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Informal Report

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Pasco Basin Stratigraphic Nomenclature

R. K. Ledgerwood
C. W. Myers
R. W. Cross

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R. Ledgerwood

Rockwell International

Atomics International Division
Rockwell Hanford Operations
Richland, WA 99352

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PASCO BASIN STRATIGRAPHIC NOMENCLATURE

R. K. Ledgerwood
C. W. Myers
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Waste Isolation Program
Basalt Geosciences Unit
Research Department
Research and Engineering

May 4, 1978

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Richland, Washington 99352

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The enclosed chart represents the stratigraphic nomenclature used by the Waste Isolation Program in the Pasco Basin, Washington as of May 4, 1978.

An attempt has been made to use currently accepted regional nomenclature and symbols for stratigraphic units of member rank.[1-6] Informal nomenclature is used for stratigraphic units of flow and bed rank; this usage is consistent with the Code of Stratigraphic Nomenclature, Article 8, Remark (a).[7]

Note that the first letter of the symbol for members indicates the system and the second letter indicates the member name -- not the formation name. For example, Tp indicates Tertiary System, Pomona Basalt Member. This method permits greater flexibility for avoiding long, complex letter symbols on detailed maps and cross sections showing units below member rank.

It is expected that this terminology will evolve, undergoing changes as additional work is conducted in the Pasco Basin and across the Columbia River Plateau.

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PASCO BASIN STRATIGRAPHIC NOMENCLATURE

FORMATION	MEMBER		FLOW OR BED	LITHOLOGY	
ALLUVIUM, COLLUVIUM, & EOLIAN SEDIMENTS OF HANFORD					
		C^{14} Age			
		6,600	MAZAMA ASH	ASH FALL, CRATER LAKE, OREGON	
		12,500	GLACIER PEAK ASH	ASH FALL, GLACIER PEAK, WASHINGTON	
GLACIOFLUVIAL SEDIMENTS OF HANFORD		>12,000 <18,000	ST. HELENS ASH	ASH FALL, MT. ST. HELENS, WASHINGTON	
			TOUCHET SILTS, SANDS, & PASCO GRAVELS	FINE GRAINED FACIES OF GLACIOFLUVIAL DEPOSITS, BEDDED	
				COARSE TO MEDIUM GRAINED FACIES OF GLACIOFLUVIAL DEPOSITS, CUT AND FILL STRUCTURE	
			PALOUSE SOIL	CALCAREOUS SAND, SILT, AND EOLIAN DEPOSITS	
RINGOLD FORMATION			(UPPER) RINGOLD	SILT AND SAND, SOME GRAVEL, FLUVIAL, WELL BEDDED, LOCALLY CAPPED BY CALICHE	
			(MIDDLE) RINGOLD	SAND AND GRAVEL, WELL SORTED, COMPACT BUT VARIABLY CEMENTED	
			(LOWER) RINGOLD	SILT AND CLAY, INTERBEDDED GRAVEL AND SAND, CLAY IS CHARACTERISTICALLY BLUE BUT MAY BE GREEN, BROWN, OR TAN	

