

D 4010		Shale: maroon, brown, gray, greenish-gray, soft to firm.	mcw (10% mud, 90% wtr), 252' somcw (2% oil, 15% mud, 80%
C Zone 44		Llimestone: white to cream, recrystallized grainstone, now f- to vf-xln, ghost oolites, Chert: light salmon to pinkish, vy lt gray, to white, tr oolites and spicules, tight, no shows.	wtr), 126' gomcw (20% gas, 20% oil, 30% mud, 30% wtr), 189'
4030 D Zone		Shale: gray, calc., soft to firm. Limestone: white to cream, recrystallized grainstone tr oolites, fossil frags, tr glauconite, tight, no shows.	gomcw (20% gas, 25% oil, 25% mud, 30% wtr), 142' gmwco (10%
4040		Chert in the ls: vari-colored, salmon, orange white, clear to cloudy translucent, vitreous, no shows.	g, 25% mud, 25% wtr, 40% oil), SIP: 1271- 1260#.
4050 E Zone			King Singer 1-19 dst 400
4060	1 1 1 1 1 1 1 1 1 1	Limestone: It tan, It tan to translucent, recrystallized grainstone, strong oil aroma, spotty pinpoint porosity w/ brown oil specks, tr vuggs lined w/ druzzy calcite and stained w/ live brown oil, slow streaming cut, tr free oil. Becomes tight with depth.	
F Zone 4070		Limestone: white to It tan, oolitic grainstone, well-cemented, no shows.	
4080		Tr sucrosic, tr white to It tan chert. Becomes recrystallized with depth.	
4090 G Zone		Limestone: white to cream to It tan, recrystallized grainstone, tight, no shows. Sli chalky in parts.	
4100		Ghost oolites.	
4110		Limestone: white, recrystallized oolitic grainstone, tr grayish-tan chert,	
4120		vitreous w/ fussulinids. No shows. Muncie Creek 4122 (-1183) Shale: Black, carbonaceous, dolomitic, combustible, soft.	
4130 H Zone		Limestone: brown, recrystallized, med- to f-xln, sli arg, former wackestone, tr crinoids, thin whispy lams of brown to black shale, tight, no shows.	
4140		Mixed lithologies: Shales: gray, maroon, brown, greenish-gray; Limestones: brown and tan mottled w/ irregular brown shale whisps, tan mudstone, one frag with a single pore and brown oil fill, slow cut.	
4150		Limestone: cream to tan, recrystallized oolitic grainstone, ghost oolites, sparry calcite, chert: white to tan, vitreous, tight, no shows.	
4160		Limestone: vy It gray to white, recrystallized grainstone to micrite, tight, no shows.	
1 Zone 4170		Limestone: It tan to vy lt gray, f-xln to med-xln, recrystallized grainstone, ghost oolites, tight, no shows. Limestone: cream, recrystallized grainstone, f- to med-xln, ghost fossil	
4180		frags, tight, no shows. Limestone: cream, f-xln, recrystallized grainstone, two frags with spotty	
J Zon e 4190		pinpoint porosity and weak oil show, sli fluor, weak cut after crushing. Limestone: vy lt greenish-gray to lt tan, tight, no shows, tr white chert,	
0 ROP (min/ft) 5 4200		oolitic. Tr pyrite. Tr brachiopod. Stark Shale 4201 (-1262)	
0 Catoma (191 150 5 Catoma (191 150 5 Catoma (191 150 4 Catoma (191 150) 4 Catoma (Shale: black, carbonaceous, calcareous, soft, combustible. Brown limestone, tr fossils, f-xln, no shows. Shale: greenish-gray, gray, dolomitic, soft.	
K Zon 4220		Limestone: brown, med-xln to f-xln, ghost fossils, sli arg., no shows.	
e 4230		Limestone: tan, f-xln, fair pinpoint porosity, w/ spotty live oil show, free oitl on one frag, good aroma, streaming cut. Very few oily frags. Tight rock.	
