



**JOHN C. LAMB & COMPANY, INC.**  
PETROLEUM CONSULTANTS



00042800

**MERIDIAN OIL, INCORPORATED  
POWELL PARK FIELD  
41-27 BUCKSKIN MESA UNIT  
Section 27, T-1N, R-95W  
500' FNL, 1200' FEL  
Rio Blanco County, Colorado  
KB 6048'**

RECEIVED

DEC 27 1994

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## RESUME

Operator: Meridian Oil, Incorporated

Well Name and Number: 41-27 Buckskin Mesa Unit

Field: Powell Park

Location: NW NE NE Section 27, T-1N, R-95W

County and State: Rio Blanco, Colorado

Elevation: GL: 6036', KB: 6048'

Spud Date: December 9, 1994

Completion Date: December 16, 1994

Hole Sizes: 8 3/4": 50-520'; 6 1/4": 520-4230'

Casing Data: 7", 20 lb/ft, set at 516'; cemented with 100 sx

Logging Data: DSN/CDL/DISGL/GR, LSS/GGR/CAL; HLS, Vernal

Development Geologist: Ward Whiteman

Drilling Foreman: Roy Neset

Wellsite Geologist: John C. Lamb

Contractor: Elenburg, Rig 15

Tool Pusher: Burt Huntington

Mud Type: Chem-Gel

Mud Company: Bariod, Sam Willis

Drilling Days: 8

Rotating Hours: 90 1/4

Bottom Formation: Ohio Creek

Status: Dry and Abandoned

### BIT RECORD

BIT #	SIZE	TYPE	IN	OUT	FOOTAGE	HOURS	JETS
1	8 3/4"	ATM-MG1S (RR)	50'	520'	470'	5	16-16-16
2	6 1/4"	DS46HS	520'	4230'	3710'	85 1/4	14-14-14

### SURVEYS

350 0	1541 1	3254 4
505 1/2	2245 2 1/2	3772 4 3/4
1048 3/4	2737 3 1/2	

### DAILY CHRONOLOGY

DAYS OVER HOLE	DATE	8AM MST DEPTH	24 HOUR FOOTAGE	DAILY ACTIVITY
1	December 9	50'	0'	MIRU, spud at 18.45, drlg
2	December 10	520'	470'	Drlg, prep for & run csg, WOC, NU, Pressure test, drlg
3	December 11	1755'	1235'	Drlg
4	December 12	3060'	1305'	Drlg
5	December 13	3752'	692'	Drlg
6	December 14	4230'	478'	Drlg, circ, ST, stuck with bit at 2700, WOO, freepoint & back off in DC, TOH PU fishing tools, TOH work fish
7	December 15	4230'	0'	Jar fish loose, TOH, LD fish, TIH wash & ream to btm, circ, ST, circ, TOH for logs
8	December 16	4230'	0'	TOH for logs, logging,

### LOST CIRCULATION INTERVALS

No mud was lost.



### MUD REPORTS

Date	12-11	12-12	12-13	12-14	12-15
Depth	1820'	3100'	3785'	4230'	4230'
Weight	9.4	9.6	9.8	9.8	9.6
Funnel Viscosity	36	36	37	67	44
Plastic Viscosity	8	8	11	25	13
Yield Point	9	5	8	20	11
Gel Strengths	2/16	2/12	4/14	9/32	3/11
Water Loss	8.8	8.6	8.6	7.2	8.0
Filter Cake	2/32	2/32	2/32	2/32	2/32
Solids	8	9	11	11	10
Sand	3/8	3/8	3/8	1/2	1/4
pH	7	7	7.5	7	7
Chlorides	500	500	500	500	500
Calcium	100	100	80	100	80

### SUMMARY

The 41-27 Buckskin Mesa Unit was drilled at the Powell Park Field as a development well. The primary objective were the Basal Wasatch Ohio Creek Sandstones, the secondary objective was to evaluate the potential of sandstone development within the Upper Wasatch. Nearby well control had previously established gas production from both the primary and secondary objectives. The location, which was not on a seismic line, was selected upon the basis of geological interpretation.

Within the Ohio Creek, the gas productive sandstone that was present in the offsetting Phillips-Trident Mannel #1, was not developed at this location. Non productive sample and hot wire hydrocarbon shows were encountered within two intervals in the Ohio Creek (3580-3595', 3630-3670').

