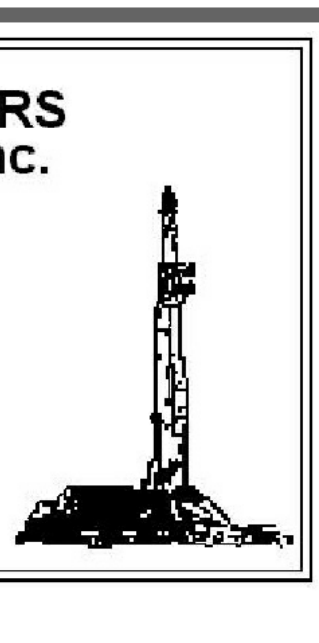
GOOLSBY BROTHERS and associates, inc.

575 Union Blvd, Suite 208
Lakewood, CO 80228
303-945-2860 Office

Geological Wellsite Supervision



www.goolsbybrothers.com

Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name:	BK#1		
API:	15-121-11050		
Location:	SW/NE Section 34 T3S R53W Washington Co., CO		
License Number:		Region:	Wildcat
Spud Date:	September 20, 2015	Drilling Completed:	October 4, 2015
Surface Coordinates:	2503' FNL & 1500' FEL SW/NE Sec. 34 T3S R53W Latitude- 39.747670 Longitude- -103.298150		
Bottom Hole Coordinates:	Same.		
Ground Elevation (ft):	4960'	K.B. Elevation (ft):	4971'
Logged Interval (ft):	4500' To: 8073'	Total Depth (ft):	8073'
Formation:	Boice Dol (Kinderhookian); Secondary: Marmaton, Cherokee, Morrow, Reagan SS.		
Type of Drilling Fluid:	LSND		

Printed by STRIP.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: Duncan Oil, Inc.
Address: 1777 S. Harrison St. P-1
Denver, CO 80210

GEOLOGIST

Name: Mike Dodge, Blake Stacey, Alex Caruana
Company: Goolsby Brothers & Assoc., Inc. (www.goolsbybrothers.com)
Address: 575 Union Blvd., Suite 208
Lakewood, CO 80228
303-945-2860

E LOGS

Schlumberger: Platform Express (AIT/SP/GR/LDT/CNL) w/ BHC Sonic.
GR/SP from TD to GL.
AIT/BHC Sonic from TD to BSC.
LDT/CNL from TD to 6500'.

CASING

Drill 12 1/4" Hole to 400'

8 5/8" 24# J-55 Surface Casing set @ 385'

Drill 7 7/8" Hole from 400' to TD.

COMMENTS

1) Contractor- Nebco Services, LLC Rig #12
ToolPusher: Gary Naill.
Pumps: #1 IDECO T-800 6" x 9" (.0748 bbls./stk.)
#2 IDECO D-550 6" x 15" (.1486 bbls./stk.)

2) Company Man: Tom Thomas, Josh Falls.

3) Mud Company: Hydro Resources - Carla Restivo, Ryan Brooks.

4) Gas Detector from Terra Services: MSI Redbox Total Gas Detector w/ Chromatograph (#409).
Cuttings Samples: Lagged Samples Caught from 4500' to TD. Two sets of Dry Samples saved for Duncan Oil and True Oil.

5) All data (ROP, Lithology) has been adjusted to Electric Log Depths for this Composite Log.

6) Where used in Sample Descriptions, NSOFC is No Stain Odor Fluorescence Cut.

7) As of

ROCK TYPES

Cement	Sh (col)	Ss (f gr+)	Mrlst
Salt	Sh (slty)	Arg ss	Mrlst_sh (intbdd)
Bent	Sh (carb)	Ls	Granite
Anhy	Coal	Ls (arg)	Granite wash
Chert	Sltst	Ls (marly)	
Clyst	Congl	Dol	
Shale	Ss	Chalk	

ACCESSORIES

MINERAL		FOSSIL	STRINGER / TEXTURE
Anhy	Nodule	Fish	Limestone
Arggrn	Phos	Foram	Chalk
Arg	Pyr	Fossil	Marlstone
Bent	Salt	Gastro	Siltstone
Bit	Sandy	Oolite	Sandstone
Brecfrag	Silt	Ostra	TEXTURE
Calc	Sil	Pelec	Boundst
Carb	Sulphur	Pellet	Chalky
Chtdk	Tuff	Pisolite	Cryxln
Chtlt	FOSSIL	Plant	Earthy
Dol	Algae	Strom	Finexln
Feldspar	Amph	STRINGER	Grainst
Ferrpel	Belm	Anhydrite	Lithogr
Ferr	Bioclst	Gypsum	Microxln
Glau	Brach	Argillaceous	Mudst
Gyp	Bryozoa	Shale	Packst
Hvymin	Cephal	Claystone	Wackest
Kaol	Coral	Bentonite	
Marl	Crin	Coal	
Minxl	Echin	Dolomite	

OTHER SYMBOLS

POROSITY TYPE	SORTING	SAMPLE SHOWS	EVENTS
Earthy	Well	Even	New bit
Fenest	Moderate	Near even	Casing
Fracture	Poor	Spotted/patchy	Casing
Inter		Very spotty	Survey (mwd)
Moldic	ROUNDING	Questionable	Survey (wireline)
Organic	Rounded	Dead oil	Connection
Pinpoint	Subrnd	Gas show	Trip point
Vuggy	Subang		Off bottom
	Angular		

Spud 19:30 9/20/15, Drill 12 1/4" Hole to 400, Set S.C./Cement/NU/Test on 9/21-22, Drill Out 00:00 9/23, Drilling 7 7/8" Hole.

UPHOLE SURVEYS:
400' 1.75°
888' 1.0°
1512' 1.25°
2017' 1.5°
2517' 1.5°
3018' 1.5°
3523' 1.75°
4242' 1.5°

Drilling w/ Bit #2 7 7/8" Halliburton FX-55, (Jets 5x16) w/ New Mud Motor in @ 400'.

Start Gas Detection and Sample Evaluation 05:20 9/25/15. Catching 20-30' Lagged Samples Starting at 4460'.

Drilling in Upper Graneros Fm.

SH mdk-dkgy, occ mgy, frm, sbplty-plty, sl slty-rthy txt, non-sl-mod calc, mic mica ip, scat Fos frags.
BENT (Tr) ltgy crm, sbwxy-sbchky, mod yel mnrl flor.

SH (70%) dk-m dkgy, frm, sbplty, slty-rthy txt, calc ip, mic mica, carb ip, scat Fos frags, occ Slt strgs & ptgs.
BENT (20%) ltgy crm wh, sbwxy-sbchky, fnt-mod yel mnrl flor.
SS (10%) ltgy, lse-fri, L vf-U f gr, sbang, mod-p srt, cly fld ip, no vis por, NSOFC

SH (95%) dk-m dkgy, tr blugy, frm, sbplty-plty, rthy-sl slty txt, pred non calc, mic mica ip, occ Slt strgs & ptgs, tr indist Fos frags.
BENT (5%) As above.

'D' SS- 4517' (+454)

SH (70%) dk-mdk-mgy, frm, sbplty-splty, sl slty-rthy-sm, non calc, mic mica, scat vf carb matr.
SLTST (20%) m-ltgy, frm-fri, non calc, scat vf mica, NSOFC.
SS (10%) ltgy, fri-frm, sl vf gr, tr vf-L f gr, sbang-sbrnd, mod w srt, non calc, cly fld ip, tt, no vis por, NSOFC.
BENT (Tr).

SH (60%) As above.
SS (20%) ltgy, lse-fri, U vf-U f gr, tr L m gr, ang-sbrnd, mod-p srt, non calc, cly fld ip, no vis-vp por (<8%), NSOFC.
SLTST (20%) As above, sdy ip, grdg-slty vf gr Ss ip, NSOFC.

Short Trip to Niobrara @ 4553'.

