KOLAR Document ID: 1529746

Confiden	tiality Requested	1:
Yes	No	

KANSAS CORPORATION COMMISSION OIL & GAS CONSERVATION DIVISION

Form ACO-1 January 2018 Form must be Typed Form must be Signed All blanks must be Filled

WELL COMPLETION FORM

WELL	HISTORY	· DESCRIPTIO	N OF WELL	& LEASE

OPERATOR: License #	API No.:
Name:	Spot Description:
Address 1:	
Address 2:	Feet from Dorth / South Line of Section
City: State: Zip:+	Feet from East / West Line of Section
Contact Person:	Footages Calculated from Nearest Outside Section Corner:
Phone: ()	
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:
	Producing Formation:
	Elevation: Ground: Kelly Bushing:
	Total Vertical Depth: Plug Back Total Depth:
CM (Coal Bed Methane)	Amount of Surface Pipe Set and Cemented at: Feet
Cathodic Other (Core, Expl., etc.):	Multiple Stage Cementing Collar Used?
If Workover/Re-entry: Old Well Info as follows:	If yes, show depth set: Feet
Operator:	If Alternate II completion, cement circulated from:
Well Name:	feet depth to:w/sx cmt.
Original Comp. Date: Original Total Depth:	
Deepening Re-perf. Conv. to EOR Conv. to SWD	Drilling Fluid Management Plan
Plug Back Liner Conv. to GSW Conv. to Producer	(Data must be collected from the Reserve Pit)
	Chloride content: ppm Fluid volume: bbls
Commingled Permit #:	Dewatering method used:
Dual Completion Permit #:	
SwD Permit #:	Location of fluid disposal if hauled offsite:
	Operator Name:
	Lease Name: License #:
Sourd Data or Data Data Data TD Completion Data or	Quarter Sec TwpS. R East West
Recompletion Date Reached TD Completion Date of Recompletion Date	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 Drill Stem Tests Received					
Geologist Report / Mud Logs Received					
UIC Distribution					
ALT I II III Approved by: Date:					

KOLAR Document ID: 1529746

Operator Nar	ne:			Lease Name:	Well #:
Sec	Twp	S. R	East West	County:	

Page Two

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken		Y	′es 🗌 No	[og Formatio	n (Top), Depth a	and Datum	Sample
Samples Sent to Geolo	aical Survey		les No	1	Name	Э		Тор	Datum
Cores Taken Electric Log Run Geologist Report / Mud List All E. Logs Run:	Logs	□ Y □ Y □ Y	és ☐ No és ☐ No és ☐ No						
		Rep	CASING ort all strings set-c	RECORD] Ne	w Used	on, etc.		
Purpose of String	Size Hole Drilled	Siz	ze Casing et (In O.D.)	Weight Lbs. / Ft.		Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives
[1		ADDITIONAL	CEMENTING /	SQU	EEZE RECORD			
Purpose:	Depth Top Bottom	Туре	e of Cement	# Sacks Used		Type and Percent Additives			
Protect Casing Plug Back TD Plug Off Zone									
 Did you perform a hydra Does the volume of the Was the hydraulic fractu 	aulic fracturing treatme total base fluid of the uring treatment informa	ent on this v hydraulic fr ation submi	vell? acturing treatment tted to the chemic	exceed 350,000 al disclosure regi	gallo stry?	Nes Yes	 No (If No, s No (If No, s No (If No, f 	kip questions 2 ar kip question 3) ill out Page Three	nd 3) of the ACO-1)
Date of first Production/Inj Injection:	jection or Resumed Pr	oduction/	Producing Meth	iod:		Gas Lift 🗌 O	ther <i>(Explain)</i>		
Estimated Production Per 24 Hours	Oil	Bbls.	Gas Mcf Water Bbls. Gas-Oil Ratio			Gravity			
DISPOSITION	N OF GAS:		METHOD OF		F COMPLETION:			PRODUCTION INTERVAL:	
Vented Sold Used on Lease (If vented, Submit ACO-18.)			Open Hole Perf.		ually ubmit	Comp. Com ACO-5) (Subn	nit ACO-4)		
Shots Per Perforation Perforatio Foot Top Bottom		ation om	Bridge Plug Type	Bridge Plug Set At		Acid,	Fracture, Shot, C (Amount and Ki	ementing Squeezend of Material Used)	Record
TUBING RECORD:	Size:	Set At:		Packer At:					

Form	ACO1 - Well Completion
Operator	Cholla Production, LLC
Well Name	ZIMMERMAN-ELMORE UNIT 1-3
Doc ID	1529746

All Electric Logs Run

Gamma Ray	
Dual Induc	
Comp Neutron	
Micro Res	
Bond Log	

Form	ACO1 - Well Completion
Operator	Cholla Production, LLC
Well Name	ZIMMERMAN-ELMORE UNIT 1-3
Doc ID	1529746

Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Number of Sacks Used	Type and Percent Additives
Surface	12.25	8.625	24	1391	80/20	525	3% cc, 2% gel
Production	7.875	5.5	15.5	3662	Q-Pro C	130	10% salt;5% gilsonite

QUALI	TY OILWE Federal T	LL CEMENTING, INC. ax I.D.# 20-2886107
ne 785-483-2025 ell 785-324-1041	Home Office P.O.	Box 32 Russell, KS 67665 No. 1389
Date 9-5-20 3	Twp.Range1620	County State On Location Finish
Lease Z.m. Mer man E	Well No. / 3	Deation Schoenchen 4w 15 3/4w Owner
Contractor Souther ind the Type Job Production Sto	3 A. Ma	You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.
Hole Size 278	T.D. 3838	To Charla Broduction LLC
Csg. 5/2	Depth 3662.	Street
Tbg. Size	Depth	City State
Tool	Depth	The above was done to satisfaction and supervision of owner agent or contractor.
Cement Left in Csg. 39.52	Shoe Joint 39.52	Cement Amount Ordered
Meas Line	<u>Displace SCOUDEL</u> MJENT	1197-5alt 57-61500.40 50000
Pumptrk S No. Cementer	1951 y	Poz. Mix
Bulktrk No. Driver	M	Gel
Bulktrk /5 No. Driver	wa	
JOB SERVICES	S & REMARKS	Hutis
Remarks:		Salt /3
Rat Hole Rat Hole		Flowseal
Mouse Hole		Kol-Seal 6.50 #
Centralizers		Mud CLR 48 500 Gal
Baskets		CFL-117 or CD110 CAF 38
D/V or Port Collar		Sand
512540-31 102	Raf 1997 3622	Handling 189
ELTY inculation - i	Run 500gal mod	Mileage
Cearry 5 BL 40	Her-Spacek	FLOAT EQUIPMENT
the Author Cem	ent 5/2 with 13051	C Guide Shoe
Clear line + DSD	lace ply.	Centralizer
Life pressure. 200	よ。 、 、 、 、 、 、 、 、 、 、 、 、 、	Baskets
Dun landed 1.2	500#	AFU Inserts
<u> </u>		Float Shoe
	<u> </u>	Latch Down
		Purantic Chains Dto Q Status
A 1A	<u> </u>	Mileage 2/
AS A	<u> </u>	Tax
AN V	,	Discount
X Signature		That Charge
<u>organitie</u>		
		· · · · · · · · · · · · · · · · · · ·