The uppermost, in which a 600 unit gas peak was registered, was readily apparent in the samples and was described as a large increase in smaller clusters: white to semi translucent, salt and pepper appearance, upper fine grain, sub round, well sorted, very poorly consolidated, very friable to slightly soft, slightly to moderately clay filled, occasionally clean appearing, heavy amount carbonaceous and shale clasts, fair porosity, predominately with very dull faint greenish fluorescence and very faint crush cut.

The lowermost show, through which a 310 unit gas peak was registered; was also readily apparent in the samples. The sandstone was described as a coarsening downward sequence: general increase in amount of sandstone, predominately smaller clusters with frequent unconsolidated grains; unconsolidated: translucent to opaque, lower medium and coarse grain, sub angular, very poorly sorted, occasional chert grains; smaller clusters: semi translucent to light grayish, slightly salt and pepper appearance, upper fine to medium with an increase in coarse grains with depth, sub angular, very poor to poorly sorted, very poorly consolidated, very friable, generally moderately clay filled, frequent feldspar, chert grains and shale clasts, general increase in cleaner clusters with slightly spotty to even, dull to moderately bright green fluorescence; occasionally with bright, pinpoint green fluorescence, fair sub streaming green cut.



Within the Upper Wasatch, the sandstone bench from which gas is produced in the offsetting well, the MOI 11-26 Bradfield; was not deposited at this location. However, two hot wire shows were encountered in the Upper Wasatch (1180-1190' & 1576-1600').

The uppermost, a 320 unit increase over a zero background was accompanied in the samples by a trace only of unconsolidated grains. The zone, which yielded increases of produced gas initially as high as 2000 units, was no longer yielding increases after approximately two hundred feet had been drilled. Electric logs show a thin sandstone at 1990-1194' that is bounded by thin washouts on either side.

The subsequent hot wire show in the Upper Wasatch was a seven hundred fifty unit peak over a ten unit background. The gas increase was accompanied by a sample show in sandstone: larger and smaller clusters, semi translucent to off white, fine to lower medium grain, occasional upper medium grain, poorly sorted, poorly consolidated, friable to very friable, slightly to moderately clay filled, scattered feldspar grains and carbonaceous clasts, poor to fair porosity; frequently with dull, uneven greenish fluorescence, faint greenish yellow crush cut.

Within the Lower Wasatch, three hot wire shows were encountered (2530-2540', 3065-3080', 3405-3420'). The uppermost was a four hundred and fifty unit peak over a fifty unit background. It was accompanied by a very weak sample show; smaller clusters: semi translucent, lower to upper fine grain, sub round, fair sorted, poorly consolidated, very friable to brittle, slightly clay filled, fine carbonaceous clasts and feldspar grains, poor to fair porosity; rarely with dull greenish fluorescence and weak crush cut.

The second gas show in the Lower Wasatch was a five hundred and twenty five unit increase over a ten unit background and was not accompanied by a sample show. The zone did yield produced gas increases until the next liberated gas show was encountered. Description: predominately smaller clusters: translucent to semi translucent white, lower to upper fine grain, sub round, fair sorted, very poor consolidated, very friable, spotty to even clay filled, poor to occasional fair porosity.

The third gas show within the Lower Wasatch was three hundred and ninety unit peak over a fifty five unit background and was accompanied by a sample show. Description: heavy amount smaller clusters: translucent upper fine to medium grain with occasional coarse grain, sub round, very poorly consolidated, very friable, scattered feldspar grains, generally slightly to moderately clay filled, fair to good porosity; generally with dull to moderately bright, even to slightly spotty greenish fluorescence with a weak sub streaming to milky in part green cut. Frequent unconsolidated grains were also described: clear, fine to medium to lower coarse grain, sub angular to sub round, poorly sorted.

## SAMPLE DESCRIPTIONS

### Unlagged Sample Depths

50-80 Sh ochre plty sdy lav flky fn txt rdsh blk oxidized app  
80-110 Sh ochre plty sft Ss sm amt lrg'r clus: wh vfg-slt fr-pr cons  
110-140 Sh ochre plty incry sdy Ss decr amt AA  
140-170 Ss lrg incr lrg'r clus: lt gy l.-u.fg sb ang fr-g srted fr cons loc /pyr cem freq sh carb  
clasts cln-w cly fld gen tight /pr poro loc cln /g poro NSFOC  
170-200 Ss vlvvy amt lrg'r clus /chng: lt gy-gysh trnsl u.vfg-u.fg sb rnd fr-pr srted pr-w cons gen  
/incr carb & sh clasts tr kspar grns NSFOC Clyst wh brit  
200-230 Sh lav & ochre gen vsft & vsdy



