Company: Address:	OPE La Veta Oil and Ga	ERATOR as	
Contact Geologist: Contact Phone Nbr: Well Name: Location: Pool: State:	#3 Jan Section 13-22S-12 Kansas	W API: Field: Country:	15-185-23998 Heyen USA
	Scale 1:	240 Imperial	
Well Name: Surface Location: Bottom Location:	#3 Jan Section 13-22S-12	W	
API: License Number:	15-185-23998	<b>T</b>	
Spud Date: Region:	10/12/2017	Time:	7:45 PM
Surface Coordinates: Bottom Hole Coordinates:	2625' FNL & 2240'	FWL	9.30 PM
Ground Elevation: K.B. Elevation: Logged Interval: Total Depth: Formation:	1842.00ft 1851.00ft 3100.00ft 3750.00ft	To:	3750.00ft
Drilling Fluid Type:	Chemical (MudCo)		
	SURFACE (	CO-ORDINATES	
Well Type: Longitude: N/S Co-ord: E/W Co-ord:	Vertical 2625' FNL 2240' FWL	Latitude:	
	LOG	GED BY	
Company: Address: Phone Nbr: Logged By:	TerraTech Energy S 1632 S. West St. S Wichita, KS 67208 316-617-3959 Geologist	ATECTOR CONTRACTOR OF CONTRACT	Bruce Reed
O a return at a re-	CONT	RACTOR	
Rig #: Rig Type: Spud Date: TD Date: Rig Release:	Southwind Drilling 9 mud rotary 10/12/2017 10/18/2017 10/19/2017	Time: Time: Time:	7:45 PM 9:30 PM 2:30 PM
	ELEV	VATIONS	1040.00%
K.B. Elevation: K.B. to Ground:	1851.00tt 9.00ft	Ground Elevation:	1842.00ft
	N	OTES	
Surface Casing: Production Casing:	8-5/8" at 270' 5-1/2" at 3746'		
Daily Penetration:	10/12/17SPUE10/13/17270'10/14/171071'10/15/172235'10/16/173086'10/17/173540'10/18/173656'10/19/173750'	D @ 7:45 PM RTD @ 9:30 PM Completed @ 2:30 PM	
	DRIL	L STEM TESTS	
		oth initial and second flow	v period

Recovered: 1827' GIP, 534' Clean Gassy Oil (20% gas, 80% oil). IFP/15" 49-107 psi, ISIP/30" 1115 psi, FFP/30" 118-213 psi, FSIP/60" 1139 psi DST #2 3675'-3684' Arbuckle. Strong blow on both initial and second flow period. Recovered: 744' GIP, 90' Clean Gassy Oil, 62' GMOCW (40 % gas, 12% oil, 38% W, 15% M), 186' GMCOW (10% gas, 5% oil, 77% W, 8% M), 248' Water IFP/15" 48-68 psi, ISIP/30" 1216 psi, FFP/30" 156-271 psi, FSIP/60" 952 psi **GEOLOGICAL TOPS** Comparison\* **Formation** Sample Top Datum Log Datum Heebner 3144' -1293 3141' -1290 -3 -1314 -1310 -5 Toronto 3165' 3161' -1325 -3 Douglas 3176' 3173' -1322 Brown Lime -1425 -1419 -2 3276' 3270' -3 Lansing 3298' -1447 3294' -1443 -2 B/KC -1672 -1669 3523' 3520' 3558' Viola -1711 -1707 -1 3562' -1947 -7 Simpson 3598' 3595' -1744 Arbuckle 3646' -1795 3644' -1793 -5 \*Reference well: LaVeta Oil & Gas, #1 Jan, 1870' FNL / 1560' FWL Sec 13-22S-12W, Stafford County, Kansas **ROCK TYPES** Lmst fw7> Carbon Sh <u>....</u> Ss Dolprim shale, gry **OTHER SYMBOLS** INTERVALS **Oil Show** DST DST Int DST alt Core Core · DST Good Show Fair Show Poor Show tail pipe O Spotted or Trace O Questionable Stn D Dead Oil Stn -iuor escence **∦** Gas Printed by GEOstrip VC Striplog version 4.0.7.0 (www.grsi.ca) Curve Track #1 TG, C1 - C5 ROP (min/ft) Total Gas (units) Depth | Intervals Gamma (API) C1 (units) C2 (units) Lithology Oil Shov C3 (units) C4 (units) DST **Geological Descriptions** Cored Interval DST Interval 1:240 Imperial ROP (min/ft) 1:240 Imperial 10 150 Total Gas (units) 100 Limestone: cream-gray, fine crystalline to fossiliferous, poor visible Ga nma (API) C2 (units) 1000 porosity C3 (units) C4 (units) 100 Limestone: more cream-gray-white, fine crystalline, poor visible porosity, sub chalky Depth 3128' Mud Weight 8.9 3120 Funnel Viscosity 58 Limestone: cream-gray, fine crystalline, dense API Filtrate 8.8 Chloride 4000 Limestone: as above 3140 (-1293)3144' <u>Heebner</u> Shale: black, carbonaceous, fissile Shale: various shades gray, with trace fossiliferous, fine crystalline, limestone 3160 Limestone: cream-gray, fine crystlline to fossiliferous, poor visible porosity, no shows 3176' (-1325) **Douglas** Shale: as above 3180 Shale: various shades gray Shale: as above, some red, samples wash slight red 10 3200 150 ROP (min/ft) Total Gas (units) 100 Gamma (API) Shale: gray-green-red, samples wash red C2 (units) 1000 C3 (units) C4 (units) 100



Shale: various shades gray-green-red

