

HEEBNER

3900

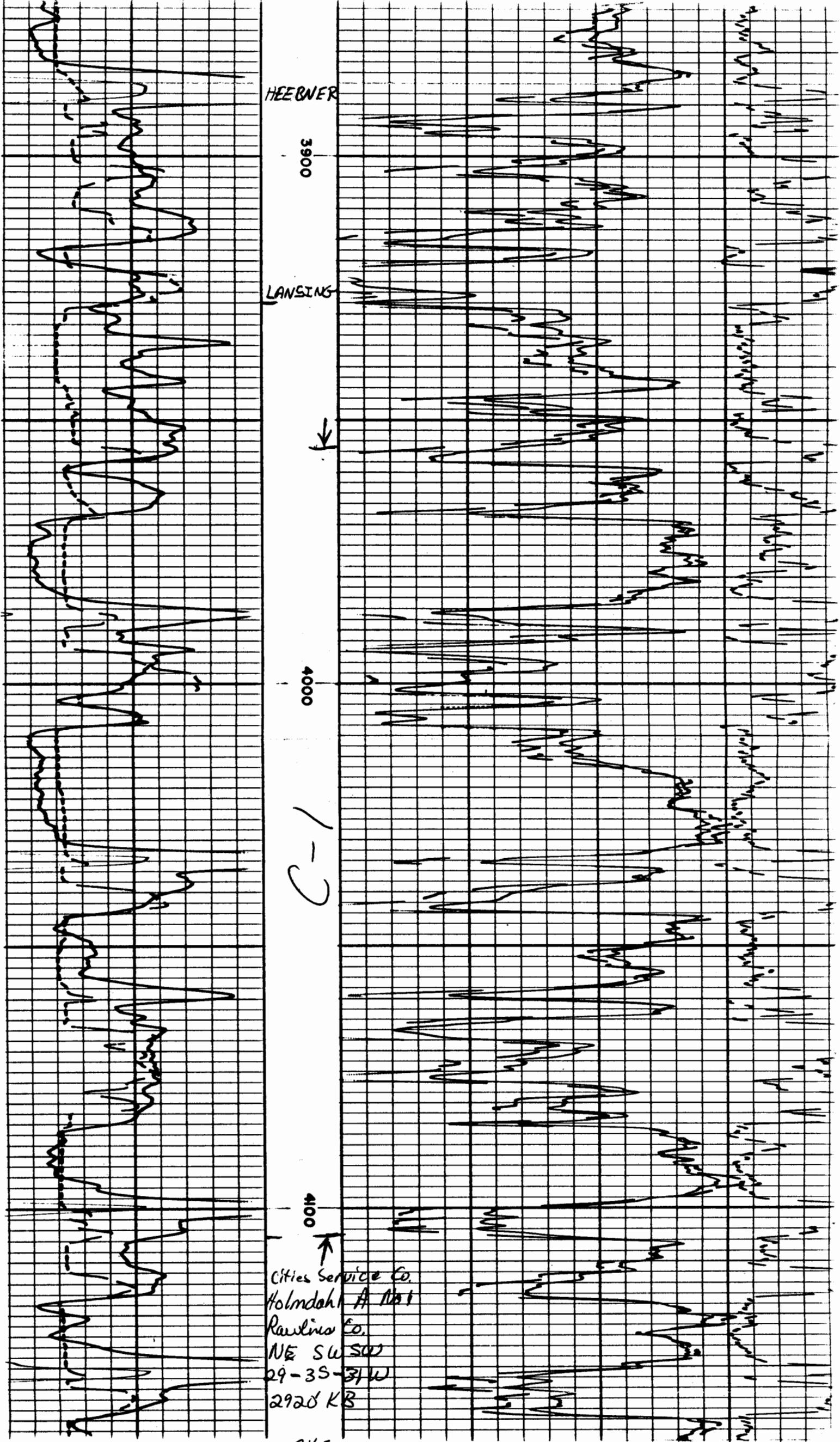
LANSING

4000

4100

Cities Service Co.  
Holmdahl A No 1  
Rawlins Co.  
NE SW SW  
29-35-37W  
2920 KB

