

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE*

(See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐ Other ☐

b. TYPE OF COMPLETION: NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other ☐

2. NAME OF OPERATOR
Energy Reserves Group, Inc.

3. ADDRESS OF OPERATOR
P.O. Box 3280 - Casper, Wyoming 82602

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface 810' FSL & 1,540' FEL (SW/SE)
At top prod. interval reported below
At total depth

5. LEASE DESIGNATION AND SERIAL NO.
SF-078807-A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
UNIT AGREEMENT NAME
Gallegos Canyon Unit
S. FARM OR LEASE NAME

7. WELL NO.
321

10. FIELD AND POOL, OR WILDCAT
West Kutz Pictured Cliffs

11. SEC., T., R., M., OR BLOCK AND SURVEY OF AREA
Sec. 12-T28N-R13W

14. PERMIT NO. DATE ISSUED

12. COUNTY OR PARISH
San Juan

13. STATE
New Mexico

15. DATE SPUDDED 3-27-81 16. DATE T.D. REACHED 3-29-81 17. DATE COMPL. (Ready to prod.) 6-8-81 13. ELEVATIONS (DF, RKB, RT, GR, ETC.)* 5,684' G.L.; 5,686' K.B. 19. ELEV. CASINGHEAD

20. TOTAL DEPTH, MD & TVD 1,582' 21. PLUG, BACK T.D., MD & TVD 1,538' 22. IF MULTIPLE COMPL., HOW MANY* NA 23. INTERVALS DRILLED BY 0-TD 24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)* 1,453'-80' Pictured Cliffs 25. WAS DIRECTIONAL SURVEY MADE NO

26. TYPE ELECTRIC AND OTHER LOGS RUN Induction; Comp. Neutron - Form. Density 27. WAS WELL CORED NO

28. CASING RECORD (Report all strings set in well)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
7" O.D.	17#	123'	9-7/8"	65 'B' w/2% CaCl ₂ & 1/4# Celloflake/sx.	-0-
4-1/2" O.D.	10.5#	1,578'	6-1/4"	See Back of Page	-0-

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
		None		

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2-3/8"	1,483'	

31. PERFORATION RECORD (Interval, size and number)
1,453'-56'; 1,464'-66'; 1,474'-80' w/1 JSPF (14 perfs)

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
1,453'-1,480'	BD w/500 gal 7-1/2% MCA w/20 ball sealers.
	See back of page

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump)	WELL STATUS (Producing or shut-in)
		SI

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
6-8-81	24	3/8"		0	297	0	NA

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
125 psi	SI 150 psi		0	297	0	NA

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)
VENTED DURING TEST

TEST WITNESSED BY
T.C. DURHAM

35. LIST OF ATTACHMENTS
SAMPLE DESCRIPTION ATTACHED

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED P. Wagner TITLE Production Engineer - RMD DATE JUL 6-23 1981

*(See Instructions and Spaces for Additional Data on Reverse Side)

NMOCC

FARMINGTON DISTRICT

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

and/or State law: see instructions on items 21 and 24, and 60, below regarding supporting documents. If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing intervals as separate completions (wellbore zones) as indicated by the following example: "Interval 100' to 108' - Zone A; Interval 109' to 117' - Zone B." Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: "Sacks Cement": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES: SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES		38. GEOLOGIC MARKERS	
FORMATION	TOP	DESCRIPTION, CONTENTS, ETC.	NAME
			MEAS. DEPTH
			TRUE VERT. DEPTH
		<u>Sample Description Attached</u> <u>Cont'd from front page</u> <u>4-1/2" cementing - 225 sx 50-50 Pozmix</u> w/2% Gel & 1/4# Celloflake/sx & 0.5% NFR-2. <u>Squeeze'd - 7" x 4-1/2" annulus w/50 sx</u> 50-50 Pozmix w/2% Gel & 2% CaCl₂ <u>Frac Job - Frac'd w/20,000 gal 70% Quality</u> Foam w/22,500# 10-20 sand.	LOG TOPS Ojo Alamo 105' Kirtland 206' Fruitland 912' Pictured Cliffs 1,451' T.D. Driller 1,582' T.D. Logger 1,582'

