

Darrah Oil Company

Geologic Report

#6 John Vacek
15-053-21273

330 FSL & 1510 FEL
Sec. 32 T15S R10W
Ellsworth County Kansas

KB: 1783'
GL: 1778'

All measurements taken from KB

Contractor: Mallard JV

Spud date: July 27th, 2012
Drilling complete: August 1st, 2012

Geologist Seth Evenson on location 11:45 am July, 30th 2012 @ 2560 ft. MD

Drill time taken from 2400 ft. to TD
Samples logged from 2490 ft. to TD

Sample Tops:

Topeka	2526' (-743)	Lansing G zn	3015' (-1232)
Oread	2742' (-959)	Muncie Creek shale	3073' (-1290)
Heebner	2825' (-1042)	Stark shale	3157' (-1374)
Toronto	2848' (-1065)	Hushpuckney shale	3189' (-1406)
Douglas	2855' (-1072)	BKC	3213' (-1430)
Brown Lime	2925' (-1142)	Simpson	3242' (-1459)
Lansing	2943' (-1160)	Arbuckle	3273' (-1490)
Lansing B zn	2971' (-1188)	Arbuckle porosity	3277' (-1494)
		TD	3282' (-1499)

Formation Tests:

DST #1
3266' - 3282' MD
MIS-RUN
Packer did not seat

Rec: 210' Mud

DST #2
3250' - 3282' MD
HP 1643 - 1598
IFP 43 - 90 20 min
ISI 787 30 min
FFP 100 - 123 30 min
FSI 760 60 min
Rec. 91' GO (25% G; 75% O)
180' MCO (45% M; 55% O)

Structural Comparison:

	#6 John Vacek E2/SE/SW/SE Sec 32 15S-10W	#5 John Vacek E2/SW/SE/SE Sec 32 15S-10W	#3 Adamek A NE/NE/NW Sec 5 16S-10W
Topeka	-743	-745 (-2)	-749 (-6)
Douglas	-1072	-1071 (+1)	-1074 (-2)
Lansing	-1160	-1159 (+1)	-1162 (-2)
Stark	-1374	-1371 (+3)	-1372 (+2)
BKC	-1430	-1432 (-2)	-1432 (-2)

Simpson -1450

-1452 (-2)

-1453 (-3)

Arbuckle -1494

-1516 (-22)

-1507 (-13)

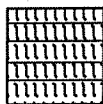
Due to significant structural advantage in comparison to nearby wells, coupled with the positive results from DST #2; it was decided to run 5 1/2 inch production casing six feet off bottom (3276' MD -1493 SS) to further test the Arbuckle dolomite. Well was open-hole completed as above, with the wiper plug down and holding @ 3:45 am on Thursday August the 1st, 2012.

Respectfully Submitted by,

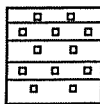
Seth Evenson
Geologist
Darrah Oil Co
September 4th, 2012

OH location 11:45 am 7/30/2012 2560ft

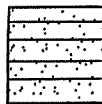
LEGEND



Anhydrite



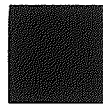
Salt



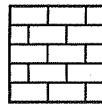
Sandstone



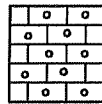
Shale



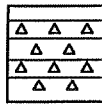
Carb sh



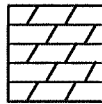
Limestone



Ool.Lime



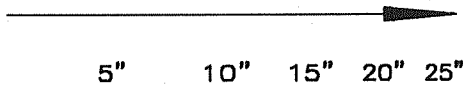
Chert



Dolomite

DRILLING TIME IN MINUTES
PER FOOT

Rate of Penetration Decreases



DEPTH

LITHOLOGY

SAMPLE DESCRIPTIONS

OIL SHOWS

REMARKS

LOG 7710

2400'

50'

2500

2500

Topo
2526?
(-743)

50

2600

50

Shale grey & rust red, platy also about
Lms tan-brown, very fine xth, med res, about
fossils, size no vis ♂

Shale grey, rust red as abo, also bit grey
shale platy & Lms cream, non foss inter xth
to grey-brown about half pr-no vis ♂

Shale grey-rust red, platy, some waxy.
Also Lms cream, micro xth, med res about
small and coarse pr-no vis ♂

Lms cream micro xth, med res, Lms tan-
brown-grey, fine xth, med-res, about 1/2
pr-no vis ♂

Shale, & very shale/shaly lms, grey
med-lrd res, micro xth few to no alveolus
pr-no vis ♂

Lms cream-tan-lt grey, micro-very fine xth
med-lrd res pr-no vis ♂, much fewer
alveolus (fossiliferous above pcs)

Lms cream, micro xth, few to no alveolus
pr-no vis ♂

Lms grey-lt grey, micro-very fine xth, few
to no alveolus pr-no vis ♂ med-lrd
res, some pcs pass shaly matrix

Lms cream to grey very fine xth, med
res, about fossils, pr-no vis ♂ Also
much grey platy shale soft to waxy.

