

Confidentiality Requested:

Yes No

Kansas Corporation Commission Oil & Gas Conservation Division

1249688

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 #	API No. 15
Name:	Spot Description:
Address 1:	SecTwpS. R 🗌 East 🗌 West
Address 2:	Feet from
City: State: Zip:+	Feet from _ East / _ West Line of Section
Contact Person:	Footages Calculated from Nearest Outside Section Corner:
Phone: ()	□NE □NW □SE □SW
CONTRACTOR: License #	GPS Location: Lat:, Long:
Name:	(e.g. xx.xxxxx) (e.gxxx.xxxxx)
Wellsite Geologist:	Datum: NAD27 NAD83 WGS84
Purchaser:	County:
Designate Type of Completion:	Lease Name: Well #:
☐ New Well ☐ Re-Entry ☐ Workover	Field Name:
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:	Producing Formation: Elevation: Ground: Kelly Bushing: Feet Total Vertical Depth: Plug Back Total Depth: Feet Multiple Stage Cementing Collar Used? Yes No If yes, show depth set: Feet
Operator:	If Alternate II completion, cement circulated from: sx cmt.
Well Name: Original Comp. Date: Deepening Re-perf. Conv. to ENHR Conv. to SWD Plug Back Conv. to GSW Conv. to Producer Commingled Permit #: Dual Completion Permit #:	Drilling Fluid Management Plan (Data must be collected from the Reserve Pit) Chloride content: ppm Fluid volume: bbls Dewatering method used:
SWD Permit #:	Location of fluid disposal if hauled offsite:
☐ ENHR Permit #: ☐ GSW Permit #:	Operator Name: License #:
Spud Date or Date Reached TD Completion Date or Recompletion Date Recompletion Date	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:						

Page Two



Operator Name:				_ Lease l	Name: _			Well #:			
Sec Twp	S. R	East V	West	County	:						
INSTRUCTIONS: Shopen and closed, flow and flow rates if gas to	ring and shut-in pres o surface test, along	sures, whether s with final chart(shut-in pre s). Attach	ssure reac extra shee	hed stati t if more	c level, hydrosta space is neede	itic pressures, bot d.	tom hole temp	erature, flui	d recovery,	
Final Radioactivity Lo- files must be submitte						gs must be ema	ailed to kcc-well-lo	gs@kcc.ks.go	v. Digital el	ectronic log	
Drill Stem Tests Taker (Attach Additional S		Yes	No				on (Top), Depth ar			mple	
Samples Sent to Geo	logical Survey	Yes	☐ No		Nam	e		Тор	Da	tum	
Cores Taken Electric Log Run		☐ Yes ☐ Yes	☐ No ☐ No								
List All E. Logs Run:											
			CASING		☐ Ne						
	0: 11-1-	· ·				ermediate, product		// OI	T	d Damasat	
Purpose of String	Size Hole Drilled	Size Cas Set (In O		Weig Lbs. /		Setting Depth	Type of Cement	# Sacks Used		d Percent itives	
		AD	DITIONAL	CEMENTIN	NG / SQL	JEEZE RECORD					
Purpose:	Depth Top Bottom	Type of Ce	ement	# Sacks	Used		Type and Percent Additives				
Perforate Protect Casing											
Plug Back TD Plug Off Zone											
Did you perform a hydrau	•					Yes	No (If No, ski	p questions 2 ar	nd 3)		
Does the volume of the to							= :	p question 3)	of the ACO	()	
Was the hydraulic fractur	ing treatment information	on submitted to the	e chemicai d	isciosure re	gistry?	Yes	No (If No, fill	out Page Three	or the ACO-1	<i>)</i> 	
Shots Per Foot		ION RECORD - I Footage of Each I					cture, Shot, Cement mount and Kind of Ma		d	Depth	
TUBING RECORD:	Size:	Set At:		Packer A	i:	Liner Run:	Yes No				
Date of First, Resumed	Production, SWD or Ef	NHR. Prod	ducing Meth	ıod:		1					
			Flowing	Pumpin	g	Gas Lift C	Other (Explain)				
Estimated Production Per 24 Hours	Oil	Bbls.	Gas	Mcf	Wate	er B	bls. (Gas-Oil Ratio		Gravity	
DISPOSITIO	ON OF GAS:		M	METHOD OF	COMPLE	ETION:		PRODUCTIO	ON INTERVA		
Vented Sold		Open		Perf.	Dually	Comp. Cor	mmingled				
	bmit ACO-18.)		(Specify)		(Submit)	ACO-5) (Sub	mit ACO-4)				