-BKC

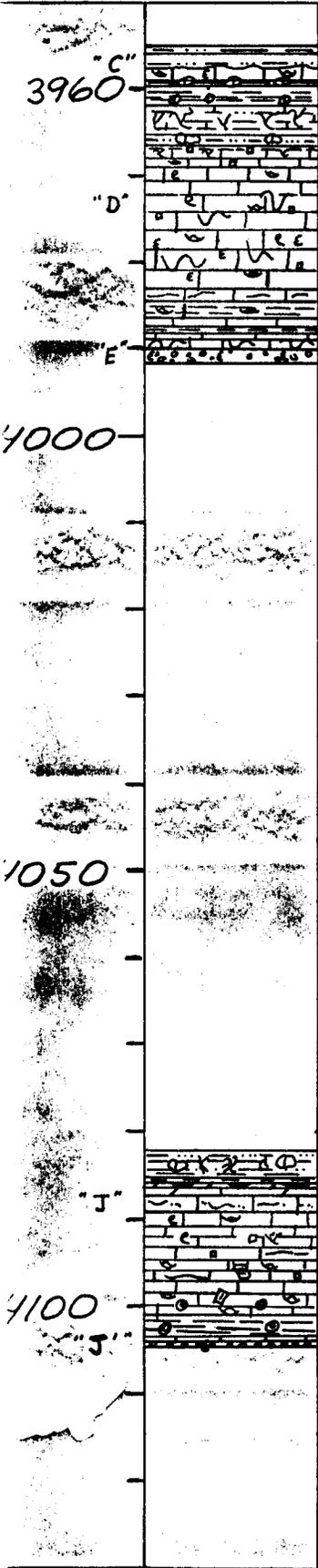


CITIES SERVICE Oil Co. Holmdahl A-1

29-35-31W NE SW SW

RAWLINS Co., KANSAS

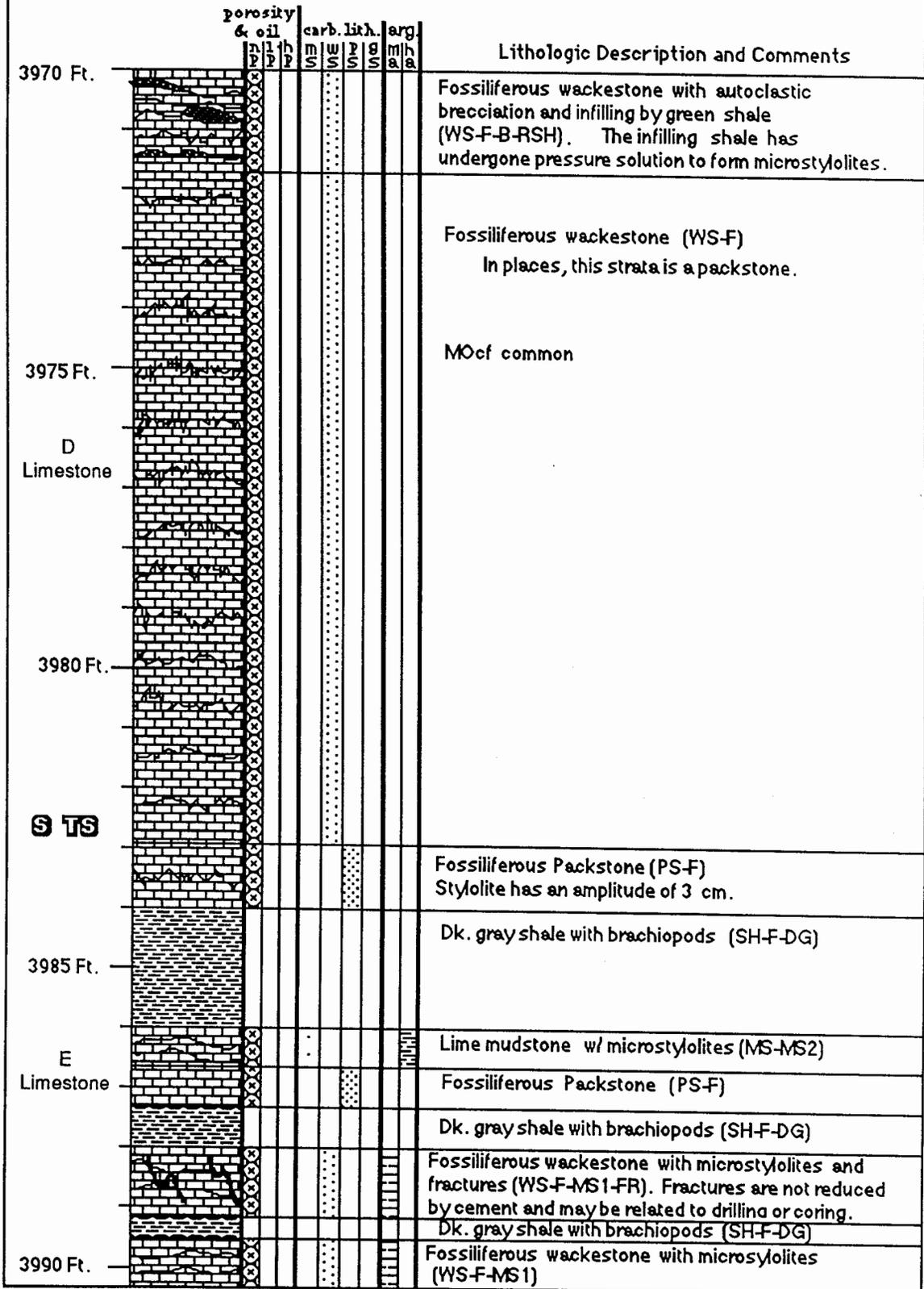
4' HZ TO DEN. LOG

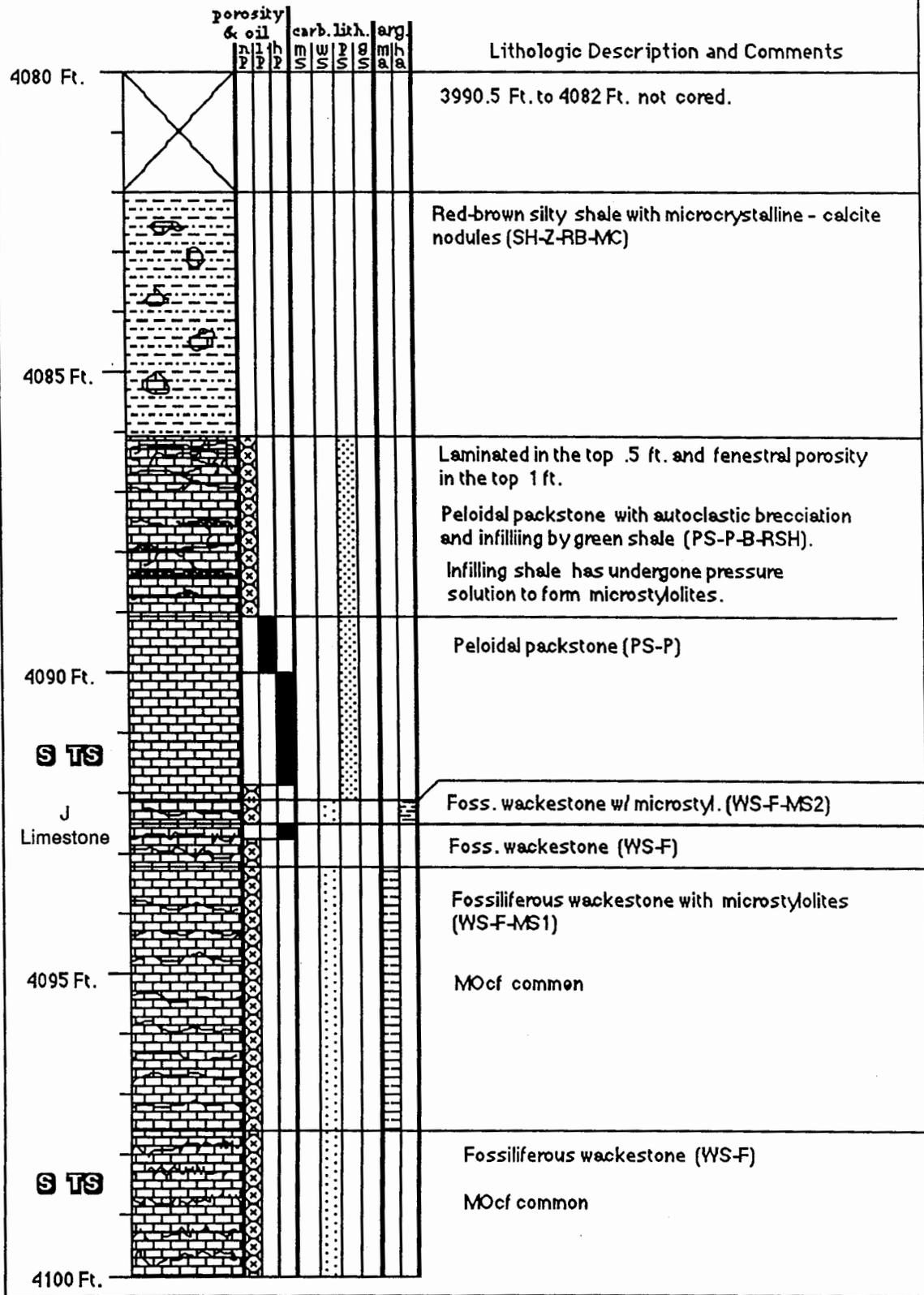


3955-56 RED-BRN. -CHOC. BRN. SILTY SH. W/ SICHEN SIDES  
 56-57.5 4" BRN. ALT. MICROSPAR W/ MOT. ORIG. TAN VEN CLOTTED MUDST  
 57.5-59 3" GRN ARGIL SILT W/ FN BIOC. + ALEBS CO. OSTRAKOD CLUSTERS TUB FORAM  
 TAN WACHST. W LG. BRACH. FRAGS + SCAT. ENCRUSTED BIVALVES (VEN-FN)  
 ABUND. FN. VUGS, MOLDS - MOST W/ GR-GRN. SILT FILL, MOT. MICROSPAR ALT. W/  
 OCC HVY OIL STN. SCAT. OSAGIA COATED BIOC.  
 59-59.5 THIN V/SILTY GRN. SH. W/ "CLASTS" SILTY TAN-BUFF LIME-MUDST.  
 59.5-62 RED-BRN. SH. GRADE TO TOP TO GRN. SH. W/ NODULES; MICA. NONCALC TO MOD GR.  