QUALITY OILWELL CEMENTING, INC. Federal Tax I.D.# 20-2886107

Home Office P.O. Box 32 Russell, KS 67665

No. 2049

//one 785-483-1071 Cell 785-324-1041

Sec.	Twp. Ran	ae	County	State	On Location	Finish
Date 8-29-2020 3	16 20) R	ush	Kansas		11:150m
	· · ·	Loca	tion $E ll'$	5 Sto CLER	LAE S!	nto
Lease Zimmerman-Eln	none Unitel No.	1-3	Owner			:
Contractor South wind (Villing		To Quality	Oilwell Cementing, Inc		
Type Job Surface		· · ·	cementer a	and helper to assist ow	ner or contractor to	do work as listed.
Hole Size 14	T.D. 1 391		Charge To	Cholla Pri	oduction	LC
Csg. 8 54	Depth 1391		Street			
Tbg. Size	Depth		City		State	
Tool	Depth	·····	The above w	vas done to satisfaction a	and supervision of own	er agent or contractor.
Cement Left in Csg. 30	Shoe Joint 30	<u>)`</u>	Cement An	nount Ordered 5	25 350 34	2
Meas Line	Displace 86	.5				
EQUIPA		-	Common	420	× · · ·	1
Pumptrk 5 No. Cementer 12	1)m		Poz. Mix	105		
Bulktrk 15 No. Driver UOU	9		Gel.			· ···
Bulktrk 9 No. Driver Torm	V	·	Calcium	18	<u></u>	
JOB SERVICES	& REMARKS		Hulls	0	· · ·	
Remarks:			Salt	· · ·	· ·	
Rat Hole			Flowseal		······································	
Mouse Hole	·		Kol-Seal	· · · · · · · · · · · · · · · · · · ·	· · · · ·	
Centralizers		·	Mud CLR 4	18	• <u>•</u>	
Baskets			CFL-117 or	CD110 CAF 38	·····	
D/V or Port Collar	and and a second se Second second		Sand	And Sector And Se		
			Handling	\$53		
and the second secon			Mileage			
				FLOAT EQUIPN	IENT	399 <u>1</u>
			Guide Shoe	e		
		-L.	Centralizer	3		
			Baskets		<u> </u>	
			AFU Inserts	<u>s (</u>	<u> </u>	<u></u>
an <u>an an an an</u> an			Float Shoe		and <u>and and and and and and and and and and </u>	
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Com + PU	C. Car . L	<u>10 16 Ser</u>		narge Long Sul	Mauc V86	
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	Zir	nmei g	rman 95' FN	Elmo L & 1	re Ur 300' 5-020	nit No. FEL	1-3
		R	Jec. 3 ush Co Kl	ounty B = 21	, к20 , Кан .66'	nsas	
B	Wel Surface L Bottom L License N Spu Drilling Cor Surface Coor Surface Coor Ground El K.B. El Logged Tota Foi Drilling Flu	l Name: Z ocation: 99 ocation: API: 19 Number: J d Date: 8/ Region: R npleted: 9/ dinates: evation: 2 evation: 2 lnterval: 29 lnterval: 29 interval: 29 dinates: 2 evation: 2 interval: 29 lnterval: 20 lnterval: 20	Scale immerman Eln 5' FNL, 1300' F 5-165-22173-00 /28/2020 /28/2020 /28/2020 /28/2020 /157.00ft 166.00ft 157.00ft 157.00ft 157.00ft 157.00ft 338.00ft ansing-Kansas chemical/Fresh	e 1:240 Imperia hore Unit # 1-3 EL, Sec 3-16 0-00 City Water Gel	al 3 S-20S Tiı Tiı	me: 3:15 PM me: 12:18 PM To: 3838.00ft	
	Co A Contact Ge Contact Pho Wel L	ompany: C Address: 1 Eologist: B one Nbr: 3 I Name: Z ocation: 9 API: 1 Pool: State: K	O cholla Productic 0390 Bradford tiileton, CO 80 ill Goff 03-623-4565 immerman Elm 5' FNL, 1300' F 5-165-22173-00	PERATOR on, LLC Rd. Suite 201 127 nore Unit # 1-3 EL, Sec 3-16 0-00	3 S-20S Fia Coun	eld: District 30 try: USA	
		C	Lo Darlio Stur day	DGGED BY	nsulting		
The Che	Pho Log	Address: 93 Gone Nbr: 39 ged By: G	nan Elmore Un	01 NOTES	Nar	me: Charlie Stu	rdavant B' and LTD of 3836',
oil were Two DS Gassy (depletio Examin section, Based o Lansing The san Wichita Respec Charlie	noted in the Lan T's were conduc Dil (80% oil), 40' on at 270-267#. D ation of well cutti with the C zone on the sample ex C zone should b nples were saved , Kansas. tfully submitted, Sturdavant	ted in the Lar WCM (85% r OST #2 cover ings indicated being the lor aminations, I be further test d and will be	F, G, and I zo nsing, with rath mud), and 60' N ing Lansing zo d little porosity ne exception. DST results, an ted through pro available for re	er mixed resu MCW (80% wa nes D, E, F ar and, in genera d log analysis oducton casing eview at the Ka	as minor sho Its. DST #1 ater). Shut ir ad G recover al, tight rocks a, it was dete J. ansas Geolo	ws in the Pawnee covering Lansing pressures showe red 20' Mud with S s throughout the L ormined by all part gical Survey well	C zone, recovered 20' d signs of reservoir SIP 978-975#. ansing-Kansas City ies involved that the sample library, located in
	CHARI	JE <u>S</u>	Well Co	omparison St	neet <u> [CO</u>] 	NSULTI	NG
Formation Anhydrite Bottom Anhyd. Stotler Tarkio Topeka King Hill Queen Hill Heebner Toronto Lansing Stark Base/KC Pawnee Cherokee Shale Pre-Cambrian Total Depth	DRILLING Cholla Pro Zimmerman Eln 95' FNL & 1300' FEI Rush Cou 2166 KB Sample Sub-Sea 1374 792 1421 745 2970 -804 3015 -849 3134 -968 3260 -1094 3323 -1157 3412 -1246 3430 -1264 3456 -1290 3658 -1492 3704 -1538 3760 -1594 3802 -1636 3838 -1672	WELL oduction, LLC hore No. 1-3 L Sec. 3 T16S R 1368 1409 2964 3010 3130 3260 3322 3410 3430 3455 3654 3698 3758 3892 3804 3836	ELL COMPA 20 W 2173 ub-Sea Log 798 1388 757 1428 -798 2978 -844 3024 -964 3145 -1094 3272 -1156 3336 -1244 3425 -1264 3445 -1264 345 -1264 3445 -1264 345 -1264 345 -1264 345 -1264 345 -1264 345 -1264 345 -1264 345 -1264 345 -1264 345 -1264 345 -1264 3671 -1592 3774 -1670 3900	RISON SHI COMPARISON W Production Zimm, 775' FNL & 2065' Sec. 3-T16S-R20' S KB 78 778 78 78 78 -812 -88 -858 9 -979 -1106 12 -1170 -1260 -1304 -1505 13 -1505 -1608 14 -1644 8 -1727	EETN FEL erman #1-3 FEL W bitructural elationship ple Log 20 19 14 14 15 2 12 3 14 16 5 15 3 17 2 18 4 16 5 15 5 7 6 5 57	COMPARIS Slawson Coti C-NE Sec. 3-T165 2147 KB 31358 789 1395 752 2952 -805 3000 -853 3121 -974 3250 -1103 3314 -1167 3404 -1257 3425 -1278 3448 -1301 3648 -1501 3694 -1547 3759 -1612 3793 -1646 3745 -1598 3995 -1848	ON WELL nger # B-1 NE Relationship Sample Log 3 9 -7 5 1 7 4 9 6 10 9 9 10 11 11 13 14 14 11 12 9 13 9 15 18 20 14 -80 -38 -40 176 178
