COMPANY & WELL Suemaur E&P, LLC Ritter #1-10
LOCATION 1478' FSL 375' FEL
SEC 10 TWP 04S RGE 28W
COUNTY Decatur STATE Ks

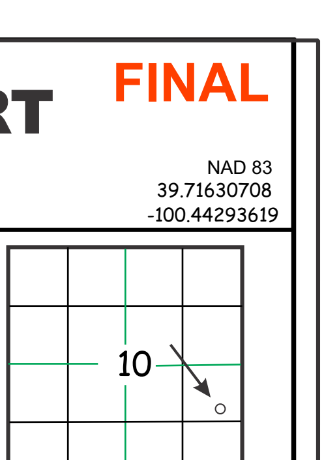
GEOLOGICAL REPORT

FINAL

Larry A. Nicholson

NAD 83
39.71630708
-100.44293619

COMPANY Suemaur Exploration & Production, LLC
API # 15-039-21263 FIELD Wildcat
LEASE Ritter WELL # #1-10
LOCATION SW SE NE SE
SURVEY 1478' FSL 375' FEL
SECTION 10 TWP 04S RGE 28W
COUNTY Decatur STATE Kansas



CONTRACTOR Murfin Drilling, Inc Rig # 7
SPUD 09-14-19 12:30 pm COMP
RTD 4487 3:24am 09-21-19 LTD 4422
MUD UP AT 3187-3218 450 bbls
MUD TYPE Chemical, Morgan Mud Dave Lines

ELEVATIONS
K.B. 2721
D.F.
G.L. 2716
All measurements from K.B. 2721

	FROM	TO
SAMPLES SAVED	3350	RTD
DRILLING TIME	3300	RTD
SAMPLES EXAMINED	3350	RTD
GEOLOGICAL SUPERVISION	3350	RTD

WELLSITE GEOLOGIST LARRY A. NICHOLSON

CASING RECORD
Conductor ___ of ___ w/ ___ sx
Surface 262 of 8 5/8 w/ 205 sx
Production ___ of ___ w/ ___ sx

ELECTRICAL SURVEYS Wetherford Dual, Den, Neu, Micro Sonic

FORMATION TOPS & STRUCTURAL POSITION

FORMATION	SAMPLE TOPS	SUBSEA DATUM	ELEC LOG TOPS	SUBSEA DATUM	REFERENCE WELL A	REFERENCE WELL B
Anhydrite			2490	+231		
Heebner			3810	-1089		
B/Heeb			3816	-1095		
Lansing			3854	-1133		
LANS B			3869	-1148		
LANS C			3878	-1157		
LANS J			3994	-1273		
Stark Sh			4004	-1283		
LANS K			4018	-1297		
BKC			4047	-1326		
Arb			4353	-1632		
RTD			4487	-1766		
LTD			4480	-1759		

REFERENCE WELLS A:
B:

LAN 7/92, Modified 5/05, 11/11, 4/12, 4/18 1 inch =25.4mm 8.5 x 97.5 216 mm x 2460 mm

DRILLSTEM TEST SUMMARY :

Dst #1 3873-3892 (LKC C) 30 45 45 60 IF:22-93 FF:97-134 SI:1205-1171
Rec 253 SMCW 94%W 6%M IF 1/4 built to 6 1/4", nr FF blow built to 5"

REMARKS & RECOMMENDATIONS:

In general the well drilled tite. Due to lack or weak shows, and dst results, the well was P&A

* Note there was 7 ft difference between RTD 4487' and LTD 4480'. At the Anhydrite there was 5 ' difference.

* The GeoReport curves and decriptions were moved up 7 feet to match the electric log.

