GENERALIZED COLUMNAR SECTION

DICKINSON AREA BILLINGS, DUNN, AND STARK COUNTIES, NORTH DAKOTA

(VERTICAL SCALE | in. = 200 ft.; | cm. = 24 m.)

SYSTEM	SERIES	FORMATION AND MEMBER		LITHOLOGY	DESCRIPTION OF ROCK UNITS
	PLEISTOCENE AND HOLOCENE	SURFICIAL DEPOSITS		0000	SILT, SAND, AND GRAVEL IN TERRACES AND ALLUVIAL FANS
TERTIARY	OLIGOCENE	WHITE RIVER FORMATION			YELLOW TO TAN SANDSTONE; GRAY SHALE; CLAYSTONE; SILTSTONE WITH NUMEROUS BONE FRAGMENTS; NONMARINE
	EOCENE	GOLDEN VALLEY FORMATION			GRAY TO YELLOW SANDSTONE; KAOLINITIC CLAY; SILTSTONE AND SHALE. NUMEROUS THIN LENTICULAR LIGNITE BEDS; NONMARINE
	PALEOCENE	FORT UNION FORMATION	SENTINEL BUTTE MEMBER		— DICKINSON (DK) COAL BED — LEHIGH COAL BED — HEART RIVER (E) COAL BED — FRYBURG (D) COAL BED ⇒ C ZONE (CZ) COAL BEDS
			TONGUE RIVER MEMBER		HT BUTTE (1) (HTI) COAL BED HARMON (Hr) COAL BED GRAY TO TAN SANDSTONE; SILTSTONE AND SHALE; SEVERAL THICK CONTINUOUS LIGNITE BEDS; IRONSTONE CONCRETIONS; NONMARINE
			LUDLOW AND CANNONBALL MEMBERS (UNDIFFERENTIATED)		LUDLOW (NONMARINE) AND CANNONBALL (MARINE) MEMBER SEDIMENTS INTERFINGER THROUGHOUT THE AREA. LUDLOW MEMBER GRAY TO TAN SANDSTONE; GRAY SHALE AND SILTSTONE; SEVERAL THICK LENTICULAR LIGNITE BEDS; NONMARINE CANNONBALL MEMBER GRAY TO BROWN SANDSTONE; GRAY SHALE; MARINE
CRETACEOUS	UPPER	HELL CREEK FORMATION			SILTSTONE AND SHALE; DARK-GRAY BENTONITIC CLAYSTONE; GRAYISH-BROWN LENTICULAR SANDSTONE; IRONSTONE CONCRETIONS; THIN LENTICULAR LIGNITE BEDS NEAR TOP; NONMARINE
		FOX HILLS FORMATION			WHITE TO BROWN GLAUCONITIC SANDSTONE AND INTERBEDDED GRAYISH-GREEN SHALE; MARINE
		PIERRE SHALE			DARK-GRAY TO BROWNISH-BLACK SHALE AND BENTONITIC CLAYSTONE; MARINE

SANDSTONE

GLAUCONITIC

CONCRETIONARY

SH

CLAY

SILTY CLAY

SHALE

SILTSTONE

CARBONACEOUS SHALE

THIS REPORT HAS NOT BEEN EDITED FOR CONFORMITY WITH GEOLOGICAL SURVEY EDITORIAL STANDARDS OF STRATIGRAPHIC NOMENCLATURE.