SAMPLE DESCRIPTION

130-40 90% Ss: clr-wht-org-yel, m-crs-vy crs-g, sbrnd-sbang,
 all loose, gdpor, N-S
 10% Sh: med-dk gry, plty, carb, firm

140-50 80% Ss: AA
 20% Sh: AA w/sme pyrite ctngs, sme cly incls, sme hard

150-60 90% Ss: AA w/few f-g, sbrnd, cln t0 vy sl. clyfll, hard,
 vy sl. por, N-S
 10% Sh: AA

60-70 90% Ss: AA
 10% Sh: med-dk gry, brn, plty-blky, carb, few cly incls,
 sme chrty, most vy hard
 Trace Clystn: wht, plty, carb, pyrite incls, hard

70-80 100% Ss: clr-wht-org-yel, m-crs-vy crs-g, sbrnd, loose,
 sme pyrtie ctngs, gd por, N-S
 Trace Pyrite

180-90 90% Ss: AA
 10% Sh: AA but most firm-soft, not chrty

190-200 AA
 Trace Pyrite

200-10 80% Ss: AA
 20% Sh: med-dk gry, brn, buff, plty-blky, vy carb, sme
 chrty and hard, most firm-soft, sme sl. swelling

210-20 100% Ss: clr-wht-org-brn, m-crs-vy crs-g, sbrnd-sbang,
 fair srtng, sme pyrite ctngs, all loose, gd por,
 N-S

20-30 40% Ss: AA
 60% Sh: lt-med gry, blky-plty, cly incls, vy sl. carb,
 firm-soft

230-40 10% Ss: AA
 80% Sh: AA, sme lt brn, sme splintery
 10% Clyst: buff-brn, plty, vy sl carb, vy soft

40-50 10% Ss: clr, m-crs-g, sbrnd, sme loose, sme vy sl.
 clyrll, hard, sme gd por, N-S
 90% Sh: AA, sme fissile
 Trace Clystn: AA

250-60 10% Ss: AA, sme f-g
 80% Sh: med gry-grn gry, blky, sl. carb, few sl. slty,
 few sl. chrty, most soft, few firm
 10% Clyst: AA



60-70 10% Ss: AA
90% Sh: AA

70-80 100% Sh: grn-gry, med gry-dk gry, blk-ply, carb,
increasingly slty, more chrt, soft-firm-hard,
sl bent

80-90 AA

90-300 AA trace Ss: clr, f-m-g, sbang, well srted, mod clyfll,
friable, vy sl por, N-S

300-10 10% Ss: AA, sme w/hvy clyfll and soft, shly, tite, N-S
90% Sh: grn gry-med gry, blk, carb, sme bent, many
slty-sndy, few cly incls, soft-firm-hard

10-20 90% Sh:AA
10% Clystn: wht-lt gry, blk, sme w/scttrd qtz frns,
vy soft, sl swelling to vy swelling

20-30 AA

330-40 10% Ss: wht, vf-f-g, sbrnd-sbang, mod to hvy clyfll,
sl. carb, well srted, sme shly, soft, tite, N-S
80% Sh: AA
10% Clystn: AA
Trace Pyrite

40-50 90% Sh: AA
10% Clystn: AA
Trace Pyrite

350-60 10% Ss: wht, m-g, sbang, sl-mod-hvy clyfll, carb incls,
sme pyrite ctngs, vy few cly incls, soft, tite,
N-S
70% Sh: AA
20% Clystn: AA

360-70 30% Ss: AA w/sme vf-f-g, N-S
70% Sh: med-dk gry, grn gry, blk-ply, many slty-snd,
many chrt, carb, sme bent, soft-firm

370-80 30% Ss: wht, f-m-g, sbang-sbrnd, well srted, vy sl-sl-mod
clyfll, vy sl. carb, hard-firm, vy sl por, yel-gld
fluor w/not cut (appears to be mineral fluor)
70% Sh: AA

380-90 30% Ss: AA, lt gld fluor w/no cut (appears to be mineral
fluor)
70% Sh: AA