LEGEND

Dolomite ▨ Limestone ▨ Shale ▨ Carbonaceous Shale ■ Sandstone ▨ Chert ▨ Anhydrite ▨

SAMPLE DESCRIPTIONS

Strap 3282.34'
Board 3281.80'
Strap long 0.54'

Kansas Geological Survey
Las Vieu Lithology
Log Curve Cross Plot
Clay ▨ Shale ▨ Silica Ss/Chert ▨ Shaly Ss ▨ Arkose ▨ Ls ▨ Shaly Ls ▨
Dol ▨ Shaly Dol ▨ Gyps ▨ Anhy ▨ Salt ▨ Coal ■

Sh, brn, lt brn & wht clayt, lt aqua gry

Ls, lt tan, vfn xln, spary calc xln, pr por, n sho

Sh, md-dk gry,

Ls, lt tan, vfn-fn xln, spary calc xln, ppt vugs, fr por, scat md tan chert, n stn, n odor, n sho

Ls, lt gry, vfn xln, spary calc xln, britl, pr por, n stn, n odor, n sho

Ls, lt gry, vfn xln, spary calc xln, britl, pr por, trc lt tan chert, n stn, n odor, n sho

Ls, lt gry, vfn xln, sli silty, sli spray calc, fr intra xln por, scat wht shrp chert, n sho

Sh, dk gray calc sh

Ls, md gry, silty, trc mica,

Ls, lt brn gry, micro-vfn xln, dns, trc wht & lt tan chert, n sho

Sh, md gry, grygrn wxy

Ls, lt tan gry, micro-vfn xln, lt tan foss clastic w/ppt vug por, few org chert, n sho

Sh, md gry, gry grn wxy, brn

Ls, lt tan, fn xln, dns, n por, fn spary foss, n stn, n odor, n sho

Ls, lt tan, micro xln, dns,5% ool & md foss clast, trc wht chert, pr-fr intra por, n stn, n odor, n sho

Sh, lt gry, vsft in part

Ls, lt gry, vfn xln, dull, britl-dns, p por, n stn, n odor, n sho

Sh, brn, lt brn vsft, lt gry

Ls, lt tan gry, micro xln, dull, n-pr pr, n stn, few w/trc foss frag, n odor, n sho

Sh, lt brn, wht, vsft clay

Ls, lt gry , vfn -micro xln, trc fn spary calc, n-pr por, trc foss, n stn, n odor, n sho

Sh, lt brn

Ls, lt tan gry, micro xln, dsn, dull, n por, n stn, n odor, n sho

Sh, lt gry, vsft, gummy clay

Ls, lt gry, micro-vfn xln, mostly lithic, n vis por, n odor, n stn, n sho

Sh, lt gry vsft clay, few clustr pyrite

Ls, lt gry brn, micro xln, dull, dns, 2% fossilf, n vis por, n stn, n odor, n sho

Sh, gry, grngry

Ls, lt tan gry, micro xln, dns, dull, n por, n stn, n odor, n sho

Sh, lblk, dk gry

Sh, lt gry, blk,

Ls, lt tan, micro-vfn xln, trc spary calc xln, trc fn foss, pr-fr por, n stn, n odor, n sho

Ls, lt tan brn, micro xln, dns, dull, trc lt brn chert, n por, n stn, n odor, n sho

Sh, md gry, sli calc

Ls, lt gry gm, micro xln, dull, n vis por, n stn, n sho

Ls, lt tan gry, micro-vfn xln, dull, fossilf in part, n-pr por, n stn, n sho

Ls, lt gry, micro xln, dull, n vis por, trc fn ool foss, n sho

Ls, lt crm gry, micro- vfn xln, pr por, trc fn calc xln, trc fn bioclatic,scat lt tan dull chert, n odor, n sho