230-260 Ss incr lrg'r clus: off wh vfg-l.fg fr srted pr-fr cons cly mttx /scat sml'r clus: trns-l-gysh  
 u.-l.fg sb rnd fr srted pr cons fri-brit sli cly fld-cln app fr poro NSFOC  
 260-290 Sh vari col gen sdy Ss decr  
 290-320 Sh pred ochre plty sft vsdy Ss sm amt lrg'r clus: off wh vfg-l.fg pr srted fr cons  
 320-350 Sh AA Ss gen AA /def incr amt  
 350-380 Sh & Ss AA  
 380-410 Ss def incr: lrg'r clus: off wh vfg-fg w cly fld tight app  
 410-440 Ss chng: decr amt /gen incr grn size: smi trns-l-gysh wh u.fg fr srted fr cons vfri loc sli  
 cly fld freq carb clasts tight app NSFOC  
 440-470 Sh ochre plty-sb flky sft fn txt Ss decr  
 470-500 Sh vari col (ochre lav lt gy) plty-sb flky fn txt freq sdy rrlly sli carb  
 500-520 Ss def incr lrg'r clus: lt gysh-smi trns-l-gysh u.fg sb rnd pr-fr srted pr cons brit-sli fri /occ  
 sml'r clus: smi trns-l-gysh l.fg sb rnd fr srted pr cons fri pr poro NSFOC  
 520-550 No Sample  
 Note: very poor samples  
 550-580 Sh ochre & lav  
 580-610 Sh ochre & lav  
 610-640 Bent wh vsft-washes away Ss vsm amt lrg'r clus: wh vfg-l.fg fr cons brit sli cly fld  
 640-670 Bent & Sh AA  
 670-700 Sh lav & ochre Bent wh  
 700-1030 Sh ochre /occ lt gy & lav vsft-washes away  
 1030-1060 Ss def incr lrg'r clus: off wh vfg-l.fg pr srted pr cons brit vfn carb clasts  
 1060-1090 Ss decr Sh ochre lav lt gy  
 1090-1120 Ss def incr uncon: trns-l fg sb rnd fr-g srted Sh AA  
 1120-1150 Sh incr vari col plty sb blky fn-loc vsdy Ss decr  
 1150-1180 Sh incr ochre flky fn-loc sdy  
 1180-1210 Ss sm incr uncon: trns-l fg sb rnd fr-g srted Sh lav & ochre  
 1210-1240 Sh chng: incr lt gn flky fn txt sft Ss cont'd uncon: /pos chng: sm incr /sli incr grn  
 size: trns-l fg-l.mg sb rnd pr srted  
 1240-1270 No sample  
 1270-1300 Sh vari col (pred ochre) Ss cont'd amt uncon AA  
 1300-1330 Sh vari col (ochre gy lav) flky fn txt loc sdy  
 1330-1360 Ss def incr lrg'r clus: off wh l.-u.fg sb ang fr srted fr-g cons brit-fri mod cly fld scat  
 fn carb clasts tight app NSFOC  
 1360-1390 Ss cont'd amt /chng: lrg'r clus yel-off wh fg incrly arg mttx Sh vari col AA  
 1390-1420 Sh vari col Ss decr  
 1420-1450 Ss incr: lrg'r clus: smi trns-l l.-u.fg-l.mg sb rnd pr-vpr srted pr cons vfri gen sli cly fld  
 sme vsli cly fld-cln app pr-fr poro NSFOC  
 1450-1480 Sh ochre & lt gy flky fn txt Ss decr  
 1480-1510 Sh vari col (ochre gy lav)  
 1510-1540 Sh pred ochre plty sft fn txt loc sdy  
 1540-1570 Sh & Ss AA  
 1570-1600 Ss incr & chng: sml'r & lrg'r clus: smi trns-l-off wh fg-l.mg occ u.mg pr srted pr cons  
 fri-vfri sli-mod cly fld scat kspar grns /freq carb clasts pr-pos fr poro freq /dull gnsh flor  
 fnt gnsh yel crush ct  
 1600-1630 Sh vari col Ss tr sml'r clus: smi trns-l u.fg-u.mg sb fr srted fr cons fri sli arg fr-pr poro  
 NSFOC