SH (65%) mdk-mgy, frm, sbplty-plty-splty, sl slty-sm txt, non calc, occ scat vf carb matr, mic mica ip.
SLTST (20%) lt-mgy, fri-frm, non calc, sdy ip, grdg-slty vf gr Ss ip, NSOFC.
SS (15%) ltgy, fri, sbrnd-sbang, non calc, cly fld ip, occ mic Pyr, no vis-vp-p por (<10%), NSOFC.

'J' SS- 4571' (+400)

SH (60%) As above.
SS (20%) As above, pred vf gr, U vf-U f gr ip, tr lse L m grs, sbrnd-sbang, non calc, occ mic Pyr, vp-n vis por (<8%), NSOFC.
SLTST (20%).

SS (50%) ltgy crm wh, fri-lse-frm, sl vf-L f gr & U vf-L m gr, ang-sbrnd, mod-mod w-p srt, non calc, pred wh gy cly fld, occ scat orng gn blk grs & gy Sh frags, arg ip, tr Pyr, vp-no vis por (<8%), NSOFC.
SH (50%) m-dkgy, frm, sbplty-plty-sbblky, slty-sm-sdy txt, non calc, scat mica & f carb matr/plnt remn, mic/dism Pyr, occ Slt strgs & ptgs, tr ltgy Bent.

SS (50%) ltgy crm ltbrn, fri-lse, L vf-U f gr, sbang-sbrnd, mod-mod w srt, non calc, occ gn red grs, rr Pyr, no vis-vp por (<8%), NSOFC.
SH (50%) As above, v slty-sdy ip, mod carb ip, tr mic Pyr.

SS/SLTST (50%) crm ltgy, fri, slty vf & vf-L f gr Ss, grdg-sdy Sltst ip, tr L f-L m gr, cly fld ip / occ wh cly strgs, pred no vis-vp por (<6%, tr to 8%), NSOFC.
SH (50%) m-dkgy, tr gybrn, frm, sbblky-sbplty-splty, non-sl calc, slty ip.

SS/SLTST (60%) crm wh lt-mgy ltbrn, fri-lse, pred slty vf gr Ss grdg-Sltst, L vf-L f gr Ss ip, mod w srt, sl-non calc, pred cly fld, scat Pyr, no vis por, occ ques patchy ltbrn stn, no vis flor, wk milky cuts.
SH (40%) m-dkgy, frm, sbplty-splty, sl slty-sm txt, sbwxy ip, non calc, occ scat f carb matr.

SLTST (50%) lt-mgy, ltbrn, frm-fri, sbplty, sdy ip, non calc, tr mic mica & vf carb matr, tr ques ltbrn stn, no vis flor, wk milky cuts.
SH (50%) dk-mgy, frm, sbplty-splty, non-v sl calc, occ scat vf carb matr & mic mica.

SH (60%) As above, occ vdkgy-blk, frm-brit-sft, flky-sbblky, carb ip, slty-sdy ip, scat Inoc.
SLTST (20%) As above.
SS (20%) ltgy crm, fri, slty vf & L vf-L f gr, tr U vf-U f gr, ang-sbrnd, mod w srt, non-sl calc, mafic ip, no vis-vp por (<8%), NSOFC.

SKULL CK. - 4720' (+251)

SH (70%) dk-mgy, frm, splty-plty, sl slty-sbwxy-sm, calc ip, mic mica ip, occ dism Pyr & vf carb matr, Tr Fos frags & glau.
SS (30%) ltgy s&p wh, vf & -L vf-L f gr, sbang-sbrnd, mod srt, calc ip, cly fld ip, mafic ip, occ sl arg, occ gn cly mnrls, no vis-vp por (<8%), NSOFC.
BENT (Tr) crm wh, sbchky, yel mnrl flor.

SLTST/SS (60%) ltgy, fri-frm, slty vf gr Ss & sdy Sltst, tr L vf-L f gr Ss, calc ip, scat mica/carb matr/Sh grs, tr Pyr, arg ip, no vis por, NSOFC.
SH (40%) dk-mgy, frm, sbplty-plty, sm-sbwxy, calc ip.

SH (70%) dk-mgy, fri, sbplty-splty-sbblky, rthy-sm-sbwxy, calc ip, occ Pyr & Fos frags.
SLTST (30%) As above, Sltst & slty vf gr Ss.

SH (80%) dk-mgy, frm, sbplty-splty-sbblky, sl slty-sbwxy, non-v sl calc, mic mica ip, tr carb matr/plnt remn, tr Fos frags.
SLTST/SS (20%) lt-mgy, fri, sdy Sltst & slty vf gr Ss, calc ip, cly fld, arg ip, scat mica & mic Pyr, no vis por, NSOFC.

SH (80%) As above, occ dism/mic Pyr.
SLTST/SS (20%) As above.

SS (50%) wh ltgy, fri-frm, L vf-U f gr, ang-sbrnd, mod srt, non-sl calc, cly fld ip, scat Pyr & f mica, tt, no vis-vp por, NSOFC.
SH (50%) dk-mgy, frm, sbplty-splty-sbblky, sl slty-sbwxy, non-v sl calc, mic mica ip, tr carb matr/plnt remn, tr Fos frags.

SH (70%) m-dkgy, frm-sft, sbblky-plty-splty, slty-sm txt, sbchky ip, f-c & sism Pyr com, f mica & carb matr, tr indist Fos frags.
SS (30%) As above.

SH (50%) As above.
SH/CLYST (30%) ltgn mar purp ltgy, frm, ireg, sm sbwxy-sbchky txt, non calc, sdy ip / scat trnsl vf-m rnd-sbrnd sd grs.
SS/SLTST (20%) lt-mgy, trnsl, pred slty vf gr & sdy Sltst, L vf-L f gr & U vf-L m gr ip, sbrnd-sbang, mod srt, non-sl vcalc, cly fld ip, pred no vis por, tr vp-p por (<10%), NSOFC.

SH (55%) dk-mgy.
CLYST/SH (25%) mar ltgn purp ltgy wh, frm-sl sft, ireg, sm sbwxy-sbchky, non calc, sdy ip.
SS (20%) ltgy trnsl milky lse vf-L m grs, tr clayey clstrs, sbang-rnd, non calc, no vis por, NSOFC.

Trip for Bit @ 4988'. Bit #2 Cut 4588' in 40.4 Hrs. NB#3 7 7/8" Varel VS616DRU w/ New Mud Motor in @ 4988'. Work Stuck Pipe and Jar Free @ 4576'.

CLYST (60%) ltgn mar purp, frm-v frm, ireg-sbplty-sbblky, non calc.
SH (20%) dk-m gy Cvgs.
LS (20%) crm tan rdbrn, frm, mic xln, chky, no vis por, mod yelwh mnrl flor, no cut.

CLYST (25%) As above.
SH (25%) As above.
LS (25%) crm wh ltbrn, frm, mic xln, dns, chky, sdy ip, mod yelwh mnrl flor, no cuts.
SS (25%) ltgy trnsl crm ltbrn, pred lse f-L c gr, sbrnd-rnd, non-sl calc, occ fri-frm L vf-L f gr, cly fld, sl-mod calc, NSOFC.

SS (70%) ltgy trnsl, lse, f-c gr, rnd-sbang, mod-p srt, non calc, NSOFC.
LS (30%) crm wh, frm, dns chky mic xln, anhy ip, slty-sdy ip, no vis por, mod-fnt yelwh mnrl flor, no cuts.
SH/CLYST (20%) pred v dk-dk-m gy, frm, blky-plty-splty/rthy-sm, calc ip, mic mica ip, carb ip, occ gn mar mgy purp Clyst.

SS (50%) As above, bcmg mod-v calc ip.
LS (30%) crm wh ltbrn, frm-v frm, pred dns chky mic xln, occ sdy vf-f xln, no vis-vp por, occ mod-fnt yelwh mnrl flor, no cuts.
SH (20%) As above.

SS (50%) ltgy trnsl crm, lse L vf-U m gr, rnd-sbang, w/ fri L vf-L f gr, slty vf gr grdg-Sltst ip, cly fld, calc, NSOFC.
SH/CLYST (30%) dk-v dkgy Sh, frm, sbplty-splty-blky, rthy-sm, non calc, w/ gn rdbrn mar purp Clyst, sm-rthy-slty txt, sbchky-sbwxy.
LS (20%) As above.