CEMENT FIELD TICKET AND TREATMENT REPORT

Customer	Teddy Spencer	State, County	Woodson , Kansas	Cement Type		CLASS A
ob Type	Long String	Section		Excess (%)		40%
ustomer Acct #	Long String	TWP		Density		14
/ell No.	Horst #5	RGE		Water Required		8.28
lailing Address	Horst #5	Formation		Yeild		1.64
ity & State		Tubing		Sacks of Cement		150
ip Code		Baffle Plate	1226	Slurry Volume		43.8
		CATACON PARTIES AND STREET				
ontact		Casing Size	4 1/2	Displacement		19
mail		Hole Size	6 3/4	Displacement PSI		400
Cell		Casing Depth	1259	MIX PSI		200
Dispatch Location	EUREKA	Hole Depth	1262	Rate		3.5
ode	Cement Pump Charges and Mileage	Quantity	Unit	Price per Unit		
5401	CEMENT PUMP (2 HOUR MAX)	1	2 HRS MAX	\$1,085.00	\$	1,085.00
5406	EQUIPMENT MILEAGE (ONE-WAY)	35	PER MILE	\$4.20	\$	147.00
5407	MIN. BULK DELIVERY (WITHIN 50 MILES)	1	PER LOAD	\$368.00	\$	368.00
0	WING BELLVEIVE (VITTING 30 WILLES)	·	0	\$0.00	\$	-
0			0	\$0.00	\$	
0			0	\$0.00	\$	_
0			0	\$0.00	\$	
			0	\$0.00	\$	
0				\$0.00		
0			0		\$	- 1 000 0
				QUIPMENT TOTAL	\$	1,600.00
	Cement, Chemicals and Water				2.16	
1126	WC. CEMENT (CAL SEAL) 6%OWC. 2% CAL.CLORIDE 2% GE		0	\$19.75	\$	2,962.50
1107	CELLOFLAKES / FLO-SEAL (POLY FLAKES)(25#)	25	0	\$2.47	\$	61.75
1118B	PREMIUM GEL/BENTONITE (50#)	200	0	\$0.22	\$	44.00
0			0	\$0.00	\$	
0			0	\$0.00	\$	
0			0	\$0.00	\$	
0	30% Discount		0	\$0.00	\$	(920.48
0			0	\$0.00	\$	
0			0	\$0.00	\$	
0			0	\$0.00	\$	
1123	CITY WATER (PER 1000 GAL)	5.4	0	\$17.30	\$	93.42
				CHEMICAL TOTAL	\$	2,241.19
	Water Transport			OTIZIVIIOTIZ TOTITIZ		2,2,
5501C	WATER TRANSPORT (CEMENT)	6	TER TRANSPORT (CEME	\$120.00	\$	720.00
	WATER TRANSPORT (CEMENT)	0	0	\$0.00	\$	720.00
0			0	\$0.00		
0				A CONTRACTOR OF THE PARTY OF TH	\$	700.00
				RANSPORT TOTAL	\$	720.00
	Cement Floating Equipment (TAXABLE)					
	Cement Basket					
	Cellielli Daskei					
0	Cerricit Dasket		0	\$0.00	\$	
0	Centralizer				\$	
0 4129		1	0 PER UNIT	\$44.00	\$	
	Centralizer	1				
4129	Centralizer	1	PER UNIT	\$44.00	\$	
4129	Centralizer CENTRALIZER 4 1/2 "	1	PER UNIT	\$44.00	\$	
4129 0	Centralizer CENTRALIZER 4 1/2 "	1	PER UNIT	\$44.00 \$0.00	\$ \$	44.00
4129 0	Centralizer CENTRALIZER 4 1/2 " Float Shoe	1	PER UNIT	\$44.00 \$0.00	\$ \$	44.00
4129 0	Centralizer CENTRALIZER 4 1/2 " Float Shoe	1	PER UNIT 0	\$44.00 \$0.00 \$0.00	\$ \$	44.00 - -
4129 0 0	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars	1	PER UNIT 0 0 0	\$44.00 \$0.00 \$0.00 \$0.00	\$ \$ \$	44.00 - -
4129 0	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes	1	PER UNIT 0	\$44.00 \$0.00 \$0.00	\$ \$	44.0(- - -
4129 0 0 0 0	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes Baffle and Flapper Plates		PER UNIT 0	\$44.00 \$0.00 \$0.00 \$0.00 \$0.00	\$ \$ \$	44.00 - - -
4129 0 0	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes Baffle and Flapper Plates 4 1/2" ALUMINUM BAFFLE PLATE		PER UNIT 0 0 0	\$44.00 \$0.00 \$0.00 \$0.00	\$ \$ \$	44.00 - - -
4129 0 0 0 0 0 4236	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes Baffle and Flapper Plates 4 1/2" ALUMINUM BAFFLE PLATE Packer Shoes		PER UNIT 0 0 0 PER UNIT	\$44.00 \$0.00 \$0.00 \$0.00 \$0.00 \$60.00	\$ \$ \$ \$	44.00