Ls, crm tan, micro-vfn xln, trc spary calc, few ppt vugs, lt gry chert, n sho

Sh, gry gm, aqua gm

Sh, brn org, vsft, silty in part, md gry

Ls, crm, vfn xln, trc spary calc, trc intra xln por, n stn, n odor, n sho

Sh, brn, lt brn vsft, grygm

Ls, lt gry, vfn-micro xln, pr por, lt brn chert, n stn, n odor, n sho

Ls, lt gry, vfn-micro xln, pr por, lt brn chert, n stn, n odor, n sho

Ls, lt gry, vfn-micro xln, pr por, few clustr pyrite, n stn, n odor, n sho

Sh, brn, lt brn vsft, grygm

Sh, brn, lt brn vsft, grygm

Ls, lt tan, micro xln, fossil, spary calc cmt, few hvy cmt ool, pr intra xln por, chlky, n stn, n odor, n sho few blk sh

Ls, lt gry, micro xln, dull, dns, vfn xln, spary calc, fn foss frag, pr-fr por, trc chlky, n stn, n odor, n sho

Ls, lt gry, micro xln, dull, dns, vfn xln, spary calc, Aa

Ls, wht tan, fn xln, sli dol, spary calc xln, granular, britl, fr intra xln por, fn foss clast in part, 6% micro xln lithic, n stn, n odor, n sho

Ls, lt gry, micro xln, dsn, lithic n sho

Ls, wht crm, vfn xln, vfn spary calc xln, 2% spary foss clastics, fr por, n stn, n odor, n sho

Sh, brn org, gummy clay, sli silty

Sh, brn, lt brn, aqua grn, grngry

Ls, wht crm gry, micro xln, dns, trc fn irreg qtz, n-pr por, n stn, n odor, n sho

Ls, lt gry, micro xln, dsn, lithic, vfn xln, w/spary xln, n-pr por, few irreg ool frag, n stn, n odor, n sho

Ls, lt gry, micro xln, dsn, lithic, vfn xln, w/spary xln, n vis por, few clustr irreg qtz grns, n stn, n odor, n sho

Ls, lt crm tan grn, micro xln, dsn, dull, lithic, vfn xln, w/spary xln, n-pr por, n stn, n odor, n sho

Sh, blk carb, burns, coal odor, n gas bubble

Sh, lt brn org silty, lt brn vsft, gummy lt gry & gry grn

Sh, brn, md gry, blk

Ls., wht crm, micro-vfn xln, sli dol, spary calc xln, fr por, n sho

Ls., crm lt gry, micro-vfn xln, scat sparry calc, chlky, n stn, n odor, n sho

Sh, brn, md gry

Ls., wht crm, vfn xln, dns, sli dol, fn spary calc foss xln, n-pr por, n stn, n odor, n sho

Ls., crm tan, micro-vfn xln, sli dol, spar calc xln, trc ppt vug por, 2 cutn healed fract, n stn, n odor, n sho

Ls., crm tan, micro-vfn xln, sli dol, spar calc xln, trc ppt vug por, few foss frags, chlky in part, n stn, n odor, n sho

Ls., crm tan, micro-vfn xln, sli dol, spar calc xln, trc ppt vug por, few foss frags, scat wht chert, chlky, n stn, n odor, n sho

Sh, blk carb, burns, coal odor, n gas bubbles

Ls, gry, micro xln, dns, dull, n vis por, n stn, n odor, n sho

Sh, blk, brn, grygrn

Sh, brn, lt brn vsft, lt gry

Sh, brn, grygrn, blk

Ls, crm lt tan, vfn xln granular spary calc xln, pr intra xln por, n odor, n sho

Ls, wht crm dol remn ool, pr-fr por, 5 qtz rexxln, n odor, n sho

Sh, org brn, brn, vsft, md gry wxy

Ls, wht, 50% micro xln, dns, 50% vfn xln, slid dol, spary calc xln & remn foss, pr-fr por

Ls, wht crm, micro-vfn xln, trc spary calc, pr por, chlky, scat chert, n odor, n sho Sh,grngry

Ls, wht lt gry, micro-vfn xln, dns, trc spary calc, n-pr intra xln por, scat crm chert, n sho

Ls, dull tan, micro xln, dns, Sh blk, brn

Ls, wht lt gry, 50% micro xln, dns, 50% sli irreg cmt ool gmstn, trc intra ool por, trc blk res O in vugs, fr sho spts lt brn O on crush, mod tite, vvfnt odor, n Offlor

Sh, brn, lt brn vsft, grygrn, aqua grn

Clay, lt gry gry, vsft gummy

Ls, 20% sli irreg cmt ool gmstn, trc intra ool ppt vugs, trc blk res O in vugs, fr sho spts lt brn O on crush, mod tite, fnt odor, n Offlor 3900 base lt gry tan shrp chert.

