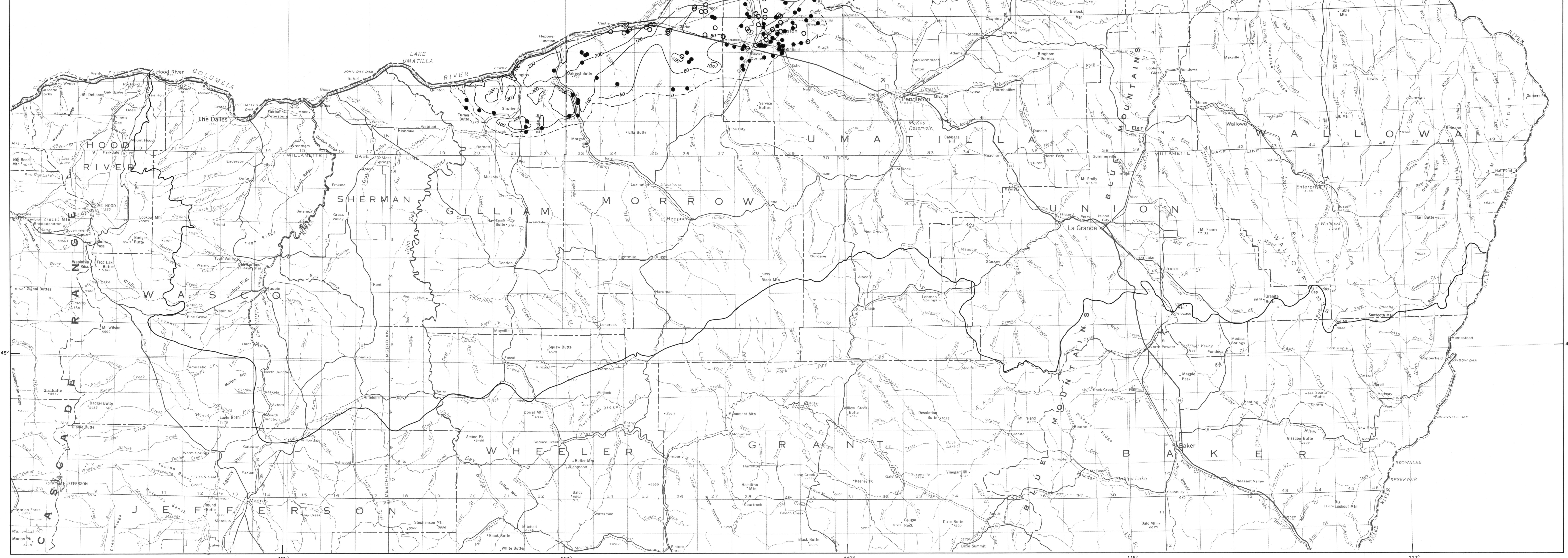
THICKNESS OF THE POMONA-UMATILLA INTERBED



THICKNESS OF THE POMONA-UMATILLA INTERBED

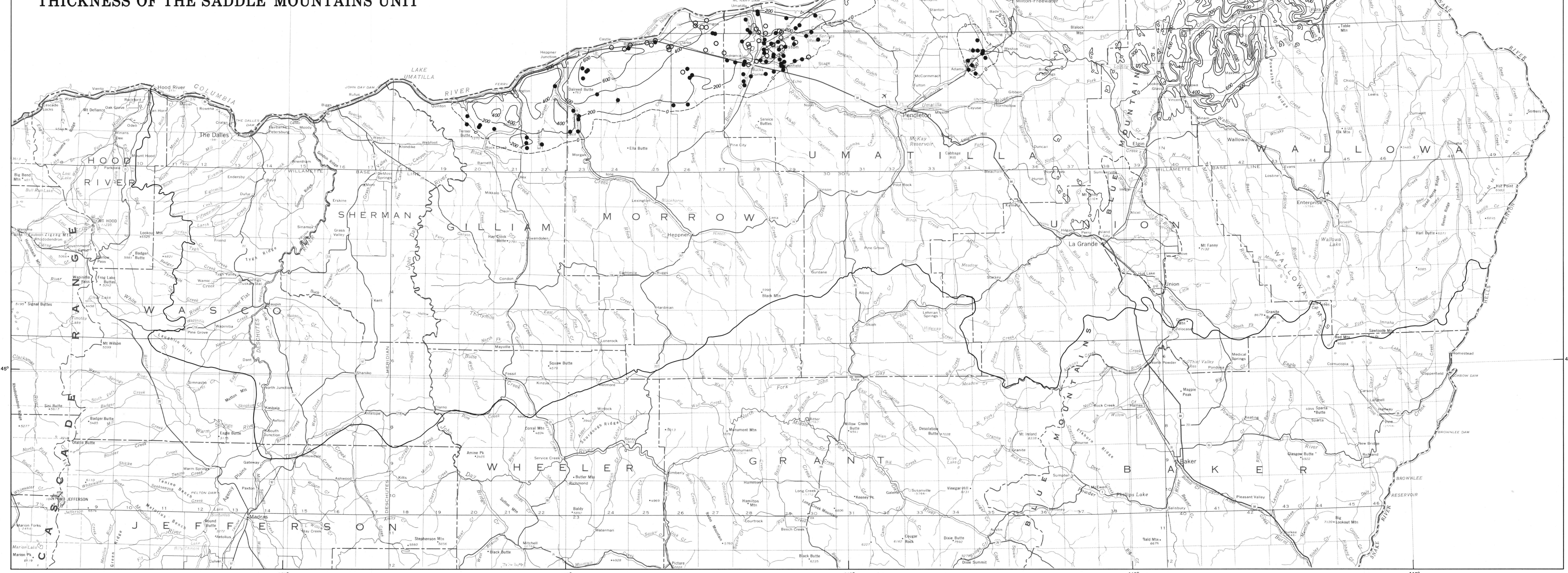
Lines on this map show the thickness of the sedimentary interbed between the Umatilla and Pomona Members of the Saddle Mountains Basalt. This interbed is probably equivalent to the Beverly Member of the Ellensburg Formation in Washington; however, the stratigraphic nomenclature of the Ellensburg Formation in Oregon has not been formally defined. In the area south and west of Arlington, Oregon, the Umatilla Member was apparently overlapped by the younger Pomona Member and is probably absent from the section. Therefore, in the area where the overlap occurred, this interbed forms the base of the Saddle Mountains hydrogeologic unit.

