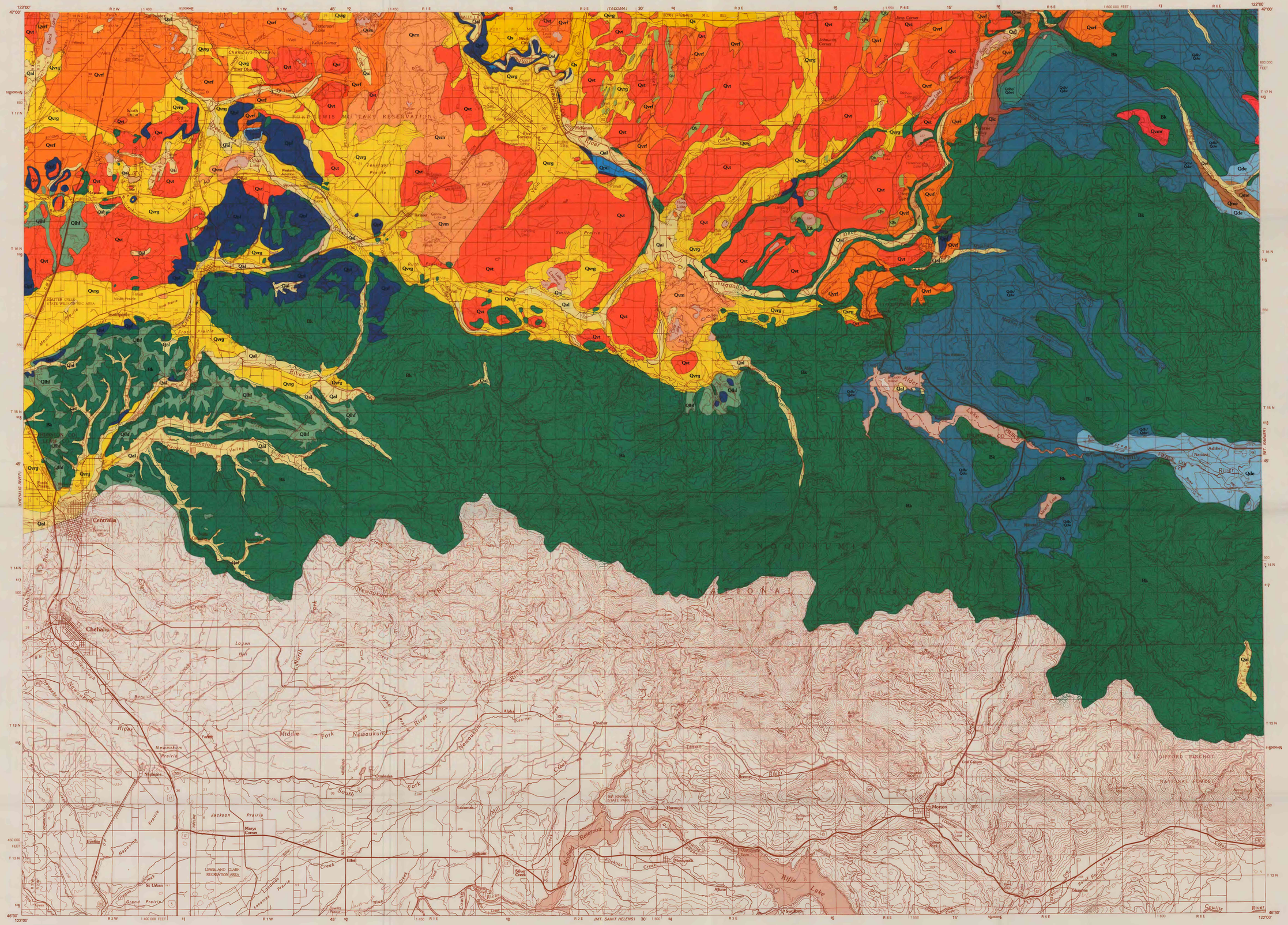
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

PROFESSIONAL PAPER 1424–C
Surficial hydrogeologic units for the Centralia quadrangle—PLATE 17
Jones, M.A., 1998, Geologic framework for the Puget Sound aquifer system, Washington and British Columbia

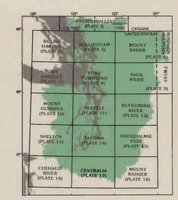


Base from U.S. Geological Survey
Centralia (1980)
metric quadrangle, 1:100,000
Universal Transverse Mercator projection
Zone 10

SCALE 1:100,000

1 0 1 2 3 4 5 MILES

1 0 1 2 3 4 5 KILOMETERS



EXPLANATION

Qal — **Alluvium (Holocene)**—Grades from clay to gravel, consists predominantly of silt to fine sand, deposited in streambeds and fans; includes some terrace and lacustrine deposits