4240		Limestone: It gray to It tan, some mottled w/ pellets, f-xln, tight, no shows, micrite to wackestone, tr gastropods, tr light-colored chert, vitreous. Tr black carbonaceous shale.	
4240		Shale: black, carbonaceous, tr pyrite, calcareous, combustible soft. Shale: green, gray, soft. Limestone: brown, f-xln to med-xln, sli arg., tr pyrite, tight, no shows. Shale: It gray, gray, greenish-gray, soft	
4250		Shale: It gray, gray, greenish-gray, soft. Limestone: brown, argillaceous, f- to micro-xln, recrystallized, mudstone.	
		Limestone: tan to brown, recrystallized, coarsely-xln sparry calcite set in micrite, tr arg., tight, no shows.	
4270		Limestone: It tan, crypto-xIn micrite, very tight, no shows. Base Kansas City 4280 (-1341)	
4280		Shale: gray, greenish-gray, It gray, soft to firm. calcareous.	
4290		Mormoton (200 (1262)	
4300		Marmaton 4302 (-1363) Limestone: vy It gray to It gray to It tan, f-xln, recrystallized, sparry calcite, ghost oolites, packstone to wackestone, tight, no shows.	
4310		Limestone: It grayish-tan, micritic matrix, tr brachiopods, recrystallized, tr sparry calcite, tight, no shows.	
4320		Increasing shale content: gray, greenish-gray, brown, mostly non-calc.	
4330		Some brown Is, micritic, burrows.	
4340		Mixed shales: maroon, brown, gray, greenish-gray, sample washes red, some are calc, some are non-calc, firm.	
4350		Limestone: cream to tan, micro- to f-xln, mudstone, tr stylolites, tight, no	
4360		shows. Recrystallized grainstone w/ a tabulate colonial coral, chaetetes, tr brachiopods.	
4370		Limestone: cream to It tan, f-xln, recrystallized, tight, no shows.	
4380		Limestone: white to It tan to It grayish-tan, f-xln, recrystallized, spotted with 0.2 mm black pelloids. No shows.	
4390		Pawnee 4389 (-1450) Limestone: It grayish-tan, mudstone, tight, no shows. Shale: greenish-gray and various shades fo gray, calcareous, soft to	
0 ROP(min/#) 5 0 Climate (4P) 150 6 Station 16		firm. Tr black shale. Limestone: white, crypto-xln micrite to finely granular, recrystallized grainstone, ghost fussulinids, milky translucent chert, slight porosity in	Kansas Drilling Technologies, Mud check
4410		the granular faction, mostly tight, no shows. Ghost oolites. Shale: black, carbonaceous, combustible, calc., firm.	4413' @ 1000 hrs. 5/21/2016 Vis. 44, Wt. 9.6 PV 12, YP 12
4420		Upper Ft. Scott 4422 (-1483) Limestone: brown to tan to mottled brown and tan, micritic to f-xln, tr	WL 9.6, Cake 1/32" pH 9.1, Ca tr. ppm CHL 3000 ppm Sol 9.0, LCM 1#
4430		brach., tr fussulinids, tr pyrite, treaks of gray to gray-brown shale, tr tan to brown vitreous, fossiliferous chert, tight, no shows. Limestone: cream to It tan to It brown, f- to crs-xln, fussulinids,	DMC: \$0 CMC: \$3,926.71
4440		Lower Ft. Scott 4448 (-1509)	
4450		Shale: black, carbonaceous, calc., firm, combustible. Limestone: It brown oolitic grainstone, fair cement porosity, oolites to 1.0 mm in dia., gray to brown and white mottled oolitic vitreous chert,	
4460		Limestone: It tan, crypto-xIn micrite, tr sparry calcite, very tight, no	
4470		shows. Brown oolitic chert as above. Shale: black, carbonaceous, soft to firm, non-calc., combustible. Cherokee 4476 (-1537)	
4480	0 & 4	Limestone: tan to grayish-brown, forams, echinoid spines, brachiopods, set in f- to med-xln matrix, packstone. Tr brown oolitic grainstone, no shows. Chert as above: tan to gray w/ oolites and fossils, vitreous. Tr pyrite.	