Ls, lt gry trc grn, micro xln, dull, n vis por, trc lt chert, n stn, n odor, n sho

Ls, lt gry trc brn, micro xln, lithic dns, n vis por, trc lt gry-btn chert, n stn, n odor, n sho

Ls, lt gry trc brn, micro xln, lithic dns, Aa, 5 cutn w/ sparce hvy O stn vugs, nsfo

Sh, brn sft, md gry wxy

Ls, lt gry pnk sh stn, micro xln, dns, dull, n por, scat lt gry chert, n stn, n odor, n sho

Ls, wht fnt mottld pnk sh stn, micro xln, dns, hvy cmt ool gmstn, n vis por, scat lt gry chert, n stn, n odor, n sho

Ls, wht lt gry, micro-vfn xln, dull, dns-britl, pr por, n odor, 2 cutn blk pil sh, nsfo

Sh, brn, md gry

Ls, wht lt gry, micro xln, dns, mod wht chert

Ls, wht lt gry, 50% micro xln, dns, mod wht chert, 2 cutn cmt ool gmstn, pr intra ool por, few spts lt brn O on break, n odor, nsfo

Sh, brn, lt brn vsft, dk aqua grn, few pyrite clustr

Ls, wht lt gry, micro-vfn xln, dns, n-pr vis por, scat lt tan chert, 5 cutn vfn xln, pr por, trc vug w/spts lt brn O on break, n stn, n sho, vfnt odor, nsfo

Ls, wht lt gry, micro-xls dns, wht chert, n sho

Sh, brn, lt brn vsft, dk aqua grn, few pyrite clustr

Sh, brn, lt brn clay

Ls, wht lt gry, micro-xls dns, wht chert, few brn edge stn, nsfo

Sh, brn, lt brn clay

Ls, wht lt gry, micro-vfn -xls dns, n vis por, 5% cmt ool gmstn, n-pr intra ool por, 4 cutn spts lt brn O on break, few baren on crush, vvfnt odor

Sh, brn silty, lt brn clay, dk gry

Sh, brn silty, lt brn clay, gry

Ls, wht lt gry, micro-vfn -xls dns-britle, pr-n vis por, 2% lt gry cmt remn ool gmstn, pr por, 2 cutn spts blk O on break, vvnt odor, nsfo

Ls, wht lt gry, micro-vfn -xls dns-britle, chlky

Ls, wht lt gry, micro-vfn -xls dns-britle, chlky, wht chert, 5% cmt remn ool gmstn, n-pr intra ool por, trc edge gil stn, n odor, n sho

Ls, wht lt gry, micro xln, lithic, 2% lt tan tranl ool preserved chert, n stn, n odor, n sho

Ls, wht lt gry, micro xln, lithic,scat chert, n stn, n odor, n sho

Sh, brn, maron, grygrn

Sh, brn, orgbrn silty, gry, blk

Ls, wht crm, micro-vfn xln, britl-dns, trc spary calc, few fn foss clastic, n-pr, n stn, n odor, n sho

Ls., crm, vfn xln, sli dol, spary calc xln, fr por, n stn, n odor, n sho

Sh, brn,brnorg silty, maron, md gry

Ls, wht crm, micro-vfn xln, britl-dns, trc spary calc, few cmt ool & fn foss clastic, n-pr, n stn, n odor, n sho

Ls, mixed. wht crm Aa, 1 cutn dns ool w/spts dk brn O on break, w/res O, md gry cmt ool & md foss, n por, ool chert, n odor, nsfo