4129 0 0 0 0	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes Baffle and Flapper Plates 4 1/2" ALUMINUM BAFFLE PLATE Packer Shoes TYPE B BASKET SHOE 4 1/2"		PER UNIT 0	\$44.00 \$0.00 \$0.00 \$0.00 \$0.00	\$ \$ \$	44.00
4129 0 0 0 0 0 4236 4254	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes Baffle and Flapper Plates 4 1/2" ALUMINUM BAFFLE PLATE Packer Shoes		PER UNIT 0 0 0 PER UNIT PER UNIT	\$44.00 \$0.00 \$0.00 \$0.00 \$0.00 \$60.00 \$1,086.75	\$ \$ \$ \$	44.00
4129 0 0 0 0 0 4236	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes Baffle and Flapper Plates 4 1/2" ALUMINUM BAFFLE PLATE Packer Shoes TYPE B BASKET SHOE 4 1/2" DV Tools		PER UNIT 0 0 0 PER UNIT	\$44.00 \$0.00 \$0.00 \$0.00 \$0.00 \$60.00	\$ \$ \$ \$	44.00
4129 0 0 0 0 0 4236 4254	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes Baffle and Flapper Plates 4 1/2" ALUMINUM BAFFLE PLATE Packer Shoes TYPE B BASKET SHOE 4 1/2"		PER UNIT 0 0 0 0 PER UNIT PER UNIT	\$44.00 \$0.00 \$0.00 \$0.00 \$0.00 \$60.00 \$1,086.75	\$ \$ \$ \$ \$	44.00
4129 0 0 0 0 0 4236 4254 0	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes Baffle and Flapper Plates 4 1/2" ALUMINUM BAFFLE PLATE Packer Shoes TYPE B BASKET SHOE 4 1/2" DV Tools		PER UNIT 0 0 0 PER UNIT PER UNIT 0 0	\$44.00 \$0.00 \$0.00 \$0.00 \$0.00 \$60.00 \$1,086.75 \$0.00	\$ \$ \$ \$ \$ \$	44.00
4129 0 0 0 0 0 4236 4254 0	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes Baffle and Flapper Plates 4 1/2" ALUMINUM BAFFLE PLATE Packer Shoes TYPE B BASKET SHOE 4 1/2" DV Tools		PER UNIT 0 0 0 PER UNIT PER UNIT 0 0 0 0 0 0 0 0	\$44.00 \$0.00 \$0.00 \$0.00 \$0.00 \$60.00 \$1,086.75 \$0.00 \$0.00	\$ \$ \$ \$ \$ \$ \$	44.00
4129 0 0 0 0 0 4236 4254 0	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes Baffle and Flapper Plates 4 1/2" ALUMINUM BAFFLE PLATE Packer Shoes TYPE B BASKET SHOE 4 1/2" DV Tools Ball Valves, Swedges, Clamps, Misc.		PER UNIT 0 0 0 PER UNIT PER UNIT 0 0	\$44.00 \$0.00 \$0.00 \$0.00 \$0.00 \$60.00 \$1,086.75 \$0.00	\$ \$ \$ \$ \$ \$	44.00
4129 0 0 0 0 0 4236 4254 0 0 0	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes Baffle and Flapper Plates 4 1/2" ALUMINUM BAFFLE PLATE Packer Shoes TYPE B BASKET SHOE 4 1/2" DV Tools Ball Valves, Swedges, Clamps, Misc. Plugs and Ball Sealers	1 1	PER UNIT 0 0 0 PER UNIT PER UNIT 0 0 0 0 0 0 0 0 0	\$44.00 \$0.00 \$0.00 \$0.00 \$0.00 \$1,086.75 \$0.00 \$0.00 \$0.00 \$0.00	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	44.00 - - - 60.00 1,086.79
4129 0 0 0 0 0 4236 4254 0	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes Baffle and Flapper Plates 4 1/2" ALUMINUM BAFFLE PLATE Packer Shoes TYPE B BASKET SHOE 4 1/2" DV Tools Ball Valves, Swedges, Clamps, Misc. Plugs and Ball Sealers 4 1/2" RUBBER PLUG		PER UNIT 0 0 0 PER UNIT PER UNIT 0 0 0 0 0 0 0 0	\$44.00 \$0.00 \$0.00 \$0.00 \$0.00 \$60.00 \$1,086.75 \$0.00 \$0.00	\$ \$ \$ \$ \$ \$ \$	44.01 - - - - 60.00 1,086.73
4129 0 0 0 0 4236 4254 0 0 0 0 4404	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes Baffle and Flapper Plates 4 1/2" ALUMINUM BAFFLE PLATE Packer Shoes TYPE B BASKET SHOE 4 1/2" DV Tools Ball Valves, Swedges, Clamps, Misc. Plugs and Ball Sealers	1 1	PER UNIT 0 0 0 PER UNIT PER UNIT 0 0 PER UNIT PER UNIT 0 0 0 0 0 PER UNIT	\$44.00 \$0.00 \$0.00 \$0.00 \$0.00 \$60.00 \$1,086.75 \$0.00 \$0.00 \$0.00 \$0.00	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	44.01 - - - - 60.00 1,086.73