Lms grey micro xth, med-lrd res,
often very shaly matrix. few to no alveolus
pr-no vis ♂

Lms lt grey micro xth, med-lrd res, some w about
cfs fossils, ammonid etc. pr-no vis ♂, some
slightly "Pelecypod fossils"

Lms off wht-cream-tan, micro-fine xth,
some what foss. Pelecypod etc. med res,
pr-no vis ♂

Lms, grey, very fine xth, about 1/2
ammonid fossils. fine xth matrix med-
lrd res pr-no vis ♂

Lms cream-tan, fine xth, med-lrd res,
about fossils. Ammonid foss. pr-no vis ♂

Lms tan-grey, micro-very fine xth, about
foss. very med res, pr-no vis ♂, sharp fresh
grey chert, and cherty Lms grey.

Lms cream-tan micro-fine xth, all foss,
some slightly cherty but some med res, Pelecypod
etc. pr-no vis ♂

Lms, tan, brown, grey, dark grey, micro xth,
med res, very about ammonid fossils, pr-no vis
♂ dark grey fresh sharp chert.

Lms tan-brown micro-fine xth, very high
fossiliferous, med res, pr-no vis ♂, occasional
cherty. Rust surface below.

Lms tan - some lt grey, micro-very fine xthn, med-hrd res, very few w/ fossils, many silty cherty matrix pr-no vis & occ sply of metal surface, w/ carb, bln, & metal

Lms tan - lt brown, fine xthn, fcs, hrd res pr-no vis & med about lt grey-brown chert to cherty lms micro xthn most lithological they fresh

Lms tan - lt grey cherty micro xthn no vis & non allochemical & some lms tan, fine xthn, silty chert pr-no vis also shale grey, grey, platy & grey shaly lms for med res.

Lms lt brown - grey very hrd res fine xthn, some small fossils, pr-no vis & rough/ lumpy chert also shale & silty-blu some matrix & to grey occ, silty.

Lms tan - lt grey very fine xthn, med-hrd res occ. fcs. pr-no vis & rough text. Blk carb shale bit.

Lms lt grey-gry, very fine xthn, sparsely foss. pr-no vis & med-hrd res, rough, ratty looking text.

Lms lt grey fine xthn, very occ blk foss indur med-hrd res, pr-no vis & rough text, silty fracture in some part, silty cherty some part

Lms cream-tan, very fine xthn, about fine foss inclusions, both med res, pr-fr in the xthn & silty cherty matrix.

Lms cream-tan-brown, micro-very fine xthn somewhat fcs, both med res, pr vis &. Also shale grey, grey, red platy

Lms grey, both med res, silty shaly, pr vis & occ fcs. Blk carb shale bitly both.

Lms brown-gry fine med xthn, med-hrd res pr-no vis & occ very fine foss inclusions. Silty ratty looking. xthn matrix blk carb shale as above.

Lms tan-gry fine xthn med-hrd res, very few fossiliferous pr-no vis & silty grey shale, blk shaly chert, & grey blk carb & blk carb shale



Chert, bluish-grey, blk sharp fresh, blk carb shale bed & conchoidal. Also lms tan-very fine xthn, med res pr vis &

Lms tan very fine med xthn, med-hrd res. xthn matrix, pr vis & some sparsely, some silty cherty.

Lms tan micro-very fine xthn all cherty, med-hrd res few w/ fossils. pr-no vis & shale grey, grey, red brown, yellowish brown platy, silty.

Shale grey, grey, red brown, earthy, brown, some grey silty, some grey silty carbonaceous, & few part pyrite, Also lms as above

Shale dark grey, bluish med-hrd res, rust red, red brown platy, lt grey silty, platy & lms as above.

Shale blk carb, silty-med res, silty grey also grey platy shale.

