIPMENT#	HRS	EQUIPMENT#	HRS	EQUIPMENT#	HRS	TRUCK CALLED	DATE	AM	PM	TIME
[Handwritten]	[Handwritten]						[Handwritten]			
						ARRIVED AT JOB	[Handwritten]			
						START OPERATION				
						FINISH OPERATION				
						RELEASED				
						MILES FROM STATION TO WELL				[Handwritten]

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

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

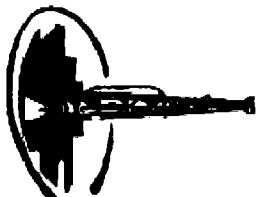
ITEM/PRICE REF. NO.	MATERIAL, EQUIPMENT AND SERVICES USED	UNIT	QUANTITY	UNIT PRICE	\$ AMOUNT
1001	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1002	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1003	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1004	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
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1006	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1007	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1008	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1009	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1010	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
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1013	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
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1016	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
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1021	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
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1024	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
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1037	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1038	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1039	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
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1043	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
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1050	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1051	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1052	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1053	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
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1055	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
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1058	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1059	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1060	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1061	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1062	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1063	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1064	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1065	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1066	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1067	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1068	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1069	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1070	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1071	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1072	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1073	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1074	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1075	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
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1090	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
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1092	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1093	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1094	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
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1096	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1097	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1098	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1099	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]
1100	[Handwritten]	[Handwritten]	[Handwritten]		[Handwritten]

CHEMICAL / ACID DATA:			

SUB TOTAL		[Handwritten]
SERVICE & EQUIPMENT	%TAX ON \$	
MATERIALS	%TAX ON \$	
TOTAL		[Handwritten]

SERVICE REPRESENTATIVE: [Handwritten] THE ABOVE MATERIAL AND SERVICE ORDERED BY CUSTOMER AND RECEIVED BY: [Handwritten]

FIELD SERVICE ORDER NO. _____ (WELL OWNER OPERATOR CONTRACTOR OR AGENT)



Musgrove

Petroleum Geology
212 Main Street, Clinton, MO 64603

Geologist's Report

Company: Empire Energy E&P, LLC
 Lease: Drake #4-9
 Field: Trapp
 Surface Location: SW-SE-NE-SE (1474' FSL 7 343' FELL)
 Sec: 4 Twp: 17S Rge: 13W
 County: Barton State: Kansas
 GL: 1924' KB: 1937'
 Contractor: Ninnescah Drilling Rig #101
 Spud: 9/29/14 Comp: 10/5/14
 RTD: 3550' LTD: 3541'
 Mud Up: +/- 2500' Mud Type: Chemical Displaced

Drilling Time Kept From: 2700' to RTD
 Samples Saved From: 2700' to RTD
 Samples Examined: 2800' to RTD
 Geological Supervision: 2800' to RTD
 Geologist on Well: Kurt Talbott

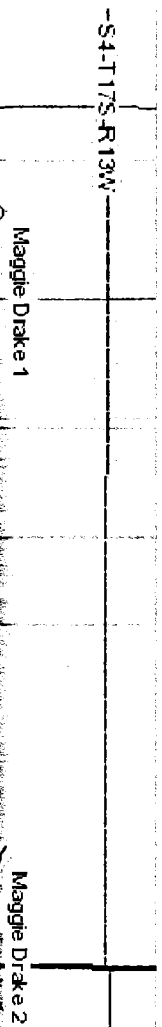
Surface Casing: 8 5/8" @ 860'
 Production Casing: 5 1/2" @