 62-65.5 IN SITU BRECC. RED COLOR INTENSIFY DOWN (DIAGENETIC) SCAT ORANGE  
 FLECK SURROUND BY GRN. SH. IN RED OCC. GRN. MOT. SHRINKAGE FRAC  
 65.5-66.5 PINN V/SILTY CALC. NODULES W/ SCAT. RED SH. FILLED FRAC + FN. PYRITE  
 66.5-68 1" GR-GRN. SILTY SH. W/ DESSEM. PYRITE. FN. BIR. CARB. FLECK. SMALL  
 ARTIC BRACH. W/ TAN MUD FILL THEN CLOTTED VEN PELLETOID + FN.  
 BIOC. (BIVALVES, FORAMS) WACHST-PACHST. TOP 4" DISRUPTED CLASTS W/  
 DOL. MATRIX LOW - HVY. MICROSPAR MOT W/ VUGS, MOLDS, FN OIL  
 STN. FRAC. POOR MOT. O. FISSURES W/ SHT. FILL (GRN.)  
 68-69 LT TAN CLOTTED WACHST. SILTY SCAT-OCC. PYRITE, A SPAR BLEBS  
 BIVALVES PELEC. BRACH. FISSURES W/ GRN. SH. FILL SCAT. OIL STN.  
 69-70.5 SCAT. FUSUL. BRACH. CRIN. - FN. FRAGS IN SILTY LT GR-BUFF WACHST.  
 SCAT. VF-SILT DEBRIS ABUND. THIN GRN. SH. LAM. CLUSTERS OF FUSUL  
