UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PROFESSIONAL PAPER 1273–A
PLATE 9

E

DEADWOOD SURFACE SECTION SOUTH DAKOTA

SPEARFISH CANYON SURFACE SECTION SOUTH DAKOTA

E′

W–CR–2 W–CR–26 W–CR–25 M–C–3 M–C–4 MC–24 M–C–20 M–C–12 M–CU–12 M–C–23 M–F–14 M–F–26 M–F–27 M–WB–7 ND–GV–2 ND–GV–5 ND–BI–8 ND–DU–14

WYOMING MONTANA

MONTANA NORTH DAKOTA

Datum is M–12

M–12 TO TOP OF MADISON LIMESTONE

M–8.5 TO M–12

M–7 TO M–8.5

M–3 TO M–7

M–3 AND BELOW

Estimated sea level at M–12 time

Estimated sea level at M–8.5 time

Estimated sea level at M–7 time

Estimated seal level at M–3 time

MADISON LIMESTONE OR PAHSAPA LIMESTONE

CHARLES FORMATION

FINE LIMESTONE AND DOLOMITE

CHARLES FORMATION

MISSION CANYON LIMESTONE

CHARLES FORMATION

SALT

MISSION CANYON LIMESTONE

FINE DOLOMITE

CHARLES FORMATION

SHALY PYRITIC FACIES

MISSION CANYON LIMESTONE

CHARLES FORMATION

MISSION CANYON LIMESTONE

LODGEPOLE LIMESTONE

SHALY PYRITIC FACIES

LODGEPOLE LIMESTONE

SHALY PYRITIC FACIES

MISSION CANYON LIMESTONE

LODGEPOLE LIMESTONE

SHALY PYRITIC FACIES

ENGLEWOOD FORMATION

RED RIVER FORMATION (OR WHITEWOOD DOLOMITE)

WINNIPEG FORMATION

DEADWOOD FORMATION

PRECAMBRIAN ROCKS

BLACK HILLS UPLIFT

2860 T.D.

4656 T.D.

8710 T.D.

8256 T.D.

STONY MOUNTAIN FORMATION

INTERLAKE FORMATION

DUPEROW FORMATION

BIRDBEAR FORMATION

ENGLEWOOD FORMATION

CEDAR CREEK ANTICLINE

INTERLAKE FORMATION

SOURIS RIVER FORMATION

DUPEROW FORMATION

BIRDBEAR FORMATION

THREE FORKS FORMATION

BAKKEN FORMATION

EXPLANATION

1 DOLOMITE MAJOR MOUND FACIES
2 LIMESTONE MAJOR MOUND FACIES
3 ANHYDRITIC FACIES
4 SALT FACIES
5 OTHER NONMOUND FACIES
□ CRINOIDS—Constitute significant part of mound buildup
⊙ OOLITES—Constitute significant part of mound buildup
△ CHERT—Constitutes significant part of mound buildup
• POROSITY GREATER THAN 10 PERCENT
•• POROSITY GREATER THAN 15 PERCENT
~ UNCONFORMITY
4556 T.D. TOTAL DEPTH OF WELL, IN FEET BELOW LAND SURFACE
SUBSURFACE FAULT—Shows upthrown and down thrown sides
10,320 (1) DEPTH BELOW LAND SURFACE, IN FEET OF INFORMAL SUBSURFACE USAGE

0 10 20 30 40 50 60 70 80 KILOMETERS
0 10 20 30 40 50 MILES

☆ INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1983—WS2670

Geology mapped in 1980

SOUTH–NORTH GEOLOGIC SECTION E–E′ SHOWING MADISON GROUP MARKER–DEFINED CARBONATE–EVAPORITE CYCLES (MISSISSIPPIAN), NORTHERN BLACK HILLS, SOUTH DAKOTA, TO SOUTHWESTERN NORTH DAKOTA