Company: Company: Operator Contac Bill Goff Kelly Branum Wellsite Geologi Drilling Contract DATE 8/28/2020 8/29/2020 8/30/2020 9/1/2020 9/2/2020 9/3/2020 9/3/2020	Charlie Sturdavant 920 12th Street Golden, CO 80401 cts: 0: 303-623-4565; Cc Cr85-324-1414 st: Charlie Sturdavant Cell: (303)907-2295 tor: Southwind Drilling 7:00 AM DEPTH 0 ft. 1000 ft. 0 ft. 2200 ft. 0r 3468 ft. 3560 ft. 3760 ft. 0 ft.	Consulting Consulting ell: 303-249-0430 t g Co. Rig #3; Too REMARKS bud @ 1815 hrs. illing ahead to 13 80-20 cement. Pl OC. Drill plug ou illing ahead. Cor 5% mud), 60' MC 55 in Lansing G z illing ahead. Rea 1700 hrs. Compl	Daily AVANS RILLING REA L EI Fi Al Sol Pusher: Frank Ro 391'. Set 33 jts of ne lug down. 2315 hrs t @ 1115 hrs. ologist on location of nduct DST #1: 3460 W (80% water), SIP zone. Conduct DST nched RTD of 3838' eted logging opera	Drilling Report CONT Well: Zimmern ocation: 95' FNL & Sec. 3-T1 Rush Co evation: GL: 2157 eld: PI No.: 15-165-22 urface Casing: 8 5 ome; cell: 620-566- ew 24# 8-5/8" csg of 2 2315 hrs. 3485', Rec: 20' GC : 270-265#. #2: 3502-3560'; Ref @ 1218 hrs. Midw tions @ 2030 hrs.	ort SULLT han Elmore Unit 1300' FWL ISS R20W unty, KS 7, KB: 2166 2173-00-00 (8" set @ 13 7324 @ 1391' w/ 525 st 0 (80% oil), 40' V ec: 20' mud, est Wireline on	TINC # 1-3	
	We Lo L N/S E/W	ell Type: V ngitude: -9 _atitude: 3 Co-ord: Co-ord:	SURFAC ertical 99.515409 8.69387	E CO-ORDIN	ATES		
	Cor R Spu T Rig F	ntractor: S Rig #: 3 ig Type: m ud Date: 8, D Date: 9, Release:	CO outhwind Drillin nud rotary /28/2020 /4/2020	MTRACTOR	Tin Tin Tin	me: 3:15 PM me: 12:18 PM me:	
Measure	K.B. El K.B. to ement Type:	evation: 2 Ground: 9	EL 166.00ft .00ft TO	TAL DEPTH Meas	ound Elevati urement Dep	on: 2157.00ft oth:	TVD: 0.00
	ht vari nst fw<7 nst fw7> FOSSIL	shale, gr Shgy shale, gr	RC	CK TYPES Carbon Sh shale, red Quartz CESSORIES CESSORIES	* * * * STRINGER	Igne	URE
 Arginaceous ⊥ Calcareous ■ Carbonaceous F △ Chert White △ Chert, dark ☆ Varicolored chert ✓ Dolomitic ✓ Euhed rhombs of ■ Heavy, dark min Mo Mica P Pyrite 	 Glocia Shocia Shoc	istic or Fragment iopod oa ds inid s idic ds les	Whispy	s Carbonaceous ormity	 Argillaceo Limestone Shale green sha red shale 	us CAC e FXF MXM	ryptocrystalline inexin licroxin
MISC Daily Report Digital Photo Document Folder Core Log File Core Log File Drill Cuttings	DST DST I DST a DST a	nt alt	OTH	ER SYMBOLS	6		
Curve Track ROP (min/ft) Gamma (API) Cal (in)	al Depth Intervals	Lithology	Oil Show	Geologica	Printed by	GEOstrip VC Striplog	r version 4.0.8.15 (www.grsi.ca) TG, C1 - C5
1:240 Impe 0 ROP (min/ 0 Gainma (A 6 Cal (in) 	rial ft) 5 Pl) 150 2910 2920 2950 2950 2960 2960		Zim 95' FN Geologist o 2750' Anhydrite I	Cholla Pro merman El & 1300' FE Rush Cou KB on location @ Top: 1374 (+7 Base: 1421 (+	oduction, more Uni EL Sec 3-1 Junty, Kans = 2166 2315 hrs. 3 (92) 745)	LLC t No. 1-3 T16S-R20W sas 8/31/2020 @	1:240 Imperial Mud-Co, Mud check 2957' @ 715 hrs. 9/1/2020 Vis. 53, Wt. 8.6 PV 16, YP 21 WL 5.4, Cake 1/32" pH 11.5, Ca Tr CHL 2,600 ppm Sol 2.1, LCM 1 DMC: \$791.13 CMC: \$4,733.59
	2970 2980 2990 (ft) 5 3000 Pl) 150		10' sample: Limestone: It gr debris, wackest Shale: gray, sof	Stotler 2 s begin @ 30 ray to tan, f-xln to v tone to mudstone, ft, dolomitic.	2970 (-80 00' f-xln, tr crinoids tight no shows.	4) and other fossil Tr pyrite.	
	3010 3020 3020 3030 3030 3040		Limestone: tan packstone, tigh Limestone: gray brachiopods, fra	Tarkio to grayish-tan, fos t, no shows. y to It gray to tan, f agmental debris, p	3015 (-84 sil debris, tr bra ossiliferous, fus backstone, no sh	I9) chiopods, tr pelloids, ulinids, peloids, nows.	
	3050 3060 3070		Limestone: tan, Shale: gray, sof Limestone: brov argillaceous, pa Shale: gray, sof	oolitic grainstone, ft to firm, calcareor wn to grayish-brow ackstone, peloidal ft, micaceous, non	fair interxIn por us. m, bioclastic de streaks, tight, no -calcareous.	osity bris, spicules, sli o shows.	
	3080 3090 3100 3110		Limestone: tan, f- to vf-xln matri Limestone: gray crinoids, gray p gray, soft shale Interbedded gra and calcareous crinoids, spiculo	fossiliferous, brac ix, packstone, tigh y to tan, argillaceou eloids 0.2-1.5 mm ay argillaceous lim, , LS: fusulinids, bi es, set in a vf-xln a	chiopods, fusulir t, no shows. us, fossiliferous in dia., packsto estone and gray ryozoans, flatter argillaceous mat	hids, crinoids, set in a , brachiopods, ne to wackestone, tr shale. Shale is soft hed oolites and peloids, rix, tight, no shows.	
	3120 3130 3140 3140 3150		Shale: gray, firr Limestone: crea tight, no shows Limestone: tan, 0.2mm in dia., v Limestone: It br	n, calcareous to no Topeka am to tan, crypto-x recrystalized bioc very tight, no show rown to tan. mostly	on-calcareous. 3134 (-96 In micrite; tr of c lastic oolitic gra rs. r crvoto-xin micr	bolites in mudstone, instone, oolites <	
	3160 3170 3170 3180		Limestone: tan, Limestone: tan, Limestone: It ta shows.	wn to grayish-brow finely fragmental crypto-xln micrite n, vf-xln, sucrosic-	ullinids and brac n, micritic to mu to oolitic, no sho , very tight, no s granular, fair in	hiopods, tight, no udstone w/ crinoids, ws. hows.	
	(t) 5 3190 (t) 5 3200 (t) 5 3210 3210		Limestone: tan, fusulinids set ir gray shale, no s Limestone: tan, fusulinid-bearin	wackestone, tr wh argillaceous wach shows. f-xln bioclastic pa g chert, no shows	nite granular to g kestone, tr bracl ckstone w/ lt gra	gray to tan chert, niopods, streaks of ay, tan, and white	
	3220		Limestone: tan, to white chert c Limestone: tan, Limestone: tan debris, tr chert,	f-xln w/ fusulinids ontaing the same finely-sucrosic, tr w/ spotty gray mot f-xln sucrosic ma	and bryozoans fossils. spicules, Tr tar tiling, fusulinids, trix, fair inter-xln	, packstone with gray n micrite, no shows , oolites, bioclastic porosity, no shows.	
	3250 3260 3270 3270 3280		Limestone: gray bryozoans, tan porosity, no sho Shale: black, ca Shale: gray, cal Limestone: tan, xIn porosity, no	wo tan, f-xln, bioc to mottled gray an ows. King Hil arbonaceous, com lcareous, firm. f-xln, bioclastic de shows.	d white chert w/ I 3260 (-1 bustible, firm, d ebris, fusulinids	n rusulinids, fossils, good inter-xln 094) olomitic. , grainstone, fair inter-	
	3280		Limestone: crea	am to It gray, crypt bioclastic-fragme	o-xln micrite, tig ntal grainstone,	ht, no shows. f-xln, no shows.	

