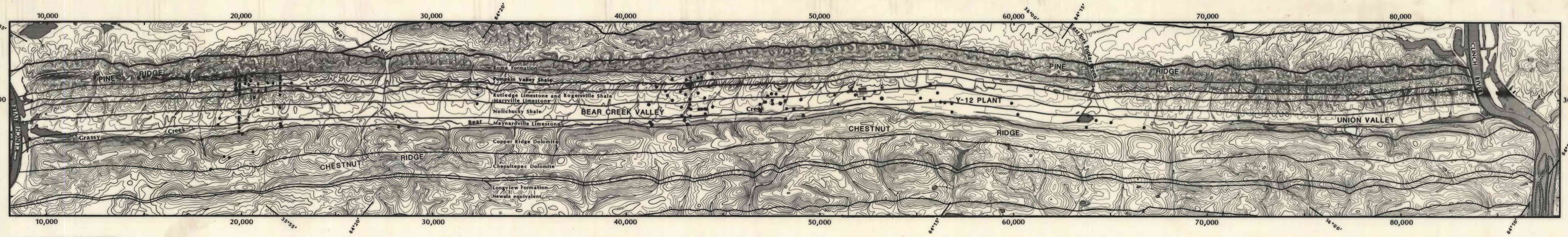
Prepared in cooperation with the
UNITED STATES DEPARTMENT OF ENERGY



BASE FROM TENNESSEE VALLEY AUTHORITY
BETHEL VALLEY, CAVE CREEK, CLINTON, ELVERTON,
LENOIR CITY, LOVELL, AND WINDROCK, 1968
REVISED IN JUNE 1974

A. GENERALIZED SURFICIAL GEOLOGY

Geology based in part on interpretations by Exxon Nuclear Company, Inc., 1975; R.H. Ketelle and D.D. Huff, 1984; Law Engineering and Testing Company, written commun., 1983; W.M. McMaster, 1963; and G.D. Swingle and T.T. Luther, 1964

SCALE 1:24 000
1 0 1 MILE
1 .5 0 1 KILOMETER
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

EXPLANATION

Knox Group — ORDOVICIAN

Newala equivalent [2]
Dolomite, medium-bedded, with limestone, chert, and sandstone. About 900 feet thick.

Longview Formation [1]
Dolomite, massive, with limestone and abundant chert. About 50 feet thick.

Chepultepec Dolomite
Dolomite, medium to thick bedded, with chert and calcareous sandstone. About 700 feet thick.

Copper Ridge Dolomite
Dolomite, thick-bedded to massive, with sandstone and chert. About 1200 feet thick.

Conasauga Group — CAMBRIAN

Maynardville Limestone
Limestone, oolitic, magnesian limestone and dolomite, thin to thick bedded. About 250 feet thick.

Nolichucky Shale
Shale, with interbeds of calcareous siltstone and limestone. About 600 feet thick.

Maryville Limestone
Limestone, thick-bedded, with interbeds of calcareous sandstone and mudstone. About 440 feet thick.

Rogersville Shale
Shale, argillaceous and calcareous, with interbeds of siltstone and dolomite. Thick-bedded limestone member (Craig) near top. About 100 feet thick.

Rutledge Limestone
Limestone, argillaceous, with interbeds of glauconitic siltstone, calcareous mudstone, and shale. About 100 feet thick.

Pumpkin Valley Shale
Shale and siltstone, with thin interbeds of sandstone, glauconitic and micaceous. About 310 feet thick.

Rome Formation
Sandstone, siltstone and shale; glauconitic and micaceous. Abundant primary sedimentary features. Faulted at base.

[1] Tennessee Division of Geology usage; designated lower part of Kingsport Dolomite by U.S. Geological Survey
[2] Equivalent to upper part of Kingsport Dolomite and overlying Mascot Dolomite