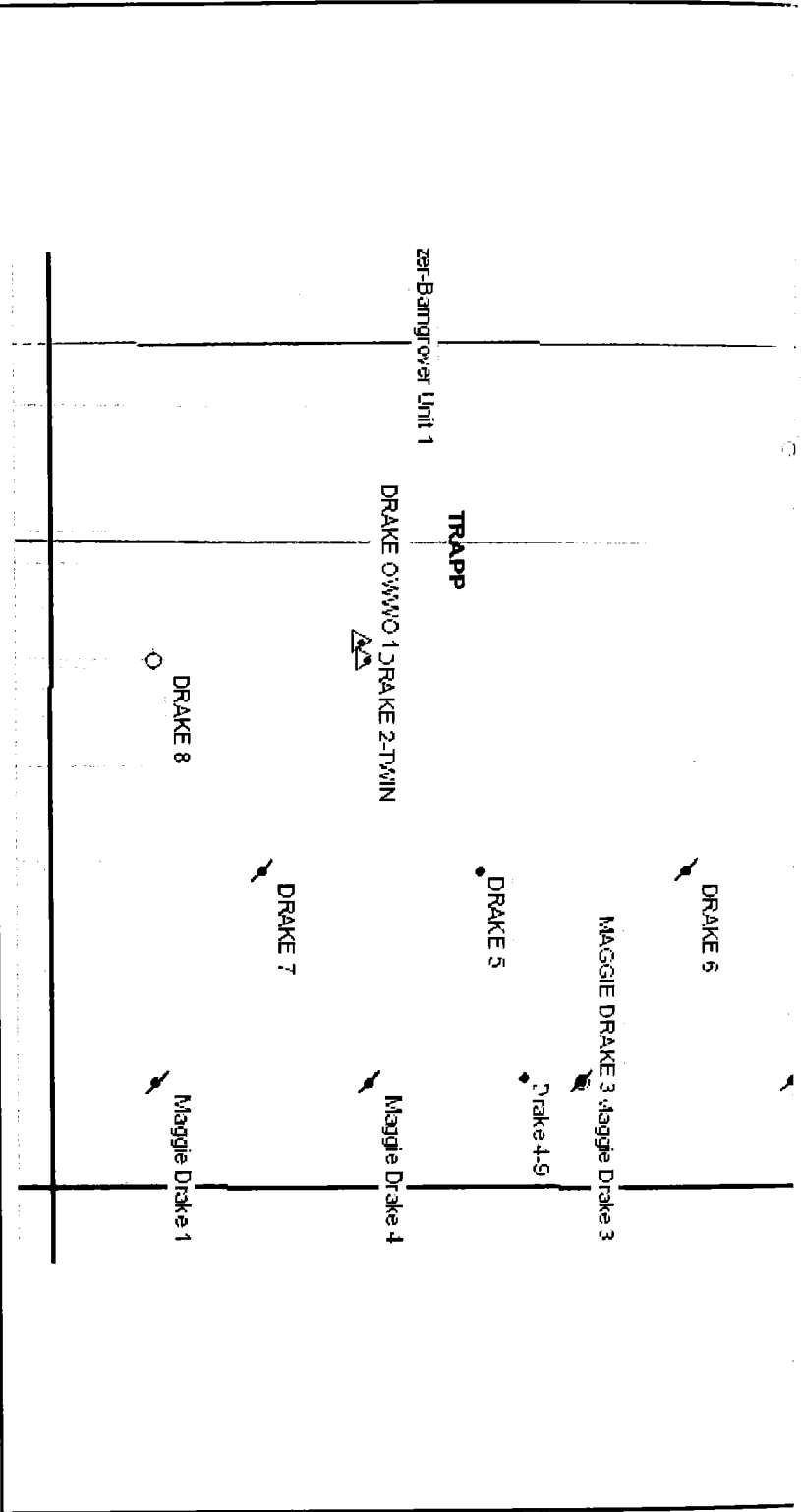
Wireline Logs: By Pioneer: CNL/CDL, MEL, BHCS

Well Comparison

FORMATION	WELL BEING DRILLED EMPIRE DRAKE #49 1937 KB		OFFSET EMPIRE DRAKE #6 1907 KB	
	LD	LD SS	MD	SS
TOPEKA	2738	-807		
TORONTO	3070	-1133	3057	
ARBUCKLE	3377	-1440	3368	-1577