 70.5-83 SHALE, LT BUFF DENSE MUD W/ SCAT. SPAR BLEBS SMALL GEOPETAL  
 DRACH. FUSUL. SCAT. GRN. PYRITE SH. LAM. OCC. 1/2 PYRITE CLUSTER  
 OCC. MOLUSC. PELEC. PHYLLIOD ALGAE FISSURES - SOFT SED COMPAC.  
 + TUBULAR FORAMS W/ DEPTH BURROW MOT - PACHENG DEF  
 + SPAR PLATES AT 78 + LARGER BRACHS LG. BURROWED AREAS  
 W/ ABUND. FOSSIL DEBRIS STYLOLITES STROMATOLITES AT 81  
 83-84.5 SHALE + FOSIL DEBRIS SCAT. CRIN.  
 84.5-86.5 DH. GRN. TO BLK. SH. W/ BRACHS  
 86.5-89.5 ALTERNAT DENSE GR. LIME MUDST. AND WACHST W/ CREN., BRACH.  
 SCAT. DK GRN. SH. LAM.  
 89.5-90 SCAT. MICROSPAR ALT. W/ BIR. DEAD OIL 3" ZONE W/ ENCRUST.  
 FORAMS. SCAT. PHYLLIOD ALGAE SH. W/ OIL STN.  
 90-91.5 BROWN OSAGIA PACHST. AND ENCRUST FORAMS ON ROUNDED SPAR  
 BLEBS + PLATES, CRIN, GASTRO, BRACH., C-FN GRAINED, POORLY  
 SORTED, SLT/SILTY, BURROWED