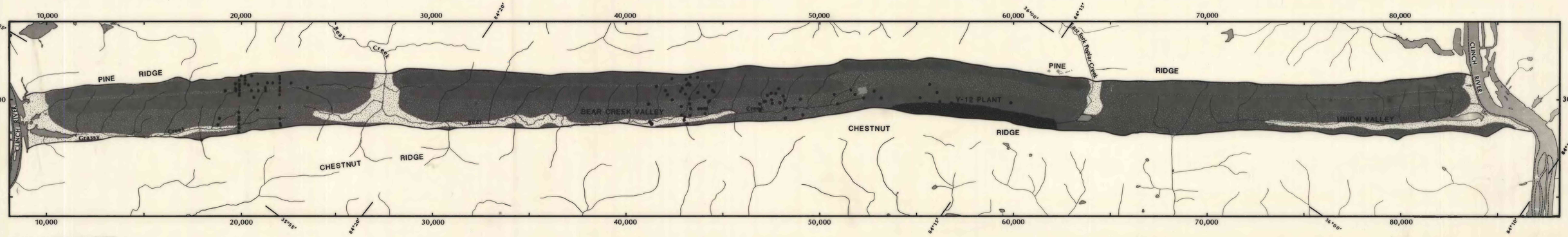
Geologic descriptions modified from R.H. Ketelle and D.D. Huff, 1984; C.S. Haase and others, 1985; and John Rodgers, 1953

GEOLOGIC CONTACT--Approximately located

THRUST FAULT

• Drillhole used to determine or estimate stratigraphic contacts

Contacts in areas without data have been extrapolated from trends and are less accurate.
Note: Grid coordinate system (in feet) unique to this map (S-16A)



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B. GENERALIZED THICKNESS OF REGOLITH

SCALE 1:24 000
1 0 1 MILE
1 .5 0 1 KILOMETER

EXPLANATION

THICKNESS INTERVALS, IN FEET

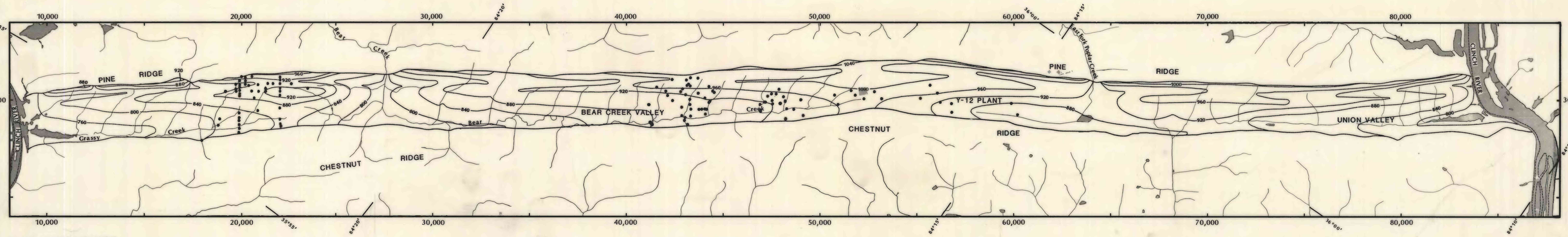
- Less than 10
- 10-20
- 20-50
- 50-75

Approximately located.

LIMIT OF INTERPRETATION

• Drillhole used to determine top of bedrock surface

Thickness intervals in areas without data are extrapolated from trends and are less accurate. Thinning of regolith near tributaries to Bear Creek and Grassy Creek is not shown
Note: Grid coordinate system (in feet) unique to this map (S-16A)



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BETHEL VALLEY, CAVE CREEK, CLINTON, ELVERTON,
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REVISED IN JUNE 1974

C. GENERALIZED CONFIGURATION OF THE BEDROCK SURFACE

APPROXIMATE MEAN DECLINATION, 1974

SCALE 1:24 000
1 0 1 MILE
1 .5 0 1 KILOMETER

EXPLANATION

—960— BEDROCK CONTOUR--Shows altitude of bedrock surface. Approximately located. Contour interval 40 feet. Datum is sea level

LIMIT OF INTERPRETATION

• Drillhole used to determine top of bedrock surface

Contours in areas without data have been extrapolated from trends and are less accurate. Bedrock-surface depressions near tributaries to Bear Creek and Grassy Creek are not shown
Note: Grid coordinate system (in feet) unique to this map (S-16A)

GENERALIZED SURFICIAL GEOLOGY, THICKNESS OF REGOLITH, AND CONFIGURATION OF THE BEDROCK SURFACE IN BEAR CREEK AND UNION VALLEYS, NEAR OAK RIDGE, TENNESSEE

By
Anne B. Hoos and Zelda Chapman Bailey

1986