Spot Location





ROCK TYPES

- shale, gny
- Carbon Sh
- Unst fw<7 shale, gm

EVENTS

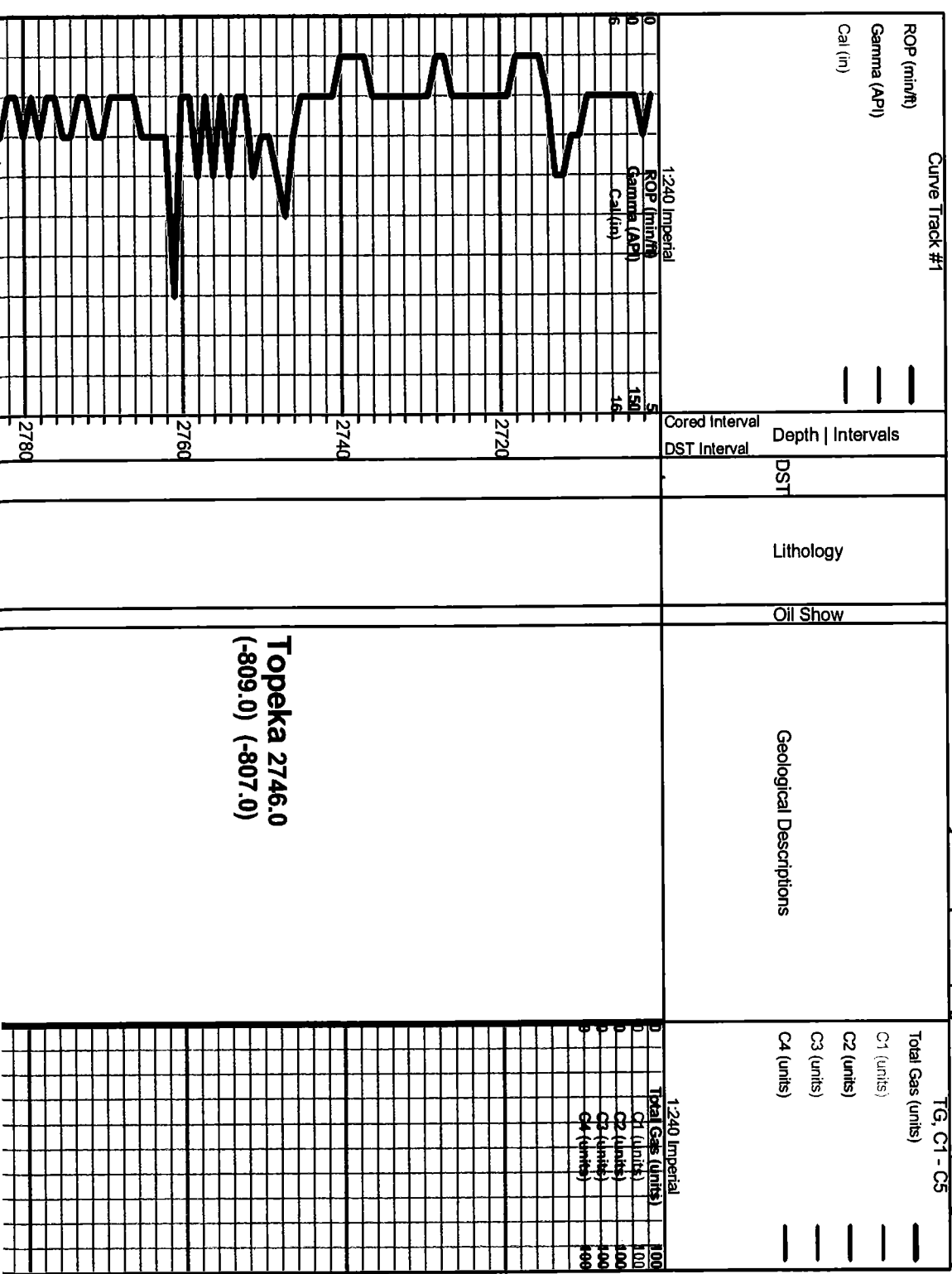
- 1. Casing Shoe
- RTF
- Sidewall
- Left Casing Shoe
- Right Casing Shoe

INTERVALS

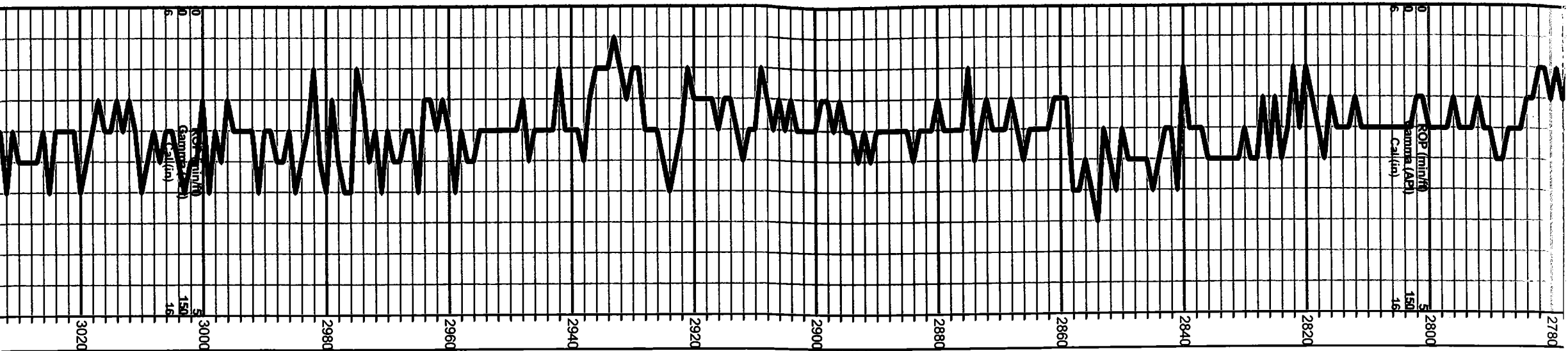
- Core
- DST

OTHER SYMBOLS

- DST
- DST Int
- DST alt



Topoka 2746.0
 (-809.0) (-807.0)