3	290		Limestone: tan, bioclastic-fragmental grainstone, f-xln, no shows.	
3	300		Limestone: tan, crypto-xln micrite, tight, no shows.	
			tr crinoids, tr bryozoans, fair to good inter-xln porosity, tr brown organic matter, no shows.	
	310		Limestone: It gray to grayish-tan, f- to vf-xln matrix, thinly-laminated, thin whispy gray shale laminations, tr fusulilnid frags, tr gray mottled chert,	
3	320		wackestone, tight, no shows.	
			Shale: black, carbonaceous, non-combustible, brittle, non-calc.	
	330		fusulinids, wackestone, tight, no shows.	
3	340		tan to lt gray vitreous, fossiliferous chert, packstone, fair inter-xln porosity, no shows.	
	350			
			Limestone: tan, bioclastic to finely sucrosic, no identifiable fossils, fair inter-xln porosity, no shows. Tr gray and white streaked fossiliferous chert	
3	360		Limestone: tan, fossil frags, crinoids, fusulinids, bioclastic packstone, f-	
	370	▁╻╪╤ <u></u> ╺Ŷ⊥ ══╷⊥⊙⊥ ┙╶	xIn to finely sucrosic matrix, fair inter-xIn porosity, no shows. Thin gray shale laminations with crinoids.	
			l importance ton if who to misse who to be accessive on a chest fuer limit	
3	380		frags, stylolites, sparry calcite, tr pyrite inclusions, thin gray shale laminations, packstone to wackestone, no shows.	
3	390			
	100		Limestone: cream to it tan, micro-xin mudstone to f-xin wackestone w/ random fossil frags, it gray chert w/ fusulinid frags, no shows.	
0 ROP (min/9) 5 0 Gamma (API) 150 6 Cal (in) 16	400		set in a vf-xln matrix, thin brown to gray shale laminations and stylolites, wackestone, tight, no shows. Tr black shale.	
3	3410		Heebner 3412 (-1246)	
	3420		Shale: black, carbonaceous, combustible, dolomitic, hard, brittle.	
		<u>-1==</u>	Shale: It greenish-gray, soft and mushy, calcareous.	
	3430		Limestone: very It gray to white, ghost fusulinids, recrystallized former	
3	440		grainstone, now very tight, no shows.	
	450		Shale: It gray to greenish-gray to reddish-brown, soft and mushy, calcareous.	Mud-Co, Mud check 3480' @ 703 hrs. 9/2/2020
	94OU		Lansing 3456 (-1290)	Vis. 56, Wt. 8.9 PV 14, YP 22 WL 7.6, Cake 1/32"
S 3	460		Limestone: tan to cream, recrystallized grainstone, ghost fossils, some finely granular texture, patches of sparry calcite, tight, no shows.	pH 11.0, Ca Tr CHL 2,700 ppm Sol 4.3 L CM 1
#	470		Limestone: tan and brown mottled, recrystallized, f-xln, ghost fossils, tr crinoids, tr fusulinids, tr stylolites and thin shale laminations, tight, no shows	DMC: \$1,388.91 CMC: \$6,122.50
1 CFS @ 3480'			Shale: red, firm to soft and mushy, slightly dolomitic.	DST # 1: 3460-3485'
CFS @ 3485'	480		Limestone: it tan, oolitic grainstone, oolites to 1.5mm in dia, oomoldic and good inter-xln porosity, tr fossil debris among the oolites, oil aroma, dark oil staining in all porosity faint fluor, instant streaming cut.	Rec: 20' GO (80% oil), 60' MCW (80% Wtr).
3	490		Becomes well-cemented with depth.	40' WCM (85% Wtr). SIP: 270-267#.
	500		Limestone: white to cream, oolitic grainstone w/ fusulinids, well- cemented, tr It gray vitreous chert w/ fuslinids, tight, no shows.	Deviation: 1 degree
S S	000		Limestone: It gray, micro-xin mudstone to wackestone w/ fusulinids and crinoids, tr pyrite, tr thin whispy gray shale laminations, tight, no shows.	Pipe Strap: 1.85' long to board
	510		Limesone: It gray to bownish-gray, oolitic-bioclastic packstone, f-xln matrix, fair secondary pinpoint to micro-vuggy to inter-xln porosity, strong oil aroma, free oil, staining in porosity, gas bubles poping, micrite fraas w/ secondary pinpoint	
	520		porosity and oil stain. Pyrite specks in tan micrite. Black carbonaceous dolomitic shale.	
Lan E-F			micritized in part, weak secondary pinpoint porosity, rare sparry calcite crystals w/ inter-xln porosity, weak oil aroma, very spotty oil staining, fair yellow fluor, slow bleeding cut.	DST #2: 3502-3560'
3	530		Limestone: cream to It tan, oolitic grainstone w/ inter-xln porosity and oil stain, intact oolites to 2mm, tr bryozoans, diagenetic history includes total cementation with subsequent development of pippoint present used to	Rec:20' mud, SIP: 978-975#.
CFS @ 3540'	540		amounts of micro-vuggy porosity, ghost oolites and fusulinids, weak oil aroma, spotty staining due to poor development of secondary porosity, yellow fluor, slow weak cut.	Mud-Co, Mud check
Lan G			Limestone: vy It gray to It tan, micritized former grainstone, tr brachiopods, tr white chert w/ oolites, tr pyrite,	9/3/200 Vis. 56, Wt. 9.1
	550		Limestone: cream to vy It tan, mostly micritized grainstone, tr of oolitic grainstone w/ good inter-xln porosity and oil staining, yellow fluor, slow	WL 8.8, Cake 1/32" pH 10.0, Ca 80 ppm
	560		to instant streaming cut, fair oil aroma.	CHL 7,800 ppm Sol 5.3, LCM tr DMC: -\$239.56
	570	CX	Limestone: cream crypto-xIn micrite. Gray argillaceous fossiliferous packstone w/ secondary pinpoint porosity and oil stain, fair aroma, tr brachiopods, tight to poor porosity.	CMC: \$5,882.94
			Limestone: It tan, crypto-xln micrite, lithographic, tr sparry calcite, tr fusulinids, tight, no shows. Shale: gray, calcareous, firm.	
3	580		Limestone: tan to It brownish-tan, f-xln matrix w/ random fossils, crinoids, weak oil aroma, one frag has spotty pinpoint porosity with slight staining, slow cut, tight, Shale: gray to gravish-green, calcareous	
3	590		to non-calc. White to gray to white vitreous chert.	
	8600		xln, packstone to wackestone, tr pyrite, thin whispy irregular brown shale laminations. Tr brown chert. No shows.	
0 ROP (mh/ft) 5 0 Gamma (API) 150 6 Cattoria (MPI) 16	5000		Limestone: white to cream to It tan, recrystallized bioclastic grainstone, ghost fossil debris, some is micrite, very tight, no shows.	
3	610		Limestone: cream to It tan, micritic to recrystallized grainstone, tr of secondary pinpoint porosity w/ weak oil stain, very faint oil odor, no cut	
3	620		without adding acid.	
			Limestone: white to cream micrite to recrystallized grainstone, well- cemented, very tight, no shows. Tr honey-colored chert. Tr It green	
3	630		irregular green shale partings.	
3	640		Shale: gray to greenish-gray to maroon, calc to non-calc, firm. Limestone: white to It tan, intensely recrystallized, micrite in parts, ghost fossil in some frags, tr oplites, tr It green irregular shale partings, tight.	
	650		no shows. Upper surface is argillic w/ reddish shale penetration of subareal exposure crevasses and fractures.	
			Limestone: white to cream to It tan, oolitic grainstone and micrite, oomoldic porosity, no shows.	
3	660		Shale: vari-colored, gray, greenish-gray, maroon, calcareous, firm to soft and mushy. Limestone: cream to It tan, very solid, blocky recrystallized former grainstone, w/ evidence of subareal exposure. red	
3	670		shale penetrations into an exposed surface.	
	600		some are ovate to flat. well-cemented, no shows.	
	υου		Limestone: cream to It tan, micritic former grainstone, very tight, no shows, tr honey-colored chert, tr crinoids, tr gray peloids.	
3	690		Limestone: It tan, recrystallized grainstone, ghost fossils, well- cemented, micrite in part tr sparry calcite, no shown. Tr beney calcust	
	3700		chert.	
			Shale: gray, greenish-gray, maroon, calcareous to non-calc.	
3	5710		Limestone: gray to tan and mottled, argillaceous, crinoids, brachiopods, oolites, thin brown shale laminations packstone to wackestone tight packstone to wackestone to wackestone tight packstone to wackestone to wack	
3	720		shows. Shale: maroon, firm to soft and mushy, intermixed with It tan limestone	
	730		n a "chickenwire" pattern. Mixed with gray shale, calcareous.	
			Snale. maroon, son and mushy to tirm, non-calc, gray to It gray, non- calc, orange vitreous chert. Chickenwire limestone-red shale mix.	
	3740		Limestone: tan, nodular/chickenwire w/ maroon shale lacing throughout, tight, no shows.	
	750		Shale: maroon, gray, firm to soft and mushy. Chert: vitreous, red/brick to salmon colored.	
CFS @ 3760'	760		Limestone: tan, bioclastic grainstone, f- to med-xln, tight, no shows. One frag had dendritic oil stain, no fluor, very slow cut. Orange chert.	Pawnee 3760
3	0010		Chert: clear, white, honey, salmon orange vitreous, conchoidal	<u>(-1594)</u>
3			fractures, tr red shale filled oolitic limestone, some w/ minor pinpoint porosity and very weak oil stain, fair cut.	Mud Co. Mud abook
	3770			
CFS @ 3780	3770		Chert as above, some frags have slight erosional pinpoint porosity w/ spotty oil stain and fair cut. Limestone: It tan, detrital-transported, fine pinpoint porosity w/ spotty oil stain, fleeting aroma in sample cup. slow	3770' @ 720 hrs. 9/4/2020 Vis. 59, Wt. 9.3
CFS @ 3780 33	3770		Chert as above, some frags have slight erosional pinpoint porosity w/ spotty oil stain and fair cut. Limestone: It tan, detrital-transported, fine pinpoint porosity w/ spotty oil stain, fleeting aroma in sample cup, slow bleeding cut. Limestone: cream to It tan, finely sucrosic to med-xln, recrystallized, tr	Mdd-c0, Mdd check 3770' @ 720 hrs. 9/4/2020 Vis. 59, Wt. 9.3 PV 18, YP 31 WL 8.8, Cake 1/32" pH 10.0, Ca 80 ppm
CFS @ 3780	3770 3780 3790		Chert as above, some frags have slight erosional pinpoint porosity w/ spotty oil stain and fair cut. Limestone: It tan, detrital-transported, fine pinpoint porosity w/ spotty oil stain, fleeting aroma in sample cup, slow bleeding cut. Limestone: cream to It tan, finely sucrosic to med-xln, recrystallized, tr of spotty oil stain in pinpoint porosity in a few frags, mixed with vari- colored chert.	Mdd-c0, Mdd Check 3770' @ 720 hrs. 9/4/2020 Vis. 59, Wt. 9.3 PV 18, YP 31 WL 8.8, Cake 1/32" pH 10.0, Ca 80 ppm CHL 7,900 ppm Sol 6.7, LCM tr DMC: \$16.69
