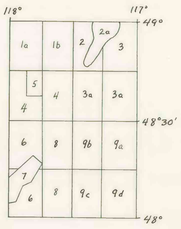
U.S. GEOLOGICAL SURVEY

EXPLANATION

OPEN FILE REPORT 76-327
SHEET 2 OF 2

Qag	GLACIAL, ALLUVIAL AND TALUS DEPOSITS UNDIFFERENTIATED (Quaternary)
Tc	CONGLOMERATE (Tertiary) INCLUDES THE TIGER FORMATION
Tcr	BASALT OF THE COLUMBIA RIVER GROUP (Pliocene and/or) Miocene)
Tl	LATAH FORMATION
Tca	CATACLASTIC ROCKS
Tb	BRECCIA ON RUBY MOUNTAIN
Th	HYPABYSSAL ROCKS (Eocene)
Tv	MAFIC-RICH VOLCANIC ROCKS (Eocene)
Trc	CONGLOMERATE INTERLAYERED WITH RHYODACITE (Eocene)
Tr	RHYODACITE (Eocene) INCLUDES SANDPOIL VOLCANICS AND PEND OREILLE ANDESITE
To	O'BRIEN CREEK FORMATION
Tcb	CONGLOMERATE
Tg	GRANITIC ROCKS (Tertiary)
TKg	GRANITIC ROCKS (Cretaceous or Tertiary)
Ks	SOPHIE MOUNTAIN CONGLOMERATE
Kg	GRANITIC ROCKS (Cretaceous)
Jg	GRANITIC ROCKS (Jurassic, some may be as old as Triassic)
Jl	LIMESTONE (Jurassic)
Jr	ROSSLAND VOLCANICS
PP	PENNSYLVANIAN AND PERMIAN ROCKS
Ml	LIMESTONE (Mississippian)
MD_4	UNIT 4 (Mississippian and Devonian)
MD_3	UNIT 3 (Mississippian and Devonian)
MD_2	UNIT 2 (Mississippian and Devonian)
MD_1	UNIT 1 (Mississippian and Devonian)
g	GREENSTONE
gc	GREENSTONE, CONGLOMERATE, GRAYWACKE AND ARGILLITE
ag	ARGILLITE AND GRAYWACKE
a	ARGILLITE OF ASPEND HILL
aC	ARGILLITE C
aB	ARGILLITE B
aA	ARGILLITE A
SD	SILURIAN-DEVONIAN ROCKS
Olu	LEDBETTER SLATE(?) QUARTZITE AND SLATE
Ol	LEDBETTER SLATE
	METALINE FORMATION
€mt	TRANSITIONAL METALINE FORMATION
€ms	SEDIMENTARY DOLOMITE BRECCIA
€mu	UPPER LIMESTONE
€mm	MIDDLE DOLOMITE
€ml	LOWER LIMESTONE
	MAITLEN PHYLLITE
€mp	PHYLLITE
€ml	LIMESTONE
€mr	REEVES LIMESTONE
Pzpq	PHYLLITE AND QUARTZITE
Pzdu	UPPER DOLOMITE
Pzdl	LOWER DOLOMITE
Pzu	PALEOZOIC CARBONATE ROCKS UNDIVIDED
	GYPSY QUARTZITE & ADDY QUARTZITE
€p	PHYLLITE (SCHIST) AND QUARTZITE
€q	QUARTZITE
€qp	PURPLE QUARTZITE
	MONK FORMATION
pCmdo	DOLOMITE
pCmc	CONGLOMERATE
pCm	UNDIVIDED
pCi	INTRUSIVE GREENSTONE
	ROCKS IN NORTHEASTERN PART OF AREA
pCl	LEOLA VOLCANICS
	SHEDROOF CONGLOMERATE
pCsp	PHYLLITE
pCsco	CONGLOMERATE
	ROCKS IN SOUTHWESTERN PART OF AREA
	HUCKLEBERRY FORMATION
pChg	GREENSTONE MEMBER
pChc	CONGLOMERATE MEMBER
	WINDERMERE GROUP
pCpp	PHYLLITE
pCpd	DOLOMITE
pCpq	QUARTZITE
	PRIEST RIVER GROUP
pCbh	BUFFALO HUMP FORMATION
pCst	STENSGAR DOLOMITE
pCms	MCHALE SLATE
pCe	EDNA DOLOMITE
pCt	TOGO FORMATION
pCd	UNDIVIDED
	DEER TRAIL GROUP
	STRIPED PEAK FORMATION
pCsd	MEMBER d
pCsc	MEMBER c
pCsb	MEMBER b
pCsa	MEMBER a
pCs_4	MEMBER 4
pCs_3	MEMBER 3
pCs_2	MEMBER 2
pCs_1	MEMBER 1
pCs	UNDIVIDED
	MISSOULA GROUP
	WALLACE FORMATION
pCwu	UPPER PART
pCwl	LOWER PART
pCw	UNDIVIDED
	BELT SUPERGROUP
pCsr	ST REGIS FORMATION
pCr	REVETT FORMATION
pCb	BURKE FORMATION
	RAVALLI GROUP
pCmd	METADIABASE SILLS
pCp	PRICHARD FORMATION
pCh	HAUSER LAKE GNEISS
pCn	NEWMAN LAKE GNEISS
m	METAMORPHIC ROCKS UNDIVIDED