4129 0 0 0 0 0 4236 4254 0 0 0	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes Baffle and Flapper Plates 4 1/2" ALUMINUM BAFFLE PLATE Packer Shoes TYPE B BASKET SHOE 4 1/2" DV Tools Ball Valves, Swedges, Clamps, Misc. Plugs and Ball Sealers 4 1/2" RUBBER PLUG	1 1	PER UNIT 0 0 0 PER UNIT PER UNIT 0 0 PER UNIT 0 PER UNIT	\$44.00 \$0.00 \$0.00 \$0.00 \$0.00 \$60.00 \$1,086.75 \$0.00 \$0.00 \$0.00 \$47.25	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	44.01
4129 0 0 0 0 4236 4254 0 0 0 0 0 4404	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes Baffle and Flapper Plates 4 1/2" ALUMINUM BAFFLE PLATE Packer Shoes TYPE B BASKET SHOE 4 1/2" DV Tools Ball Valves, Swedges, Clamps, Misc. Plugs and Ball Sealers 4' 1/2" RUBBER PLUG Downhole Tools	1 1	PER UNIT 0 0 0 PER UNIT PER UNIT 0 0 PER UNIT PER UNIT 0 0 0 0 0 PER UNIT	\$44.00 \$0.00 \$0.00 \$0.00 \$0.00 \$60.00 \$1,086.75 \$0.00 \$0.00 \$0.00 \$47.25 \$0.00 QUIPMENT TOTAL	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	44.00 - - 60.00 1,086.73 - - 47.23
4129 0 0 0 0 0 4236 4254 0 0 0 0 0 4404	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes Baffle and Flapper Plates 4 1/2" ALUMINUM BAFFLE PLATE Packer Shoes TYPE B BASKET SHOE 4 1/2" DV Tools Ball Valves, Swedges, Clamps, Misc. Plugs and Ball Sealers 4' 1/2" RUBBER PLUG Downhole Tools DRIVER NAME	1 1	PER UNIT 0 0 0 PER UNIT PER UNIT 0 0 0 PER UNIT 0 CEMENT FLOATING E	\$44.00 \$0.00 \$0.00 \$0.00 \$0.00 \$60.00 \$1,086.75 \$0.00 \$0.00 \$0.00 \$47.25 \$0.00 QUIPMENT TOTAL SUB TOTAL	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	44.0l
4129 0 0 0 0 0 4236 4254 0 0 0 0 0 0 1 TRUCK# 690	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes Baffle and Flapper Plates 4 1/2" ALUMINUM BAFFLE PLATE Packer Shoes TYPE B BASKET SHOE 4 1/2" DV Tools Ball Valves, Swedges, Clamps, Misc. Plugs and Ball Sealers 4' 1/2" RUBBER PLUG Downhole Tools DRIVER NAME John Wade	1 1	PER UNIT 0 0 0 PER UNIT PER UNIT 0 0 PER UNIT 0 PER UNIT	\$44.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$1,086.75 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$47.25	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	44.01
4129 0 0 0 0 0 4236 4254 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes Baffle and Flapper Plates	1 1	PER UNIT 0 0 0 PER UNIT PER UNIT 0 0 0 0 0 0 0 0 0 PER UNIT 0 CEMENT FLOATING E 7.15%	\$44.00 \$0.00 \$0.00 \$0.00 \$0.00 \$60.00 \$1,086.75 \$0.00 \$0.00 \$0.00 \$47.25 \$0.00 QUIPMENT TOTAL SUB TOTAL SALES TAX TOTAL	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	44.00
4129 0 0 0 0 0 4236 4254 0 0 0 0 0 1 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1	Centralizer CENTRALIZER 4 1/2 " Float Shoe Float Collars Guide Shoes Baffle and Flapper Plates 4 1/2" ALUMINUM BAFFLE PLATE Packer Shoes TYPE B BASKET SHOE 4 1/2" DV Tools Ball Valves, Swedges, Clamps, Misc. Plugs and Ball Sealers 4' 1/2" RUBBER PLUG Downhole Tools DRIVER NAME John Wade	1 1	PER UNIT 0 0 0 PER UNIT PER UNIT 0 0 0 0 0 0 0 0 0 PER UNIT 7.15%	\$44.00 \$0.00 \$0.00 \$0.00 \$0.00 \$60.00 \$1,086.75 \$0.00 \$0.00 \$0.00 \$47.25 \$0.00 QUIPMENT TOTAL SUB TOTAL SALES TAX TOTAL	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	44.00