SS/SLTST (60%) crm ltgy, fri-sft-lse, pred slty vf & L vf-L f gr, grdg-sdy Sltst ip, calc, cly fld, occ lse-fri L vf-U f gr, cly fld ip, NSOFC.
SH/CLYST (30%) As above.
LS (10%) crm tan mgy, frm, chky mic xln, NSOFC.

CLYST (60%) lt-mgy gngy, occ rdbrn mar, frm, pred sm-sbwxy, rthy ip, sbchky ip, non calc.
LS (30%) crm ltbrn ltgy tan, frm-sl sft, dns mic xln, chky-sbchky, no vis por, pred NSOFC, occ fnt-mod yelwh mnrl flor, no cuts.
SS (10%) crm ltgy, fri, L vf-L f gr, sbrnd-ang, w/ w-mod srt, non calc, tt, no vis-vp por, NSOFC.

LS (60%) ltbrn tan ltgy crm wh, frm, dns, sbchky, mic-crp xln, slty ip, no vis por, fnt-mod yelwh mnrl flor, No cuts.
CLYST/SH (30%) mgy gngy-gn, occ rdbrn mar purp, frm, ireg, sm sbchky, sbwxy ip, non calc, tr Pyr.
SS/SLTST (10%) As above.

CLYST/SH (50%) gngy ltgy gn mgy wh, frm, ireg-flky, sm-sbwxy-sbchky, non calc, slty-sdy ip.
SLTST/SS (30%) ltgy, fri, slty vf gr Ss & sdy Sltst, calc-sl calc, pred cly fld/anhy, no vis por, NSOFC.
LS (20%) ltbrn tan ltgy offwh, frm, dns crp-mic xln, chky ip, anhy ip, no vis por, NSOFC.

LS (60%) tan ltbrn ltgy, mott ip, frm, mic-crp-vf xln, sbchky, sl foss ip, slty-sdy ip, tr-occ vf ool (<.5mm), no vis-vp por, occ fnt-mod yel mnrl flor, no cuts.
SH (30%) pred m-dkgy, frm, sbplty-splty, non-sl calc, scat f carb matr, occ gn mar purp Clyst.
SS/SLTST (10%) As above.

SH/CLYST (40%) m-dkgy Sh w/ gn blugy purp rdbrn Clyst, scat Pyr.
LS (30%) As above.
SS/SLTST (30%) ltgy, occ ltbrn, fri-sl frm-lse, pred slty vf & L vf-L f gr Ss, L vf-U f gr ip, sbrnd-ang, calc, cly fld, occ scat mica/Pyr/Sh grs, no vis-vp por, NSOFC.

ENTRADA - 5351' (-380)

SS (60%) ltgy trnsl milky, tr orng, lse-fri, vf-U f gr, rnd-ang, frst ip, non-sl calc, cly fld ip, vp vis por, NSOFC.
CLYST/SH (20%) As above.
LS (20%) As above.
ANHY (Tr) ltgy trnsl dns xln & wh sft chky.

SS (50%) As above, vf-L m gr, occ wh chky calc Cly strgs, NSOFC.
SH (40%) rdbrn, occ mgy brn gn purp och, frm, sbblky-ireg, sbchky, slty grdg-Sltst ip, sl-mod calc.
LS (10%).

SH (80%) red rdbrn, occ gn, sft-frm, sbblky-sbplty-ireg, sbchky sm-sl slty-rthy txt, dolic-sl calc, anhy ip.
SS (20%) pred lse trnsl ltgy U vf-L m Qtz grs, rnd-sbang, NSOFC, tr fri cly fld slty vf gr.

SH (65%) red, sft-frm, ireg-sbplty-blky, sbchky rthy-sl slty txt, sl dolic, anhy ip / wh chky incl, slty-sdy ip.
SS (25%) ltgy trnsl orng, lse, U vf-L m gr, sbang-rnd, NSOFC.
ANHY (10%) ltgy trnsl wh, sft-frm, xln-gran ip, chky amorp ip.

SH (70%) red, occ orng rdbrn tr gn mgy, sft-frm, sft-frm, sbblky-ireg, sbchky slty txt, sl dolic ip, anhy / ltgy wh gy incl.
ANHY (20%) ltgy trnsl frm-fri xln-gran & wh sft chky.
SS (10%) As above, lse vf-f (tr m) Qtz Sd grs.

BLAINE - 5476' (-505)

SH (60%) mgy red rdbrn gn-gngy, frm-sft, sbblky-sbplty-splty, sm-slty-rthy txt, sbchky-sbwxy ip, occ sl dolic, anhy ip.
ANHY (40%) wh, pk orng, sft-sl frm, pred dns chky amorph, grny-gran vf xln ip, occ fnt yel mnrl flor, no cuts.

ANHY (50%) wh crm, tr pk, as above, fnt yel mnrl flor, no cuts.
SH (40%) pat m-dkgy, frm, sbplty-splty, sl slty-sm, non-sl calc, scat vf carb matr (Cvgs?), w/ red orng rdbrn gn, sft-frm, ireg, slty-sm, sbchky-sbwxy, sl dolic in, anhy.
LS (10%) tan ltbrn wh, frm, sbchky crp-mic xln, anhy, fnt yel mnrl flor.

Wiper Trip & Work on Mud Pump @ 5536'. (Start Trip 21:00 9/27, Resume Drilling 19:15 9/28).

SH (30%) m-dkgy, frm, plty-sbplty, non calc.
SH (20%) red orng, gn, frm, sbplty-ireg, slty-rthy-sm, sl dolic, anhy.
ANHY (30%) wh sft chky & wh ltgy vf xln.
SLTST/SS (20%) ltgy trnsl, lse, Slt & L vf-L f sd grs, NSOFC.

SH (50%) m-dkgy, as above.
SH (30%) red orng, tr gn purp, as above.
ANHY (20%) wh sft-sl frm, grny-vf xln, sbchky-sbchky, occ fnt yel mnrl flor, no cuts.
SS/SLTST (Tr).

SH (40%) red orng rdbrn, sft, chky, anhy.
SH (40%) m-dkgy, sbplty-plty-splty, non calc.
SS/SLTST (20%) ltgy trnsl, tr orng red, lse, L vf-L f gr, sbrnd-sbang, tr red cly, NSOFC.
ANHY (Tr).

SH (70%) orng red, tr gn, sft-sl frm, sl slty, sbchky, anhy, sl dolic, scat sd grs.
SH (20%) m-dk-ltgy, frm, sbplty, non-sl calc.
SS (10%) As above, lse, occ L m grs, NSOFC.

LYONS - 5633' (-662)

SH (35%) red rdbrn gn, sft-fri-frm, slty, as above.
SH (35%) m-dkgy.
SS/SLTST (20%) ltgy trnsl, tr orng brn, lse-fri, L vf-L f gr, slty grdg-Sltst ip, sbrnd-sbang, calc ip, cly fld ip, tr Cht grs, no vis por, NSOFC.
ANHY (10%) wh pk tan, sft-frm.

SH/SLTST (65%) red rdbrn orng, occ m-dkgy gn, sft-frm, ireg-blky, sft-rthy-sm txt, sbchky, sl dolic, anhy, fltg vf-f sd grs, tr Pyr.
ANHY (15%) wh ltgy, sft-sl frm, chky, amorph ip, xln ip.
SS (15%) ltgy occ orng tan brn, lse, tr fri, rr hd, L vf-U f gr, sbrnd-sbang, cly fld in slt, no vis por, NSOFC.

Trip above Niobrara for Rig Repair (Turbo Motor) @ 5670'.

SH/SLTST (70%) rdbrn, frm, ireg, sm-slty, non calc-sl dolic, anhy ip w/ m-dkgy as above.
SS (20%) As above, pred lse L vf-U f gr, NSOFC.
ANHY (10%) wh, sft-sl frm, chky, xln ip, occ fnt yel mnrl flor.