Shale blk carb as above, grey, maroon, red brown, grey platy also lms tan - lt grey micro xthn, hrd res, about and small oolite in vis &

Lms, cream, off white, lt grey micro xthn hrd res, smooth-text some off white-gry part w/ about blk oolite, pr-no vis & some pyrite

Lms off white-cream, med res, micro xthn. non allochemical, cherty, no vis &

Lms cream, med-hrd res, micro xthn, non allochemical no vis & some grey lms, silty foss, hrd res rough-text also shale grey, grey, blk

2690' O.C. (-907)

2700'

O.C. 2742' (-959)

50

2800'

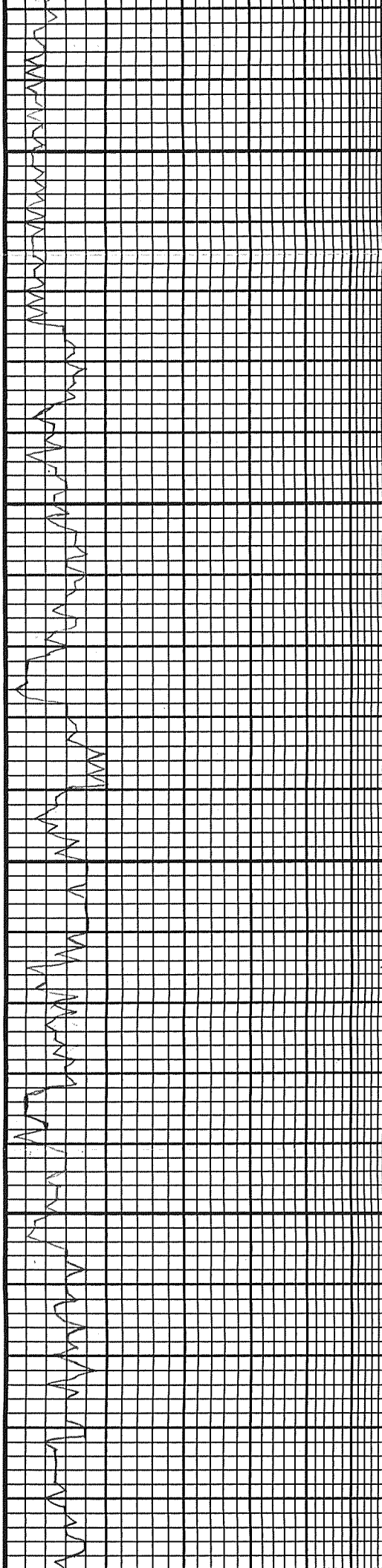
Heebner

50'

Heebner Shale
2825' (-1042)

Toronto Lime
2848' (-1065)

Douglas Group
2855' (-1072)



2900

Brown Line

Lansing

50'

CFS 30 min

3000'

50'

3100'

Shale & shaly ls. It gray, silty, hrd res, no vis platy xls, gray, red brown platy shale. Shaly ss lt gr for grainy shaly.

Shale gray, gray, red brown, platy blk carb. gray shale often silty. Sample over 50' cm sized tight lms. micro xthin

Shale lt gray silty to sandy, silty micaceous. A few dark brown vry shaly ss. hrd res no vis &

Shale & S.S. lt gray silty shale to shaly ss. tight pr-no vis & a few red brown, grn & some narrow platy shale

Shale lt gray silty as abv, some grading to sandy. hrd res, pr-no vis &

Shale as abv & lms brown-gray brown, med crv xthin, jagged edges, hrd res, some sli anky, no vis & few allochems, fractures.

Lms lt gray-dk gray, brown, micro-fn xthin hrd res, sli foss, pr-no vis & often sharp edges

Lms off wht-tan, micro xthin oolitic, about med voids, some w/ spres, shallow oolitic vrgs, pr-no vis & med overall pass but to be kept oil.

Lms off wht-tan micro-vry fn xthin about med voids, some spres oolitic vrgs med-hrd res pr overall & w/str or show noticed.

Lms tan-gray, micro-fn xthin, some tan per oolitic but no allochems, no vis & gray for xthin pr sli foss, pr-no vis & rough text, less oolitic than abv.

Lms crn-tan, micro xthin, hrd med-vry med-hrd res, thin platy, oolitic & some sparse shallow oolitic vrgs, pr overall & mostly tan micro xthin non allochemical

Lms crn-tan micro xthin mostly but oolitic spres shallow oolitic vrgs as med, barren. Also lms gray vry fn xthin, hrd res, spsly oolitic, mostly non allochemical, non vrgular pr-no vis &

Lms off wht-lt gray, oolitic & sli foss, micro xthin hrd res, pr-no vis & sli rough text. A vry c/s mineral foss.