Sources of mapping

1a. Yates, R. G., 1964, Geologic map and sections of the Deep Creek area Stevens and Pend Oreille Counties, Washington: U.S. Geol. Survey Misc. Geol. Inv. Map I-412, scale 1:31,680.

1b. Yates, R. G., 1971, Geologic map of the Northport quadrangle, Washington: U.S. Geol. Survey Misc. Geol. Inv. Map I-603, scale 1:31,680.

2. Park, C. F., Jr., and Cannon, R. S., Jr., 1943, Geology and ore deposits of the Metaline quadrangle, Washington: U.S. Geol. Survey Prof. Paper 202, 81 p.

2a. Dings, M. G., and Whitebread, D. H., 1965, Geology and ore deposits of the Metaline zinc-lead district, Pend Oreille County, Washington: U.S. Geol. Survey Prof. Paper 489, 109 p.

3. Park and Cannon (1943, see reference 2 above) modified by R. G. Yates.

3a. Park and Cannon (1943, see reference 2 above) modified by F. K. Miller.

4. Reconnaissance mapping by R. G. Yates, U.S. Geol. Survey, 1972.

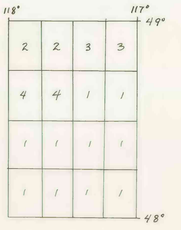
5. Unpublished mapping by Eric Schuster, Wash. Div. Mines and Geology, 1972.

6. Reconnaissance mapping by F. K. Miller, U.S. Geol. Survey, 1972.

7. Campbell, Ian, and Loofbourow, J. S., 1962, Geology of the magnesite belt of Stevens County, Washington: U.S. Geol. Survey Bull. 1142-F, p. F1-F53.

8. Miller, F. K., and Clark, L. D., 1974, Geology of the Chewelah-Loon Lake area, Stevens and Spokane Counties, Washington: U.S. Geol. Survey Prof. Paper 806, 74 p.

9. a)-d) Miller, F. K., 1974, Preliminary geologic maps of the Newport numbers 1 (9a), 2 (9b), 3 (9c) and 4 (9d) quadrangles, Pend Oreille, Spokane and Stevens Counties, Washington and Bonner County, Idaho: Washington Div. Geology and Earth Resources Geol. Maps GM-7 to GM-10.



Index to labeling of geologic units

Not all units are labeled in some parts of the area because of room restrictions, time restrictions, or unavailability of original material. The above figure and the following notes will serve as an index to the labeling and where additional information can be obtained.

1. Labeling is nearly 100 percent complete.
2. Labeling incomplete due to lack of room for symbols at this scale. See Yates (1964 and 1971).
3. Labeling incomplete. See Park and Cannon (1943) and Dings and Whitebread (1965).
4. Labeling incomplete due to unavailability of field maps.

This map is preliminary and has not been edited or reviewed for conformity with Geological Survey standards and nomenclature.

TO ACCOMPANY

GEOLOGIC MAP OF THE WEST HALF OF THE SANDPOINT 1°x2° QUADRANGLE, WASHINGTON

COMPILED BY

FRED K. MILLER AND ROBERT G. YATES

1976