390-400 30% Ss: wht, f-m-g, sbrnd, well srted, most mod
to hvy clyfll, shly, sl. carb, few cly incls,
sl. calc, pyrite incls, soft, tite, N-S
70% Sh: AA, w/many sndy-sltly

400-10 30% Ss: AA
70% Sh: med gry, buff, rd-brn, sl. carb, blkly-plty,
few slty, few sndy, firm-soft

10-20 AA
Trace Pyrite

20-30 60% Ss: wht, f-m-g, sbrnd, well srted, mod to hvy clyfll,
shly, sl. carb, cly incls, calc, soft, tite, N-S
40% Sh: AA

30-40 50% Ss: AA
50% Sh: AA

440-50 70% Ss: AA, sme lt gry, same clyfll but most hard, tite,
N-S
20% Sh: AA
10% Clystn: buff, plty, sl. carb, vy soft

450-60 10% Ss: wht, f-m-g, sbrnd, well srted, vy sl-sl-mod
clyfll, sme shly, sl carb, calc in part, soft-
friable, poss sl por, N-S
90% Sh: med-dk bry, plty-blky, cly incls, sl. carb,
few vy chrty, few slty, firm

460-70 30% Ss: AA, sme w/hvy clyfll, many shly
70% Sh: AA

470-80 20% Ss: AA
80% Sh: AA

480-90 10% Ss: wht, m-g, sbrnd, well srted, sl-mod clyfll, sl.
carb, calc, firm-friable, sl por, N-S
80% Sh: AA
10% Clystn: lt gry-buff, plty, vy sl carb, vy soft

490-500 AA

500-10 20% Ss: AA
80% Sh: med-dk gry, brn, blkly, sl. carb, many slty-
sndy, few pyrite incls, firm-hard

10-20 10% Ss: AA
90% Sh: AA

20-30	20% Ss: AA 70% Sh: AA 10% Pyrite
530-40	80% Sh: AA but w/many sndy, few slty 20% Clystn: wht, blk, sme w/scattered qtz grns Trace Pyrite
540-50	20% Ss: wht-clr, f-m-g, sbrnd-sbang, vy sl to mod clyfll, few sh incls, few cly incls, hard, vy sl por, <u>N-S</u> 70% Sh: AA 10% Pyrite
550-60	20% Ss: AA 80% Sh: med gry, plty-blky, sl carb, cly incls, slty-sndy-chrty, firm-hard Trace Pyrite
60-70	10% Ss: wht, vf-f-m-g, sbang, mod-hvy clyfll, many shly, sl. carb, soft, tite, <u>N-S</u> 80% Sh: AA 10% Pyrite
70-80	AA
580-90	20% Ss: wht, vf-f-m-g, sbang-sbrnd, fair srtng, vy sl to sl to mod to hvy clyfll, vy sl. carb, hard- soft, sme fair por, <u>N-S</u> 80% Sh: AA Trace Pyrite
590-600	10% Ss: AA 90% Sh: AA
600-10	20% Ss: AA 70% Sh: AA 10% Clystn: wht, blk, sl. carb, hard
10-20	20% Ss: wht, f-m-g, sbang-sbrnd, vy sl. to mod to hvy clyfll, hard-soft, tite, <u>N-S</u> 80% Sh: AA Trace Pyrite
620-30	50% Ss: AA, sme w/cly incls, sme w/pyrite incls, sme svy sl carb 50% Sh: med gry, plty-blky, carb, few cly incls, slty- sndy, firm-soft

30-40 40% Ss: wht, vf-f-m-g, sbrnd, poorly srted, sl. carb, few
clay incls, clean-mod-hvy clyfll, sme shly, hard-
friable-soft, sme sl por, N-S
60% Sh: AA

40-50 30% Ss: AA
70% Sh: AA
Trace Pyrite

650-60 30% Ss: wht-lt gry, f-m-g, sbang, sme clean, sme vy
sl-sl-mod clyfll, few cly incls, sl. carb, friable-
soft, sme fair por, N-S
70% Sh: AA
Trace Pyrite

60-70 30% Ss: AA
70% Sh: med-dk gry, grn gry, sme mottled, sl carb,
slty-sndy-chrty, firm-soft