ANHY (40%) wh, sft-sl fgrm, chky, xln ip, occ fnt yel mnrl flor, No cuts.
SH (40%) As above, sl slty ip, tr sdy, occ xln Anhy incl & ptgs.
SS (20%) ltgy trnsl, occ brn, tr orng, lse, tr fri, L vf-U f gr, tr lse m grs, rnd-sbang, calc ip, cly fld ip, NSOFC.

SH (60%) rdbrn red orng, frm-sft, ireg-sbplty, sm sbchky, sl slty-rthy ip, sl dolic, anhy ip / tr xln Anhy ptgs & incl, w/ dk-mgy, frm, sbplty-sbblky, sm-sl slty-rthy txt, sbchky ip, non-sl calc.
SS (25%) As above, lse vf-f Qtz grs.
ANHY (10%).

SH (80%) As above, pred rdbrn red, slty-sdy ip, occ scat L vf-L f sd grs.
SLTST/SS (15%) ltgy trnsl, orng brn, lse, Slt & L vf-L f Qtz grs, rnd-sbang, NSOFC.
ANHY (5%) wh ltgy, xln ip.

SH (75%) rdbrn red, sft-frm, blky-sbplty, sbchky slty-rthy-sm txt, sl calc-sl dolic, anhy ip, occ m-dkgy.
SLTST (20%) rdbrn, fri-sl frm, sl calc, sdy ip, anhy ip.
SS (5%) lse L vf-L f Qtz grs.
ANHY (Tr).

SH (95%) red orng rdbrn, sft-frm, blky, sbchky sm-sl slty-rthy, sl dolic, anhy.
SS/SLTST (5%) As above.
ANHY (Tr).

STONE CORRAL - 5848' (-907)

SH (60%) As above, rdbrn red gn, slty, anhy ip, w/ occ dk-mgy.
ANHY (25%) wh, sft, chky.
SLTST/SS (15%) lt-mgy trnsl, lse L vf-L f gr Qtz grs & sdy anhy Sltst, calc ip, no vis por, NSOFC.

SLTST/SH (70%) orng, occ pk rdbrn red gn m-dkgy, sft-sl frm-frm, blky-sbplty-ireg, slty-sm txt, sbchky-chky, dolic-sl calc, anhy / Anhy incl & ptgs, clayey in part.
ANHY (15%) wh, sft, chky.
SS/SLTST (15%) As above, pred lse vf-f gr, fri anhy Sltst & slty vf gr Ss ip.

SH (80%) rdbrn red orng pk, occ m-dkgy, sft-frm, sbblky-sbplty-ireg, sbchky, sm-slty-rthy txt, non calc-sl dolic, anhy ip / occ Anhy incl & strgs, grdg to:
ANHY (10%) wh lt-mgy ltgy, frm-sft, chky ip, xln-gran ip.
SS (10%) lse vf-L f Qtz grs.

SH (90%) rdbrn red orng, occ m-dkgy gn, frm-sft, sbblky-sbplty-ireg, sbchky, sl slty txt, sl dolic, anhy / wh chky Anhy incl, v slty grdg-Sltst ip.
SS (5%) lse L-U vf sd grs, tr L f grs.
ANHY (5%).

SH (85%) As above, slty-sdy ip w/ occ vf sd grs, tr xln Gyp incl.
SS (10%) lse ltgy trnsl vf gr Qtz grs, NSOFC.
ANHY (5%) wh ltgy tan, sft-frm, chky amorph ip, xln-gran ip.

WOLFCAMP - 6036' (-1065)

SH (40%) rdbrn orng pk, occ m-dkgy, sft-sl frm, ireg, chky-sbchky, slty ip, calc-sl dolic, mod-v anhy / Anhy incl & strgs, grdg to:
ANHY (30%) wh pk crm tan, sft, chky, slty ip, sl dolic-calc, occ fnt yel mnrl flor.
LS (15%) mgy gybrn lav pk, sft-frm, dns, chky-sbchky, crp xln, anhy, occ fnt yel mnrl flor, no cuts.
SS (10%) As above.

LS (60%) tan, lt pk, lav ltgy, sft-frm, dns, chky crp-mic xln, anhy, occ v fnt yel mnrl flor, no cuts.
ANHY (20%) wh pk lav, sft-sl frm-frm, chky-sbchky, amorph-grny-vf xln.
SH (20%) rdbrn orng gn lav as above w/ dk-m gy, mott ip, frm, sbplty-sbblky, sl slty, sl dolic-v sl calc.

LS (80%) crm-v lt tan, pk, lt lav, sft-frm, dns, chky, crp-vf mic xln, anhy, tr-occ sl dolic, occ v fnt yel mnrl flor, no cuts.
ANHY (10%) pk crm wh lav, sft-frm, chky, grny ip.
SH (10%) As above.

ANHY (40%) wh lav, sft-sl frm, chky, grny ip, calc, occ fnt-mod yel mnrl flor, no cuts.
LS (35%) As above, dolic ip, occ fnt yel mnrl flor.
SH (20%) rdbrn brn lav, occ m-dkgy, sl dolic, slty ip, anhy ip.
DOL (5%) lav tan ltgy, frm, grny mic xln, anhy, no vis por, NSOFC.

LS (40%) lt tan, offwh-crm lav, sft-sl frm, dns chky crp xln, grny ip, anhy, no vis por, tr-occ yel mnrl flor.
ANHY (30%) As above, fnt-mod-brt yel mnrl flor, no cuts.
DOL (20%) tan ltbrn, tr lav, frm, mic xln, grny-mic sucr ip, anhy ip, vp-p vis por (pred <8%, tr to 10%), fnt yel mnrl flor.
SH (10%) rdbrn orng lav purp ip, m-dkgy ip.

LS (60%) crm-offwh, lt tan, sft, dns chky crp xln, anhy, no vis por, NSOFC.
DOL (30%) tan, frm, grny-mic sucr, anhy ip, vp-no vis por (<6-8%), fnt yel mnrl flor, no cuts.
SH (10%) As above.

LS (40%) crm tan pk purp lav, sft-frm, crp-mic xln, anhy, dolic ip, no vis por, occ yel mnrl flor.
ANHY (30%) wh, sft, chky, amorph, calc, occ yel mnrl flor.
SH (20%) dk-mgy, frm, sbplty, slty, carb ip w/ red orng purp, anhy.
DOL (10%) As above, pur p lav ip.
SLTST (Tr) purp brn ltgy, fri, calc, anhy.

LS (30%) As above.
DOL (30%) lav tan pk, frm, mic-crp xln, grny ip, tr mic sucr, anhy ip, tr/vp vis por, no vis por (<6%), fnt yel mnrl flor, no cuts.
ANHY (20%) wh, sft, chky, amorph, grny ip.
SH (20%) As above.

LS (30%) crm tan ltbrn pk, frm-sft, chky crp xln, tr mic xln, anhy, dolic ip, no vis por, occ yel mnrl flor, no cuts.
ANHY (30%) wh lav pk, sft-frm, chky, calc, yel mnrl flor.
DOL (25%) crm tan pk lav, as above.
SH (15%) rdbrn orng pk, v slty ip, occ m-dkgy.

LS (crm wh tan pk purp, frm-sft, dns, chky crp-mic xln, anhy, sl dolic ip, no vis por, occ fnt yel mnrl flor, no cuts.
ANHY (30%) wh crm tan pk purp rdbrn, sft-sl frm, chky, grny-gran ip, calc ip, dolic, occ fnt yel mnrl flor, no cuts.
DOL (20%) pk tan ltgy, frm, mic xln, grny, tr-occ mic sucr, anhy, lmy ip, no vis-vp por (<6%), occ fnt yel mnrl flor, no cuts.
SH (20%) rdbrn, frm, rthy, calc-sl dolic, slty ip w/ occ dk-mgy, frm, sbplty-splty, calc-sl calc.