1630-1660 Ss lrg incr uncon: clr fg-u.mg sb-w rnd fr srted  
 1660-1690 Ss decr uncon /tr clus gen AA Sh vari col (ochre lav lt gy)  
 1690-1720 Ss def incr uncon: clr-smi trnsd pred u.-l.fg & l.mg /occ l.cg w rnd-ang fr-vpr srted  
 /scat sml'r clus: smi trnsd fg-mg loc l.cg & cong app ang-w rnd loc fr srted gen vpr srted  
 vprly cons fri-vfri sli cly fld freq arg mtx ALL: NSFOC Sh ochre  
 1720-1750 Sh vari col (ochre oliv rdsh bn lt gn) flky-plty fn txt loc sli sdy Ls hvy tr bnsh gn  
 micxl-vfxl dns sli arg  
 1750-1780 Sh pred ochre plty-sb blkly gen sli rgh txt sli sdy occ purp-lav  
 1780-1810 Sh ochre lt gy lt gn flky sli sdy Ss sm amt lrg'r clus: off wh-lt gy vfg-l.fg sb ang  
 fr-pr srted pr cons occ sh clasts spotty cly mtx pr-vpr poro NSFOC  
 1810-1840 Sh lt gy ochre lav flky occ sli sdy  
 1840-1870 Sh chng: vari col splty-flky vfn-sb wxy sli frm  
 1870-1908 Ss sm incr uncon & lrg'r clus: gen AA NSFOC  
 1908-1930 Sh vari col (gy ochre gn) flky  
 1960-1990 Ss cont'd sm amt /chng: off wh-smi trnsd fg pr srted vpr cons cly mtx Sh vari col  
 1990-2020 Ss sm incr smi trnsd-off wh l.-u.fg l.mg sb rnd pr srted sli-mod hvy cly fld pos fr poro  
 NSFOC  
 2020-2050 Sh vari col flky Ss cont'd sm incr amt AA  
 2050-2080 Sh vari col  
 2080-2110 Sh lt-m gy flky fn txt /gn lav ochre  
 2110-2140 Sh AA Ss def incr lrg'r clus: off wh vfg-slt frm  
 2140-2170 Ss lrg'r & sml'r clus: smi trnsd-wh l.-u.fg /occ l.mg sb ang pr srted fri freq carb clasts  
 mod cly fld sme cln'r app fr-pos g poro dull gnsh yel flor vwk yel crush ct  
 2170-2200 Ss cont'd /sm incr grn size & occ uncon: clr l.mg-l.cg  
 2200-2230 Ss decr Sh vari col pred lt gy flky arg fn txt loc sli sdy  
 2230-2260 Ss lrg incr sml'r clus: trnsd-smi trnsd wh u.fg-l.mg sb rnd-sb ang fr-pr srted vfri pr cons  
 spotty cly mtx vsli cly fld-cln app i.p. pr-pos g poro NSFOC  
 2260-2290 Ss sm decr amt AA /chng: bec incrly fg-vfg Sh vari col  
 2290-2320 Ss lrg incr & chng: sml'r clus: smi trnsd l.-u.fg occ l.mg sb rnd fr-g srted fr cons fri-  
 vfri cln-sli-mod cly fld fr carb clasts loc vsli pyr pos fr poro NSFOC Sh pred lt bnsh gy  
 flky  
 2320-2350 Sh pred ochre flky fn txt /gy & lav  
 2350-2380 Ss incr lrg'r & sml'r clus: smi trnsd-wh vfg-fg sb ang gen pr srted pr cons brit-sli fri  
 vfn carb clasts mod-w cly fld NSFOC  
 2380-2410 Sh vari col (ochre lt gy lav) Ss decr  
 2410-2440 Sh vari col  
 2440-2470 Sh vari col Ss sm amt clus AA  
 2470-2500 Sh vari col flky fn txt loc sdy Ss lrg'r clus: off wh vfg-l.fg fr srted  
 2500-2530 Ss incr & chng: smi trnsd l.-u.fg sb rnd fr srted pr cons vfri-brit sli cly fld fr carb clasts  
 & kspar grns pr-fr poro rrly /spotty dull gnsh flor wk crush ct  
 2530-2560 Ss decr Sh incr vari col  
 2560-2590 Ss incr lrg'r clus: gysh wh vfg-l.fg fr cons arg i.p. tight app Sh vari col rgh-sdy txt  
 2590-2620 Sh vari col (ochre gn lav gy) Ss AA /gen decr amt  
 2620-2650 Ss def incr lrg'r clus: off wh-smi trnsd l.-u.fg sb rnd fr-pr srted fr cons fri-brit sli-mod  
 cly fld freq clasts & kspar grns fr-pr poro NSFOC  
 2650-2680 Sh & Ss AA  
 2680-2710 Ss decr amt & bec incrly fg-vfg Sh vari col