70-80 No Sample

80-90 20% Ss: AA
60% Sh: AA
20% Clystn: buff-rd brn, blk-y-plty, sme fissile, sl.
carb, swelling, vy soft

690-700 10% Ss: wht, m-g, sbrnd, well srted, mod clyfll, sl.
carb, friable-soft, poss sl. por, N-S
90% Sh: AA w/many sndy

700-10 50% Ss: wht, f-m-g, sbrnd, well srted, vy sl-sl-mod
clyfll, carb, ark, few pyrite incls, few shly,
sme calc, firm, sme sl por, N-S
50% Sh: AA

10-20 70% Ss: AA
30% Sh: med-dk gry, blk-y-plty, sl carb, cly incls, vy
few slty-sndy, firm
Trace Pyrite

20-30 50% Ss: AA
50% Sh: AA

30-40 30% Ss: AA
70% Sh: AA w/sme wxy

740-50 60% Ss: wht, f-m-g, sbang-sbrnd, well srted, sme clean,
rest sl-mod clyfll, carb, ark, sme calc, vy hard-
hard, vy sl. por, N-S
40% Sh: AA

750-60 30% Ss: AA
 70% Sh: AA

60-70 40% Ss: AA
 60% Sh: med-dk gry, brn, plty, sme sl. fissile, sl. carb,
 few slty, few sndy, soft-firm

770-80 20% Ss: wht, f-m-g, sbang, well srted, clean to sl clyfll,
 carb, ar, calc, hard, sl por, N-S
 80% Sh: AA
 Trace Pyrite

80-90 AA

90-800 No Sample

800-10 10% Ss: AA but w/sl-mod-hvy clyfll, shly, sme soft,
 tite, N-S
 90% Sh: med gry, grn gry, dk brn, sl. carb, several
 chrty and hard, few slty-sndy, most firm

10-20 10% Ss: AA
 90% Sh: AA
 Trace Clystn: buff, plty, vy soft
 Trace Pyrite

820-30 20% Ss: wht, f-m-g, sbang-sbrnd, mod to hvy clyfll,
 vy vhly, soft, carb, calc, tite, N-S
 70% Sh: AA
 10% Clystn: AA

30-40 20% Ss: AA
 80% Sh: AA
 Trace Pyrite

40-50 10% Ss: wht, vf-f-g, sbrnd, well srted, hvy clyfll,
 shly, carb, calc, vy soft, tite, N-S
 90% Sh: med-dk bry, brn, buff, blkly-plty, sl. carb,
 few cly incls, few slty-sndy, firm, sme sl. swelling
 Trace Pyrite

850-60 10% Ss: AA w/few pyrite incls
 90% Sh: AA
 Trace Pyrite

60-70 100% Sh: lt-med-dk gry, plty, sl. slty, sl. carb, few wxy

70-80 10% Ss: wht, vf-f-g, sbrnd, well srted, mod clyfll, sl.
 carb, few cly incls, calc in part, soft, tite, N-S
 90% Sh: AA

80-90	AA
890-900	30% Ss: AA, sme w/hvy clyfll, shly 70% Sh: AA
900-10	10% Ss: AA 90% Sh: AA
10-20	10% Ss: AA 90% Sh: med gry, plty-blky, carb, cly incls, few slty, soft-firm Trace Pyrite
20-30	20% Ss: wht, f-g, sbrnd, well srted, mod-hvy clyfll, sl. carb, calc, soft, tite, <u>N-S</u> 80% Sh: AA, also sme brn
30-40	100% Sh: med-dk gry, lt brn, blky-plty, vy. sl. carb, few wxy, firm-soft
940-50	100% Sh: AA w/few pyrite ctngs Trace Ss: wht, m-g, sbrnd, well srted, sl. clyfll, ark, calc, friable, sme fair por, N-S
950-60	10% Ss: AA but w/sl-mod clyfll, soft, tite, <u>N-S</u> 90% Sh: AA Trace pyrite
60-70	10% Ss: AA 90% Sh: AA Trace Coal: blk, vit-earthly, blky, shly, sl. hard
70-80	10% Ss: wht, lt gry, vf-f-m-g, fair srtng, sme sl. cln, others sl.-mod-hvy clyfll, sl. carb, ark, calc, firm-soft, vy. sl. por, <u>N-S</u> 90% Sh: med gry, brn, plty-blky, sme splintery, sme wxy, sl. carb, sme lam, firm-soft Trace Coal: AA
980-90	AA Trace Coal: AA w/interlayered cly Trace Pyrite
90-1000	100% Sh: med-dk gry, med-dk brn, plty, vy carb in part, few cly incls, firm Trace Ss: AA
1000-10	100% Sh: AA, sme slty, many cly incls
10-20	10% Ss: wht-lt gry, vy fn-fn-g, sl carb, sbrnd, well srted, sl-mod clyfll, sl calc, friable, sl por, <u>N-S</u> 90% Sh: AA