LS (40%) offwh crm, lt tan, pk, sft-frm, chky crp xln, anhy, sl dolic ip, no vis por, fnt-mod yel mnrl flor, no cuts.
ANHY (30%) crm wh, sft-sl frm, chky, calc, grny ip, fnt-mod yel mnrl flor.
DOL (20%) As above.
SH (10%) mott dkgy m-ltgy crm, frm, sbplty-splty-ireg, rthy-sbwxy, calc-sl calc, slty ip.

LS (60%) As above, occ purp pk rdbrn, occ fnt-mod yel mnrl flor, no cuts.
SH (25%) m-dkgy as above w/ purp rdbrn red pk, frm/blky, sl slty, sbchky, calc.
ANHY (10%) As above.
DOL (5%) tan gybrn lt-mgy, frm, dns grny mic xln, sbchky ip, anhy, lmy ip, no vis por, occ fnt yel mnrl flor, no cuts.

LS (70%) wh crm, lt tan, ltgy, sft-frm, pred chky crp xln, mic xln ip, anhy, sl dolic ip, no vis por, occ fnt yel mnrl flor, no cuts.
ANHY (20%) crm wh ltgy, lt pk lav, sft-sl frm, pred chky amorph, grny-vf xln ip, calc, dolic ip, occ fnt yel mnrl flor, tr mod yel mnrl flor.
SH (10%) As above.

DOL (50%) ltbrn tan crm wh, mott ip, frm-v frm, mic xln, grny ip, tr-occ mic sucr, occ vf xln, anhy, no vis-vp por, no vis intxln por, fnt-mod yel mnrl flor, no cuts.
LS (20%) As above.
Anhy (20%) As above.
SH (10%) dk-mgy, frm, sl-mod calc, scat carb matr, occ rdbrn.

LS (50%) crm ltbrn purp pk lav brn, sft-frm, pred chky crp xln, anhy, calc, occ slty mic xln grdg-Sltst ip, arg ip, no vis-vp por, fnt-mod yel mnrl flor, no cuts.
DOL (20%) lt-mbrn crm tan, frm-v frm, as above.
ANHY (20%) wh crm tan, tr purp, sft, chky, calc-dolic, occ fnt-mod yel mnrl flor, no cuts.
SH (10%) m-dkgy, rdbrn as above, occ lav pk och, sft, chky, calc-dolic, anhy, calc, slty ip.

LS (50%) crm-wh tan pk ltbrn, as above.
SH (25%) rdbrn m-dkgy purp, frm-fri-sft, calc-sl dolic, slty ip, tr grdg-Sltst.
DOL (15%) ltbrn tan gy, frm-v frm, mic xln, anhy ip, no vis-vp por, occ fnt yel mnrl flor, no cuts.
ANHY (10%) wh tan, sft, chky, occ yel mnrl flor.

LS (70%) wh crm, occ ltbrn tan pk lav, soft-frm, crp-mic xln, pred chky, anhy ip, sl slty ip, tr indist foss, no vis por, occ yel mnrl flor, no cuts.
ANHY (15%) wh ltgy, sft, chky, amorph, occ yel mnrl flor.
SH (15%) rdbrn, tr gn, sft-sl frm, blky-ireg, rthy-slty txt, sbchky, calc-sl dolic, anhy & mott dk-mgy, frm, blky-sbplty, sl-mod calc, slty ip.
DOL (Tr).

LS (65%) As above, slty ip, arg ip, dolic ip, yel mnrl flor.
SH (15%) mott dk-mgy, frm, sbplty-splty, calc, slty ip, tr carb w/ rdbrn as above.
ANHY (10%) wh, sft, chky, calc, fnt-mod-brt yel mnrl flor, no cuts.
SLTST (10%) ltgy, occ purp lav ltbrn, fri, sdy grdg-vf gr Ss ip, calc, vp-no vis por, occ yel mnrl flor, No Shows.

LS (90%) mott crm wh lt-mbrn ltgy, sft-frm, mic-crp xln, chky ip, occ indist foss, lt-mgy arg ip / occ m-dkgy Sh ptgs, tr mic Pyr, tr Slt strgs, no vis por, occ fnt-mod yel mnrl flor, No cuts.
SH (10%) m-dkgy, sft-frm, blky-sbplty, calc, slty ip, sl carb ip, scat mic Pyr.
SLTST (Tr) m-ltgy, fri-frm, sl sdy ip, calc, scat mic Pyr.

LS (45%) As above.
DOL (30%) ltgy ltbrn tan offwh, fri-frm, grny-mic sucr, no vis-vp vis por, yel mnrl flor, no cuts.
SH (20%) pred m-dkgy as above, occ rdbrn gngy.
SLTST (5%) lt-mgy, fri, scat mic Pyr, as above.

LS (85%) wh crm, lt tan, pred sft chky crp xln, occ sl frm mic-vf xln, tr dk Sh ptgs, sl slty ip, no vis por, occ yel mnrl flor, no cuts.
SH (15%) pred dkgy-v dkgy, mgy ip, frm, plty-sbblky, sl slty-sm, sl-non calc, carb ip, occ rdbrn, slty ip.

LS (90%) pk crm-offwh, occ tan lav purp, sft-sl frm, chky crp xln, & sbchky grny mic xln, sl dolic ip, sl slty ip, tr foss, no vis por, occ yel mnrl flor, no cuts.
SH (10%) red, sft-frm, ireg, sbchky, slty-rthy-sm, sl dolic-sl calc, w/ dkgy as above, tr purp Sltst.

HEEBNER - 6713' (-1742)

SH (50%) rdbrn orng pk, sft-fri-frm, slty-rthy txt, calc, slty grdg-Sltst ip, sdy ip.
SH (10%) dk-v dkgy, frm, plty-sbplty, non calc, carb.
LS (40%) As above.

LANSING / KANSAS CITY- 6732' (-1761)

LS (90%) crm, lt tan, sft-frm, chky-sbchky, crp-mic xln, tr vf xln, no vis-vp por, fnt-mod yel mnrl flor, no cuts.
SH (10%) vdk-dk gy, rdbrn, as above.

LS (85%) crm ltbrn, tr pk, sft-frm, crp-mic xln, chky-sbchky, occ xln Anhy/Gyp incl, no vis por, occ yel mnrl flor, no cuts.
SH (15%) v dkgy, mgy, frm, calkc-sl calc, carb ip, slty-sdy ip, w/ rdbrn, slty-sdy, grdg-Sltst ip.

SH/SLTST (50%) rdbrn red orng, tr purp, sft-frm, blky-ireg, chky-sbchky, slty-sdy, calc, occ dk-mgy, as above.
LS (50%) tan crm offwh, tr pk purp, as above.

LS (80%) wh crm ltbrn, frm, dns chky crp-mic xln,grny ip, no vis por, yel mnrl flor, no cuts.
SH (20%) dkgy, frm, sbplty-sbblky-splty, sl calc, sbwxy-rthy, carb ip, slty-sdy ip, occ rdbrn gn.

LS (60%) As above, occ yel mnrl flor.
SH (40%) rdbrn, occ red pk tan, frm, sbblky-sbplty-ireg, rthy-slty-sm txt, sl-v calc.

LS (70%) crm ltbrn tan, tr rdbrn, mott ip, frm, chky crp-mic xln, sl slty ip w/ tr Slt strgs, no vis por, occ fnt yel mnrl flor, no cuts.
SH (30%) dkgy, frm, sbplty-sbblky-splty, sl calc, sbwxy-rthy, carb ip, slty-sdy ip, w/ rdbrn red brn, frm, rthy-slty txt, calc ip, slty ip.

LS (60%) crm ltgy, ltbrn-tan, frm, crp-mic xln, chky-sbchky, tr indist foss, no vis por, occ fnt yel mnrl flor, no cuts.
SH (40%) dk-v dk-m gy, frm, sbblky-sbplty-ireg-splty, rthy-slty-sbwxy, tr sdy, calc, carb ip, tr rdbrn.

TOH to 3232' to Replace Mud Pump Liner Gasket.