4490	0 - - - - - - - - - - - - -		
4500		Limestone: It grayish-tan, micro-xln matrix w/ a few ghost fossils, brachiopods, sparry calcite, mudstone, no shows.	DST # 1: 4508'-4535', Rec: 20' oil specked mud, 1% oil, SIP: 751-
T 4510		Shale: black, carbonaceous, calcareous, firm. Limestone: brown to tan, f-xln to micro-xln mudstone, honey to amber chert, vitreous, no shows.	816#.
4520		Johnson 4520 (-1581) Limestone: brown, micro-xln, echinoids, tr brach., tr pinpoint porosity, tr micro-vuggy porosity lined w/ druzzy calcite, live oil fill, slight oil film on wach budgt weder add aut	Kansas Drilling Technologies, Mud check
4530 CFS @ 4535'		wash bucket, weak odor, good cut. Limestone: tan to brown, brachiopods, organic specks, thin irregular whispy brown shale laminations, argillic, tr pyrite, f-xln to micro-xln,	Mud check 4535' @ 1000 hrs. 5/22/2016 Vis. 44, Wt. 9.5 PV 12, YP 14
4540		wackestone to mudstone, tight, no shows. Shale: gray to greenish-gray, silty in part, pyrite, black organic flakes, soft to firm.	WL 8.0, Cake 1/32" pH 9.4, Ca tr. ppm CHL 2000 ppm
D 4550		Sandstone: white to gray and black spotted, vf- to f-gr, qtz wacke, black specks of amphibole or pyroxene, also organic matter. Limestone: It tan to white, chalky in part, recrystallized w/ a few oolites still visible, grainstone, stylolites, no shows.	Sol 8.2, LCM 1-1/2# DMC: \$567.14 CMC: \$4,493.85
T # 4560		still visible, grainstone, stylolites, no shows. Mixed lithologies, conglomerate? Shale, limestone, argillic sandstone, brachiopods, solitary coral, several fragments have oil staining in a micro-vuggy limestone, similar to the Johnson show. Shale: mustard	King Singer 1-19 dst 200
4570	• 🐨 🐨 0 0	yellow w/ free-floating f-gr sand grains. Tr tan to honey chert. Sandstone: free clear qtz sand grains, coarse to vf-gr, well-rounded to	DST # 2: 4528'-4580', Rec: 2000' SMCW (99% wtr), 200' MCW (60% wtr), SIP: 1106-
CFS @ 4580'4580		sub-angular, dimples on the surface still have puddles of brown oil, instant streaming cut. Oil is also in conglomerate frags	(60% wtr), SIP: 1106- 1119#. Oil spots in tool.
4590		Shaley conglomerate: vari-colored shales: mustard, gray, It gray, brownish-maroon, greenish-gray, It gray siltstone, all are non-calc; various Is frags, some encased in green shale; tr pyrite; coars qtz sand	
0 (ROP (min/2)) 5 0 Comment (PP)) 150		grains; sandstone. Mississippian 4604 (-1665)	
6 16 4610	○	Limestone: vy It tan w/ pinkish-tan oolites, grainstone, poor porosity, tr pyrite, no shows.	