CFS @ 3780 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3770 3780 3790 3800		Chert as above, some frags have slight erosional pinpoint porosity w/ spotty oil stain and fair cut. Limestone: It tan, detrital-transported, fine pinpoint porosity w/ spotty oil stain, fleeting aroma in sample cup, slow bleeding cut. Limestone: cream to It tan, finely sucrosic to med-xln, recrystallized, tr of spotty oil stain in pinpoint porosity in a few frags, mixed with vari- colored chert. Pre-Cambrian 3802 (-1636)	Mdd-c3, Mdd Check 3770' @ 720 hrs. 9/4/2020 Vis. 59, Wt. 9.3 PV 18, YP 31 WL 8.8, Cake 1/32" pH 10.0, Ca 80 ppm CHL 7,900 ppm Sol 6.7, LCM tr DMC: \$16.69 CMC: \$5,899.63
CFS @ 3780 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9770 9780 9790 9800		Chert as above, some frags have slight erosional pinpoint porosity w/ spotty oil stain and fair cut. Limestone: It tan, detrital-transported, fine pinpoint porosity w/ spotty oil stain, fleeting aroma in sample cup, slow bleeding cut. Limestone: cream to It tan, finely sucrosic to med-xln, recrystallized, tr of spotty oil stain in pinpoint porosity in a few frags, mixed with vari- colored chert. Pre-Cambrian 3802 (-1636) Pre-Cambrian Quartzite: predominantly clear quartz grains fused together w/ irregular boundaries. Light green clay (chlorite altered from	Mdd-C3, Mdd Check 3770' @ 720 hrs. 9/4/2020 Vis. 59, Wt. 9.3 PV 18, YP 31 WL 8.8, Cake 1/32" pH 10.0, Ca 80 ppm CHL 7,900 ppm Sol 6.7, LCM tr DMC: \$16.69 CMC: \$5,899.63
CFS @ 3780 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3770 3780 3790 3800 3810		Chert as above, some frags have slight erosional pinpoint porosity w/ spotty oil stain and fair cut. Limestone: It tan, detrital-transported, fine pinpoint porosity w/ spotty oil stain, fleeting aroma in sample cup, slow bleeding cut. Limestone: cream to It tan, finely sucrosic to med-xln, recrystallized, tr of spotty oil stain in pinpoint porosity in a few frags, mixed with vari- colored chert. Pre-Cambrian 3802 (-1636) Pre-Cambrian Quartzite: predominantly clear quartz grains fused together w/ irregular boundaries. Light green clay (chlorite altered from hornblende), and black specks that may be magnetite.	Mdd-C3, Mdd Check 3770' @ 720 hrs. 9/4/2020 Vis. 59, Wt. 9.3 PV 18, YP 31 WL 8.8, Cake 1/32" pH 10.0, Ca 80 ppm CHL 7,900 ppm Sol 6.7, LCM tr DMC: \$16.69 CMC: \$5,899.63
CFS @ 3780 3 0 CFOP (min/ft) 5 0 Cramma (API) 150 6 Cramma (API) 150 7	9770 9780 9790 9800 9810 9820		Chert as above, some frags have slight erosional pinpoint porosity w/ spotty oil stain and fair cut. Limestone: It tan, detrital-transported, fine pinpoint porosity w/ spotty oil stain, fleeting aroma in sample cup, slow bleeding cut. Limestone: cream to It tan, finely sucrosic to med-xln, recrystallized, tr of spotty oil stain in pinpoint porosity in a few frags, mixed with vari- colored chert. Pre-Cambrian 3802 (-1636) Pre-Cambrian Quartzite: predominantly clear quartz grains fused together w/ irregular boundaries. Light green clay (chlorite altered from hornblende), and black specks that may be magnetite.	Mdd-C3, Mdd Check 3770' @ 720 hrs. 9/4/2020 Vis. 59, Wt. 9.3 PV 18, YP 31 WL 8.8, Cake 1/32" pH 10.0, Ca 80 ppm CHL 7,900 ppm Sol 6.7, LCM tr DMC: \$16.69 CMC: \$5,899.63
CFS @ 3780 3 0 0 CFS @ 3780 3 3 0 0 CFS @ 3780 3 3 0 0 CFS @ 3780 3 3 3 3 3 3 3 3 3 3 3 3 3	3770 3780 3790 8800 8810 8820		Chert as above, some frags have slight erosional pinpoint porosity w/ spotty oil stain and fair cut. Limestone: It tan, detrital-transported, fine pinpoint porosity w/ spotty oil stain, fleeting aroma in sample cup, slow bleeding cut. Limestone: cream to It tan, finely sucrosic to med-xln, recrystallized, tr of spotty oil stain in pinpoint porosity in a few frags, mixed with vari- colored chert. Pre-Cambrian 3802 (-1636) Pre-Cambrian Quartzite: predominantly clear quartz grains fused together w/ irregular boundaries. Light green clay (chlorite altered from hornblende), and black specks that may be magnetite. Quartzite: as above w/ accessory minerals of muscovite and hematite.	Mdd-C3, Mdd Check 3770' @ 720 hrs. 9/4/2020 Vis. 59, Wt. 9.3 PV 18, YP 31 WL 8.8, Cake 1/32" pH 10.0, Ca 80 ppm CHL 7,900 ppm Sol 6.7, LCM tr DMC: \$16.69 CMC: \$5,899.63
CFS @ 3780 0 (TOP (min/ft) 5 0 (trainma (API) 150 6 (trainma (API) 150 6 (trainma (API) 150 6 (trainma (API) 16 3 3 3 3 3 3 3 3 3 3 3 3 3	9770 9780 9790 9800 9810 9820 9830		Chert as above, some frags have slight erosional pinpoint porosity w/ spotty oil stain and fair cut. Limestone: It tan, detrital-transported, fine pinpoint porosity w/ spotty oil stain, fleeting aroma in sample cup, slow bleeding cut. Limestone: cream to It tan, finely sucrosic to med-xln, recrystallized, tr of spotty oil stain in pinpoint porosity in a few frags, mixed with vari- colored chert. Pre-Cambrian 3802 (-1636) Pre-Cambrian Quartzite: predominantly clear quartz grains fused together w/ irregular boundaries. Light green clay (chlorite altered from hornblende), and black specks that may be magnetite. Quartzite: as above w/ accessory minerals of muscovite and hematite. RTD 3838 (-1636)	Mdd-C3, Mdd Check 3770' @ 720 hrs. 9/4/2020 Vis. 59, Wt. 9.3 PV 18, YP 31 WL 8.8, Cake 1/32" pH 10.0, Ca 80 ppm CHL 7,900 ppm Sol 6.7, LCM tr DMC: \$16.69 CMC: \$5,899.63
CFS @ 3780 0 (CP (min/ft) 5 0 (CP (min/ft) 5	3770 3780 3790 8800 8810 8820 8830		Chert as above, some frags have slight erosional pinpoint porosity w/ spotty oil stain and fair cut. Limestone: It tan, detrital-transported, fine pinpoint porosity w/ spotty oil stain, fleeting aroma in sample cup, slow bleeding cut. Limestone: cream to It tan, finely sucrosic to med-xln, recrystallized, tr of spotty oil stain in pinpoint porosity in a few frags, mixed with vari- colored chert. <u>Pre-Cambrian 3802 (-1636)</u> Pre-Cambrian Quartzite: predominantly clear quartz grains fused together w/ irregular boundaries. Light green clay (chlorite altered from hornblende), and black specks that may be magnetite. Quartzite: as above w/ accessory minerals of muscovite and hematite. <u>RTD 3838 (-1636)</u> RTD 3838' @ 1218 hrs, 9/4/2020 Pioneer Energy Services LTD 3836'	Mdd-C3, Mdd Check 3770' @ 720 hrs. 9/4/2020 Vis. 59, Wt. 9.3 PV 18, YP 31 WL 8.8, Cake 1/32" pH 10.0, Ca 80 ppm CHL 7,900 ppm Sol 6.7, LCM tr DMC: \$16.69 CMC: \$5,899.63
CFS @ 3780 0 CFOP (min/ft) 5 0	8770 9780 9790 9800 9810 9820 9830 9840 9850		Chert as above, some frags have slight erosional pinpoint porosity w/ spotty oil stain and fair cut. Limestone: It tan, detrital-transported, fine pinpoint porosity w/ spotty oil stain, fleeting aroma in sample cup, slow bleeding cut. Limestone: cream to It tan, finely sucrosic to med-xln, recrystallized, tr of spotty oil stain in pinpoint porosity in a few frags, mixed with vari- colored chert. <u>Pre-Cambrian 3802 (-1636)</u> Pre-Cambrian Quartzite: predominantly clear quartz grains fused together w/ irregular boundaries. Light green clay (chlorite altered from hornblende), and black specks that may be magnetite. Quartzite: as above w/ accessory minerals of muscovite and hematite. <u>RTD 3838 (-1636)</u> <u>RTD 3838' @ 1218 hrs, 9/4/2020</u> <u>Pioneer Energy Services LTD 3836'</u> <u>Completed Logging Operations @ 2030 hrs 9/4/2020</u>	Mdd-C3, Mdd Check 3770' @ 720 hrs. 9/4/2020 Vis. 59, Wt. 9.3 PV 18, YP 31 WL 8.8, Cake 1/32" pH 10.0, Ca 80 ppm CHL 7,900 ppm Sol 6.7, LCM tr DMC: \$16.69 CMC: \$5,899.63
CFS @ 3780 0 (TOP (min/ft) 5 0 (Tanma (API) 150 6 Cal.(in) 16 3 3 3 3 3 3 3 3 3 3 3 3 3	3770 3780 3790 3800 3810 3820 3830 3840 3850		Chert as above, some frags have slight erosional pinpoint porosity w/ spotty oil stain and fair cut. Limestone: It tan, detrital-transported, fine pinpoint porosity w/ spotty oil stain, fleeting aroma in sample cup, slow bleeding cut. Limestone: cream to It tan, finely sucrosic to med-xln, recrystallized, tr of spotty oil stain in pinpoint porosity in a few frags, mixed with vari- colored chert. <u>Pre-Cambrian 3802 (-1636)</u> Pre-Cambrian Quartzite: predominantly clear quartz grains fused together w/ irregular boundaries. Light green clay (chlorite altered from hornblende), and black specks that may be magnetite. Quartzite: as above w/ accessory minerals of muscovite and hematite. <u>RTD 3838 (-1636)</u> <u>RTD 3838' @ 1218 hrs, 9/4/2020</u> <u>Pioneer Energy Services LTD 3836' Completed Logging Operations @ 2030 hrs 9/4/2020</u> <u>Geologist: Charlie Sturdavant off location @ 0500 hrs 9/5/2020</u>	Mdd-C3, Mdd Check 3770' @ 720 hrs. 9/4/2020 Vis. 59, Wt. 9.3 PV 18, YP 31 WL 8.8, Cake 1/32" pH 10.0, Ca 80 ppm CHL 7,900 ppm Sol 6.7, LCM tr DMC: \$16.69 CMC: \$5,899.63
CFS @ 3780 0 CFS @ 3780 3 0 CFS @ 3780 3 3 3 3 3 3 3 3 3 3 3 3 3	9770 9780 9790 9800 9810 9820 9830 9840 9850 9860		Chert as above, some frags have slight erosional pinpoint porosity w/ spotty oil stain and fair cut. Limestone: It tan, detrital-transported, fine pinpoint porosity w/ spotty oil stain, fleeting aroma in sample cup, slow bleeding cut. Limestone: cream to It tan, finely sucrosic to med-xln, recrystallized, tr of spotty oil stain in pinpoint porosity in a few frags, mixed with vari- colored chert. Pre-Cambrian 3802 (-1636) Pre-Cambrian Quartzite: predominantly clear quartz grains fused together w/ irregular boundaries. Light green clay (chlorite altered from hornblende), and black specks that may be magnetite. Quartzite: as above w/ accessory minerals of muscovite and hematite. RTD 3838 (-1636) RTD 3838 @ 1218 hrs, 9/4/2020 Pioneer Energy Services LTD 3836' Completed Logging Operations @ 2030 hrs 9/4/2020 Geologist: Charlie Sturdavant off location <i>@</i> 0500 hrs 9/5/2020	Mdd-Cd, Mdd Check 3770' @ 720 hrs. 9/4/2020 Vis. 59, Wt. 9.3 PV 18, YP 31 WL 8.8, Cake 1/32" pH 10.0, Ca 80 ppm CHL 7,900 ppm Sol 6.7, LCM tr DMC: \$16.69 CMC: \$5,899.63