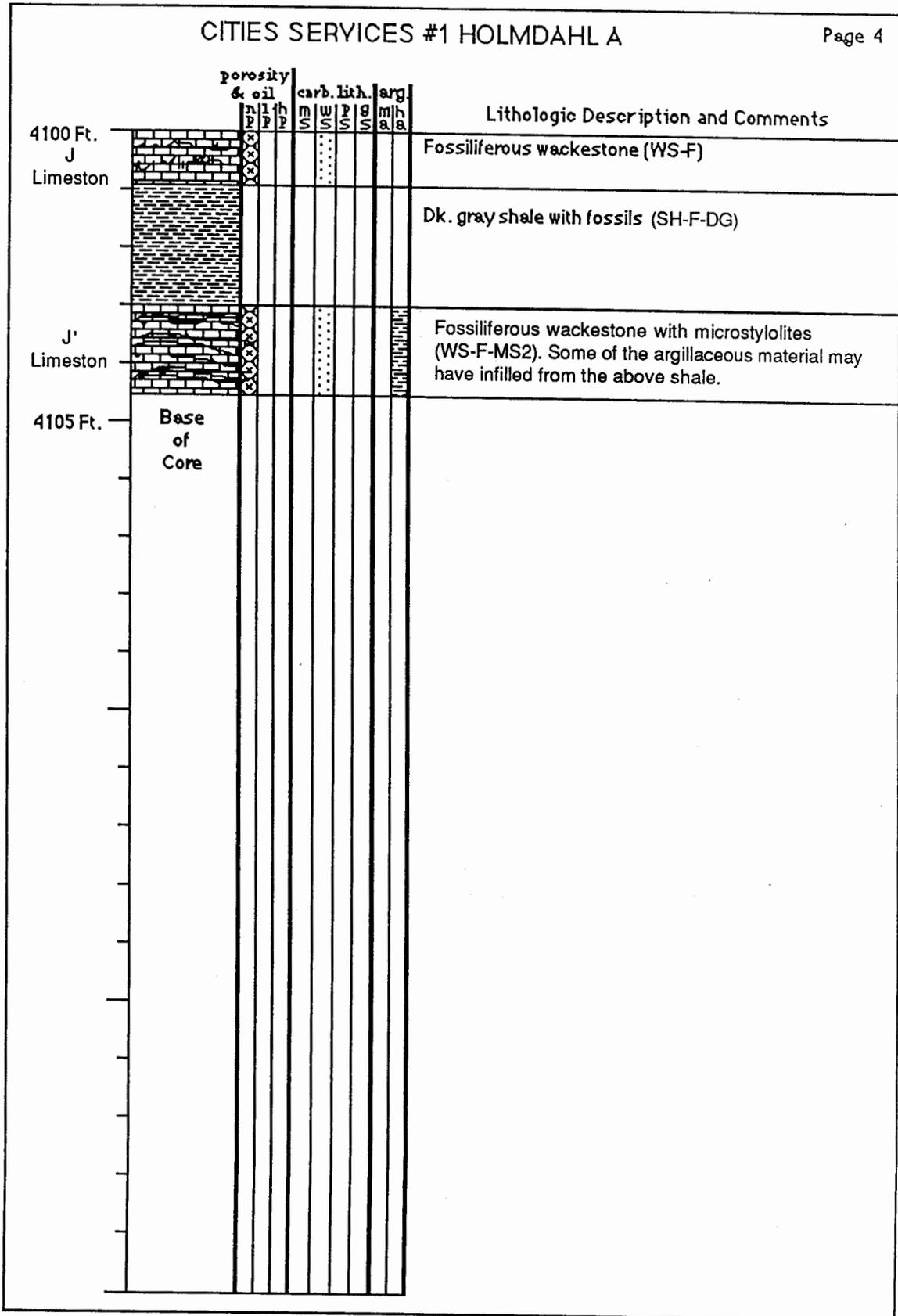
4082-85 RED-BRN. SILT-SH. W/ CALC. PINN. MOT., FRAC. W/ SPAR BLEBS  
 SHRINKAGE FRAC FILLED W/ C. SPAR  
 85-85.5 THIN GR-GRN. SH. GRADING TO ABOVE OVER 2"  
 85.5-86 DOLO. LAM. TAN MUDST. MICROXLN. DOL. SCAT. SILT SIZE CALC.  
 BIOC. DISRUPTED ELONG "CLASTS" W/ DH. GRN. SH. BETWEEN.  
 SH. CLASTS W/ UPTURNED EDGES (MUDCRACK), FN. MM ROUNDED  
 DEBRIS BETWEEN LARGER CLASTS FENESTRAL GAS POCHETS, FN.  
 FRAC. SPAR F.SH. FILL INCLUD. RED-BRN. SH.  
 86-86.5 DOLO. + SILT MORE CONTIN. MUDST. W/ SCAT VUGS, GRN. SH.  
 LAM. AND BLEBS W/ SOLN DEBRIS INCLUDED  
 86.5-89 + GR. SILT SH. WISPY LAM., TAN V/SILTY WACHST. W/ VEN-SILT  
 INADST. FOSSIL DEBRIS  
 89-90.5 MOD-HVY ALT. V/SILTY TAN-GRN. TINT WACHST. OCC BRACH., BIVALV  
 FUSUL. MOTTLED MT. - BRN. OIL STN. MICROSPAR W/ SCAT. C. SPAR VORD  