2710-2740 Sh vari col (ochre lav gy) flky fn txt  
 2740-2770 No Sample  
 2770-2800 Sh vari col AA Ss sm amt lrg'r clus: lt gysh-smi trnsl wh vfg-l.fg rrly u.fg arg i.p.  
 2800-2830 Ss gen AA /incr amt & incr grn size Coal tr glos vitr sli cltd app  
 2830-2860 Sh vari col freq rgh-slty-sdy Ss sli decr amt AA  
 2860-2890 Ss chng: sm incr amt lt gysh wh vfg-l.fg arg Sh vari col  
 2890-2920 Ss cont'd gen AA & loc l.-u.fg Sh vari col fn-rgh txt  
 2920-2950 Sh vari col Ss cont'd amt lrg'r clus: off wh l.-u.fg occ vfg pr srted fr-pr cons mod cly  
 fld freq carb clasts gen tight app NSFOC  
 2950-2980 Ss lrg'r clus: lt gy-off wh u.vfg-l.mg sb ang pr-vpr srted brit-fri gen /cly mtx freq carb  
 clasts & kspar grns NSFOC  
 2980-3010 Sh vari col  
 3010-3040 Ss incr & chng: lrg'r clus: lt gysh wh vfg-fg sb rnd pr-fr srted loc vpr srted all /cly mtx  
 3040-3070 Sh vari col (ochre lav lt gy) flky  
 3070-3100 Ss pred sml'r clus: trnsl-smi trnsl wh l.-u.fg sb rnd fr srted vpr cons vfri spotty-even  
 cly mtx pr-occ fr poro NSFOC  
 3100-3130 Sh vari col Ss incr lrg'r clus: off wh l.-u.fg & vfg sb ang pr srted fr cons fri-brit mod  
 cly fld i.p. loc vpyr NSFOC  
 3130-3160 Sh vari col Ss off wh-gysh l.-u.fg & l.mg sb ang pr cons brit-vfri gen w cly fld freq  
 kspar grns & carb clasts  
 3160-3190 Sh vari col pred gy's flky fn txt  
 3190-3200 Sh vari col  
 3200-3220 No Sample  
 3220-3240 Ss lt gy-lt gysh wh vfg-slt /rr l.fg sb ang gen fr-pr srted fr-pr cons brit-sli hd gen sli  
 arg /vtight app NSFOC  
 3240-3260 Ss cont'd lrg'r clus AA /tr's sml'r clus: off wh-smi trnsl wh l.-u.fg occ vfg sb rnd pr-  
 fr srted pr cons vfri mod cly fld rrly sli glau pr-vpr poro NSFOC  
 3260-3280 Ss def incr lrg'r clus: lt gy vfg-slt sli arg brit-sli hd Sh gy gn lav  
 3280-3300 Ss hvy amt /chng: lrg'r clus: off wh-lt gysh wh vfg-fg sb ang pr srted fr cons sli arg-  
 arg freq /spotty cly mtx NSFOC Sh vari col  
 3300-3320 Sh ochre gy lav flky freq slty loc sli sdy Ss lrg'r clus: lt gy vfg-l.fg sli arg freq slty  
 3320-3340 Sh AA Ss decr  
 3340-3360 Sh gy ochre lav /tr undet fos frags  
 3360-3380 Ss incr /chng: sml'r & lrg'r clus: off wh-smi trnsl vfg-fg pr srted vpr cons vfri-fri cln-  
 sli cly fld i.p. loc hvy cly fld gen pr-fr poro NSFOC  
 3380-3400 Ss smi trnsl wh l.-u.fg-vfg sb ang pr-vpr srted vprly cons fri sli-mod cly fld occ cln  
 app pr-fr poro NSFOC  
 3400-3420 No Sample  
 3420-3440 Ss hvy amt sml'r clus: trnsl u.fg-mg occ l.cg sb rnd vpr cons vfri scat kspar grns gen  
 sli-mod cly fld fr-pos g poro tr dull gnsh flor /wk crush ct vfreq uncon: clr fg-mg-l.cg  
 sb rnd sb ang pr srted NSFOC  
 3440-3460 Ss gen AA /chng: sml'r clus gen /dull-mod bri even-sli spotty gnsh flor wk sb stmg  
 gn ct & incr lrg'r clus: lt gysh vfg-fg-mg vpr srted sli arg  
 3460-3480 Ss hvy amt lrg'r clus: lt gysh wh vfg-l.fg pr srted sli arg mod cly fld i.p. tight app  
 NSFOC  
 3480-3500 Ss gen bec slty /decr amt Sh gy /occ lav gen flky fn-slty txt  
 3500-3530 Sh pred gy Ss lrg'r clus: lt gysh wh-off wh vfg-l.fg pr srted mod cly fld tight app