Ls-gry/tan, fxl n, fossils, poor vis por, shale gry/blk

Total Gas (units)	
C1 (units)	100
C2 (units)	100
C3 (units)	100
C4 (units)	100

Ls-tan/lt gry, fxl n, ool/few fossils, poor vis por, slightly chalky

Ls A/A

Ls-tan/lt gry, fxl n, fossils, poor scattered por, chalky
Shale-gry

Ls-tan/lt gry, fossils, poor scattered por, chalky

Black carbon shale

Ls-wh/crm, fxl n, fossils, poor vis por, chalky

Shale-gry/gm

Ls-cm/tan, fxl n, fossils, poor vis por, slightly chalky

Ls-tan/buff, fxl n, few fossils, poor vis por,
Black carbon shale

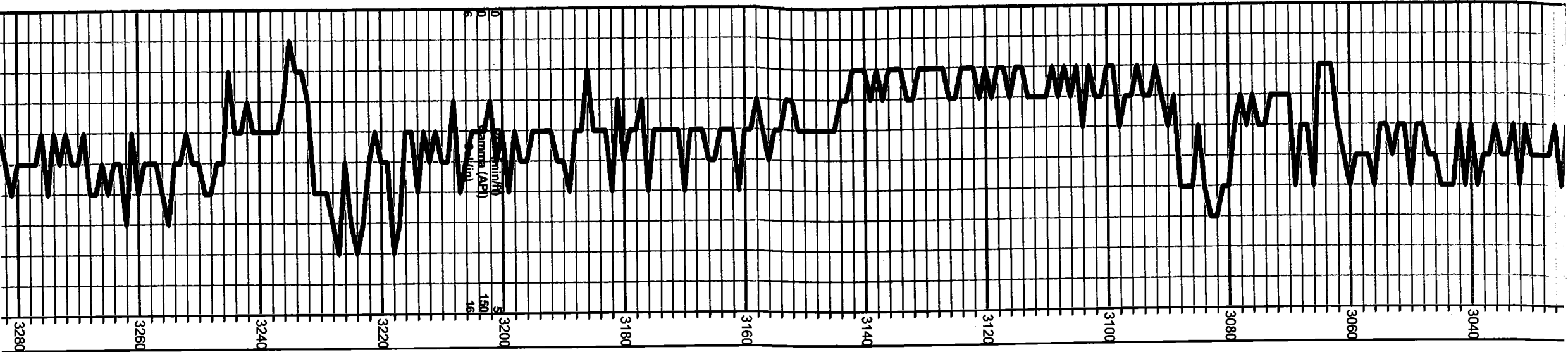
Ls-tan/buff, fxl n, dense, poor vis por, few fossils,

Ls-wh/crm, fxl n, few fossils, poor vis por, chalky

Total Gas (units)	
C1 (units)	100
C2 (units)	100
C3 (units)	100
C4 (units)	100

A/A

Ls-tan/buff, fxl n, few fossils, poor vis por,
Chert-gry/tan



poor,
Chert-gry/tan

Ls-crm/tan, fxltn, fossils, poor vis por,
Spotty dark brown stains?? NSFO,
chalky cherty in part,

Heebner 3062.0
(-1125.0) (-1117.0)

Black carbon shale

Shale-gry/gm
Toronto 3079.0
(-1142.0) (-1133.0)

Ls-wh/erm, fxltn, poor vis por, chalky

Douglas 3088.0
(-1151.0) (-1145.0)

Shale-brwn/gry/gm, slightly silty, mica

Shale-gry/gm, silty/sandy, mica

Brown Lime 3144.0
(-1207.0) (-1199.0)

Ls-tan/buff, ffxn, poor vis por, cherty in
part

Lansing 3154.0
(-1217.0) (-1209.0)

Ls-wh/erm, fxltn, slightly ool, poor
scattered por, Trace Stains, NSFO,
chalky

Ls-erm/tan, fxltn, poor to fair inner xln
por, golden to dark brown stains,
TSFO, poor odor,

Ls-wh/erm, fxltn, poor inner xln por, dark
brown stains, TSFO, faint odor,

Ls-wh/erm, fxltn, ool, scattered inner xln
to sub oom por, black stains, NSFO

Ls-erm/tan, fxltn, ool, fair oom por, Trace
spotty stains, Broken open TSFO faint
odor