Qb — **Marsh, bog, and peat deposits (Holocene and Pleistocene)**

Qme — **Electron mudflow deposit (Holocene)**—Consists of an unsorted mixture of andesitic rock fragments in a clay and sand matrix. Deposits are confined to the Puyallup River valley. Rock fragments are predominantly from the Mount Rainier provenance

Qvm — **Vashon moraine deposits (Pleistocene)**—Consist of clay, silt, sand and gravel, also include mixtures of till and outwash not separately mappable

Qvrg, Qvrf — **Vashon recessional outwash deposits (Pleistocene)**—Moderately to poorly sorted gravel and sand with small amounts of silt and clay; include ice-contact deposits, glacial outwash alluvium and small amounts of ablation till. Qvrg consists of the coarser deposits and Qvrf generally consists of the finer deposits

Qs — **Stellacoom gravel deposit (Pleistocene)**—Consists of recessional stratified pebble-to-boulder size gravel, deposited in meltwater streams and deltas; locally may contain some ice-contact deposits and undifferentiated Vashon drift deposits

Qvt — **Vashon till (Pleistocene)**—Predominantly fine-grained deposits consisting of unsorted and unstratified glacial sediments from clay to boulder in size that vary in compaction and composition throughout the Puget Sound Lowland

Qva — **Vashon advance outwash deposits (Pleistocene)**—Predominantly consist of a well-sorted, fine-grained sand with lenses of coarser sand and gravel; may also include silt and clay deposits, and locally may contain nonglacial deposits

Qde — **Evans Creek drift deposit (Pleistocene)**—Consists of undifferentiated alpine till, outwash and moraine deposits, from the Cascade provenance

Qpu — **Pre-Fraser undifferentiated nonglacial deposits (Pleistocene)**

Qpf — **Pre-Fraser undifferentiated glacial deposits (Pleistocene)**

Qdh/Qdw — **Hayden Creek and Wingate Hill deposits (Pleistocene)**—Consist of pre-Fraser alpine drift deposits; include undifferentiated deposits of till, outwash, and moraines

Qdw/Qdwt — **Hayden Creek and Wingate Hill tills (Pleistocene)**—Consist of a compact, yellowish to dark brown, weathered, stony till deposit

Qlhf — **Logan Hill Formation (Pleistocene)**—Consists of alpine outwash sand and gravel stained reddish to yellowish brown; also includes small amounts of silt and clay and moderately-to-completely-weathered volcanic rocks from adjacent Tertiary rocks

Qlc — **Lily Creek Formation (Pleistocene)**—Consists of weathered compact mudflow deposits from the Mount Rainier provenance, interbedded with pre-Fraser stream deposits

Qomr — **Andesite deposits from Mount Rainier volcano (Pleistocene)**—Consist predominantly of gray porphyritic hypersthene-augite pyroxene andesite

Bk — **Bedrock**—Tertiary and older volcanic and sedimentary rock, undifferentiated

Hydrogeologic contact

REFERENCES (CENTRALIA)

Mundorff, M.J., Weigle, J.M., and Holmberg, G.D., 1955, Ground water in the Yelm area, Thurston and Pierce Counties, Washington: U.S. Geological Survey Circular 356, 58 p.

Noble, J.B., and Wallace, E.F., 1966, Geology and ground-water resources of Thurston County, Washington: Washington Division of Water Resources Water-Supply Bulletin 10, v. 2, 141 p.

Sceva, J.E., Wegner, D.E., and others, 1955, Records of wells and springs, water levels, and quality of ground water in central Pierce County, Washington: U.S. Geological Survey Open-File Report, 261 p.

Schasse, H.W., compiler, 1987a, Geologic map of the Centralia Quadrangle, Washington: Washington Division of Geology and Earth Resources Open-File Report 87–11, 28 p., 1 plate, scale 1:100,000.

Wallace, E.F., and Molenaar, Dee, 1961, Geology and ground-water resources of Thurston County, Washington: Washington Division of Water Resources Water-Supply Bulletin 10, v. 1, 254 p.

Walters, K.L., and Kimmel, G.E., 1968, Ground-water occurrence and stratigraphy of unconsolidated deposits, central Pierce County, Washington: Washington Department of Water Resources Water-Supply Bulletin 22, 428 p.

Weigle, J.M., and Foxworthy, B.L., 1962, Geology and ground-water resources of west-central Lewis County, Washington: Washington Division of Water Resources Water-Supply Bulletin 17, 248 p.

Weigle, J.M., and Washburn, R.L., 1956, Records of wells and springs, water levels, and quality of ground water in Lewis County, Washington: U.S. Geological Survey Open-File Report, 352 p.

SURFICIAL HYDROGEOLOGIC UNITS OF THE PUGET SOUND AQUIFER SYSTEM, WASHINGTON AND BRITISH COLUMBIA, FOR THE CENTRALIA QUADRANGLE

By
M.A. Jones
1998

USGS
science for a changing world

Printed on recycled paper