# LITHOLOGY STRIP LOG WellSight Systems Scale 1:240 (5"=100') Imperial

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

Well Name:	SHEETZ #5-22
Location:	NE NE SW SE
License Number:	API: 15-109-21252-00-00 Region: Logan County, Kansas
Spud Date:	March 1, 2014 Drilling Completed: March 14, 2014
Surface Coordinates:	1144' FSL, 1435' FEL Section 22-Twp 11 South - Rge 33 West
Bottom Hole	Vertical Hole
Coordinates:	
Ground Elevation (ft):	3143 K.B. Elevation (ft): 3151
Logged Interval (ft):	3700 To: 4800 Total Depth (ft): 4800
Formation:	Mississippi
Type of Drilling Fluid:	Chemical Mud, Displace at 3448'.

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

# OPERATOR

Company: American Warrior, Inc. Address: 3118 Cummings RD PO Box 399 Garden City Kansas 67846

### GEOLOGIST

Name: W. Scott Alberg Company: Alberg Petroleum, LLC Address: 609 Meadowlark Lane Pratt, Kansas 67124

FORMATION TOPS								
	SAMPLE TOPS	LOG TOPS						
ANHYDRITE	2638(+513)	2636(+515)						
B/ANHYDRITE	2663(+488)	2661(+490)						
HEEBNER	4050(-899)	4049(-898)						
TORONTO	4078(-927)	4080(-929)						
LANSING	4094(-943)	4092(-945)						
B/KC	4387(-1236)	4383(-1232)						
LENEPAH	4410(-1259)	4408(-1257)						
PAWNEE	4519(-1368)	4516(-1365)						
FT SCOTT	4571(-1420)	4570(-1419)						
CHEROKEE SHALE	4601(-1450)	4598( <del>`</del> 1447)						
JOHNSON	4644(-1493)	4644(-1493)						
MISSISSIPPIAN	4702(-1551)	4701(-1550)						
RTD	4800(-1649)							
LTD		4798(-1647)						

#### COMMENTS

Surface Casing: Set 8 joints new 24#, 8 5/8" at 325', 225 sks common, 3% cc, 2% gel, plug down 10:00 pm on March 1, 2014. Cement did circulate. Production Casing:. 5 1/2" Casing Ran. Deviation Surveys: 325' - 1/2, 982' - 1/2, 1928' - 1/2, 4140' - 3/4, 3/4 - 4800'. Contractor Bit Record: 1 - 12 1/4 out @ 330'. 2 - 7 7/8" out @ 4262'. 3 - 7 7/8" out @ 4670'. 4 - 7 7/8" out @ 4800'. Gas Detector: MBC Mud System: Mud Co, Reid Atkins, Engineer DSTs: by Trilobite Testing Logged By Pioneer Energy Services LTD 4798'.

```
DSTs
```

DST #1 - Lansing A & B Test Interval: 4096 to 4140', Times 30-60-15-60 1st opening - BOB 2 1/2 minutes, no blow back 2nd opening - BOB 3 minutes, no blow back. Recovery 344' MW (55% W, 45% M), 314' MW (85% W, 15% Mud), 1003' MW (95% W, 5% M) IHP 2020# FHP 1995# IFP 77-592# FFP 591-780# ISIP 1235# FSIP 1235# Temp 118 - Chlorides 52,000 DST #2 - H Zone. Test Interval: 4227 to 4262', Times 30-30-30-30 1st Opening - Weak Surface Blow, no blow back. 2nd Opening - No blow, no blow back. Recovery: 1' Mud with oil spots. IFP 17-19# FFP 19-19# ISIP 48# **FSIP 39#** IHP 2101# FHP 2090# Temp 113 DST #3 - I & J Zones Test Interval 4260 to 4314'; Times 30-60-30-60 1st Opening - Built to 4", no blow back. 2nd Opening - Built to 6", no blow back. Recovery: 70' GIP, 50' GOCM (5% G, 5% O, 90% M) IHP 2120# FHP 2169# IFP 21-31# FFP 30-41# ISIP 327# **FSIP 297#** Temp 115 DST #4 - Johnson Zone Test Interval 4592 to 4670'; Times 30-60-40-60 1st Opening - BOB 11 1/2 minutes. 1" blow back. 2nd Opening - BOB 7 1/2 minutes, blow back BOB in 24 minutes. Recovery: 536' Weak GIP, 82' GMCO (7% G, 80% O, 13% M), 126' GMCO (30% G, 58% O, 12% M), 124' GOCM (20% G. 25% O. 55% M). Gravity 31 API IFP 25-78# FFP 95-155# ISIP 1005# FSIP 978# IHP 2312# FHP 2291# Temp 124