Lms crn-tan-some gray, micro-vry fn xthin med-hrd res some gray, oolitic prs similar to abv. mostly non allochemical like pr-no vis &

Lms gray fn xthin, med-hrd res foss, pr-no vis & sli rough text jagged edges. Also, lms off wht oolitic vrgs for grubby, pr barren.

Lms crn micro-vry fn xthin, mostly non allochemical, prs & occ a few per oolitic vrgs. pass sli str on surface. No cut mostly barren. Also shale gray, blk, red brown & gray, platy

Lms crn, micro-vry fn xthin, med-hrd res, often non allochemical smooth uniform text, ool slightly oolitic, smooth text, no vis &

Lms crn non allochemical as abv, also lms tan vry fn xthin, about shallow oolitic vrgs, med-hrd res, vry occ dead surface str, looks barren only mineral flod. no cut

Lms lt gray micro xthin, few per w/allochems, med-hrd res pr-no vis & sli rough text. A pc pr vis & w/ about dead blk surf str, no cut. Also shale vry, vry, blk, platy.

Lms gray micro-vry fn xthin, hrd res, pr-no vis & few to no allochems, sli rough text. Also increase in thin gray, dk gray, vry blk, gray, reddish platy, sli/funshy.

Lms gray micro-vry fn xthin as abv some w/ pyritized mineral fossils pr-no vis &

Shale gray, red brown, brown, blk, platy fissite in some 'pc' Also lms as abv. A few oolitic prs qd & barren.

Brown Line
2925' (-1142)

Lansing Group
2943' (-1160)

Lansing B 2971' (-1188)

CFS 15 min @ 2978'
Lms lt gray-gray, vry fn xthin hrd res, med foss, pr-no vis & some tan oolitic lms as abv, shale gray, gray, purple, blk carb shale.
two vis to gray shaly cut
CFS 30 min
Lms off wht-gray, micro-vry fn xthin med-hrd res, some oolitic med non allochemical pr-no vis &. A few per oolitic vrgs med res pr overall &. Also lt gray-gray shaly fresh, also tan oolitic long cut.

Lms G zone
3015' (-1232)

Minnie Creek Shale
3073' (-1290)

50'

50'

3200'

conn

50'

ARB

CFS
CFS

TD
3282'

TD reach @
approx 12 am
Aug 1st, 2012

Shale dk abu. about cm-tan micro xth. lms smooth text no vis ♂

Shale as abv & tan-brown micro xth lms res tight lms also gry vry fu xth lms res, sli foss lms pr-no vis ♂

Shale as abv, lms cm-tan, micro xth, sft-med res, sli chllgy, non allochemical uniform text. no vis ♂

Lms cm-tan, fng xth, brtt, dcc, xth indoids, pr-no vis ♂, some sli chllgy is abt, some gry fu xth lms jagged-gr rough text.

Shale vry, dk gry nearly blk, red brown, platy also lms cm-tan, micro xth non allochemical sli chllgy brtt, no vis ♂

Vari colored shale gry, blk carb, blk, purple, red brown also lms mix of abv & lms gry, gritty text, catty looking no vis ♂

Lms cm-tan micro xth, brtt-med res, pr-no vis ♂ few to no allochems ALSO shale as abv.

Lms lt gry, micro-vry fu xth med-hrd res, non allochemical, sli rough surface text pr-no vis ♂

Lms cm-tan & lt gry, micro xth as abv, pr-no vis ♂ also shale gry sli silty red brown, narrow, dk-gry grn platy

Shale gry, red brown maroon, some blk sli carbonaceous, also lms cm-tan med-hrd micro-vry fu xth, few to no vis ♂ pr-no vis ♂ for pr-no vis ♂

Lms off wht-crm, micro xth, brtt-med res, few to no allochems pr-no vis ♂ some sli chllgy, brown oxiditic incls as abv & shale as abv, some blk carb shale

Lms brwn micro xth abt lms ooids no vis ♂ also shale gry, grn, brown, maroon, sft, platy, mst sample lms as abv.

Shale varicored, gry, grn, purple, yellow, red brown, maroon platy, also lms cm-tan some gry micro xth, non allochemical

Shale gry-dk gry, red brown, a few grn ps fissile, abt small chips lms cm-tan micro xth no vis ♂

Shale gry, red, brown, maroon-purple, platy, many ps blk carb shale fissile. also pyrite & 1 ps lt gry silt, shale/shaleys ♂

Shale varicored, gry, purple, grn, blk carb fissile, red brown, brown sli earth, fire yellowish shp chrt, 2 pc vry fine grained gry ss. shaley w/

Lms/chrt lms yellowish abt oxiditic, lms res, no vis ♂, much varicored chrt, some shaley drk wht w/ reddish inclusions, some reddish waxy congl shale.