 FILL SCAT. FN. VUGS GRANS IN ALT. AREA V/ INDISTINCT  
 90.5-93 V/ALT. SCAT. FUSUL. ABUND. FOS DEBRIS - WACHST - PACHST., SCAT.  
 FN. PYRITE W/ FN. VUGS. SMALL SCALE (MM) COLLARSE W/ SPAR FILL  
 93-97 TAN-BUFF CLAY LIME WACHST. W/ OCC. SH. LAM. SCAT-OCC FN. PYRITE  
 SCAT-ABUND FN FOS FRAGS, ABUND. SPAR, GEOPETAL BRACH., BURROW MOT.  
 OF W/SH SH LAM.  
 97-4101 GR-LT. BRN. WACHST., DENSE, MED-FN FOS FRAGS, ABUND SPAR BLEBS  
 BIVALVE, BACH W/ GEOPETAL, CRIN. SCAT. ONOS. BRACH) AT BSM. INT. BASE  
 GRADE TO SH. W/ BIR SH. INTRACLASTS LG. BRACHS  
 4101-03.5 DH GR-GRN. SILTY SH. W/ EONE SILT, W/SH LAM. OF CLAY, SCAT.  
 PHOSPHATIC SHELL FRAGS.  
 03.5-04.5 3" SED DK GR SH. W/ ABUND 3mm BRACHS THEN GR-BRN.  
 WACHST. W/ A TO PACHST. AT BASE ABUND. BRACHS - LG. SMALL  
 CRIN. TUBULAR + ENCRUST FORAMS LOWER W/ OSAGIA COATING,  
 BURROW MOT., LAM. OF GRN. SH. AT BSM.

