UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY 200 MI Z Symbol Station Number 0 U ECI 0.02 F 600 E 400 200) AT 200 20.6 HI 0 50 ERRATA Paragraphs 2-4 under "Water-Quality Sampling Program" on sheet 1 should read as paragraphs 3-5 under "Stream Composition and Discharge" on sheet 2. AUG 27 1973 is for a shorter period of time. of the bankfull discharge. Base from U.S. Geological Survey 1:250,000 Maps



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# STREAM COMPOSITION AND DISCHARGE

solids concentrations are usually highest during periods of low flow. At times of low flow, water reaches a stream only after a slow subsurface journey which often spans a considerable distance. During its underground passage, the water dissolves a large variety of chemical constituents from the soil and rocks. During high-flow periods, water movement, either overland or through the upper soil layers, is much more rapid than at low flow. High-flow runoff is much more dilute than low flow because its contact with the soil and rocks

In the White Cloud Peaks area, maximum concentrations of dissolved solids for a given stream are commonly two to five times the minimum concentrations. Since this variation in concentration for a given stream may exceed the variation in concentration for a common occurrence of flow between streams, a comparison of composition between streams must be made for concentrations representative of a given occurrence or frequency of flow. Flow dur-ation and frequency data were not available for the majority of the water-data stations in the present study. Alternatively, the channel geometry in the vicinity of each water-data station was surveyed and the discharge corresponding to bankfull stage was determined. Using flow-frequency data available from some of the stations, a recurrence interval of about 1.5 years was assigned to bankfull discharge. Likewise, values of flow duration or flow frequency were assigned to other values of the ratio of discharge to bankfull discharge. With considerable consistency, average annual discharge is about equal to one-fourth

Element	Number of samples collected	Samples containing detectal level of element	
		(number)	(percent)
Aluminum	52	51	98.1
Arsenic	42	24	57.1
Barium	51	20	39.2
Beryllium	51	6	11.8
Boron	50	33	66.0
Cadmium	52	6	11.5
Chromium	44	6	13.6
Cobalt	52	15	28.8
Copper	52	46	88.5
Iron	52	50	96.2
Lead	52	24	46.2
Lithium	52	35	67.3
Manganese	52	30	57.7
Mercury	52	45	86.5
Molybdenum	51	39	76.5
Nickel	52	34	65.4
Selenium	51	33	64.7
Silver	52	0	.0
Strontium	52	51	98.1
Vanadium	52	39	75.0
Zinc	52	33	63.5

QUALITY OF STREAM WATERS OF THE WHITE CLOUD PEAKS AREA, IDAHO BY WILLIAM W. EMMETT

1972