Chrt, wht to bone fresh shp sli calcitic sli lms, a few ps yellow shaley ss, vry fine grain mst gr mix of varicored shale & chrt as abv 1 pc lt gry micaceous shaley ss, no vis ♂ & crs ang & 2 sand grain

Stark Shale
3157' (-1374)

Hushpuckney Shale
3189' (-1406)

BKC
3213' (-1430)

Basal Penn Shale?
3233' (-1450)

Simpson Group
3242' (-1459)

Arbville
3273' (-1490)

Arb Porosity
3277' (-1494)

3275-80' Vari colored shale gry, lt blk gry, purple, brt grn, red brown earthy some shp fresh off wht chrt, 1 ps shaley, oxiditic lens?

CFS @ 3280'

15min. Vivid varicored shale
brt gry, yellow, blue, grn, purple, blk gry, red etc. 1 dust vry fine grained gry appears finely cemented, no vis ♂ fr cut upon surface, vry gd, vry gd sft, mst noticed, vry tight cement, 1 crs sub ang grn post data surface sht, no cut.

30min. Dolomite, lt brwn, tan-off wht, vry fine xth, brtt-med res, some sucrosic, fr shw fo upon brk in some pct. gd even floor, sli odor in cap. Some sli gry, sm drnged oxiditic pct have no vis ♂

dk res

ss ♂

70'

75'

no shw

upon cut. Very bright blue in the vugs per
v/s on surface. Surface vugs, 12 brownish
in vugs some irregular rhombs.



45 min: Dolomite off wht-tan-
to gry, fm-med xth, med-td res,
Sl: siliceous, bec sptre brownish in
vugs, fr-gd interxth of fr vngular of
mostly uniform sized rhombs, most
pec trc to fr shw FO upon brk. Most
pec gd to ht yell flor. but pec sh- fr
staining cut, most pec excellent cut & bloom
upon brk. Fr-Gd shw overall, Sl: color
in cup.

60 min: Dol, off wht-tan, lt brown,
fm xth, med-td res, sl siliceous,
well crusted, pr-fr inter xth of, fr
vngular, sl: surface str, trc to BSFO
upon brk, gd yell yw excu flur. Most pec
very high pr-mcut, these will cut upon brk,
gt even sat, gd bloom upon brk. BSFO
CFS 3282

15 min: Dolomite off wht-lt gry
cm-xth fm xth med-td res
fr inter xth of, some w/fr vngular of
sl: trc to BSFO upon brk. Sl: to
fr color in cup. small sptre FO release
from pinpoint interxth of upon brk
of ht yell flor with pec, sl-fr staining
cut with pec, pones out cut upon brk
but with excellent bloom upon
brk. Excellent sat. Very internal
inter xth sat. perhaps inter xth
matrix is a little tight well crusted
quite possibly better vngular
of than abv.

45 min Plus after circulation
was off for at least an hour

Mostly shale banded maroon with blue
some maroon w/ brt yell yw. Many pec
reddish to red orange shg feet chert.
Much wht-tan fm-crs xth dolomite,
Several pec white off wht sucrose no str.
no fluor no cut. Many pec off wht vngular
fm-med xth dol w/ brt yell flor & sl: brown
str no cut until brk, excellent wht
cut & bloom. Appears to be more
crs rhombic than abv samples
all exhibit excellent cut upon brk
only, except for sucrose off wht
dol which is not carrying show.
Sl-fr color in cup trc free w/
with pec BSFO upon brk in crs xth
w/inter xth vngs.

 5" 10" 15" 20" 25" DRILLING TIME Minutes/Foot Rate of Penetration Decreases 	DEPTH	LITHOLOGY	SAMPLE DESCRIPTIONS	OIL SHOWS	REMARKS
CONTRACTOR <u>Mallard JV</u> LEASE # <u>6 John Vacek</u> IP _____ ELEVATION <u>1783' KB</u> RTD <u>3282'</u>		LOCATION <u>330 FSL & 1510 FEL Section</u> SEC <u>32</u> TWP <u>15S</u> RNG <u>10W</u> COUNTY <u>Ellsworth</u> STATE <u>Kansas</u>			

DST #1

3266-82'
 Misrun
 Packer did not seat
 Rec 210' mud

DST #2

3250'-3282'
 IHP 1643 #s
 FHP 1598 #s
 IFF 43-90 #s
 FFP 100-123 #s
 ISIP 787 #s
 FSIP 760 #s
 Rec 91 ft GO (25% G; 75% O)
 180 ft MCO (45% M; 55% O)
 20-30-30-60

Dry Sample Analysis

3230-40' Lms con-tan-1 grey med-bd res
 micro xth, sli chky w/ prob vis s, shale gry,
 gray, maroon platy, 1 or 2 med sub ang late sub grain
 no str, no clusters.