LS (70%) wh crm ltgy, tr pk, frm, crp-mic xln, chky-sbchky, tr dkgy Sh ptgs & Pyr, no vis por, occ fnt-mod yel mnrl flor, no cuts.
SH (30%) dk-v dk-m gy, as above, non-sl calc, w/ rdbrn gn purp, frm, blky-ireg, slty ip, non-sl calc.

LS (60%) wh ltgy, occ brn, tr purp pk ltgy-trnsl, frm, mic xln, sbchky, tr dkgy rdbrn Sh ptgs, rr arg, no vis-vp por, occ fnt yel mnrl flor, no cuts.
SH (40%) rdbrn red gn, mott pk rdbrn crm, blky-ireg, slty-rthy txt, sbchky, non calc, w/ dk-mgy, as above, mic mica ip.

LS (70%) As above, w/ occ Slt & vf gr Ss strgs.
SH (25%) As above, slty-sdy ip.
SLTST/SS (5%) ltgy, gn brn lav purp, fri, Slt & L vf gr Ss, sbrnd-sbang, calc, no vis por, NSOFC.

LS (55%) crm tan lt-mgy, frm-sft, mic-crp xln, chky, slty ip, slty-sdy ip / occ Slt & vf gr Ss strgs, arg ip, tr foss, no vis por, occ yel mnrl flor, tr patchy brn stn / fr hzy yel cuts. SH (40%) dk-mgy, frm, ireg-sbplty, rthy-slty-sdy, calc, carb ip. SLTST/SS (5%) lt-mgy, as above, clayey-arg ip, tt, NSOFC.

** Start 10' Samples @ 7000'.

LS (75%) (As above, tr brn stn w/ hzy cuts. SH (25%) As above.
SLTST (Tr).

LS (80%) crm wh ltbrn, frm-sft, chky crp xln, tr mic xln, tr Slt strgs & dkgy Sh ptgs, sl arg, no vis por, occ fnt yel mnrl flor, rr brn stn w/ hzy yel cuts.
SH (20%) dk-mgy, frm-sft, sbplty-sbblky, sl slty-sbwxy txt, calc, slty-sdy ip, scat plnt remn, no vis flor, milky-hzy yel cuts.

LS (80%) crm tan lt-mgy, ltbrn, mott ip, sft-frm, mic-vf xln, chky-sbchky, arg ip / Sh ptgs, no vis por, occ fnt yel mnrl flor, tr-occ patchy brn stn, fnt yel flor, hzy-slow strmg yel cuts. SH (20%) dk-mgy as above.

SH (70%) dk-v dkgy, sft-sl frm, sbplty-flky, rthy-sm txt, v-sl-non calc, carb ip, occ dk Sh ptgs, tr Pyr, arg ip, sl arg, no vis por, occ fnt yel mnrl flor, slow strmg yel cuts. LS (30%) As above.

LS (75%) lt-mgy offwh, mott ip, sft-frm, mic-crp xln, chky-sbchky, sl arg ip / occ dk Sh ptgs, no vis por, NSO, mod-fnt-brt yel flor, no cut-wk milky cuts. SH (30%) As above.

LS (70%) wh lt-mgy, mott ip, sft, chky mic-crp xln, slty ip, sl arg ip / occ Sh ptgs, tr m-ltgy Slt strgs, no vis por, NSO, occ fnt-mod yel flor, no cut. SH (30%) dk-vdk-mgy, tr rdbrn gn, frm-sft, sbplty-splty, sl-mod-non calc, carb ip, NSOF, occ fr mlky cuts.

LS (75%) offwh crm, as above, decr slty. SH (25%) dk-mgy, as above.

LS (80%) tan crm offwh, frm-sft, chky mic xln, sl slty ip / rr Slt strgs, sl arg ip, no vis por, rr patchy brn stn, fnt-mod yel flor, fr mlky cuts. SH (20%) dk-mgy, NSOF / p-fr hzy yel cuts.

LS (75%) ltgy crm, lt tan-ltbrn, frm, mic xln, sbchky, tr indist Fos frags & .2-.3mm ool, rr Slt & vf gr Ss strgs, NSO w/ tr brn stn, fnt-mod yel flor, v wk mlky-hzy yel cuts. SH (25%) dkgy gybrn mgy, tr rdbrn, frm, blky-ireg, slty ip, sl cartb, NSOF w/ occ mlky-hzy yel cuts.

LS (50%) crm ltgy wh ltbrn-lttan, occ orng rdbrn, frm, mic-crp-vf xln, foss ip, slty ip / Slt strgs, NSO, occ fnt yel flor, no cut to wk hzy yel cuts.
SH (50%) dk-mgy as above w/ rdbrn brn mgy purp, fri-sft-frm, slty-sdy, calc ip, v slty grdg-Sltst ip, NSOFC.

LS (75%) ltgy crm offwh ltbrn, frm, mic xln, chky ip, slty-sdy ip / tr-occ brn mgy orng Slt strgs, no vis por, occ fnt-mod yel flor, NSO, no cut-occ wk mlky & hzy yel cuts. SH (25%) pred dk-mgy, occ rdbrn brn purp as above.

MARMATON - 7147' (-2076)

LS (80%) crm ltbrn ltgy tan wh, frm-sft, chky-sbchky, mic-crp xln, slty ip w/ Slt strgs, as above. SH (20%) dk-v dk-mgy, frm, blky-sbplty-flky, calc ip, carb ip, tr NSOF w/ wk mlky-hzy yel cuts.

LS (80%) crm ltbrn ltgy, frm-sft, chky mic xln, foss ip, tr scat .2-1mm ooids, tr mic Pyr & vf trnsl Cht frags, no vis-vp por, mod-fnt yel flor, No Shows.
SH (20%) As above.

LS (90%) crm ltbrn wh tan, frm, mic-crp xln, chky-sbchky, slty-sdy ip / occ Slt & vf gr Ss strgs, occ f plty mlky trnsl blugy Cht frags, foss ip, tr scat f ooids, NSO, mod-fnt yel flor, fr mlky-slow dev strmg yel cuts.
SH (10%) dk-v dk-mgy, frm, blky-sbplty, calc ip, scat plnt remn & f carb matr, NSOF, no cut-wk mlky cuts.

LS (80%) As above.
SH (20%) blk vdk-dkgy, frm, sbplty-blky-flky, rthy, calc, carb, mic mica ip, NSOF w/ v wk-wk mlky cuts.

LS (85%) crm ltgy ltbrn, frm, mic xln, chky-sbchky, arg ip, sl slty ip, tr-occ f Cht frags, rr foss, no vis por, NSO, mod-fnt yel mnrl flor, slow dev strmg yel cuts. SH (15%) dk-mgy, decr carb, mic mica ip, tr Pyr, NSOFC.

LS (85%) bcmg tan ltgy crm ltbrn, mott ip, mic-vf xln, sl arg ip, indist foss ip, tr Cht & mic Pyr, no vis-vp por, occ spty-patchy ques brn stn, mod-fnt yel mnrl flor, fr,wk mlky cuts. SH (15%), as above, occ dkgy gybrn, mott, carb ip, tr pyr, NSO, fr mlky-v slow strmg cuts.

CHEROKEE 'A' - 7230' (-2259)

LS (90%) bcmg chky ltbrn crm lt-mgy, mott ip, mic-crp-vf xln, arg ip, slty ip, tr sdy, tr mic Pyr, no vis por, NSO, occ fnt-mod yel flor, wk-fr mlky cuts.
SH (10%) dk-mgy gybrn, frm, blky, calc, slty grdg-Sltst ip, tr Pyr, NSOFC.

SH (60%) dk-mgy gybrn, mott ip, frm, blky-sbplty, mod-v calc, slty, carb ip, mic mica, scat mic yr, NSOF, fr mlky-slow strmg yel cuts.
LS (40%) As above, tr Slt & vf gr Ss strgs.

SH (70%) dk-m-v dkgy, occ gybrn, mott ip, Show as above. LS (30%) As above.