1020-30 10% Ss: AA, sme sl ark
 90% Sh: med-dk gry, med-dk brn, plty-blky, sl. carb,
 few cly incls, sme slty-sndy, firm, few sl. swelling
 Trace Pyrite

30-40 AA

1040-50 100% Sh:AA
 Trace Ss: wht-clr, vf-f-g, sbang, clean to vy. sl. clyfll,
 sl. carb, sl. calc, firm, fair por, N-S
 Trace Coal: blk, earthy, blk, hard

1050-60 20% Ss: AA
 80% Sh: AA w/a few chrty
 Trace Calcite: clr, vy-crs-xln, sbrnd, translucent, loose
 Trace Pyrite

1060-70 20% Ss: AA but w/sl to mod to hvy clyfll, sme shlv,
 sme soft and tite, others firm and sl. por, N-S
 80% Sh: AA w/few pyrite ctngs

1070-80 30% Ss: wht, vf-f-m-g, sbrnd-sbang, fair srtnng, sl.
 clyfll, sl. carb, ark, vy calc, firm, sl por, N-S
 70% Sh: AA but increasing carb, incr. dk colors
 Trace Pyrite

1080-90 AA
 Trace Coal: blk, vit, blk, hard

1090-1100 30% Ss: AA
 60% Sh: AA, sme splintery
 10% Pyrite
 Trace Clystn: wht, plty, vy soft, sl swelling

1100-10 10% Ss: wht, vf-f-g, sbrnd, well srtd, sme sh incls,
 mod clyfll, shly, soft, tite, N-S
 90% Sh: dk brn, blk, med-dk gry, plty-blky, carb, vy
 few slty, firm-soft

10-20 20% Ss: AA w/few pyrite incls
 80% Sh: AA

20-30 AA

30-40 40% Ss: wht, f-m-g, sbrnd, well srtd, cly incls, vy
 calc, friable-hard, sl clyfll, few clean, sme fair
 por, N-S
 60% Sh: AA, few pyrite ctngs, sme vy carb

40-50 20% Ss: AA
 80% Sh: brn-blk-med gry, plty, vy carb, few slty, few
 chrty, firm-hard

1150-60 30% Ss: AA
 70% Sh: AA
 Trace Coal: blk, vit, blk, pyrite ctngs, hard

1160-70 AA

1170-80 30% Ss: wht, vf-f-g, sbrnd, well srted, sl to mod clyfll,
 sme sl shly, sl carb, vy sl ark, vy calc, soft-firm,
 sme sl por, N-S
 60% Sh: AA
 10% Clystn: buff-brn, blk, sl carb, vy soft, sme swelling
 Trace Pyrite

1180-90 40% Ss: AA
 40% Sh: AA
 20% Clystn: AA

1190-1200 30% Ss: wht, f-g, sbrnd, mod to hvy clyfll, vy calc,
 shly, soft, tite, N-S
 70% Sh: med-dk gry, med brn, plty-blk, sme fissile,
 sl to vy carb, cly incl, few chrty, firm-hard

1200-10 10% Ss: AA
 90% Sh: AA

10-20 10% Ss: AA, sme w/sl clyfll, friable, fair por, N-S
 70% Sh: AA, sme calc
 20% Clystn: AA