Most driller logs indicate that the Pomona-Umatilla interbed is chiefly fine-grained; it generally is described as clay, shale, claystone, or sandy clay. Locally, some sand and gravel and conglomerate are also are reported to be present but there is no apparent trend to the distribution of the coarser-grained materials. It ranges from 0 to over 200 feet thick and is the thickest of the interbeds in the Saddle Mountains. This interbed has not been differentiated in other parts of the report area outside the Arlington-Boardman area.

EXPLANATION

- STUDY AREA BOUNDARY
- —50— LINE OF EQUAL THICKNESS OF THE POMONA-UMATILLA INTERBED—Approximately located, dashed where inferred. Interval 50 and 100 feet.
- ○ WELL PARTIALLY PENETRATING SADDLE MOUNTAINS BASALT
- ● WELL PENETRATING SADDLE MOUNTAINS BASALT

THICKNESS OF THE SADDLE MOUNTAINS UNIT



THICKNESS OF THE SADDLE MOUNTAINS UNIT

Lines on this map show the thickness of the Saddle Mountains unit. It is compiled from well data at the indicated data points, from the structure contour map of the top of the Wanapum Basalt, and from the map showing the top of the basalt bedrock (Columbia River Basalt Group) beneath the sedimentary overburden, (Sheet 5). In the Troy basin in Wallowa County it is compiled chiefly from the structure contour map for the Wanapum Basalt and from topographic contours. The thickness of the Saddle Mountains unit includes the combined thickness of the basalt and of the sedimentary interbeds. In places, as much as 50 percent of the thickness of the Saddle Mountains may consist of sedimentary interbeds.

Thickness of the Saddle Mountains ranges from 0 to over 600 feet in the Boardman area and it may exceed 800 feet locally in the Grouse Flat syncline in northern Wallowa County. However, in Wallowa County thicknesses were interpolated from structure contour maps and topographic maps and may be less accurate than in other areas where well data were available.

The Saddle Mountains hydrogeologic unit, in Oregon, forms a continuous narrow bank up to 20 miles in width and over 60 miles in length, extending from Blalock in northern Gilliam County, on the west, to McNary, near Lake Wallula in Umatilla County, on the east. In this area the Umatilla Member is the most extensive member of the Saddle Mountains Basalt. The Umatilla Member, however, appears to be absent in most of Gilliam County, where it was overlapped by the younger Pomona Member. Elsewhere in Morrow and Umatilla Counties the Pomona Member and the younger Elephant Mountain Member successively underlie smaller areas. The Elephant Mountain Member is the least extensive of the three members present. In other parts of the study area, where the Saddle Mountains unit is shown, the stratigraphy within the unit was very uncertain.

EXPLANATION

- STUDY AREA BOUNDARY
- —400— LINE OF EQUAL THICKNESS OF THE SADDLE MOUNTAINS UNIT—Approximately located, dashed where inferred. Interval 200 and 400 feet.
- ○ WELL PARTIALLY PENETRATING SADDLE MOUNTAINS UNIT
- ● WELL PENETRATING SADDLE MOUNTAINS UNIT

10 0 10 20 30 40 MILES
10 0 10 20 30 40 50 KILOMETERS

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GEOLOGY, STRUCTURE, AND THICKNESS OF HYDROGEOLOGIC UNITS IN PART OF THE COLUMBIA PLATEAU, OREGON

By
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1990