K-Ar Age m.y.	MEMBER	(Geologic Symbol)	FLOW OR BED	LITHOLOGY	Magnetic Polarity	
						N = Normal R = Reversed T = Transitional
6.0	LOWER MONUMENTAL MEMBER 1)		GOOSE ISLAND	BASALT, PHYRIC	N	
			MARTINDALE		R	
8.5	ICE HARBOR MEMBER	(Ti)	BASIN CITY		N	
	BUFORD MEMBER 1)		LEVY BED	TUFF AND TUFFACEOUS SANDSTONE		
10.5	ELEPHANT MOUNTAIN MEMBER	(Tem)	WARD GAP FLOW	BASALT, APHYRIC	N-T	
			ELEPHANT MOUNTAIN FLOW			
			RATTLESNAKE RIDGE MEMBER (Ter)	SANDSTONE, TUFFACEOUS		
	(UNNAMED)		MATTAWA FLOW	BASALT, APHYRIC	N	
12.0	POMONA MEMBER	(Tp)	POMONA FLOW	BASALT, PHYRIC	R	
			SELAH MEMBER (Tes)	SANDSTONE, TUFFACEOUS		
	ESQUATZEL MEMBER	(Te)	GABLE MOUNTAIN FLOW NO. 2	BASALT, LOCALLY PHYRIC	N	
			GABLE MOUNTAIN BED	TUFF, DISCONTINUOUS		
			GABLE MOUNTAIN FLOW NO. 1	BASALT, LOCALLY PHYRIC	N	
	WEISSENFELS RIDGE MEMBER 1)		COLD CREEK BED	SANDSTONE, LOCALLY TUFFACEOUS AND CONGLOMERATIC		
	ASOTIN MEMBER	(Ta)	HUNTZINGER FLOW	BASALT, APHYRIC, COARSELY PHANERITIC, AND VERTICALLY DIFFERENTIATED LOCALLY	N	
	WILBUR CREEK MEMBER	(Tw)	WAHLUKE FLOW	BASALT, APHYRIC	N	
	UMATILLA MEMBER	(Tu)	SILLUSI FLOW	BASALT, APHYRIC	N	
			UMATILLA FLOW		N	
<13.6			MABTON MEMBER (Tema)	SANDSTONE, LOCALLY CONGLOMERATIC		
	PRIEST RAPIDS MEMBER	(Tpr)	PRIEST RAPIDS FLOW NO. 4	BASALT, APHYRIC	R	<(Tepi) ?
			PRIEST RAPIDS FLOW NO. 3		R	
			PRIEST RAPIDS FLOW NO. 2		R	
			PRIEST RAPIDS FLOW NO. 1		R	
			QUINCY ?			
	ROZA MEMBER	(Tr)	ROZA FLOW NO. 2	BASALT, PHYRIC	T	
			ROZA FLOW NO. 1		T	
			SQUAW CREEK MEMBER (Tesq)	DIATOMITE		
	FRENCHMAN SPRINGS MEMBER	(Tf)	SENTINEL GAP FLOW	BASALT, LOCALLY PHYRIC (Tfp) APHYRIC (Tf)	N	
			SAND HOLLOW FLOW (OTHERS PROBABLY OCCUR)		N	
			GINKO FLOW		N	
			VANTAGE MEMBER (Tev)	SANDSTONE		
~14.5	ECKLER MOUNTAIN MEMBER 1)					TiO_2 horizon
	BASALT SEQUENCE OF SENTINEL BLUFFS	(Tsb)	MUSEUM FLOW	BASALT, APHYRIC	N	
			ROCKY COULEE FLOW		N	
			FLOW J		N	
			FLOW I		N	
			FLOW H		N	
			FLOW G		N	
			FLOW F		N	
			FLOW E		N	
			FLOW D ≈ UMTANUM (Tsu)		N	← MgO horizon
	BASALT SEQUENCE OF SCHAWANA	(Ts)	1 TO 3 "LOW K_2O" GRANDE RONDE BASALT FLOWS	BASALT, APHYRIC		
			FLOW C		N	
			FLOW B		N	
			FLOW A		R	Normal (N_2 ?) Reversed (R_2 ?) — Probable position of a regionally recognized paleomagnetic horizon (Swanson and others, 1977)
	UNNAMED		AT LEAST 15 FLOWS (CURRENTLY KNOWN ONLY FROM DEEP BOREHOLES)	BASALT, APHYRIC	Unknown	
>15.4						

Age ? — OLDER COLUMBIA RIVER BASALT GROUP ROCKS

Age ? — PRE-COLUMBIA RIVER BASALT GROUP ROCKS INTERPRETED TO EXIST IN LOWER PART OF BOREHOLE RSH-1

COLUMBIA RIVER BASALT GROUP — YAKIMA BASALT SUBGROUP — GRANDE RONDE BASALT (Undifferentiated Grande Ronde Basalt - Tgr) — WANAPUM BASALT — SADDLE MOUNTAINS BASALT — BEVERLY (Tes) FORMATION — ELLENSBURG (NOMENCLATURE NOT FORMALIZED)

1) MEMBER KNOWN FROM AREAS OUTSIDE THE PASCO BASIN, BUT NOT RECOGNIZED TO DATE WITHIN THE PASCO BASIN.

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