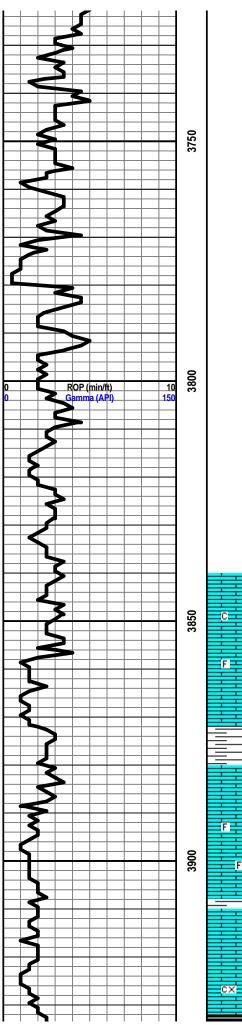
## RECOMMENDATIONS

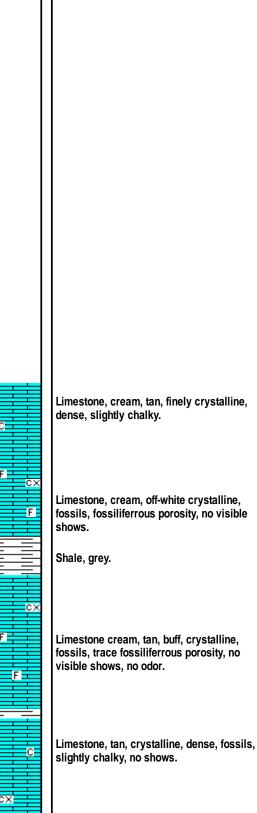
# BASED ON SAMPLES SHOWS, STRUCTURAL POSITION, DST RESULTS AND LOG CALCULATIONS, IT WAS RECOMMENDED BY ALL PARTIES THAT THIS TEST WELL HAVE CASING RAN TO FURTHER EVALUATE POTENTIAL PAY ZONES.

RESPECTFULLY,

SCOTT ALBERG PG #54

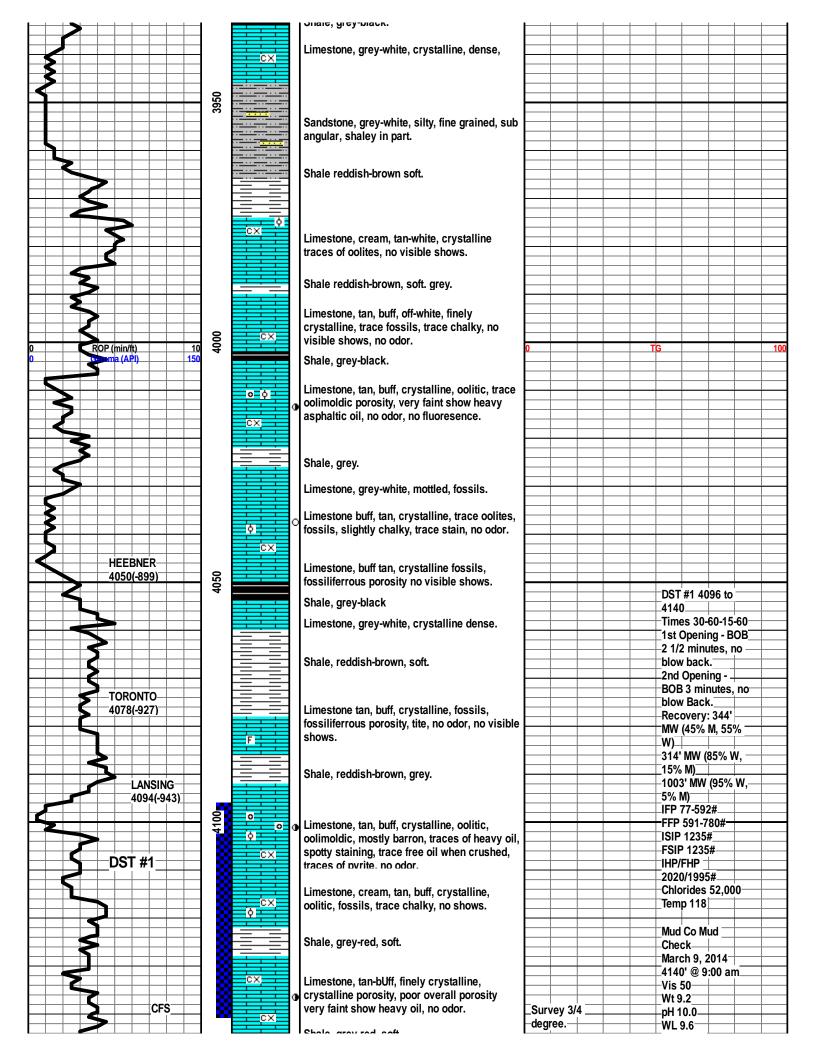
Anhy Bent Bent Brec Cht Clyst Coal	Shy Dol	/ dolo	Black sh Gry sh Shale Shysitst Sitysh
MINERAL         ☑       Anhy         ☑       Arg         B       Bent         ☑       Bit         ☑       Brecfrag         ☑       Calc         ☑       Carb         ☑       Chtdk         ☑       Chtlt         ☑       Dol         ☑       Ferrpel         ☑       Ferr         ☑       Glau         ☑       Gyp         ☑       Marl         ☑       Nodule         ☑       Phos         ☑       Salt         ☑       Sandy         ☑       Silt	<ul> <li>Chlorite</li> <li>Dol</li> <li>Sand</li> <li>Slty</li> <li>FOSSIL</li> <li>Algae</li> <li>Algae</li> <li>Amph</li> <li>Belm</li> <li>Bioclst</li> <li>Brach</li> <li>Bryozoa</li> <li>Cephal</li> <li>Coral</li> <li>Coral</li> <li>Crin</li> <li>Echin</li> <li>Fish</li> <li>Fossil</li> <li>Gastro</li> <li>Oolite</li> <li>Ostra</li> </ul>	ACCESSORIES          Pelec         Pellet         Pisolite         Plant         Strom         Fuss         Oomoldic         STRINGER         Anhy         Arg         Bent         Coal         Dol         Gyp         Ls         Fr         Mrst         Ststrg         Carbsh         Clystn         Dol	Grysh Grysh Lms Sandylms Sh Ststn TEXTURE Moundst G Chalky CX CryxIn E Earthy MicroxIn MicroxIn Mudst Packst Wackest
Curve Track 1           ROP (min/ft)	37 Depth Tithologia	Geological Descriptions	TG, C1-C5         TG (units)         C1 (units)         C2 (units)         C3 (units)         C4 (units)         C5 (units)         0       TG         100         100         100         100



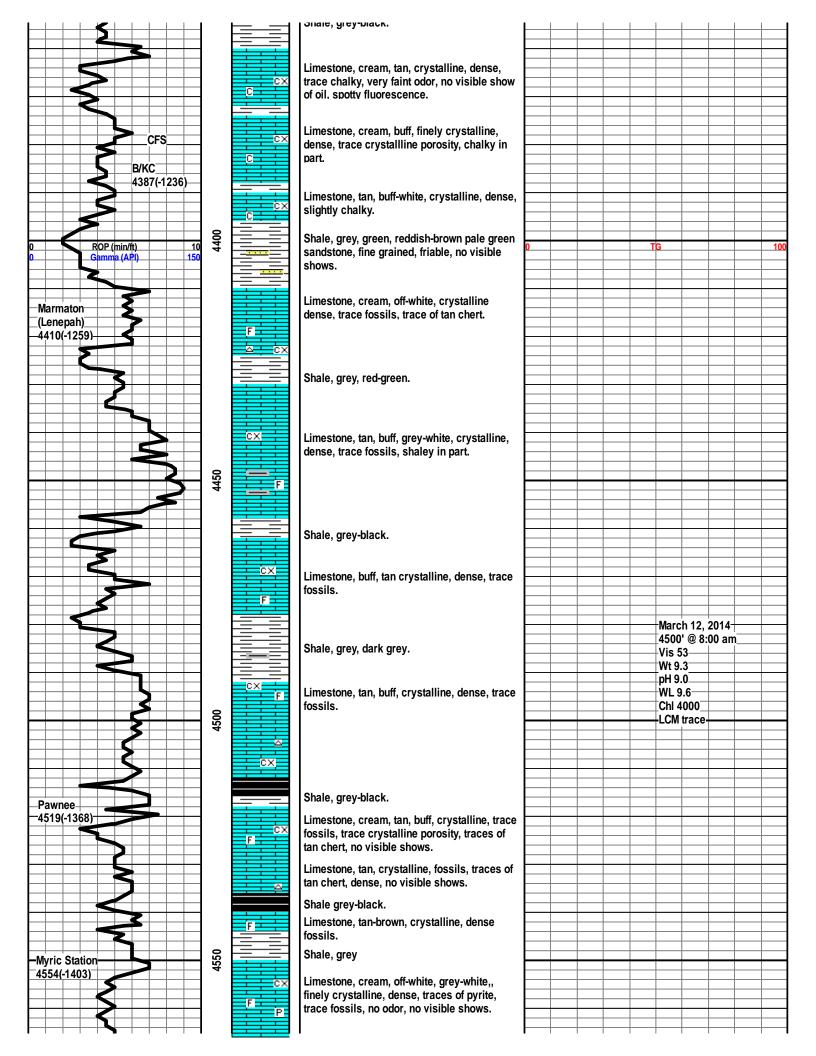


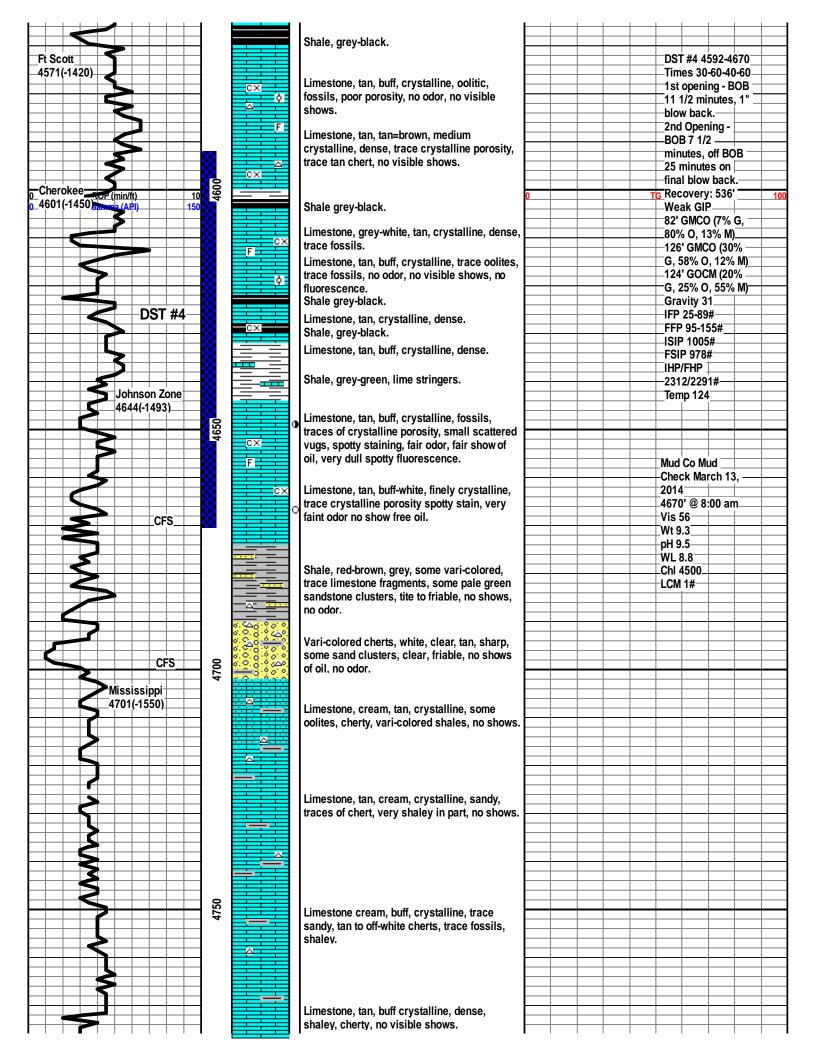
Shala arov-black

	<u> </u>	<u> </u>	<u> </u>		<u> </u>		<u> </u>		
	<u> </u>								
	<u> </u>								
	$\vdash$		<u> </u>						
		<u> </u>	<u> </u>				<u> </u>		
	<u> </u>								
						<u> </u>			
	<u> </u>	L	<u> </u>						
	<u> </u>								
							<u> </u>		
		<u> </u>	<u> </u>		<u> </u>	<u> </u>	<u> </u>		
0				Т	G				10
	<u> </u>		<u> </u>				<u> </u>		
			<u> </u>				<u> </u>		
	<u> </u>								
					KB 3	151'			
						· • · <u> </u>			
					Ctort	Com			
	<u> </u>				Start	Samp	les_		
					Mud	Co Μι			
					-Mud Chec	Co Mu :k	ıd —		
					Mud Cheo Marc	Co Mu :k :h 8. 2	ıd — 014—		
					Mud Chec Marc 3854	Co Mı :k :h 8, 2 ' @ 8:	ud — 014— 00 an		
					Mud Chec Marc 3854	Co Mı :k :h 8, 2 ' @ 8:	ud — 014— 00 an	n	
					Mud Chec Marc 3854 Vis 5	Co Mu :k :h 8, 2 :' @ 8: 51	ud — 014— 00 an	n	
					Mud Chec Marc 3854 Vis 5 Wt 8	Co Mu :k :h 8, 2 :' @ 8: i1 .9	ud — 014— 00 an	n	
					Mud Chec Marc 3854 Vis 5 Wt 8 pH 1	Co Mu :k :h 8, 2 :' @ 8: i1 .9 1.0	ıd 014— 00 an	n	
					Mud Chec Marc 3854 Vis 5 Wt 8 pH 1 -WL 9	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 .9 1.0 0.6	ıd 014 00 an	n	
					Mud Chec Marc 3854 Vis 5 Wt 8 pH 1 -WL 9	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 .9 1.0 0.6	ıd 014 00 an	n 	
					Mud Chec Marc 3854 Vis 5 Wt 8 pH 1 -WL 9	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 .9 1.0 0.6	ıd 014 00 an	n 	
					Mud Chec Marc 3854 Vis 5 Wt 8 pH 1 -WL 9	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014 00 an	n 	
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014 00 an	n 	
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014 00 an	n 	
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014— 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014— 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014— 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014— 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014— 00 an		
					Mud Chec 3854 Vis 5 Wt 8 pH 1 WL 9 CHL LCM	Co Mu :k :h 8, 2 :h 8, 2 :i1 :i1 :9 1.0 1.0 5000 1#	ıd 014— 00 an		



			Snale, grey-reu, son.				CHL	5200			
	0		Limestone, cream, tan, finely crystalline,				-LCM				
	4150		fossils, fossil frags, fossiliferrous porosity,				-				
		F	mostly all dense limestone, few pieces pyrite.								
		F	Limetone, tan, buff, crystalline, dense, trace								
			crystalline porosity, very faint show, no odor.								
CFS											
			Shale, grey-red.								
			Limestone, tan, buff, crystalline, fossils, trace								
			crystalline porosity, faint show of oil, poor to			_					
			fair odor.								
		cx	Limestone, tan, buff, crystalline, fossils,								
		<u> </u>	fossiliferrous porosity, trace oolites, poor to								
			fair odor, very light show of oil, trace chalky.								
5		F									
		cx	Limestone, cream, buff, crystalline, fossils,				DST	#2 42	27 to		
	4200		trace cystalline porosity, trace show of oil,				4262	·			
0 OP (min/ft) 10	4		poor odor, chalky in part.	0		T	Time	s 30-3	30-30-	30——	100
0 Garman (API) 150	1		Shale, grey-red.					penir			
								surfa			
			Limestone, cream-white, finely crystalline,					, no b			
			slightly fossiliferrous, chalky, no visible				back				
		F	shows.						ng, no		
			Limestere energy white off the life first					, no b			
	1		Limestone, cream-white, off-white, finely								
	1	c×	crystalline, chalky, no visible shows.				-back		41.84 1		
		C							1' Mud		
			Limestone, off-white, cream, finely crystalline,						l spot	s	
	1 🔳		dense in part, chalky, no visible shows.					7-19#			
								19-19	<b>#</b>		
			Shala aray black				ISIP				
	1 8		Shale, grey-black				FSIP	39#			
DST #2		<b>1</b>	Limestone, tan crystalline, dense, trace pin				IHP/F	HP _			
			point porosity, light staining.				2101	/2090	#		
			Shale grey.					o 113 <u>¯</u>			
	4250										
	4		Limestone, cream, tan-white, finely								
	1 🗙	CXF	crystalline, fossil fragments, poor to fair odor,	Strap at	4262'		Mud	Co Mu	id —		
	1 💌										
			I light show of oil some bleeding gas good				Chec				
		F CX	light show of oil, some bleeding gas, good	2.94 Sho					2014		
CFS	8	F CX	light show of oil, some bleeding gas, good spotty fluorescence, good gas indication.				Marc	h 10.	2014– 30 am		
CFS	8			2.94 Sho			Marc	h 10. ' @ 8:			
CFS				2.94 Sho			Marc 4262	h 10. ' @ 8: 8			
	ľ		spotty fluorescence, good gas indication.	2.94 Sho			Marc 4262 Vis 5	h 10. ' @ 8: 8 2			
CFS CFS	ľ			2.94 Sho			Marc 4262 Vis 5 Wt 9.	h 10. ' @ 8: 8 2 0.5			
			spotty fluorescence, good gas indication. Shale, grey-black	2.94 Sho			Marc 4262 Vis 5 Wt 9. pH 10	h 10. ' @ 8: 8 2 0.5			
	ĺ		spotty fluorescence, good gas indication.	2.94 Sho			Marc 4262 Vis 5 Wt 9. pH 10 WL 8 Chl 5	h 10. ' @ 8: 8 2 0.5 000			
		F	spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense.	2.94 Sho			Marc 4262 Vis 5 Wt 9. pH 10 WL 8 Chl 5 LCM	h 10. ' @ 8: 2 2	30 am		
		F	spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown.	2.94 Sho			Marc 4262 Vis 5 Wt 9. pH 10 WL 8 Chl 5 LCM	h 10. ' @ 8: 2 2.5 0.5 1# #3 42	30 am		
		F CX	spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline,	2.94 Sho			Marc 4262 Vis 5 Wt 9. pH 10 WL 8 Chl 5 LCM DST 4314	h 10. ' @ 8: 2 2 0.5 000 1# #3 420	30 am		
CFS CFS DST #3		F	spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity,	2.94 Sho			Marc 4262 Vis 5 Wt 9. pH 10 WL 8 Chl 5 LCM DST 4314	h 10. ' @ 8: 2 2 0.5 000 1# #3 420	30 am		
		F CX	spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline,	2.94 Sho			Marc 4262 Vis 5 PH 10 WL 8 Chl 5 LCM DST 4314 Time	h 10. ' @ 8: 2 2.5 000 1# #3 420 s 30-6	30 am		
		F CX	spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity,	2.94 Sho			Marc 4262 Vis 5 Wt 9. pH 10 WL 8 Chl 5 LCM DST 4314 Time 1st C	h 10. ' @ 8: 2 2.5 000 1# #3 420 s 30-6	30 am 60 to - 60-30-6 g - Bu		
		F CX	spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain.	2.94 Sho			Marc 4262 Vis 5 Wt 9. pH 10 WL 8 Chl 5 LCM DST 4314 Time 1st C to 4"	h 10. ' @ 8: 8 0.5 000 1# #3 420 #3 30-6 ppenir	30 am 50 to 60-30-6 ig - Bu no		
	1300	F CX	spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty	2.94 Sho			Marc 4262 Vis 5 Wt 9. pH 1( WL 8 Chl 5 LCM DST 4314 Time 1st C to 4" blow	h 10. ' @ 8: 8 2 0.5 1# #3 420 #3 420 #3 420 blow, blow, blow, back.	30 am 50 to 60-30-6 ig - Bu no	60	
	4300	F CX	spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown.	2.94 Sho			Marc 4262 Vis 5 Wt 9. pH 1( WL 8 Chl 5 LCM DST 4314 Time 1st C to 4" blow 2nd (	h 10. ' @ 8: 8 2 0.5 000	30 am 60 to 60-30-6 19 - Bu no	60	
	4300		spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown. Limestone, tan, buff, crystalline, fossil	2.94 Sho	prt to		Marc 4262 Vis 5 Wt 9. pH 1( WL 8 Chl 5 LCM DST 4314 Time 1st C to 4" blow 2nd ( Built	h 10. ' @ 8: 8 2 0.5 000 1# 43 420 9 9 9 9 9 9 9 9 9 1 1 1 1 1 1 1 1 1 1 1 1 1	30 am 30 to 60 to 10-30-6 10 - 30-6 10	60	
	4300		spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown. Limestone, tan, buff, crystalline, fossil fragments, oolites, inter crystalline porosity,	2.94 Shc	prt to		Marc 4262 Vis 5 Wt 9. pH 10 WL 8 Chl 5 LCM DST 4314 Time 1st C to 4" blow 2nd ( Built blow	h 10. ' @ 8: 2 0.5 	30 am 30 am 60 to 60-30-6 g - Bu no no hg - T blow,	60	
DST #3	4300		spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown. Limestone, tan, buff, crystalline, fossil fragments, oolites, inter crystalline porosity, fair odor, light show oil, spotty fluorescence,	2.94 Sho	Prt to		Marc 4262 Vis 5 Wt 9. pH 10 WL 8 Chl 5 LCM DST 4314 Time 1st C to 4" blow 2nd ( Built blow Reco	h 10. ' @ 8: 8 2 0.5 	30 am 30 to 60 to 9 - Bu no 10 - 30 - 6 10 - 30 - 7 10 - 30 - 6 10 - 30 - 7 10 - 30 - 7	60 ilt no	
	4300		spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown. Limestone, tan, buff, crystalline, fossil fragments, oolites, inter crystalline porosity,	2.94 Sho	Prt to		Marc 4262 Vis 5 PH 1( WL 8 Chl 5 LCM DST 4314 Time 1st C to 4" blow 2nd ( Built blow Reco 50' G	h 10. ' @ 8: 8 2 0.5 	30 am 60 to 90-30-6 g - Bu no ng	60 ilt no	
DST #3	4300		spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown. Limestone, tan, buff, crystalline, fossil fragments, oolites, inter crystalline porosity, fair odor, light show oil, spotty fluorescence,	2.94 Sho Board Board Mud Co Check March 1 4314' @	Prt to		Marc 4262 Vis 5 PH 1( WL 8 Chl 5 LCM DST 4314 Time 1st C to 4" blow 2nd ( Built blow Reco 50' G 5% C	h 10. ' @ 8: 8 2 0.5 	30 am 60 to - 0-30-€ g - Bu no blow, 70' GIF (5% G. M)	60 ilt no	
DST #3	4300		spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown. Limestone, tan, buff, crystalline, fossil fragments, oolites, inter crystalline porosity, fair odor, light show oil, spotty fluorescence,	2.94 Sho Board Board Mud Co Check March 1 4314' @ Vis 57	Prt to		Marc 4262 Vis 5 PH 1( WL 8 Chl 5 LCM DST 4314 Time 1st C to 4" blow 2nd ( Built blow Reco 50' G 5% C	h 10. ' @ 8: 8 2 0.5 	30 am 60 to - 0-30-6 g - Bu no _ - - - - - - - - - - - - - - - - - - -	60 ilt no	
J Zone CFS Stark Shale	4300		spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown. Limestone, tan, buff, crystalline, fossil fragments, oolites, inter crystalline porosity, fair odor, light show oil, spotty fluorescence, spotty staining, good gas indication.	 Board 	Prt to		Marc 4262 Vis 5 PH 1( WL 8 Chl 5 LCM DST 4314 Time 1st C to 4" blow 2nd ( Built blow Reco 50' G 5% C LIFP 2 FFP (	h 10. ' @ 8: 8 2 0.5 	30 am 60 to - 0-30-€ g - Bu no _ - - - - - - - - - - - - - - - - - - -	60 ilt no	
DST #3	4300		spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown. Limestone, tan, buff, crystalline, fossil fragments, oolites, inter crystalline porosity, fair odor, light show oil, spotty fluorescence,	2.94 Sho Board Board Mud Co Check March 1 4314' @ Vis 57 Wt 9.3- pH 9.5	Prt to		Marc 4262 Vis 5 Wt 9. pH 1( WL 8 Chl 5 LCM DST 1st C to 4" blow Reco 50' G 5% C IFP 2 FFP 3	h 10. ' @ 8: 8 2 000 1# 3 420 yeanin blow, back. Dpenin blow, back. Very OCM 0, 90% 1-31# 30-41# 327#	30 am 60 to - 60 to - 70 to - 60 to - 60 to - 70 to	60 ilt no	
J Zone CFS Stark Shale	4300		spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown. Limestone, tan, buff, crystalline, fossil fragments, oolites, inter crystalline porosity, fair odor, light show oil, spotty fluorescence, spotty staining, good gas indication.	2.94 Sho Board Board Mud Co Check March 1 4314' @ Vis 57 Wt 9.3 pH 9.5 WL 9.2	Prt to		Marc 4262 Vis 5 Wt 9. pH 1( WL 8 Chl 5 LCM DST 1st C to 4" Built blow Reco 50' G 5% C IFP 2 FSIP	h 10. ' @ 8: 8 2 000 1# 3 420 000 1# 43 420 000 14 5 30-6 19 blow, blow, blow, blow, blow, 1-31 14 30-41 13277 2977 *	30 am 60 to - 60 to - 70 to - 60 to - 60 to - 70 to	60 ilt no	
J Zone CFS Stark Shale	4300		spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown. Limestone, tan, buff, crystalline, fossil fragments, oolites, inter crystalline porosity, fair odor, light show oil, spotty fluorescence, spotty staining, good gas indication. Shale, grey-black.	2.94 Sho Board Board Mud Co Check March 1 4314' @ Vis 57 Wt 9.3- pH 9.5 WL 9.2 Chl 440	Prt to		Marc 4262 Vis 5 Wt 9. pH 1( WL 8 Chl 5 LCM DST 4314 Time 1st C to 4" Built blow Reco 50' G 5% C IFP 2 FFP 3 ISP FSIP	h 10. ' @ 8: 8 2 000 11 43 42( ) 000 11 43 42( ) yenin blow, back. Very ' OCM 0, 90% 1-311# 30-41# 3277# 297# ''	30 am 60 to - 60 to	60 ilt no	
J Zone CFS Stark Shale	4300		spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown. Limestone, tan, buff, crystalline, fossil fragments, oolites, inter crystalline porosity, fair odor, light show oil, spotty fluorescence, spotty staining, good gas indication. Shale, grey-black. Limestone, tan, crystalline, dense, trace fossils, no visible shows, no odor.	2.94 Sho Board Board Mud Co Check March 1 4314' @ Vis 57 Wt 9.3- pH 9.5 WL 9.2 Chi 440 LCM 1#	Prt to		Marc 4262 Vis 5 PH 1( WL 8 Chl 5 LCM DST 4314 Time 1st C to 4" Built blow Reco 50' G 5% C IFP 2 Sol' G 5% C IFP 2 1SIP FSIP	h 10. ' @ 8: 8 2 000 11 43 420 000 11 43 420 000 11 43 420 000 11 11 12 10 10 10 10 10 10 10 10 10 10	30 am 60 to - 60 to	60 ilt no	
J Zone CFS Stark Shale	4300		spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown. Limestone, tan, buff, crystalline, fossil fragments, oolites, inter crystalline porosity, fair odor, light show oil, spotty fluorescence, spotty staining, good gas indication. Shale, grey-black. Limestone, tan, crystalline, dense, trace fossils, no visible shows, no odor. Limestone, tan, buff, crystalline, fossils, fossil	2.94 Sho Board Board Mud Co Check March 1 4314' @ Vis 57 Wt 9.3- pH 9.5 WL 9.2 Chi 440 LCM 1#	Prt to		Marc 4262 Vis 5 PH 1( WL 8 Chl 5 LCM DST 4314 Time 1st C to 4" Built blow Reco 50' G 5% C IFP 2 Sol' G 5% C IFP 2 1SIP FSIP	h 10. ' @ 8: 8 2 000 11 43 42( ) 000 11 43 42( ) yenin blow, back. Very ' OCM 0, 90% 1-311# 30-41# 3277# 297# ''	30 am 60 to - 60 to	60 ilt no	
J Zone CFS Stark Shale	4300		spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown. Limestone, tan, buff, crystalline, fossil fragments, oolites, inter crystalline porosity, fair odor, light show oil, spotty fluorescence, spotty staining, good gas indication. Shale, grey-black. Limestone, tan, crystalline, dense, trace fossils, no visible shows, no odor.	2.94 Sho Board Board Mud Co Check March 1 4314' @ Vis 57 Wt 9.3- pH 9.5 WL 9.2 Chi 440 LCM 1#	Prt to		Marc 4262 Vis 5 PH 1( WL 8 Chl 5 LCM DST 4314 Time 1st C to 4" Built blow Reco 50' G 5% C IFP 2 Sol' G 5% C IFP 2 1SIP FSIP	h 10. ' @ 8: 8 2 000 11 43 420 000 11 43 420 000 11 43 420 000 11 11 12 10 10 10 10 10 10 10 10 10 10	30 am 60 to - 60 to	60 ilt no	
J Zone CFS Stark Shale	4300		spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown. Limestone, tan, buff, crystalline, fossil fragments, oolites, inter crystalline porosity, fair odor, light show oil, spotty fluorescence, spotty staining, good gas indication. Shale, grey-black. Limestone, tan, crystalline, dense, trace fossils, no visible shows, no odor. Limestone, tan, buff, crystalline, fossils, fossil	2.94 Sho Board Board Mud Co Check March 1 4314' @ Vis 57 Wt 9.3- pH 9.5 WL 9.2 Chi 440 LCM 1#	Prt to		Marc 4262 Vis 5 PH 1( WL 8 Chl 5 LCM DST 4314 Time 1st C to 4" Built blow Reco 50' G 5% C IFP 2 Sol' G 5% C IFP 2 1SIP FSIP	h 10. ' @ 8: 8 2 000 11 43 420 000 11 43 420 000 11 43 420 000 11 11 12 10 10 10 10 10 10 10 10 10 10	30 am 60 to - 60 to	60 ilt no	
J Zone CFS Stark Shale	4300		spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown. Limestone, tan, buff, crystalline, fossil fragments, oolites, inter crystalline porosity, fair odor, light show oil, spotty fluorescence, spotty staining, good gas indication. Shale, grey-black. Limestone, tan, crystalline, dense, trace fossils, no visible shows, no odor. Limestone, tan, buff, crystalline, fossils, fossil fragments, oolites, inter crystalline porosity,	2.94 Sho Board Board Mud Co Check March 1 4314' @ Vis 57 Wt 9.3- pH 9.5 WL 9.2 Chi 440 LCM 1#	Prt to		Marc 4262 Vis 5 PH 1( WL 8 Chl 5 LCM DST 4314 Time 1st C to 4" Built blow Reco 50' G 5% C IFP 2 Sol' G 5% C IFP 2 1SIP FSIP	h 10. ' @ 8: 8 2 000 11 43 420 000 11 43 420 000 11 43 420 000 11 11 12 10 10 10 10 10 10 10 10 10 10	30 am 60 to - 60 to	60 ilt no	
J Zone CFS Stark Shale	4300		spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown. Limestone, tan, buff, crystalline, fossil fragments, oolites, inter crystalline porosity, fair odor, light show oil, spotty fluorescence, spotty staining, good gas indication. Shale, grey-black. Limestone, tan, crystalline, dense, trace fossils, no visible shows, no odor. Limestone, tan, buff, crystalline, fossils, fossil fragments, oolites, inter crystalline porosity, fair odor, 'rank', spotty fluorescence, very	2.94 Sho Board Board Mud Co Check March 1 4314' @ Vis 57 Wt 9.3- pH 9.5 WL 9.2 Chi 440 LCM 1#	Prt to		Marc 4262 Vis 5 PH 1( WL 8 Chl 5 LCM DST 4314 Time 1st C to 4" Built blow Reco 50' G 5% C IFP 2 Sol' G 5% C IFP 2 1SIP FSIP	h 10. ' @ 8: 8 2 000 11 43 420 000 11 43 420 000 11 43 420 000 11 11 12 10 10 10 10 10 10 10 10 10 10	30 am 60 to - 60 to	60 ilt no	
J Zone Stark Shale 4320(-1169)			spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown. Limestone, tan, buff, crystalline, fossil fragments, oolites, inter crystalline porosity, fair odor, light show oil, spotty fluorescence, spotty staining, good gas indication. Shale, grey-black. Limestone, tan, crystalline, dense, trace fossils, no visible shows, no odor. Limestone, tan, buff, crystalline, fossils, fossil fragments, oolites, inter crystalline porosity, fair odor, 'rank', spotty fluorescence, very light show of oil. questionable gas indication.	2.94 Sho Board Board Mud Co Check March 1 4314' @ Vis 57 Wt 9.3- pH 9.5 WL 9.2 Chi 440 LCM 1#	Prt to		Marc 4262 Vis 5 PH 1( WL 8 Chl 5 LCM DST 4314 Time 1st C to 4" Built blow Reco 50' G 5% C IFP 2 Sol' G 5% C IFP 2 1SIP FSIP	h 10. ' @ 8: 8 2 000 11 43 420 000 11 43 420 000 11 43 420 000 11 11 12 10 10 10 10 10 10 10 10 10 10	30 am 60 to - 60 to	60 ilt no	
J Zone CFS Stark Shale			spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown. Limestone, tan, buff, crystalline, fossil fragments, oolites, inter crystalline porosity, fair odor, light show oil, spotty fluorescence, spotty staining, good gas indication. Shale, grey-black. Limestone, tan, crystalline, dense, trace fossils, no visible shows, no odor. Limestone, tan, buff, crystalline, fossils, fossil fragments, oolites, inter crystalline porosity, fair odor, 'rank', spotty fluorescence, very light show of oil. questionable gas indication.	2.94 Sho Board Board Mud Co Check March 1 4314' @ Vis 57 Wt 9.3- pH 9.5 WL 9.2 Chi 440 LCM 1#	Prt to		Marc 4262 Vis 5 PH 1( WL 8 Chl 5 LCM DST 4314 Time 1st C to 4" Built blow Reco 50' G 5% C IFP 2 Sol' G 5% C IFP 2 Sol' F SIP IHP/F 2120	h 10. ' @ 8: 8 2 000 11 43 420 000 11 43 420 000 11 43 420 000 11 11 12 10 10 10 10 10 10 10 10 10 10	30 am 60 to - 60 to	60 ilt no	
J Zone Stark Shale 4320(-1169)	4350		spotty fluorescence, good gas indication. Shale, grey-black Limestone, cream, tan, crystalline, dense. Shale, grey red-brown. Limestone, cream, tan, buff, finely crystalline, fossil fragments, trace fossiliferrous porosity, tite?, faint odor, slight show free oil spotty stain. Shale, grey, red-brown. Limestone, tan, buff, crystalline, fossil fragments, oolites, inter crystalline porosity, fair odor, light show oil, spotty fluorescence, spotty staining, good gas indication. Shale, grey-black. Limestone, tan, crystalline, dense, trace fossils, no visible shows, no odor. Limestone, tan, buff, crystalline, fossils, fossil fragments, oolites, inter crystalline porosity, fair odor, 'rank', spotty fluorescence, very light show of oil. questionable gas indication.	2.94 Sho Board Board Mud Co Check March 1 4314' @ Vis 57 Wt 9.3- pH 9.5 WL 9.2 Chi 440 LCM 1#	Prt to		Marc 4262 Vis 5 PH 1( WL 8 Chl 5 LCM DST 4314 Time 1st C to 4" Built blow Reco 50' G 5% C IFP 2 Sol' G 5% C IFP 2 Sol' F SIP IHP/F 2120	h 10. ' @ 8: 8 2 000 11 43 420 000 11 43 420 000 11 43 420 000 11 11 12 10 10 10 10 10 10 10 10 10 10	30 am 60 to - 60 to	60 ilt no	





	0	Limestone tan, buff, cream, dense, trace cherts, shaley in part, no visible shows, no odor.						
0 ROP (min/ft) 10 0 Gamma (API) 150 RTD 4800' LTD 4798'	4800		0			G		100