4620		Limestone: It gray, oolitic grainstone to dense mudstone. No shows.	
4630		Limestone: It gray, colitic grainstone to dense mudstone. No shows.	
4640		Limestone: as above w/ white to noney chert, spicular, oolitic, cloudy. No shows.	
4650		Dolomite: tan to brown, oolitic, fossils, micro-vugs w/ good porosity, no shows. Probably Spergen.	
4660 RTD 4660'		RTD 4660 (-1721) RTD 4660' @ 0654 hrs, 5/23/2016	
4670		Gemini Logging LTD 4663' Completed Logging Operations @ 1230 hrs 5/23/2016	
4680		Geologist: Charlie Sturdavant off location @ hrs 5/23/2016	

	DRILL STEM TES	TREP	ORT			
	King Oil Operations		19 12s 31w Gove			
ESTING , INC	1746 150th A∨e ⊟lis KS 67637		20 30	jer 1-19		
				cket: 64		DST#:4
MUMP.	ATTN: Charlie Sturdavant		Test S	Start: 20)16.05.23 @	22:20:00
GENERAL INFORMATION:						
Formation: LKC - A - E Deviated: No Whipstock: Time Tool Opened: 00:14:15 Time Test Ended: 06:39:00	ft (KB)		Test T Tester Unit N	r: E	Conventiona Bradley Wal 76	al Bottom Hole (Reset) ter
Interval: 3990.00 ft (KB) To 4			Refer	ence ⊟e	vations:	2939.00 ft (KB)
Total Depth: 4663.00 ft (KB) (T Hole Diameter: 7.88 inchesHol	VD) e Condition: Good			KB+	o GR/CF:	2931.00 ft (CF) 8.00 ft
several particular de la companya de La companya de la comp	e Condition. Good			NDI		5.00 II.
Serial #: 8365 Outside Press@RunDepth: 452.08 psig	@ 3991.00 ft (KB)		Capacity:			8000.00 psig
Start Date: 2016.05.23	End Date:	2016.05.24	Last Calib.:			2016.05.24
Start Time: 22:20:05	End Time:	06:38:59	Time On Bt Time Off Bi		2016.05.24	@ 00:14:00
FF: BOB @ 7 mi	ce blow , died @ 14 min. n. w , died @ 22 min.	I			RE SUMM	
7 τ 580 Ματικο 220 ± 570 Ματικο	inne ♥ 5305 ionpaska: → 149	Time	PRE	-SSUR Temp		
		(Min.)	(psig)	(deg F)	Annotati	
	10	0	2-14-14-14-14-14-14-14-14-14-14-14-14-14-	115.20	Initial Hydr	
		31	Second Contraction of the	114.44 114.77	Open To F Shut-In(1)	IOW (1)
		90	1271.47	116.11	End Shut-I	
		91		2010/01/01/01/01/01/01/01/01/01/01	Open To F	low (2)
		120 183			Shut-In(2) End Shut-I	n(2)
		184			Final Hydro	
38 tus 18g 2010 Tine (Hus)	read cread					
Recovery				Ga	s Rates	
Length (ft) Description	Volume (bbl)			Choke (ii	nches) Pressu	re (psig) Gas Rate (Mct/d)
190.00 mcw 10m 90w (trace oil) 1.40	10.02				2
252.00 somew 20 15m 80w	2.72					
126.00 gomew 20g 20o 30m 30						
	w 2.65	1				
189.00 gomew 20g 25o 25m 30						

King Singer 1-19 dst 10001.jpg

RILOBITE	DRILL STEM TEST REPORT						
TESTING, INC	King Oil Operations		19	12s 31w	Gove		
	1746 150th Ave		Sir	nger 1-19	9		
	⊟lis KS 67637		doL	Ticket: 64	775	DST#: *	1
NOK.	ATTN: Charlie Sturdavant		Tes	t Start: 20)16.05.22 (@ 00:12:00	
SENERAL INFORMATION:							
Formation: Johnson			-				
Deviated: No Whipstock: Fime Tool Opened: 02:53:45	ft (KB)			and the second s	Convention Jim Svaty	al Bottom Ho	le (Initial)
lime Test Ended: 07:06:00					76		