AUTHORIZATION

FOREMAN PLEASED



LEIS OIL SERVICES

1410 150th Rd. • Yates Center, Kansas 66783 • (620) 212-0752



Operator License #: 31685	API #: 15-207-28920-00-00					
Operator: Teddy Spencer DBA TJ Oil	Lease: Horst					
Address: 120 N Main St Yates Center, KS 66783	Well #: 5					
Phone: (620) 380-1010	Spud Date: 11-6-14 Completed: 11-10-14					
Contractor License: 34036	Location: NW-NE-SW-NW of 15-25-16E					
T.D.: 1262 T.D. of Pipe: 1257 Size: 4.50"	1403 Feet From North					
Surface Pipe Size: 7" Depth: 40'	742 Feet From West					
Kind of Well: Oil	County: Woodson					

LOG

LUG								
Thickness	Strata	From	То	Thickness	Strata	From	То	
37	Soil/Clay	0	37	17	Lime	842	859	
20	Shale	37	57	3	Shale	859	862	
44	Lime	57	101	2	Black Shale	862	864	
35	Shale	101	136	3	Lime	864	867	
48	Lime	136	184	3	Shale	867	870	
7	Shale	184	191	10	Oil Sand	870	880	
133	Lime	191	324	34	Shale	880	914	
2	Black Shale	324	326	1	Lime	914	915	
2	Lime	326	328	1	Shale	915	916	
53	Shale	328	381	3	Lime Streaks	916	919	
80	Lime	381	461	9	Oil Sand	919	928	
7	Shale/Black Shale	461	468	38	Shale	928	966	
32	Lime	468	500	1	Lime	966	967	
3	Black Shale	500	503	272	Shale	967	1239	
31	Lime	503	534	3	Coal	1239	1242	
182	Shale	534	686	6	Shale	1242	1248	
4	Lime	686	690	1	Coal	1248	1249	
24	Shale	690	714	12	Lime	1249	1261	
7	Lime	714	721	1	Oil Break	1261	1262	
66	Shale	721	787		l l			
3	Lime	787	790		T.D.		1262	
5	Shale	790	795		T.D. of Pipe		1257	
4	Lime	795	799					
8	Shale	799	807					
4	Lime	807	811					
6	Shale	811	817					
3	Lime	817	820					
2	Black Shale	820	822					
20	Shale	822	842					