LS (80%) ltgy crm tan, frm, mic-vf xln, sbchky ip, slty ip / tr-occ lt-mgy Slt strgs, tr mic Pyr, tr foss, tr ltbrn mic sucr Dol, no vis-vp-p por (<6%, tr to 10%), tr patchy (rr e brn) stn, fnt-mod-brt yel flor, fr mlky & sl-fast strmg yel cuts. Tr Oil skim in Sample Cup.

LS (65%) lt-mgy wh ltbrn, mott ip, frm, mic xln, grny ip, chky-sbchky, arg, occ foss, no vis-vp por, NSO, occ fnt-mod yel flor, fr-gd mlky cuts.
SH (35%) m-dk-v dkgy, frm-brit, blky-sbplty, rthy-slty-sbwxy txt, calc, carb ip, scat plnt remn, mic mica ip, tr mic Pyr, NSOF, fr-gd mlky & slow strmg yel cuts.

SH (50%) vdk-dkgy, frm, blky-sbplty, rthy-slty-sm txt, calc, carb ip, NSOF, slow strmg-gd mlky cuts.
LS (50%) As above.

LS (70%) crm ltbrn lt-mgy wh, frm, mic-crp-vf xln, chky ip, occ Fos frags & Cht, tr grny-mic sucr dolic strgs, NSO, mod-brt yel flor, fr-gd mlky cuts, occ slow strmg yel cuts. SH (30%) As above, mgy, mic mica, slty-sdy ip.

LS (70%) As above, NSO, mod-fnt yel flor, fr-gd mlky cuts. SH (30%).

LS (75%) tan crm ltgy ltbrn, frm, mic xln, grny ip, foss, slty ip, no vis-vp por, NSO, fnt-mod yel flor, fr-gd mlky & slow dev strmg yel cuts. SH (25%) dk-vdk-mgy, frm-brit, calc ip, carb ip, NSOF, NSOF, fr-gd mlky cuts.

LS (75%) ltgy crm, mott, frm, mic xln, grny ip, sbchky, arg ip, slty ip / tr-occ lt-mgy Slt & vf gr Ss strgs, tr foss, no vis por, occ fnt yel flor, no cut-v wk mlky cuts. SH (25%) m-dkgy, v dkgy, frm, blky-plty-ireg, calc ip, carb ip, NSOF, p-fr-gd mlky cuts.

LS (65%) As above, sl-v slty ip / occ Slt strgs, fnt-mod-brt yel flor, p-fr-gd mlky to slow strmg yel cuts. SH (25%) As above. SLTST (10%) lt-mgy, fri-frm, sbplty-plty, calc-sl calc, no vis por, NSOFC.

LS (55%) ltgy crm offwh tan, frm, mic xln, grny ip, chky ip, arg ip, no vis-vp por, NSO, fnt-mod yel flor, p-fr mlky cuts
SH (45%) dk-vdk-mgy, frm, blky-flky-sbplty, calc, carb ip, slty ip, NSOF, fr-gd-p mlky yel cuts.

LS (60%) ltgy crm offwh tan, frm, mic xln, grny ip, chky ip, arg ip, no vis-vp por, NSO, fnt-mod yel flor, no cuts & p-fr mlky cuts.
SH (40%) dk-vdk-mgy, frm, blky-flky-sbplty, calc, carb ip, slty ip, NSOF, p-fr mlky yel cuts.

ATOKA - 7431' (-2460)

LS (60%) crm wh ltgy ltbrn, frm, mic xln, sbchky, grny ip, foss ip, sl arg ip, no vis por, occ fnt yel flor, NSO, no cut-wk mlky cuts.
SH (40%) gngy m-dkgy, frm, flky-sbplty, sbwxy txt, sl-non calc, occ scat vf carb matr & mic Pyr, No Shows.

LS (60%) As above, pred fnt yel mnrl flor w/ no cut, tr wk-fr mlky cuts.
SH (40%) As above, occ v dkgy, sft-frm, sbblky-sbplty, calc ip, carb, tr mic Pyr, NSOF, fr mlky-slow strmg yel cuts.

LS (90%) tan ltbrn crm, frm, mic-crp xln, dns, sbchky, fosds ip, tr-occ mic-vf Pyr, no vis por, tr-occ fnt yel mnrl flor, No Shows.
SH (10%) m-dkgy gngy, frm, sbplty-plty-splty, sbxwxy-sm-rthy txt, non-sl calc, occ scat vf carb matr, tr mic Pyr.

LS (80%) crm tan ltgy ltbrn, frm, mic-crp xln, sbchky, dns, tr foss, sl arg ip, no vis por, occ fnt yel mnrl flor, No Shows.
SH (20%) dk-mgy, occ gngy, frm, sbplty-splty, sbwxy-sm-rthy, calc ip, tr Pyr.

LS (70%) lt-mgy crm-offwh, ltbrn, frm, mic xln, sbchky, sl foss, arg ip, no vis-vp por, occ fnt yel mnrl flor, No Shows.
SH (30%) m-dk-ltgy, gn, frm, sbplty-plty-ireg-splty, sm-sbwxy-rthy-sl slty txt, calc ip, sbchky ip, occ scat vf carb matr, tr Pyr.

LS (70%) As above.
SH (30%) dk-v dkgy, splty-sbplty, carb w/ mgy gngy, sbwxy-sm.

LS (40%) m-ltgy lt-mbrn tan, mott, frm, mic-vf xln, arg ip, sl foss, slty ip, no vis por, NSO, tr fnt yel-orng flor, no cuts.
SH (30%) vdk-dk-mgy, frm, ireg-sbpltyy, sm-rthy, calc ip, sl carb ip, tr Pyr.
SH (30%) mgy gybrn gngy, sbwxy-sm, non-sl calc, sbchky ip, tr Pyr.

LS (50%) lt-mgy crm lt-mbrn tan, mott, mic xln, frag, foss ip, arg ip, sl slty ip, no vis por, NSO w/ tr fnt yel-orng mnrl flor.
SH (25%) dk-m-v dkgy, as above.
SH (25%) mgy gngy gybrn gn, as above.

LS (50%) mott lt-mgy, occ crm ltbrn, frm, mic-crp xln, sbchky ip, sl-mod arg, sbplty-splty, foss ip, slty ip, NSO, occ fnt yel flor, occ wk mlky cuts.
SH (50%) dk-vdk-mgy, frm, splty-sbplty, calc ip, sl carb ip, NSOF, wk-fr mlky cuts.

LS (65%) mott lt-mgy, tan ltbrn, frm, mic-crp xln, sbchky, foss, sl arg ip, plty ip, slty ip, no vis-vp por, NSO, occ fnt yel flor / wk mlky cuts.
SH (35%) dk-vdk-mgy, frm, splty, sm-sbwxy-rthy, sl-non calc, NSO, tr-occ fnt yel flor / p-fr mlky cuts.

MORROW - 7646' (-2675)

LS (60%) mott m-ltgy gybrn brn, as above, tr carb shy stks, NSO, tr yel flor / wk mlky cuts.
SH (40%) As above.

LS (50%) mott m-ltgy gybrn crm, frm, mic-vf xln, frag ip, foss ip, arg ip, tr-occ carb stks, NSO, tr yel flor / p mlky cuts.
SH (50%) vdkgy-blk, dk-mgy, frm-sft, flky-splty-sbplty, rthy-sm, sbwxy ip, non-sl calc, sl-v carb ip, NSOF / occ brt yel cuts.

LS (50%) As above.
SH (50%) As above, pred dk-mgy, occ vdkgy-blk, NSOF / gd cldy yel cuts.

LS (35%) mott lt-mgy, lt-mbrn crm wh, frm-fri, mic-vf xln, sbchky, foss, slty, no vis-vp por, NSOFC.
SH (30%) dk-vdk-mgy, as above. CLYST/SLTST (30%) gngy gn m-ltgy tan, fri-frm, calc, sbchky ip, slty Clyst grdg-Sltst ip, tr pyr & glau. SS (5%) gn ltgy, fri, slty vf & L vf-L f gr, sbrnd-sbang, calc ip, tr glau & pyr, NSOFC.