5			chalky limestone, soft		Chloride 4500			
			Shaley limestone: as abo	ove, few pieces slightly c	oolicastic, decrease in			
			samples washing red, no	) shows	<i></i> <b>.</b> <i>.</i>			
	3560		<u>Viola</u>	3562	(-1711)			
$\langle \langle \rangle$			Chert: few pieces fresh,	vitreous, opaque, semi-t	translucent			
			Chert: cream-tan-amber	. vitreous. verv sharp and	d blocky, good			
			fractured porosity, samp	le carries fair odor, film o	on break			
	3580							
			Circulated at 3590' Cher	t: cream-white-tan, most	tly vitreous, with few			
			pieces weathered, cottor	iy, with pin head vugular	porosity, faint odor,			
			Simpson	3598'	(-1947)			
0 POP (min/ft)	10 3600		Shaley chert: cream-tan	vitreous opaque with	some green-gray shale	0	Total Gas	(units) 1000
0 Damma (API)	150			na oodo, opaquo, mare	some green gray endle	0	C1 (ur C2 (ur	uits) 1000 vits) 1000
					to the second should favor	0 0	C3 (ur C4 (ur	rits) 1000 1000
			pieces weathered and bl	sample carries abundant leed oil and gas	t vitreous chert, few			
	3620							
			Sandstone: few pieces a	ppear tite				
			Shales: pale green-turqu	loise-blue, with some de	nse shale			
	3640							
<b>E</b>			Arbuckle	3646'	(_1795)			
			Circulated at 3653' 2 pie					
			dolomite, sample carries	lots Simpson type shale	e, good odor.			
			odor in fresh sample, 30	-40% fluoresence, very	ne, succrosic, good slight show free oil			
	3660	1 1 1						
5		1 1 1	Circulated at 3656' Dolo poor to fair visible porosi	mite: cream-gray, mediu	m to coarse crystalline, show free oil, fair			
			fluoresence	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Depth		3678'
			Circulated at 3684' Dolo	mite: cream-gray mediu	m to coarse crystalline	Mud W	eight	9.6
	2690		poor to fair visible inter-o	rystalline porosity, good	strong odor with slight	API Fil	trate	/ 54 - 9.6
<b>L</b>	3080		show free oil and black s	itaining, good fluoresend	e	Chloric	le	5000
		1 1 1	1					
			Dolomite: cream-gray, m	edium to coarse crystall	ine, poor to fair fair			
5			Dolomite: cream-gray, m porosity, good strong od	ledium to coarse crystall or, decrease in visible sh	ine, poor to fair fair nows			
<pre>{</pre>	3700		Dolomite: cream-gray, m porosity, good strong od	redium to coarse crystall or, decrease in visible sh	ine, poor to fair fair nows			
<pre>{</pre>	3700		Dolomite: cream-gray, m porosity, good strong od Dolomite: cream-white, r	nedium to coarse crystall or, decrease in visible sh nore medium crystalline,	ine, poor to fair fair nows , barren with strong			
	3700		Dolomite: cream-gray, m porosity, good strong od Dolomite: cream-white, m odor, no shows	redium to coarse crystall or, decrease in visible sh nore medium crystalline,	ine, poor to fair fair nows , barren with strong			
	3700		Dolomite: cream-gray, m porosity, good strong od Dolomite: cream-white, m odor, no shows Dolomite: cream-white, m	nedium to coarse crystall or, decrease in visible st nore medium crystalline, nedium to coarse crytsa	ine, poor to fair fair nows , barren with strong Iline, some vugular			
	3700		Dolomite: cream-gray, m porosity, good strong od Dolomite: cream-white, m odor, no shows Dolomite: cream-white, m porosity, some odor, no	nedium to coarse crystall or, decrease in visible sh nore medium crystalline, nedium to coarse crytsal show free oil, mostly bar	ine, poor to fair fair nows , barren with strong Iline, some vugular ren, no shows			
	3700		Dolomite: cream-gray, m porosity, good strong of Dolomite: cream-white, m odor, no shows Dolomite: cream-white, m porosity, some odor, no	nedium to coarse crystall or, decrease in visible st nore medium crystalline nedium to coarse crytsa show free oil, mostly bar	ine, poor to fair fair nows , barren with strong Iline, some vugular ren, no shows			