3530-3560 Ss cont'd decr

3560-3580 Sh lt gy & lt gysh gn /lav & purp

Ohio Creek 3577'

3580-3600 Ss lrg incr sml'r clus: wh-smi trnsl S&P u.fg sb rnd w srted vvprrly cons vfri-sli sft sli-mod cly fld occ cln app hvy amt carb & sh clasts fr poro pred /vdull fnt gnsh flor vfnt crush ct

3600-3620 Ss cont'd sml'r clus /dull flor AA

3620-3640 Ss decr & chng: lrg'r clus: gysh wh S&P vfg-fg fr-pr srted sli arg freq fn clasts NSFOC Sh gy gysh gn flky pred fn txt freq slty

3640-3660 Ss chng: sml'r clus: smi trnsl-lt gysh S&P l.-u.fg sb ang fr srted pr cons fri gen mod cly fld tr chlor hvy amt carb clasts sm amt /mod bri spotty gn flor /scat uncon: clr fg sb ang NSFOC

3660-3680 Ss chng: sme uncon: clr-trnsl fg-mg-cg sb ang vpr srted /sml'r clus: smi trnsl-lt gysh u.fg-mg-l.cg sb ang vpr-pr srted vpr cons vfri gen mod cly fld freq kspar grns & clasts /gen incr sli spotty-even dull-mod bri (occ /bri pinpoints) gn flor fr sb stmg gn ct

3680-3700 Ss chng: bec incrly cg /incr uncon: trnsl cg ang-sb ang freq cht grns /sml'r clus: smi trnsl-off wh S&P u.mg-cg ang fr srted pr-vpr cons vfri-vvfri i.p sli-mod cly fld vfreq kspar & sh clasts /def incr cht grns fr-g poro /def decr show

3700-3720 Ss cont'd Sh sme rdsh orng flky FE stn /wthd app

3720-3740 Sh vari col (gy rdsh orng lt gn purp occ ochre) flky fn-slty txt

3740-3760 Sh cont'd

3760-3780 Ss def incr lrg'r & sml'r clus: off wh-lt gysh rrlly smi trnsl S&P u.fg-mg sb rnd-ang pr-vpr srted pr cons fri-brit gen w cly fld hvy amt carb clasts rrlly /dull spotty gn flor vwk mlky gn ct

3780-3800 Sh vari col flky Ss lrg decr amt AA

3800-3820 Sh vari col (pred gy /lav gn ochre) flky fn txt loc sli carb

3820-3840 No Sample

3840-3860 Sh vari col flky Sltst sm amt lt gysh wh blkly sdy

3860-3880 Sh vari col occ slty-sdy loc sli carb Sltst cont'd sm amt Ss lrg'r clus: off wh vfg-l.fg pr-fr srted sli arg freq clasts

3880-3900 Sh vari col freq slty-sdy Ss sm incr lrg'r clusAA

3900-3920 Ss def incr lrg'r clus: wh-lt gysh wh rrlly smi trnsl vfg-fg sb ang fr srted prly cons sli fri-frm vfreq carb clasts spotty-hvy cly mtx loc gysh & arg /gen tight app NSFOC

3920-3940 Ss gen AA /sli incr grn size cont'd tight /NSFOC

3940-3960 Ss decr Sh pred gy & bn flky fn-wxy txt

3960-3980 Ss def incr & chng: lrg'r clus: lt gy-lt gysh wh vfg-fg sb rnd-sb ang fr-pr srted pr-fr cons brit-frm occ sli fri gen /hvy cly mtx & /freq carb clasts vtight app NSFOC