LS (40%) As above.
CLYST/SLTST (30%) gngy gybrnmgy, slty-sm-sbwxy txt, as above, tr slty vf gr Ss, NSOFC.
SH (30%) dk-vdk-mgy, as above.

SH/CLYST (50%) mgy brn mar purp gngy, frm, plty ip, calc ip, sm-slty-sbwxy, tr Pyr. LS (30%) lt-mgy tan brn wh, frm, foss, arg ip, chky ip, no vis por, NSOFC. SH (20%) dkgy blk, sft-frm, blky-sbplty- flky, rthy-sbwxy-sbvit, v carb grdg-Lig ip, NSOF, gd mlky-slow strmg yelwh cuts.

SH/CLYST (50%) mgy mar rdbrn tan purp gngy, varig ip, sl-non calc, slty ip. SH (30%) blk dk-v dk-mgy, as above. LS (20%) as above.

SH/CLYST (40%) mgy rdbrn mar gn, as above, tr Ss strgs. LS (30%) crm wh lt-mbrn, chky mic-vf xln, foss, sdy ip, NSO, occ fnt yel flor, no cuts. SH (25%) dk-v dkgy, as above.
SS (5%) ltgy gn, fri-lse, L vf-U f gr, ang-sbrnd, non calc, tr glau NSOFC.

SH (70%) m-dkgy gybrn tan gngy brn, frm, splty-sbplty-plty, non-sl calc, rthy-sm. LS (25%). SS (5%) ltgy trnsl gn ltbrn, as above,. tr lse m sd grs, NSOFC.

SH (70%) m-dkgy, gngy mar purp, as above. LS (25%) lt-mgy wh crm brn, frm, mic-vf xln, chky ip, foss, slty-sdy ip, no vis por, tr-occ fnt yel mnrl flor, No Shows. SS/SLTST (5%) lt-mgy gybrn, mott ip, fri-frm, Sltst & slty vf gr Ss, tt cly fld-arg, calc, occ scat Sh & carb grs, no vis por, NSOFC.

KEYES - 7801' (-2830)

SH (70%) mgy gngy-gn tan brn, frm, plty-splty-ireg, calc, sbwxy-sl slty txt, sbchky ip, tr-occ Slt strgs & ptgs. LS (25%) As above. SLTST/SS (5%) As above.

SH (50%) m-dkgy, gngy mar purp tan-brn, frm, sbplty-plty-splty, sm-slty-sbwxy, sl-mod-non calc, occ Slt strgs, tr Pyr. LS (45%) wh crm brn lt-mgy, frm, chky mic xln, tr sdy, tr xln Calc Ind fracs, no vis por, occ fnt-mod yel mnrl flor, no cuts.

GILMORE CITY LS- 7840' (-2869)

SH (60%) m-dkgy blk / gngy brn rdbrn mar (Cvgs?).
LS (40%) wh crm, tr ltgy ltbrn, frm-sft, chky, crp-mic xln, tr-occ trnsl Cht frags & xln Anhy incl, tr mic Pyr & gn mnrls, no vis por, occ mod yel flor, No Shows.

LS (65%) wh crm, occ ltbrn, sft-frm, chky mic-vf xln, indist Fos frags, slty-sdy ip, occ trnsl Cht frags, no vis por, fnt-mod-brt yel flor, No Shows. SH (35%).

Very Poor Samples- Uphole Cavings.

SH (60%) m-dkgy gybrn mar gn brn. LS (30%) wh crm ltbrn ltgy, mic-vf-crp xln, sdy ip, occ indist foss, tr Cht frags, no vis por, occ yel flor, No Shows. SS (10%) ltgy trnsl, fri-lse, vf & vf-f gr, tr lse f & m grs, ang-sbrnd, non-sl calc, no vis-vp por, NSOFC.

BOICE - 7890' (-2919)

LS (75%) crm wh ltgy, frm, chky mic-crp xln, occ trnsl ltbrn Cht frags, rr foss, no vis por, occ fnt-mod yel flor, No Shows. SH (25%) dk-m-vdkgy, splty-sbplty-plty, calc ip.

LS (60%) wh crm ltgy, tr ltbrn, frm, chky mic-crp xln, tr Cht frags, no vis por, occ fnt-mod yel flor, No Shows. SH (35%). SS (5%) trnsl ltgy, vf-f gr, non-sl calc, NSOFC.

Very Poor Samples- Uphole Cavings.

LS (70%) crm, lt tan, ltgy, frm, mic-crp xln, grny ip, v sl dolic ip, fnt-mod-brt yel mnrl flor, No Shows.
SH (30%). DOL (Tr) brn, tan, frm-v frm, dns, grny, mic xln, pred sl-mod lmy, no vis por, occ fnt yel flor, No Shows.

LS (80%) As above. SH (15%). DOL (5%) lt-m-dk brn, sft-fri-v frm, grny, sbchky ip, lmy ip, slty ip, no vis por, pred NSOFC, tr fnt yel mnrl flor.

REAGAN SS - 7944' (-2973)

LS (65%) As above w/ tr (<5%) m-ltbrn, fri, mic sucr, NSOFC. SH (35%) m-dkgy gngy rdbrn gn mar purp. SS (Tr) ltgy trnsl, fri-lse, vf gr, tr orng f-m gr, NSOFC.

LS 70%) tan crm ltbrn ltgy, frm, crp-mic xln, sbchky, no vis por, occ fnt-mod yel flor, no cuts.
SH (25%) as above.
SS (5%) ltgy trnsl clr, lse vf-U m Qtz grs, sbrnd-ang, NSOFC.

Very Poor Samples- Uphole Cavings.

LS (45%) SH (45%). SS (10%) lse vf-f Qtz grs, tr f-m grs, gn cly mtx, rnd-ang, non calc, NSOFC.

Poor Samples- Uphole Cavings.

SS (30%) clr ltgy trnsl, lse-fri-brit, f-c Qtz grs w/ gn tel cly mtx, rnd-sbang, p srt, non calc, tr glau, no vis por, NSOFC. SH (40%) dk-mgy gngy gn mar brn. LS (30%).

SS (40%) clr, ltgy trnsl, lse-fri, f-c gr, rnd-sbang, gn teal cly mtx, no vis-vp por, NSOFC. SH (30%). LS (30%).

Poor Sample Quality. Abnt Cavings.

SS (40%) clr, ltgy trnsl, tr orng, f-c Qtz grs w/ gn red gy cly mtx, ang-rnd, frst ip, calc ip, scat glau & gn cly mnrls, pyr, no vis por, NSOFC.
SH (40%) gybrn m-dkgy gngy, frm, sbplty-splty-ireg, non calc, slty ip, tr glau.
LS (20%) crm wh, lt tan, mic-crp xln, sbchky-chky, occ yel flor, No Shows.
SS (40%) as above, incr pk red grs / red rdbrn cly fill. SH (30%).
LS (30%) As above.

Poor Sample Quality. Abnt Cavings.

SS (40%) clr, ltgy trnsl, tr red orng gn grs, lse, tr fri, f-m gr / tr c grs, pred m-ltgn & red cly mtx, tr-occ lt-mgy cly, tr glau & gn cly mnrls, tr Pyr, rr v dkbrn dd o stn, no vis flor or cut. SH (30%) tan gn rdbrn m-dkgy brn purp mar, rthy-slty-sbwxy, sl slty ip.
LS (30%).

SS (50%). SH (25%). LS (25%).

SS (40%) clr, trnsl ltgy, occ rdbrn orng, f-c gr, sbrnd-ang, red rdbrn tr gn cly fld ip, tr scat glau & gn cly mnrls, tr Pyr & blk mica, tt, NSOFC.
SH (30%) rdbrn m-dk-ltgy gn brn orng pk, splty-ireg-sbplty, tr wh chky incl. LS (30%) wh crm ltgy tan, frm, chky-sbchky, mic-crp xln, tr yel flor, No Shows.

Reach TD @ 12:0010/4/15.

Drillers TD: 8073'
Loggers TD: