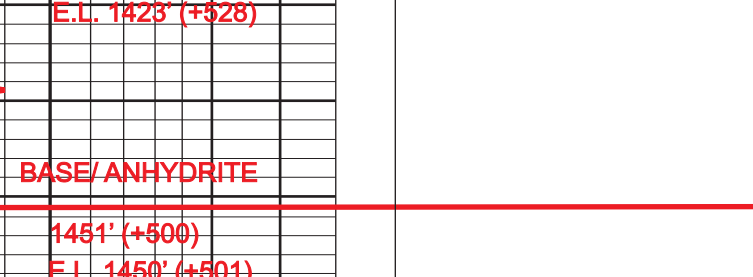


GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

Geologist on Well Alex Chapin		ELEVATIONS	
LEASE Kats A #1-14		KB 1951	
FIELD Wildcat		DF	
LOCATION 1650' FNL & 600' FEI		GL 1946	
SFC 14 TWSP 6S RGE 18W		Measurements Are All From Kelly Busting	
COUNTY Roooks STATE Kansas			
CONTRACTOR Shields			
SPUD 3/18/2015 COMP 3/26/2015			
R/D 3600 LTD			
MUD UP 2500	TYPE MUD	CHEMICAL	CONDUCTOR
SAMPLES SAVED FROM 2700	TO RTD	SURFACE 8-5/8" @ 219	
DRILLING TIME KEPT FROM 2600	TO RTD	PRODUCTION 4-1/2 @ 3597	
SAMPLES EXAMINED FROM 2700	TO RTD	ELECTRICAL SURVEYS	
GEOLOGICAL SUPERVISION FROM 2700		D/L, DUCI, MICRO	
REFERENCE WELL Muir Unit A 1-13 Sec 13-6S-18W		NABORS	

Formation	Sample Tops	E-Log Tops	Stimul Pos
Anhydrite	1424 (+527)	1423 (+528)	-11
Base Anhydrite	1451 (+500)	1450 (+501)	-8
Topoka	2913 (-962)	2911 (-960)	-9
Heebner	3117 (-1166)	3115 (-1164)	-7
Lansing	3158 (-1207)	3154 (-1203)	-6
BKC	3390 (-1439)	3387 (-1436)	-7
Arbuckle	3528 (-1577)	3527 (-1576)	+02
LTD	3600 (-1649)	3600 (-1649)	



REMARKS
It was decided to set 4-1/2" casing on the Kats A #1-14 to convert to an injection well.
Respectfully submitted,
Alex Chapin

LEGEND

	Anhydrite		Sandstone		Limestone		Shale		Carb Sh		Cherty LS		Chert		Dolomite
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DEPTH	DRILLING TIME IN MINUTES PER FOOT		SAMPLE DESCRIPTION	LOG
	Rate of Penetration	Decreases		
20			ANHYDRITE 1424 (+527) E.L. 1423 (+528)	
1450			BASE ANHYDRITE 1451 (+500) E.L. 1450 (+501)	
2700				
2800			-Lm, wht-gry, fxln, oo, foss, chky, hrd-sft	
2850			-Lm, wht-gry, mxln, oo, foss, sft-chky	
2900			-Lm, gry-tn, vfxln, hrd-dns	
2950			-Lm, gry, vfxln-mxln, hrd-dns, foss	
3000			-Lm, AA	
3050			-Lm, AA	
3100			-Sh, gry	
3150			-Lm, gry, fxln, hrd-dns	
3200			-Sh, gry	
3250			-Sh, gry	
3300			-Lm, wht, fxln, oo, foss, sft-chky	
3350			-Sh, gry-red	
3400			-Sh, gry	
3450			-Lm, wht, vfxln, sft-chky, sli odor, fr ooø, oomldø, gd stn, SSFO, sli intxlnø	
3500			-Lm, wht, fxln, sft-chky, sli odor, no stn, NS, ppø	
3550			-Lm, wht, vfxln, sft-chky, v sli intxlnø NS, no odor, no stn	
3600			-Lm, wht, mxln, oo, foss, v sli ooø, v sli intxlnø, NS, no odor, no stn	

Topoka
2913 (-962)
E.L. 2911 (-960)

Heebner
3117 (-1166)
E.L. 3115 (-1164)

Lansing
3158 (-1207)
E.L. 3154 (-1203)

Base Kansas City
3390 (-1439)
E.L. 3387 (-1436)

Arbuckle
3528 (-1577)
E.L. 3527 (-1576)

LTD 3600 (-1649) RTD 3600 (-1649)

DST #1 3033'-3085' (Lower Topoka)
Times: 30-30-30-30
1st open: Very weak surface blow, filled in 5"
2nd open: no blow
Rec: 5' mud
BFP: 8-25# ISIP: 1010# BHP: 1430#
RFP: 18-25# ISIP: 962# BHP: 1414#

DST #2 3149'-3225' (Lansing Top 35' & 50' zones)
Times: 45-60-30-60
1st open: 2 1/2" blow throughout.
2nd open: no blow
Rec: 5' mud
BFP: 9-25# ISIP: 1010# BHP: 1528#
RFP: 12-12# ISIP: 692# BHP: 1513#

DST #3 3298'-3327' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 2"
2nd open: built to 2"
Rec: 80' mud cut water (50% mud & 50% water)
BFP: 9-25# ISIP: 643# BHP: 1587#
RFP: 31-25# ISIP: 592# BHP: 1579#

DST #4 3328'-3327' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #5 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #6 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #7 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #8 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #9 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #10 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #11 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #12 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #13 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #14 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #15 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #16 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #17 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #18 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #19 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #20 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #21 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #22 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #23 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #24 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #25 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #26 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #27 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #28 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #29 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #30 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #31 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #32 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #33 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #34 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #35 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #36 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #37 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #38 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #39 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #40 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #41 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #42 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #43 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #44 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #45 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #46 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #47 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #48 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #49 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #50 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #51 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #52 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078# BHP: 1609#
RFP: 14-17# ISIP: 1083# BHP: 1600#

DST #53 3390'-3390' (Kansas City 160' zone)
Times: 30-30-15-30
1st open: built to 3/8"
2nd open: no blow.
Rec: 5' mud
BFP: 9-25# ISIP: 1078