nterval: 4508.00 ft (KB) To 45	35.00 ft (KB) (TV D)		Ref	erence 🛛	vations:	2939.00	ft (KB)
Fotal Depth: 4535.00 ft (KB) (TV						2931.00	Decision of the plant from
Hole Diameter: 7.88 inchesHole	Condition: Fair			KBt	o GR/CF:	8.00	ft
Serial #: 8289 Outside						210000000000000000000000000000000000000	
Press@RunDepth: 33.92 psig Start Date: 2016.05.22	@ 4509.00 ft (KB) End Date:	2016.05.22	Capacity Last Cali			8000.00 2016.05.22	
Start Time: 2010.05.22	End Time:	07:06:00	Time On		2016.05.22	2010.05.22	
		1744/7473/7478 174	Time Off			2@05:10:00	
30-ISIP- No Blow 30-FFP- Weak Su 60-FSIP- No Blow Pressure vs. T	2	Time	Pressure	Temp	E SUMN Annotat		
	115	(Min.) 0	(psig) 2329.76	(deg F) 113.76	Initial Hyd	ro-static	
		1	30.26	113.12	Open To	Flow (1)	
		16 45	32.06 751.48		Shut-In(1 End Shut-		
		46	34.04		Open To		
t ♥] f		76	33.92		Shut-In(2		
		136	816.49 2262.50	116.65 117.73	End Shut- Final Hyd		
ro ro ro ro ro ro ro ro ro ro							
Recovery		8		Ga	s Rates		
	Volume (bbl)			Choke (i	nches) Press	sure (psig) G	as Rate (Mcf/c
Length (ft) Description		1					
Length (ft) Description 20.00 Oil Speck Mud 1%o 99%	m 0.15						
	m 0.15						
	m 0.15						
	m 0.15						

King Singer 1-19 dst 20001.jpg

	DRILL STEM TES	T REP	ORT			
RILOBITE	King Oil Operations		19 12s 31w Gove			
	1746 150th A∨e ⊟lis KS 67637		Singer 1-			
	ATTN: Charlie Sturdavant		Job Ticket: 64648 DST#: 2 Test Start: 2016.05.22 @ 16:23:00			
Formation: Basal Penn Sand Deviated: No Whipstock: Time Tool Opened: 19:18:00 Time Test Ended: 00:01:00	ft (KB)		Test Type: Tester: Unit No:	Conventional Bottom Hole (Reset) Bradley Walter 78		
Interval: 4528.00 ft (KB) To 45			Reference I			
Total Depth: 4535.00 ft (KB) (TV Hole Diameter: 7.88 inchesHole			KE	2931.00 ft (CF) 3 to GR/CF: 8.00 ft		
104-0126-0126-014-014-014-014-014-014 104-014-014-014 104-014-014-014-014-014-014-014-014-014-	 Construction and Construction Construction 		10142	антанан на стору (1993 п. — 609/00/006 - 5527		
Serial #: 8522 Outside Press@RunDepth: 1047.26 psig	@ 4529.00 ft (KB)		Capacity:	8000.00 psig		
Start Date: 2016.05.22		2016.05.23	Last Calib.:	2016.05.23		
Start Time: 16:23:05	End Time:	00:00:59	Time On Btm: Time Off Btm:	2016.05.22 @ 19:16:45 2016.05.22 @ 20:26:00		
TEST COMMENT: IF: BOB @ 30 se ISI: No return. FF: BOB @ 30 se FSI: No return.						
₹ 8520005000	ime । र । अस्थ temperature	-		JRE SUMMARY		
22 3n May 280	PL/ Insparate and the second	Time (Min.) 2 8 22 23 37 69 70	886.50 132.0 1106.02 131.0 950.68 130.1 1047.26 132.1 1119.08 130.5	 9 Initial Hydro-static 5 Open To Flow (1) 7 Shut-In(1) 		
Recovery		Gas Rates				
Length (ft) Description	Volume (bbl)		Choki	e (inches) Pressure (psig) Gas Rate (Mcf/d)		
2000.00 smcw 1m 99w 200.00 mcw 40m 60w	25.97					
0.00 oil spots in tool	0.00					
*Recovery from multiple tests						
Trilobite Testing, Inc	Ref. No: 64648	L	Printe	d: 2016.05.23 @ 08:06:54		