1005		DRILL STEM TE	DRILL STEM TEST REPORT						
	L RILUBITE	Cholla Production LLC			3-1	6s-20w	Rush KS		
日日	ESTING, INC	10390 Bradford Rd Suite 201			So	uthwind	#3		
		Littleton Co 80127+6416		Job	Ticket: 67	426	DST#: '	1	
WOR.		ATTN: Charlie Sturdavant			Tes	t Start: 20)20.09.02 @	14:05:00	
GENERAL I	NFORMATION:								
Formation:LKC CDeviated:NoWhipstock:ft (KB)Time Tool Opened:16:00:32Time Test Ended:21:20:07					Tes Tes Unit	t Type: (ter:	Conventiona Spencer J S 34	al Bottom Ho Staab	le (Initial)
Interval:	3460.00 ft (KB) To 34	485.00 ft (KB) (TV D)			Ref	erence ⊟e	vations:	2166.00	ft (KB)
Total Depth: Hole Diameter:	3485.00 ft (KB) (T 7.88 inches-lol	V D) e Condition: Poor				KBt	o GR/CF:	2158.00 8.00	ft (CF) ft
									-342
Serial #: 6	838 Inside	@ 3461.00 ft (KB)			Canacity				nsia
Start Date:	2020.09.02	End Date:	1	2020.09.02	Last Cali	b.:		2020.09.02	poig
Start Time:	14:05:00	End Time:		21:20:07	Time On Time Off	Btm: 2 Btm: 2	2020.09.02 2020.09.02	@ 16:00:12 @ 19:04:12	
TEST COM	MENT: 10-IF-Tool Slid 7 30-ISENO Return 60-FF-Surface t 75-FSENO Retur	ft; Built from 2&1/2"-3&3/4" (1&1/4) o Fair; Built to 5&1/4" n	4'')						
	Pressure vs.] Ly	Timc	20	9	PI	RESSUR	E SUMM	IARY	
1/90		1865 Iospasking		Time (Min.)	Pressure (psig)	Temp (deg F)	Annotati	on	
****				1	43.33	110.68	Open To F	low(1)	
1290				11	40.49	112.34	Shut-In(1)		
9 /			Tem	44	270.16	111.83	End Shut-I	ln(1) ∃our(2)	
			peratun	105	72.36	115.97	Shut-In(2)	1010 (2)	
£	l i i i		(cag P	184	265.56	115.18	End Shut-	In(2)	
=		- #5		185	1624.89	115.47	Final Hydr	o-static	
0 <u>1 10</u> 3	num and a second s								
A CONTRACTOR	Recovery	1 and a supplimental backward				Ga	s Rates		1
Length (ft)	Description	Volume (bbl)				C hoke (ii	nches) Pressi	ure (psig) G	as Rate (Micf/d)
40.00	WCM 15%W 85%M	0.57							
20.00	GO 20%G 80%O	0.28							
0.00	Sampler 500ml O 1700M	L W 0.00							
0.00	@110PSI	0.00							
	- Dan -	D-6 No. 07420				Drintod	2020.00.02	Q 01-10-0	7