20-30 50% Ss: wht, f-m-g, sbrnd, fair srtng, sl-mod-hvy clyfll,
 few cln, calc, sl carb, soft-firm, vy sl por, N-S
 40% Sh: AA
 10% Clystn: AA
 Trace Pyrite

30-40 30% Ss: AA
 70% Sh: med-dk bry, brn, blk-plty, sl carb, many slty,
 few sndy, vy few chrty, firm-hard

1240-50 AA

1250-60 30% Ss: wht, f-m-g, sbang, well srted, mod to hvy clyfll,
 many shly, vy calc, hard-firm-soft, tite, N-S
 70% Sh: AA

60-70 10% Ss: AA
70% Sh: AA
20% Clystn: buff-brn-wht, plty, sl. carb, soft to vy
soft, sme wxy, sl. swelling

1270-80 20% Ss: AA
70% Sh: brn-med gry, plty, sme fissile, sme lam, carb,
few cly incls, firm-soft, few slty-sndy
10% Clystn: AA

80-90 AA

1290-1300 30% Ss: wht, f-m-g, sbrnd-sbang, sl to mod clyfll,
vy calc, sl. ark, vy sl. glauc, friable, sme sl.
por., N-S
70% Sh: AA

1300-10 10% Ss: AA
70% Sh: brn-buff-gry-blk, plty, carb, few slty, vy few
sndy, sme cly incls, firm
20% Clystn: buff-wht, plty-blky, sme wxy, sme swelling,
vy soft

10-20 10% Ss: wht-lt gry, vf-g, sbang, well srted, mod clyfll,
sl. carb, calc, hard, tite, N-S
60% Sh: AA
30% Clystn: AA

1320-30 30% Ss: wht, vf-f-m-g, fair srtng, sbang, vy sl to
sl to mod clyfll, sl. carb, vy sl. ark, sme shly,
vy calc, friable-soft, vy sl. por, N-S
70% Sh: AA

30-40 30% Ss: AA w/increasing clyfll
60% Sh: AA
10% Clystn: AA

40-50 50% Ss: wht, lt gry, vf-f-g, sbang, sme cln, rest vy
sl to sl to mod clyfll, carb, ark, vy calc, friable-
soft, sme sl por, N-S
40% Sh: AA
10% Clystn: lt brn, blky, vy soft, vy sl swelling

50-60 60% Ss: wht, f-m-g, sbrnd, well srted, sl ark, carb,
vy calc, mod to hvy clyfll, sme shly, soft-firm,
sme vy sl por, N-S
40% Sh: med gry-dk brn, blky-plty, carb, firm

60-70 AA

70-80 30% Ss: AA
 50% Sh: AA
 10% Clystn: brn, blk, sl. carb, vy soft, sl. swelling
 10% Coal: AA
 Trace Pyrite

1480-90 30% Ss: AA w/incr. clyfill
 40% Sh: AA
 10% Clystn: AA
 20% Coal: AA w/few pyrite ctngs

1490-1500 30% Ss: wht-lt gry, fm-g, sbrnd-sbang, vy sl-mod-hvy
 clyfill, few cln, carb, vy ark, vy calc, hard-firm
 50% Sh: AA
 10% Clystn: wht, plty, carb, vy soft, sl wxy
 10% Coal: AA but not pyrite

1500-10 40% Ss: AA
 30% Sh: AA
 10% Clystn: AA
 20% Coal: AA

1510-20 30% Ss: wht, m-g, sbang-sbrnd, well srted, sl-mod-hvy
 clyfill, sl. carb, ark, calc, friable, poss. vy
 sl. por, N-S
 50% Sh: AA
 10% Clystn: lt brn, blk- vy sl carb, vy soft
 10% Coal: AA
 Trace Pyrite

20-30 30% Ss: AA, sme sl. clauc, sme hard, tite, N-S
 70% Sh: AA

30-40 50% Ss: wht, f-m-g, sbang, fair srtng, vy few cln,
 sme vy sl-sl-mod clyfill, carb, ark, calc, vy sl
 glauc, hard-friable, sme sl por, N-S
 50% Sh: med-dk gry, brn, plty, carb, firm
 Trace Pyrite