Sh, brn, brn wxy, lt brn, md gry

Sh, brn, brn wxy, lt brn, md gry

Sh, brn, brn silty, auqa grn

Sh, brn, lt brn sft, md gry

Ls, lt crm gry, vfn xln, sli dol, scat lt crm gry chert, n sho

Sh, dk gry, brn

Sh, brn wxy, brn org silty, aqua grn

Sh, brn wxy, brn org silty, aqua grn

Ls, md gry, micro-vfn xln, dull, n sho

Sh, dk gry, sft wxy

Sh, dk gry, lt brn clay

Ls, gry, micro xln, lithic, n por, lt gry chert, n sho

Sh, dk gry, dk brn, silty gry grn,

Sh, vsft gry & wht clay, gry wxy

Sh, blk, wht-lt brn clay, org brn silty

Ls, gry micro xln, lithic, crm gry oolitic grnstn, n vis por, vfn xln, sli dol, spary calc xln, n stn, n odor, n sho

Sh, yel gry-lt brn-wht sft clay,,

Sh, brn, lt gry splintery

Ls, lt gry, vfn xln, trc vn spary calc, pr por, n sho

Ls, lt gry, vfn xln, trc vn spary calc, pr por, n sho

Sh, lt brn clay, lt gry splintery

Sh, dk brn, clustry pyrite, md gry

Sh, red org clay, brn, lt brn clay

Sh, grngry, brn, red org, dk gry

Ls, micro xln, dns, pr por, chlky, n sho

Sh, brn org, aqua grn,

Ls, micro xln, trc spary xln, few crs vugs w/brn stn

Sh, brn org, aqua grn,

Sh, brn, maron, aqua grn

Sh, yel brn, calc brn, few cmt ools

Sh, yel brn, brn, silty

Sh, brn, brn silty

Chert, tranl dk yel tan, wht, pnk, gry, sharp, blocky, 10% wthrd tripl, n Ostn, n odor, n sho

Chert, tranl dk yel tan, wht, pnk, gry, sharp, blocky, Aa, carring over in samples

Sh, brn, purple, gry calc

Ls, crm, vfn xln, spary calc xln, n sho

Kelly bounced indicating Arb

Dol, wht, fn xln, sucro, spary calc xln, f-por por, n stn, n odor

Dol, wht, fn xln, 2nd rexln sucro remn oolites, spary calc xln,w/rnd fn arg qtz grns, fr-por, n stn, n odor

Dol, wht, fn xln, spary calc xln,w/rnd fn arg qtz grns, fr-por, n stn, n odor

Dol, wht, fn xln, pr por,

Sh, brn silty

Dol, wht, fn xln, fr por, few dol foss, wht & tan yel sharp tranl chert, n sho

Dol, wht lt gry fn, fr por, few dolmtz ool w/fr intra ool por, few wht devit chert, n sho

Dol, wht lt gry fn, fr por, few dolmtz ool w/fr intra ool por, few wht devit chert, n sho

Sh, aqua grygrn

Dol, wht lt gry fn xln, fr por, scat wht chert, n stn, n sho

Dol, wht lt gry fn xln, fr por, scat wht chert, n stn, n sho

Dol, wht lt gry fn xln, fr por, few sucro oolite w/vug por, scat crm chert, n stn, n sho

Dol, crm, few pnk stn, fn xln, fr por, few sucro oolite w/vug por, scat crm chert, n stn,

Dol, crm, fn xln, fr por, few sucro por, scat crm chert, n stn, n sho

Dol Ls, wht fn xln, trc spary calc pr-fr por, scat crm chert, n stn, n odor, n sho

Strap 4486.27'
Board 4487.73
Strap short 1.46'