Cholla Zimmerman Elmore Unit DST 20002.jpg

i	to part which is not we can a settle contraction or ter							
	DRILL STEM TES	T REPO	ORT	DRT				
TEOTING ING	Cholla Production LLC		3-16s-20w	/ Rush KS				
ESTING, NO	10390 Bradford Rd Suite 201 Littleton Co 80127+6416		Southwir	nd #3				
			Job Ticket:	67427	DST#:2			
uitedt.	ATTIN: Charile Sturdavant		Test Start:	2020.09.03 (@ 08:55:00			
GENERAL INFORMATION:								
Pormation: LKC D-G Deviated: No Whipstock: Time Tool Opened: 10:58:27 Time Test Ended: 15:35:27	ft (KB)		Test Type: Tester: Unit No:	Conventior Spencer J 84	nal Bottom Hole (Reset) Staab			
Interval: 3502.00 ft (KB) To 35	60.00 ft (KB) (TV D)		Reference	⊟evations∶	2166.00 ft (KB)			
Hole Diameter: 7.88 inches-lole	Condition: Fair		ĸ	B to GR/CF:	2158.00 ft 8.00 ft			
Serial #: 8875InsidePress@RunDepth:psigStart Date:2020.09.03Start Time:08:55:00	@ 3505.00 ft (KB) End Date: End Time:	2020.09.03 15:35:27	Capacity: Last Calib.: Time On Btm: Time Off Btm:		psig 2020.09.03			
TEST COMMENT: 10-IF-Surface; B 30-ISHNo Return 30-FF-Surface; F 90-FSHNo Return	uilt to 1/2" Built to 2" 1							
Ртезяне уз. Т	imc لدا	5	PRESSI	JRE SUM	/ARY			
200 200 3 Thu fits 200 200 3 Thu fits 200 200 200 200 200 200 200 200	BAR Inspectator	Time (Min.)	Pressure Temp (psig) (deg f	Annotat	ion			
Recovery			Ģ	as Rates				
Length (ft) Description	Volume (bbl)		Chok	e (inches) Pres	sure (psig) Gas Rate (Mct/d)			
0.00 Sampler 200ml Mud @65	0.28 PSI 0.00							
* Dana arritran multia la tanta								
Trilobite Testing, Inc	Ref. No: 67427	I	Printe	d: 2020.09.0	3 @ 15:48:52			

	DRILL	STEM TES	ORT					
	Cholla Prod	uction LLC		3-1	6s-20w	Rush KS		
ESTING	G , INC 10390 Brad	ford Rd Suite 201		So	uthwind	l #3		
	Littleton Co	80127+6416		Job	Ticket: 67	7426	DST#:	1
NOR .	ATTN: Cha	arlie Sturdavant		Tes	t Start: 20)20.09.02 @	0 14:05:00	
GENERAL INFORMATION	l:							
Formation:LKC CDeviated:NoWhipTime Tool Opened:16:00:32Time Test Ended:21:20:07		Tes Tes Unit	t Type: 0 ter: 5 No: 8	Convention Spencer J S 84	al Bottom Ho Staab	ole (Initial)		
Interval: 3460.00 ft (KB)	To 3485.00 ft (KB)	(TVD)		Ref	erence 🛛	evations:	2166.00) ft (KB)
Hole Diameter: 7.88 in	(KB) (TVD) chesHole Condition: F	Poor			KB t	to GR/CF:	2158.00 8.00)ft(C⊢))ft
Serial #: 6838InsidPress@RunDepth:72.3Start Date:2020Start Time:14	0 ft (KB) ate: me:	2020.09.02 21:20:07	Capacity Last Calil Time On Time Off	: b.: Btm: 2 Btm: 2	2020.09.02 2020.09.02	2020.09.02 @ 16:00:12 @ 19:04:12	psig 2 2	
TEST COMMENT: 10-IF-Tc 30-ISI-N 60-FF-S 75-FSI-I	TEST COMMENT: 10-IF-Tool Slid 7ft; Built from 2&1/2"-3&3/4" (1&1/4" 30-ISI-No Return 60-FF-Surface to Fair; Built to 5&1/4" 75-FSI-No Return							
TA TA 6836 Pressure	0535 TENE 6535 Temps	and re	Time	Pressure	Temp	Annotati		
		- 115	(Min.)	(psig)	(deg F)			
1500		= 110	0	1725.65 43.33	111.01 110.68	Initial Hydr	o-static	
1220		- 105	11	40.49	112.34	Shut-In(1)		
			44	270.16	111.83	End Shut-	ln(1) =low(2)	
			105	72.36	115.97	Shut-In(2)	1000 (2)	
			184	265.56	115.18	End Shut-	ln(2)	
500			185	1624.89	115.47	Final Hydr	o-static	
	FFlag(7)							
374 2 Wed Sep 2020	(FM Time(Hous)	94 94						
Re	covery			ı	Ga	s Rates		
Length (ft) Desc	cription	Volume (bbl)			Choke (i	inches) Press	ure (psig)	Gas Rate (Mcf/d)
60.00 MCW 20%M 80%	%W	0.85						
40.00 WCM 15%W 85	%M	0.57						
20.00 GO 20%G 80%0	0	0.28						
0.00 Sampler 500ml 0	D 1700ML W	0.00						
0.00 @110PSI								
		0.00						

		DRILL STEM TEST REPORT				
	Cholla Prod	uction LLC		3-16s-20	w Rush KS	
ESTI	VG , INC 10390 Brad	ford Rd Suite 201		Southw	ind #3	
	Littleton Co	80127+6416		Job Ticket	: 67426	DST#: 1
NOW!	ATTN: Ch	arlie Sturdavant		Test Start	2020.09.02 @	0 14:05:00
GENERAL INFORMATIC	DN:					
Formation:LKC CDeviated:NoWTime Tool Opened:16:00:32Time Test Ended:21:20:07	'hipstock: f	t (KB)		Test Type Tester: Unit No:	: Convention Spencer J \$ 84	al Bottom Hole (Initial) Staab
Interval: 3460.00 ft (K	B) To 3485.00 ft (KB)	(TVD)		Reference	e ⊟evations:	2166.00 ft (KB)
Hole Diameter: 7.88	inchesHole Condition: F	Poor			KB to GR/CF:	2158.00 ft (CF) 8.00 ft
Serial #: 8875 Ou Press@RunDepth: Start Date: 20 Start Time:	tside psig @ 3461.0 020.09.02 End D 14:05:01 End T	00 ft (KB) Nate: ime:	2020.09.02 21:20:07	Capacity: Last Calib.: Time On Btm: Time Off Btm:		psig 2020.09.02
TEST COMMENT: 10-IF- 30-IS 60-FF 75-FS	-Tool Slid 7ft; Built from 2 I-No Return F-Surface to Fair; Built to SI-No Return	&1/2"-3&3/4" (1&1/4" 5&1/4")			
▲ 875 Prase ra	Pressure vs. Time			PRESS	SURE SUMM	IARY
1739 17 17 17 17 17 17 17 17 17 17 17 17 17 1	CFM Trre (Han)	550LU 115 100 105 100 50 50 50 50 50 70 50 50 70 50 50 50 50 50 50 50 50 50 5	Time (Min.)	Pressure Ten (psig) (deg	p Annotati F)	on
F	Recovery				Gas Rates	
Length (ft)	escription	Volume (bbl)		Ch	oke (inches) Press	ure (psig) Gas Rate (Mcf/d)
60.00 MCW 20%M 8	80%W	0.85				
	%∩	0.57				
0.00 Sampler 500n	ni O 1700ML W	0.00				
0.00 @110PSI		0.00				

1005		DRI	LL STEM TEST REPOR	RT	FL	UID SUMMARY
		Cholla	Production LLC	3-16s-20w Rush	ı KS	
I ESTING	ESTING , INC.	10390	Bradford Rd Suite 201	Southwind #3		
		Littletoi	n Co 80127+6416	Job Ticket: 67426	D	ST#: 1
NOY.		ATTN:	Charlie Sturdavant	Test Start: 2020.09	ə.02 @ 14:08	5:00
Mud and C	ushion Information					
Mud Type: 0	Gel Chem		Cushion Type:	Oil AF	기:	37 deg API
Mud Weight:	9.00 lb/gal		Cushion Length:	ft Water	[·] Salinity:	67000 ppm
Viscosity:	56.00 sec/qt		Cushion Volume:	bbl		
Water Loss:	7.60 in ³		Gas Cushion Type:			
Resistivity:	ohm.m		Gas Cushion Pressure:	psig		
Salinity:	2700.00 ppm					
Filter Cake:	inches					
Recovery I	nformation					
	ı		Recovery Table			
	Lengt ft	th	Description	Volume bbl		
		60.00	MCW 20%M 80%W	0.851		
		40.00	WCM 15%W 85%M	0.567		
		20.00	GO 20%G 80%O	0.284		
		0.00	Sampler 500ml O 1700ML W	0.000		
		0.00	@110PSI	0.000		
	Total Length:	120	0.00 ft Total Volume: 1.702 bl	bl		
	Num Fluid Samp	les: 0	Num Gas Bombs: 0	Serial #:		
	Laboratory Nam	ne:	Laboratory Location:			
	Recovery Com	ments:1#	#LCM			
		Sa	ampler 500ml O 1700ml Water @ 110PSI			
		RV	W= .115@72F			

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Ref. No: 67426





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Ref. No: 67426





	DRILL STEM TEST REPORT						
	Cholla Production LLC		3-1	6s-20w I	Rush KS		
ESTING , INC	10390 Bradford Rd Suite 201		Sou	uthwind	#3		
	Littleton Co 80127+6416		Job	Ticket: 67	427	DST#: 2	
	ATTN: Charlie Sturdavant		Test	t Start: 20	20.09.03 @	08:55:00	
GENERAL INFORMATION:	•						
Formation:LKC D-GDeviated:NoWhipstock:Time Tool Opened:10:58:27Time Test Ended:15:35:27	ft (KB)		Test Test Unit	t Type: (ter: \$ No: 8	Conventional Spencer J St 34	Bottom Hol aab	e (Reset)
Interval:3502.00 ft (KB) To3Total Depth:3560.00 ft (KB) (THole Diameter:7.88 inches Hol	560.00 ft (KB) (TVD) VD) e Condition: Fair		Refe	erence ⊟e KB t	vations: o GR/CF:	2166.00 2158.00 8.00	ft (KB) ft (CF) ft
Serial #: 6838 Inside Press@RunDepth: 25.90 psig Start Date: 2020.09.03 Start Time: 08:55:01	@ 3505.00 ft (KB) End Date: End Time:	2020.09.03 15:35:27	Capacity: Last Calit Time On I Time Off	: b.: Btm: 2 Btm: 2	2 2020.09.03 @ 2020.09.03 @	2020.09.03 @ 10:58:22 @ 13:49:17	psig
TEST COMMENT: 10-IF-Surface; I 30-ISI-No Return 30-FF-Surface; 90-FSI-No Return	Built to 1/2" า Built to 2" ท						
Pressure vs.	Time		PF	RESSUR	RE SUMMA	٩RY	
1750 1760	COST INTEGRATING	Time (Min.) 0 13 45 45 45 76 171 171	Pressure (psig) 1752.31 19.82 24.33 978.72 25.70 25.90 975.75 1690.29	Temp (deg F) 106.82 106.06 107.66 107.34 108.21 111.07 111.18	Annotation Initial Hydro Open To Flo Shut-In(1) End Shut-In Open To Flo Shut-In(2) End Shut-In Final Hydro	n static bw (1) ((1) bw (2) -(2) static	
Recovery				Ga	s Rates		
Length (ft) Description 20.00 Mud 100% M	Volume (bbl)			Choke (i	nches) Pressur	e (psig) Ga	s Rate (Mcf/d)
0.00 Sampler 200ml Mud @65	5PSI 0.00						
* Recovery from multiple tests				Deinst!	2020.00.00	Q 15-50-00	

	DRILL STEM TES	DRILL STEM TEST REPORT				
	Cholla Production LLC		3-16s-20w	Rush KS		
ESTING , INC	10390 Bradford Rd Suite 201		Southwir	nd #3		
	Littleton Co 80127+6416		Job Ticket:	67427	DST#:2	
	ATTN: Charlie Sturdavant		Test Start:	2020.09.03 @	፬ 08:55:00	
GENERAL INFORMATION:						
Formation:LKC D-GDeviated:NoWhipstock:Time Tool Opened:10:58:27Time Test Ended:15:35:27	ft (KB)		Test Type: Tester: Unit No:	Convention Spencer J 3 84	al Bottom Hole (Reset) Staab	
Interval: 3502.00 ft (KB) To 35	560.00 ft (KB) (TVD)		Reference I	evations:	2166.00 ft (KB)	
Hole Diameter: 7.88 inches Hole	e Condition: Fair		KE	B to GR/CF:	2158.00 ft (CF) 8.00 ft	
Serial #: 8875InsidePress@RunDepth:psigStart Date:2020.09.03Start Time:08:55:01	@ 3505.00 ft (KB) End Date: End Time:	2020.09.03 15:35:27	Capacity: Last Calib.: Time On Btm: Time Off Btm:		psig 2020.09.03	
TEST COMMENT: 10-IF-Surface; E 30-ISI-No Return 30-FF-Surface; 90-FSI-No Return	Built to 1/2" Built to 2" n					
Pressure vs. 7	fme		PRESSU	IRE SUMN	IARY	
1750 1750	BTD Temperature 57D Te	Time (Min.)	Pressure (psig) (deg F	Annotat)	ion	
Recovery			G	as Rates		
Length (ft) Description	Volume (bbl)		Choke	e (inches) Press	sure (psig) Gas Rate (Mcf/d)	
20.00 Mud 100%M 0.00 Sampler 200ml Mud @65	0.28 iPSI 0.00					
* Recovery from multiple tests						

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100		DRI	LL STEM TEST REPORT	-		FLUID SUMN	IARY
	LEODITE	Cholla	Production LLC	3-16s-20w	Rush KS		
	ESTING , INC.	10390	Bradford Rd Suite 201	Southwin	d #3		
/御歌		Littleto	n Co 80127+6416	Job Ticket: 6	67427	DST#:2	
		ATTN:	Charlie Sturdavant	Test Start: 2	2020.09.03 @ 0	8:55:00	
Mud and C	Cushion Information						
Mud Type: (Gel Chem		Cushion Type:	£4	Oil API:	deg	API
Viscosity:	56.00 sec/qt		Cushion Volume:	bbl	water Samily.	ppm	I
Water Loss:	8.78 in ³		Gas Cushion Type:				
Resistivity:	ohm.m		Gas Cushion Pressure:	psig			
Salinity: Filter Cake:	7800.00 ppm inches						
Recovery I	Information						
			Recovery Table		-		
	Leng ft	th	Description	Volume bbl			
		20.00	Mud 100%M	0.284	1		
		0.00	Sampler 200ml Mud @65PSI	0.000	<u>)</u>		
	Total Length:	20	0.00 ft Total Volume: 0.284 bbl				
	Num Fluid Samp	oles: 0	Num Gas Bombs: 0	Serial #			
	Recovery Com	nents: TF	RLCM				
		Sa	ampler 200ml Mud @ 65PSI				

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