3980-4000 Ss decr Sh incr vari col (bn gy gn ochre rdsh bn) flky fn txt

4000-4010 Ss/Sltst lt gy vfg-slt-occ l.fg sb ang pr srted pr cons sft-sli frm sli arg freq vfn clasts vtight app

4010-4020 Sh def incr vari col Ss/Sltst gen decr amt AA

4020-4040 Ss sm incr lrg'r clus: vlt gy-gysh wh vfg-occ l.fg sb ang pr srted pr cons sft-sli brit sli arg sme /cly mtx vfreq vfn clasts & undet mnrl vtight app NSFOC

4040-4060 Sh vari col (pred lt bn /lt gy lt gn) gen flky sb wxy-vfn txt loc /crs carb debr

Ss chng: lrg'r clus: off wh S&P u.vfg-l.fg sb rnd fr srted fr-g cons frm-sli fri

4060-4080 Ss incr lrg'r clus: lt gy vfg w srted arg /vfreq crs carb debr & off wh u.vfg-l.-u.fg pr srted sli arg gen /mod hvy cly mtx freq undet vfn clasts & detrital grns occ vcrs carb debr



4080-4100 Ss chng: lrg'r & sml'r clus: smi trns-l-wh l.-u.fg-l.mg sb rnd fr-pr srt'd pr cons vfri sli-mod cly fld fr-pr poro hvy tr bldg gas clus gen /mod bri spotty gn flor fr slo sb stmg gn ct Clyst wh amorph app dull gnsh flor

4100-4105 Ss chng: lrg'r & sml'r clus: smi trns-l-gysh wh S&P u.fg-mg loc l.fg sb rnd pr-vpr srt'd pr cons fri-vfri gen /mod hvy cly mtx abdt clasts & detrital grns sli pyr i.p. pr-fr poro freq bldg gas clus gen /mod bri uneven-sli spotty gn flor sb stmg gn ct

4105-4110 Ss gen AA /show

4110-4115 Coal vhy tr glos-dull pyr freq /bldg gas

4115-4120 Coal cont'd incr amt AA Ss def chng: uncon: trns-l-opq l.-u.fg sb rnd fr srt'd /sml'r clus: smi trns-l-off wh l.-u.fg sb rnd fr-g srt'd fr cons fri gen /cly mtx occ sli-mod cly fld gen /dull sli spotty gnsh flor fr sb stmg gn ct

4120-4125 Ss chng sml'r clus: off wh S&P smi trns-l l.-u.fg-l.mg sb rnd vpr srt'd fri-vfri gen /abdt clasts & spotty cly mtx freq cln'r app /fr poro sli spot dull-mod bri gn flor fr sb stmg gn ct

4125-4130 Sh incr vari col flky fn txt

4130-4135 Ss incr sml'r & lrg'r clus: off wh S&P lt gysh u.-l.fg sb ang fr-pr srt'd pr cons vfri sli-mod cly fld pr poro /cln'r app clus fr poro gen /dull spotty gn flor pr sb stmg gn ct

4135-4140 Ss chng: sml'r & lrg'r clus: smi trns-l-off wh S&P u.fg-mg sb rnd fr-pr srt'd pr cons gen fri-vfri sli-mod hvy cly fld /occ cln'r clus /flor & ct AA

4140-4145 Ss clus gen AA /def decr amt clus /show

4145-4150 Sh cont'd incr amt vari col

4150-4160 Ss cont'd decr Sh vari col (pred gn /sm amt bn ochre lav) flky vfn-sb wxy txt

4160-4170 Sh vari col AA Ss decr to hvy tr

4170-4180 Ss def incr lrg'r clus: gysh tn vfg-l.fg fr-g srt'd pr cons sft-sli-frn sli arg scat clasts vtight app NSFOC

4180-4190 Ss decr amt AA

4190-4200 Sh pred lt gy /occ lt gn & lt bn flky vfn txt

4200-4210 Ss sm incr lrg'r clus: lt gy-lt gysh wh vfg-occ l.fg loc slty gen fr srt'd sli arg

4210-4220 Ss lrg incr: smi trns-l-wh l.-u.fg sb rnd fr-g srt'd pr cons fri-brit mod hvy cly mtx thru out freq fn-occ crs clasts NSFOC Clyst wh sft NSFOC

4220-4230 Sh vari col flky fn txt loc wxy /crs carb depr

4230 btms up Sh vari col (pred lt gy) flky incry slty i.p. Slst tr lt gy blkly sli arg