REMARKS

Spud 12:30 PM..09-14-2019
RTD 3:24 AM 09-21-2019

"BIT RECORD"
Surface Bit : Smith MXLC, 12 1/4, (3-15's), ser LCP0013, surf. 262
Bit No.2 HTCO DP506 7-7/8" (3-15's, ser 5290434 in at 263-out at 3282
Bit No.23 HTCO GX-20C 7-7/8" (3-15's, ser 5301660 in at 3282-out at 4487'

"VERTICAL SURVEYS"
.50° @ 262' 1.0° @ 3282
0.5° @ 1285' .5° @ 4487'
0.5° @ 2110' .0° @ 0'

"PUMP DATA"
National K-380
Stroke 14", Liner 5.5"
60 Strk/min
248 GAL/Min

"DAILY REPORT"

09-14-2019 - 12:30 PM
Spud
Drlg to 12 1/4" to 262'

6 jts 8-5/8 #24
J55 STC csg
set @ 262'
205 sx Class A
3%CC, 2% Gel
Full returns w/10 bbls
to Pit, QES

Plug down 05:00 PM 09-14-19

Drlg plug 01:00 AM 09-15-19

09-15-2019 - 7:00 AM
Drlg @ 905'

09-16-2019 - 7:00 AM
Drlg @ 2,635'

09-17-2019 - 7:00 AM
Drlg @ 3,409'

09-18-2019 - 7:00 AM
Drlg @ 3,795'

09-19-2019 - 7:00 AM
Drlg @ 4,004'

09-20-2019 - 7:00 AM
Drlg @ 4,130'

09-21-2019 - 3:24 AM
RTD @ 4,487'

09-21-2019 - 12:00 AM
Rig up Weatherford

LTD 4,480'

P&A

4460' 10sx
2510' 50sx
1541' 100 sx
312' 50sx
40' 10sx
RH 30sx
MH 15sx
Finish 4:30am
09-22-19

Mud Check 3 at 3,409'
vis: 63 wt: 8.6 Chlor: 1,400
LCM: 10# Ph: 11.0 WL: 6.0

Mud Check 4 at 3,794'
vis: 58 wt:9.1 Chlor: 1,300
LCM: 9.0# Ph: 10.5 WL:6.8

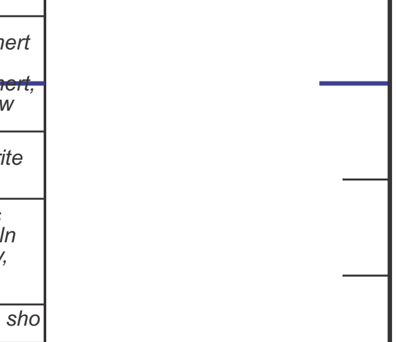
DST (1) 3873-3892
LKC C
30 45 45 60

IF: 8O8 blow built to 6 1/2"
IS: nr
FF: 8O8 blow built to 5"
FS: nr

Total:253' SMCW (94% W 6%M)

FP: 22-93 FFP: 97-134
SIP: 1205 FSIP:1117
HP: 2038 FHP: 1966

BHT 125°F RW .422 @ 59.2°F
Chloride 19,000 ppm

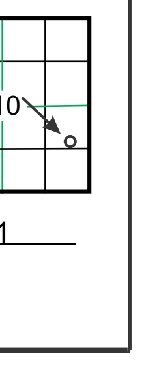


Mud Check 5 at 3,895'
vis: 70 wt: 9.3 Chlor: 1,800
LCM: 9# Ph: 10.5 WL:6.4

Mud Check 6 at 4,130'
vis: 64 wt: 9.3 Chlor: 1,500
LCM: 10# Ph: 10.0 WL:6.8

SAMPLE DESCRIPTIONS REMARKS

COMPANY Suemaur Exploration & Production, LLC
LEASE Ritter #1-10 SW SE NE SE
LOCATION 1478' FSL 375' FEL SEC. 10 TWP 04S RGE 28W
COUNTY Decatur STATE Ks

ELEVATIONS
K.B. 2721
D.F.
G.L. 2716
All measurements from K.B. 2721