Ls-erm, fxltn, ool, oom por, TSFO and
odor when broken open

Ls-erm/gry, fxltn, fossils, scattered vis
por, Trace Stains, NSFO

Trace black carbon/grey shale

Total Gas (units)	100
Cl (units)	100
C2 (units)	100
C3 (units)	100
C4 (units)	100

Trace black carbon/grey shale

Ls-crm, fxltn, cherty in part, poor vis por, No vis shows,

Ls-crm/gyr, fxltn, chalky, poor vis por, no vis shows,

Shale-gry/brwn

Ls-crm, fxltn, poor vis por, cherty NSFO,

Ls-crm, fxltn, faint blk stains, SFO, no odor, faint odor,

Area Base KC 3340.0
(-1403.0) (-1394.0)

Ls-crm, fxltn, cherty in part, poor vis por, No vis shows, shale-gry/grm/brown

Ls-crm, fxltn, few fossils/ool, scattered iner xln por, No vis shows,

True Base KC 3367.0
(-1430.0) (-1421.0)

Shale-gry-soft, Chert- tan/gyr/buff

Arbuckle 3385.0
(-1448.0) (-1440.0)

Dol-wht, fxltn, poor vis xln por, spotty stains T-SFO, good odor

Dol-fine to med xln, few rhomb, good iner xln por, golden brown stains, good SFO, good odor

Dol-wht, fine to med rhomb xln, fair iner xln por, golden brown stains, SFO, good odor

Dol-wht/crm, fine to med rhomb xln, good iner xln to vuggy por, golden to dark brown stains, Good SFO, good odor

Dol-wht/lt gry, fxltn, poor/fair iner xln por, golden to dark brown stains, Fair SFO, good odor, cherty in part,

Dol-crm/wht, fine to med xln, scattered iner xln to vugle por, Fair SFO, faint odor

Dol-wht/crm/lt gry, fine to med rhomb xln, fair iner xln to scattered vug por, faint SFO,

Dol-crm, med xxln, fair iner xln por, Trace Stains, T-SFO, faint odor

Dol-crm/lt gry, fine to med, fair iner xln por, dark brown spotty stains, T-SFO, weak odor

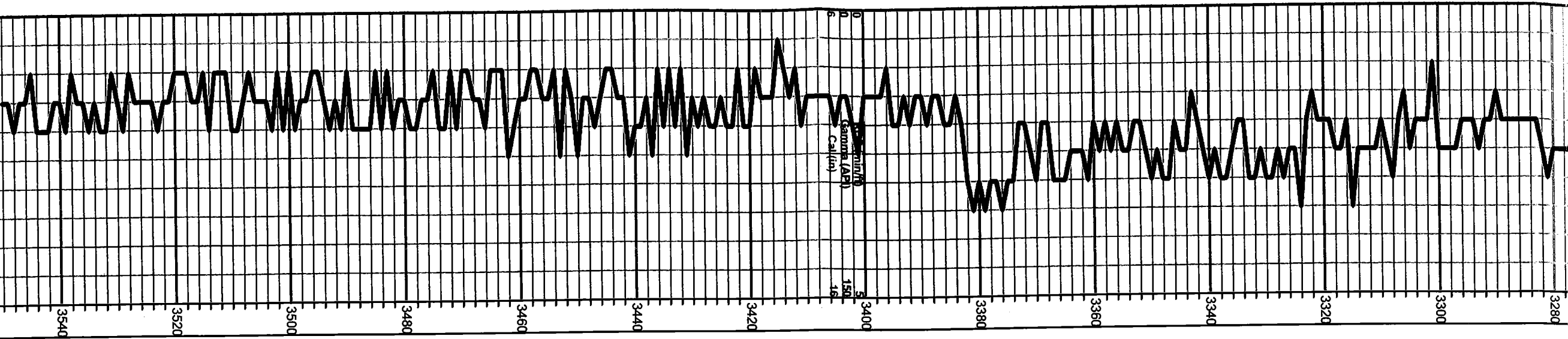
Dol-crm, med xln, fair iner xln por with scattered vug por, dark brown to black stains, NSFO, no odor

Dol-crm, fine to med xln, few rhomb xln, poor to fair iner xln por, black stains, NSFO, no odor,

Dol-crm/wht, fine to med rhomb xln, poor to fair iner xln por, black stains, NSFO,

Dol-wht/crm, fine to med xln, fair iner xln por, no vis stains, no odor, cherty in part,

Total Depth 3550.0
(-1613.0) (-1604.0)



Total Gas (units)	100
Cl (units)	100
Co (units)	100
Cs (units)	100
Ct (units)	100