	3700		Dolomite: cream-gray, m porosity, good strong od Dolomite: cream-white, m odor, no shows Dolomite: cream-white, m porosity, some odor, no Dolomite: mostly white, m porosity, barren, no show	nedium to coarse crystall or, decrease in visible sh nore medium crystalline. nedium to coarse crytsal show free oil, mostly bar nedium to coarse crysta vs	ine, poor to fair fair nows , barren with strong Iline, some vugular ren, no shows Iline, some vuguar			
	3700		Dolomite: cream-gray, m porosity, good strong of Dolomite: cream-white, m odor, no shows Dolomite: cream-white, m porosity, some odor, no Dolomite: mostly white, m porosity, barren, no show	nedium to coarse crystall or, decrease in visible sh nore medium crystalline nedium to coarse crytsa show free oil, mostly bar nedium to coarse crysta vs	ine, poor to fair fair nows , barren with strong Iline, some vugular ren, no shows Iline, some vuguar			
	3700		Dolomite: cream-gray, m porosity, good strong od Dolomite: cream-white, m odor, no shows Dolomite: cream-white, m porosity, some odor, no Dolomite: mostly white, m porosity, barren, no show Dolomite: as above, no s	nedium to coarse crystall or, decrease in visible sh nore medium crystalline. nedium to coarse crytsal show free oil, mostly bar nedium to coarse crysta vs	ine, poor to fair fair nows , barren with strong Iline, some vugular ren, no shows Iline, some vuguar			
	3700		Dolomite: cream-gray, m porosity, good strong of Dolomite: cream-white, m odor, no shows Dolomite: cream-white, m porosity, some odor, no Dolomite: mostly white, m porosity, barren, no show Dolomite: as above, no s	nedium to coarse crystall or, decrease in visible sh nore medium crystalline. nedium to coarse crytsa show free oil, mostly bar nedium to coarse crysta vs hows	ine, poor to fair fair nows , barren with strong Iline, some vugular ren, no shows Iline, some vuguar			
	3700 3700 3720 3720 3740		Dolomite: cream-gray, m porosity, good strong od Dolomite: cream-white, m odor, no shows Dolomite: cream-white, m porosity, some odor, no Dolomite: mostly white, m porosity, barren, no show Dolomite: as above, no s	nedium to coarse crystall or, decrease in visible sh nore medium crystalline. nedium to coarse crytsa show free oil, mostly bar nedium to coarse crysta vs shows	ine, poor to fair fair nows , barren with strong Iline, some vugular ren, no shows Iline, some vuguar			
	3700		Dolomite: cream-gray, m porosity, good strong of Dolomite: cream-white, m odor, no shows Dolomite: cream-white, m porosity, some odor, no Dolomite: mostly white, m porosity, barren, no show Dolomite: as above, no s Dolomite: cream-white, m shows, few pieces chert	nedium to coarse crystall or, decrease in visible sh nore medium crystalline. nedium to coarse crytsa show free oil, mostly bar nedium to coarse crysta vs hows nedium-coarse crystallin	ine, poor to fair fair nows , barren with strong lline, some vugular ren, no shows lline, some vuguar ne, looks tite, barren, no			
	3700 3700 3720 3720 3720		Dolomite: cream-gray, m porosity, good strong od Dolomite: cream-white, m odor, no shows Dolomite: cream-white, m porosity, some odor, no Dolomite: mostly white, m porosity, barren, no show Dolomite: as above, no s Dolomite: cream-white, m shows, few pieces chert	nedium to coarse crystall or, decrease in visible sh nore medium crystalline. nedium to coarse crytsa show free oil, mostly bar nedium to coarse crysta vs hows nedium-coarse crystallin	ine, poor to fair fair nows , barren with strong Iline, some vugular ren, no shows Iline, some vuguar ne, looks tite, barren, no			
	3700		Dolomite: cream-gray, m porosity, good strong of Dolomite: cream-white, m odor, no shows Dolomite: cream-white, m porosity, some odor, no Dolomite: mostly white, m porosity, barren, no show Dolomite: as above, no s Dolomite: cream-white, m shows, few pieces chert	nedium to coarse crystall or, decrease in visible sh nore medium crystalline. nedium to coarse crytsa show free oil, mostly bar nedium to coarse crysta vs hows nedium-coarse crystallin	ine, poor to fair fair nows , barren with strong lline, some vugular ren, no shows lline, some vuguar ne, looks tite, barren, no			