3240-50' Shale gry, sly, maroon, hlt, platy
 to fissile, 1 pc lt grey vry fr to silty shale/shaley ss.
 no vis s, no str.

3250-60' Less shale than abv, more tan-1 grey
 46% fm - w micro xth lms, 2 sub ang med sz sand grains, no
 vis str, no str, no cont, no fluv.

3260-70' Red brown earthy gobby shale &
 yellowish micro xth shaley calcic lms,
 lms med tan-yell gr bands, no vis s, yell grey
 shaly fresh chrt, yellowish-tan off wht drp chrt,
 a few med-cr sub ang sz sub grain loose pass sli
 no str, no clust, no cont, no fluv.

3270-75' Varicolored shale & chrt,
 more vivid blue gr shale, yell brown grainy shaly
 chrt, some off wht, varicolored shale grey, red, green,
 maroon. 1 pc lt grey vry shaly silty fine no vis s.
 sli yell to off wht - lt grey vry fr xth, sli chky siliceous lms,
 pr vis s 1 pc Doly possible Arb, no str noticed, some
 dr wht xth in dr, no fluv, fite, no loose sub grains noticed

3270-80'

3280' 30 min
 Dolomite off wht-lt grey-brown
 fm-med xth, many w/fr-vgd angular
 & inter xth vngs, gl even brown str &
 sat in about half of Dolo pcs. Some
 saw success pec w/chky matrix & no
 str pr vis s in these pec, most pec med-bd
 res. Some tan w/pyrite inclusions, Pec without
 stain appear to have inter xth gr infilled with
 notice 1 sub ang etc sand grain med no str, the
 rest of sample varicolored shale & chrt as abv.

3280' 45 min
 Dolomite much like abv, much tan-brown med
 to res rhombic w/rd angular & inter xth s, gl even
 sat & brown str, some pec off wht-lt grey micro
 vry fr xth, med-vgd brd res, no vis s, no str.
 Still many pec dolo off wht-lt grey med & uniform
 rhombic xth, w/ sli chky matrix & no str.
 fr sub ang qtz ss. as abv. loose grain only

3282' 15 min
 Dolo mite, appears to be decrease in highly str
 angular pec from abv & perhaps increase in off wht
 to lt grey pec w/ fine rhombic xth. some success

3282' 45 min
 * Please note that this sample was taken
 after the mud pump was off line for about an
 hour. The 45 min sample (RTD) was taken a few
 minutes after circulation was restored; therefore
 it should not be considered a good representative
 sample from 3282'. However it is apparently a
 good representative sample of the mottled, varicolored
 Simpson shale, as it dominates this sample.

Mottled & bleached
 Beautiful, vivid, purple, purple/blue gr, purple/yell str,
 varicolored shale, Reddish, red orange shaly fresh chrt,
 Dolomite similar to those described abv.

3215-80 Varicolored Shale & chert as abv. Dolo, off wht
lt gr, micro xtn, bed res, no stn pr-no vis x, 1 pc w/ sps
pinpoint vugs, no fluor, no cut, stl siliceous, very bed res
no shw, micro xtn, 1 sub cut sub grain w/ blv stn, med, no cut
or fluor.

3280' 15 in Varicolored shale, much blu, maroon & yellow shale
a few pcs chert shp fish bone-gr, also, very few loose sub cut grains etc
sub grains a few w/ stl stn, no fluor, no cut, also very few pcs off wht very fin
xtn dolo, fine, no fluor, cut or stn.

lacking stn. These pcs may have stl increase in gr
due to less presence of chert in inter xtn matrix.
Weather show thin dolo samples but still fr
inter xtn of overall. A few pcs siliceous dolo
micro xtn very bed res, almost smooth text w/ shiny luster,
no vis x. This sample contains dolo w/ gr blw even
stn & sat which have lg inter xtn vugs due to
irregular sized shwls, may be different rock
than those described abv.