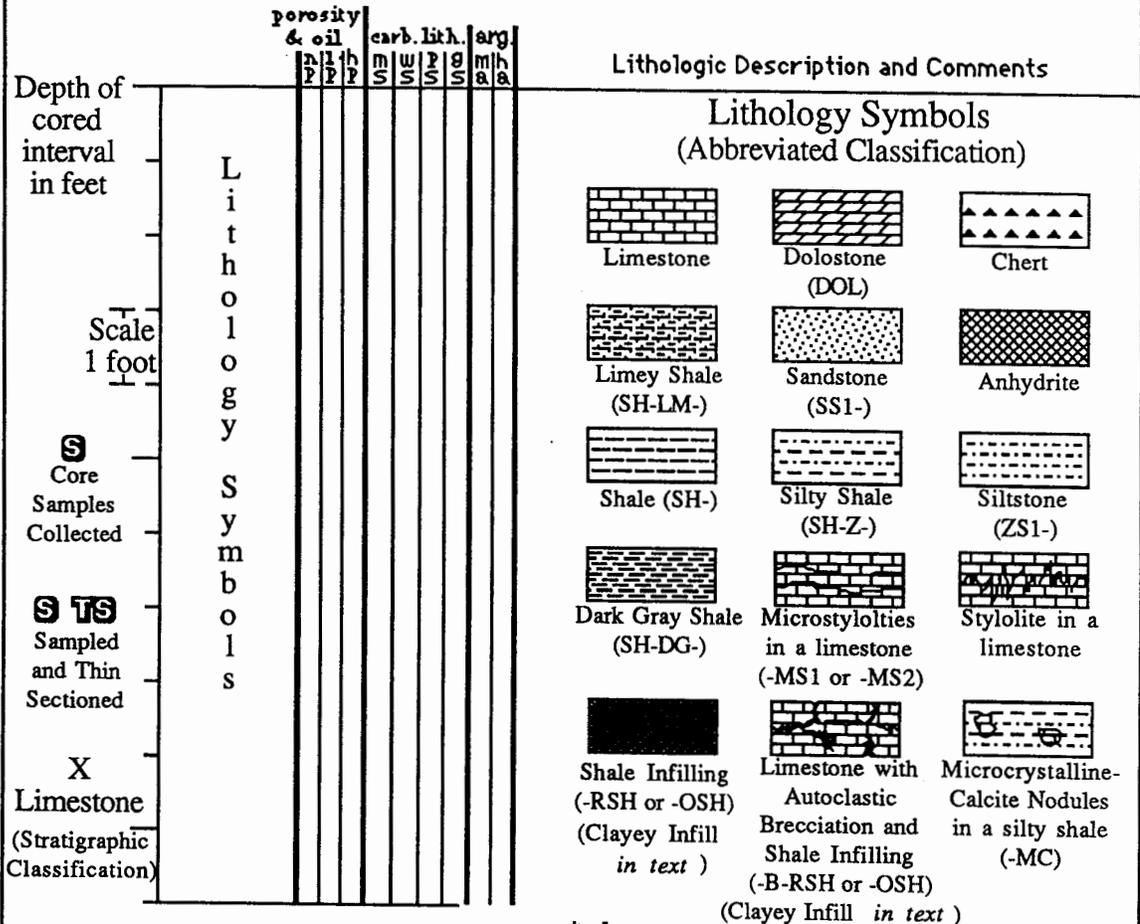




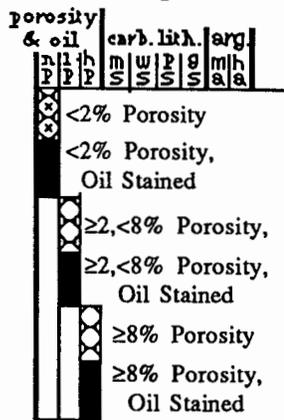


CITIES SERVICES #1 HOLMDAHL A

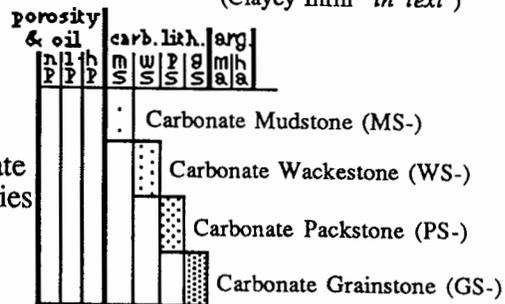




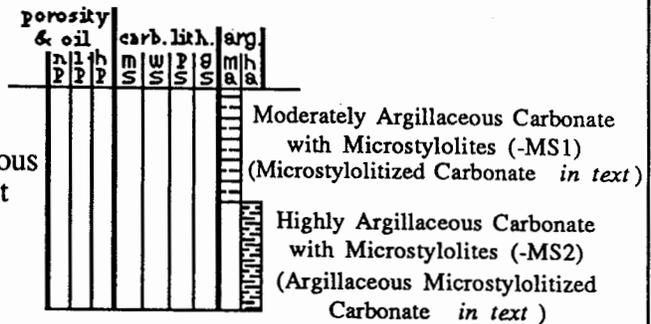
Porosity ranges based on visual estimates during core description



Carbonate Lithologies



Argillaceous Content



porosity & oil			carb. lith.			arg.
n	l	h	m	w	p	g
p	p	p	s	s	s	s

Lithologic Description and Comments

## LITHOLOGY CLASSIFICATION

After the written description of each stratum, the lithology is classified by an abbreviated classification in parenthesis.

### Carbonate Lithologies

- (MS-) Carbonate Mudstone
- (PS-) Carbonate Packstone
- (WS-) Carbonate Wackestone
- (GS-) Carbonate Grainstone
- (DOL-) Dolostone
- (LM-SH-) Limey Shale (Highly argillaceous microstylolitized carbonate *in text*)

### Modifiers to Carbonate Lithologies

- (-F) Fossiliferous
  - (-P) Peloidal
  - (-LM) Laminated
  - (-O) Oolitic
  - (-ONC) Oncolitic
  - (-FR) Fractured
  - (-MS1) Microstylolites (less argillaceous) (microstylolitized carbonate *in text*)
  - (-MS2) Microstylolites (more argillaceous) (argillaceous microstylolitized carbonate *in text*)
  - (-B) Autoclastic Brecciation
  - (-RSH) Infilling by Gray-Colored Shale
  - (-OSH) Infilling by Red-Colored Shale
- } Clayey infill  
*in text*

### Shales

(SH-) Shale

### Modifiers to Shales

- (-Z) Silty
- (-GG) Gray-Green
- (-F) Fossiliferous
- (-DG) Dark Gray
- (-RB) Red-Brown
- (-BL) Black
- (-MC) Contains Microcrystalline-Calcite Nodules

### Other Lithologies

- (SS1-) Very-fine grained Sandstone
- (ZS-) Siltstone