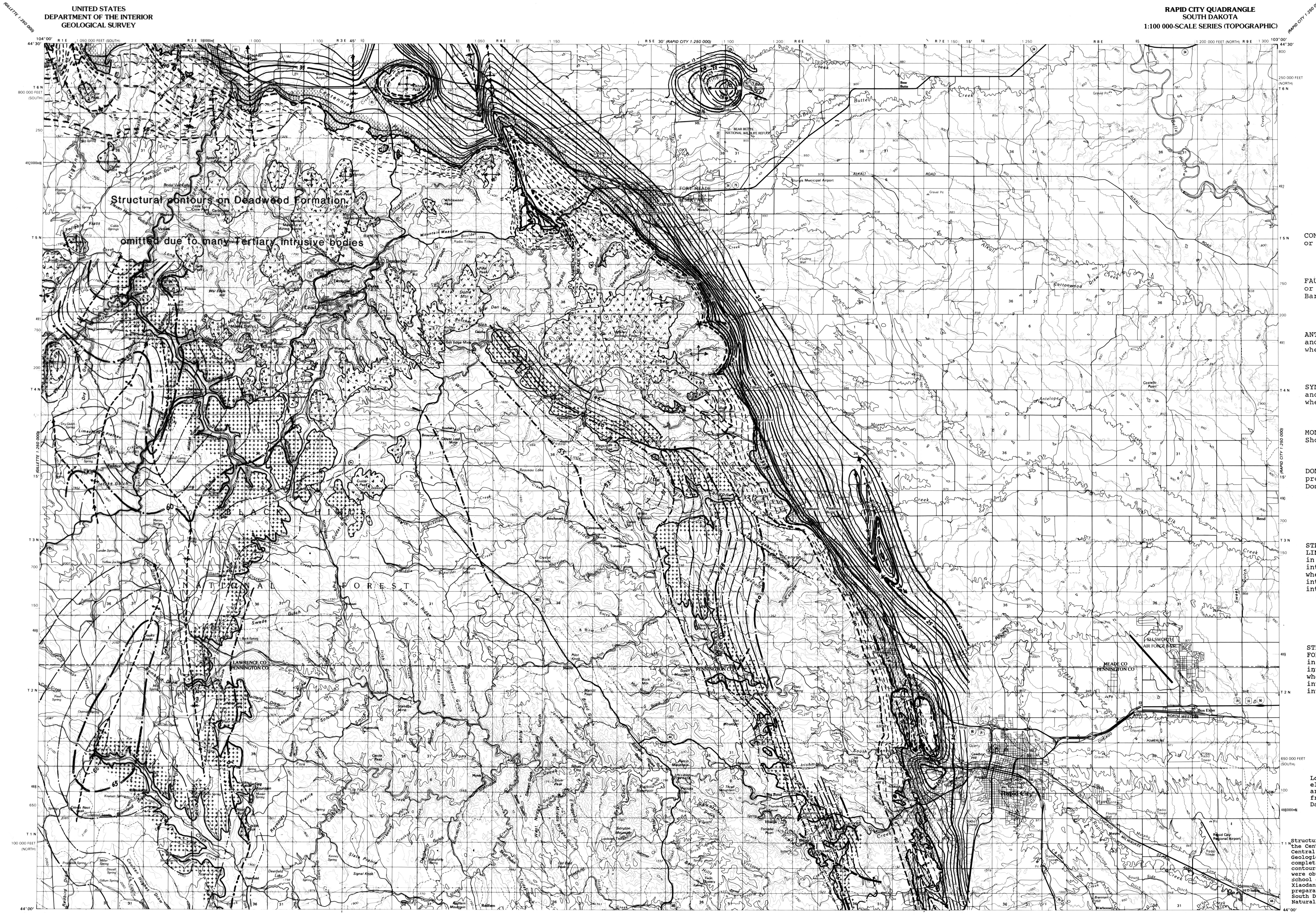
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

OPEN FILE REPORT 95-81
SHEET 3 OF 4



EXPLANATION

TERTIARY IGNEOUS ROCKS
(Only larger bodies shown)

BASE OF SPEARFISH FORMATION
(top of Minnekahta Limestone)

BASE OF WINNEPEG FORMATION OR
ENGLEWOOD LIMESTONE
(top of Deadwood formation)

CONTACT--Dashed where approximately located or concealed by younger rocks.

FAULT--Dashed where approximately located or inferred. Queried where uncertain. Bar and ball on downthrown side.

ANTICLINE-- Showing trace of axial plane and approximate direction of plunge. Dashed where approximately located.

SYNCLINE- Showing trace of axial plane and approximate direction of plunge. Dashed where approximately located.

MONOCLINE--Showing trace of upper flexure. Short arrow indicates steep limb.

DOME--Symbol size approximately proportional to size of dome. Dome asymmetry indicated by arrow length.

30

STRUCTURAL CONTOURS ON TOP OF MINNEKAHTA LIMESTONE. Dashed where eroded. Elevations in hundreds of feet (30 = 3,000′). Contour interval varies from 100′ to 200′ to 500′ where appropriate; heavy lines at 500′ intervals; light lines at 100′ or 200′ intervals.

40

STRUCTURAL CONTOURS ON TOP OF DEADWOOD FORMATION. Dashed where eroded. Elevations in hundreds of feet (40 = 4,000′). Contour interval varies from 100′ to 200′ to 500′ where appropriate; heavy lines at 500′ intervals; light lines at 100′ or 200′ intervals.

Location of wells including formation elevations used for structural contours are in computer files and may be obtained from J.A. Redden, Dept. of Geology, South Dakota School of Mines, Rapid City, SD.

Structural contours prepared from a geologic map compilation of the Central Black Hills now in preparation by Jack A. Redden, Central Mineral Resources Branch Geologic Division, U.S. Geological Survey. This map is open filed for use prior to final completion and publication of the Central Black Hills map; contours may deviate in some areas from the final map. Well data were obtained largely from files of Dr. J.P. Gries, South Dakota School of Mines and Technology, Rapid City. Dann Halverson, Xiaodan Tan, and Greg Goeser assisted in digitization and contour preparation. Financial support for this work was in part by the South Dakota Geological Survey, Department of Environment and Natural Resources.

STRUCTURAL CONTOURS AND PHANEROZOIC STRUCTURES IN THE RAPID CITY, SOUTH DAKOTA 1:100,000 SCALE QUADRANGLE:

PART II. STRUCTURAL CONTOURS ON TOP OF THE MINNEKAHTA LIMESTONE AND DEADWOOD FORMATION

By Jack A. Redden 1994

This report is preliminary and has not been edited or reviewed for conformity with U. S. Geological Survey standards or stratigraphic nomenclature.