

STUDIES RELATED TO WILDERNESS

The Wilderness Act (Public Law 88-577, September 3, 1964) and related acts require the U.S. Geological Survey and the U.S. Bureau of Mines to survey certain areas on Federal lands to determine their mineral resource potential. Results must be made available to the public and be submitted to the President and the Congress. This report presents the results of a geochronological survey of the Western Chichagof-Yakobi Islands Wilderness Study Area in the Tongass National Forest, Alaska. About 65 percent of the study area was established as a wilderness on December 2, 1980, under the Alaska National Interest Lands Conservation Act (P.L. 96-487).

In the course of the U.S. Geological Survey investigations of the Western Chichagof-Yakobi Islands Wilderness Study Area, 2,730 bedrock geochronological samples were collected. Samples were analyzed for 31 elements by a dry, nondestructive spectrophotometric method (Grimes and Marzouk, 1968) and for 4 elements by atomic absorption spectrophotometry (Ward and others, 1969). Complete analytical data, station coordinates, and a station location map are available in two reports: Johnson, 1982, and Johnson and Elliott, 1984. A map and discussion of the mineral resource potential of the study area is also available (Johnson, Kimball, and Still, 1982).

Background levels for each element vary for different lithologies in the study area. Because of this and variability introduced from other sources such as sampling technique, analytical variance, and chemical weathering, it is impossible to select a chemical analytical level which values indicate mineralization. Higher values may indicate a greater level of bedrock mineralization, but confidence levels are low for single element high values and values. This map shows the distribution of high yttrium as well as the location of all 2,730 sample sites representing multiple samples at that site. Although not of economic interest in this area, these patterns, or indicators of economic mineralization in other elements. In a statistical analysis of similar geochronological data from Glacier Bay National Monument, high values for scandium and yttrium were found to correlate with high values for metals of economic importance (Johnson, 1978).

REFERENCES CITED

- Grimes, D. J., and Marzouk, A. P., 1968, Direct-current arc and alternating-current spark emission spectrophotometric methods for the simultaneous analysis of geologic materials: U.S. Geological Survey Circular 591, 6 p.
- Johnson, B. R., 1978, Statistical analysis of geochronological data from Glacier Bay National Monument, Alaska: U.S. Geological Survey Open-File Report 78-495, 16 p.
- Johnson, B. R., 1982, Magnetic tape containing trace element data for bedrock geochronological samples from the West Chichagof-Yakobi Islands Wilderness Study Area, southeastern Alaska: National Technical Information Service Report No. D805-DB-82-005, computer tape, 1 vol.
- Johnson, B. R., and Elliott, G. S., 1984, Map showing bedrock geochronological station locations, Western Chichagof-Yakobi Islands Wilderness Study Area, southeastern Alaska: U.S. Geological Survey Open-File Report 81-0027-A, scale 1:125,000.
- Johnson, B. R., and Karl, S. W., 1982, Reconnaissance geologic map of the Western Chichagof and Yakobi Islands Wilderness Study Area, southeastern Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-1476-A, scale 1:125,000.
- Johnson, B. R., Kimball, A. L., and Still, J. D., 1982, Mineral resource potential map of the Western Chichagof and Yakobi Islands Wilderness Study Area, southeastern Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-1476-B, scale 1:125,000.
- Ward, F. R., Nakagawa, R. M., Hama, T. P., and Van Sickle, C. R., 1969, Atomic absorption methods of analysis useful in geochronological exploration: U.S. Geological Survey Bulletin 1289, 45 p.

LIST OF MAP UNITS

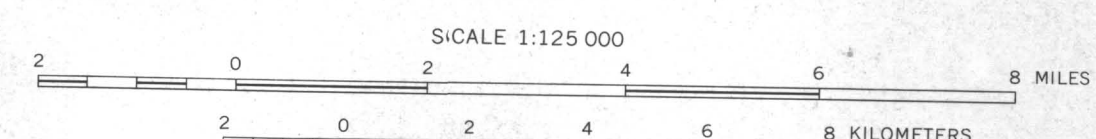
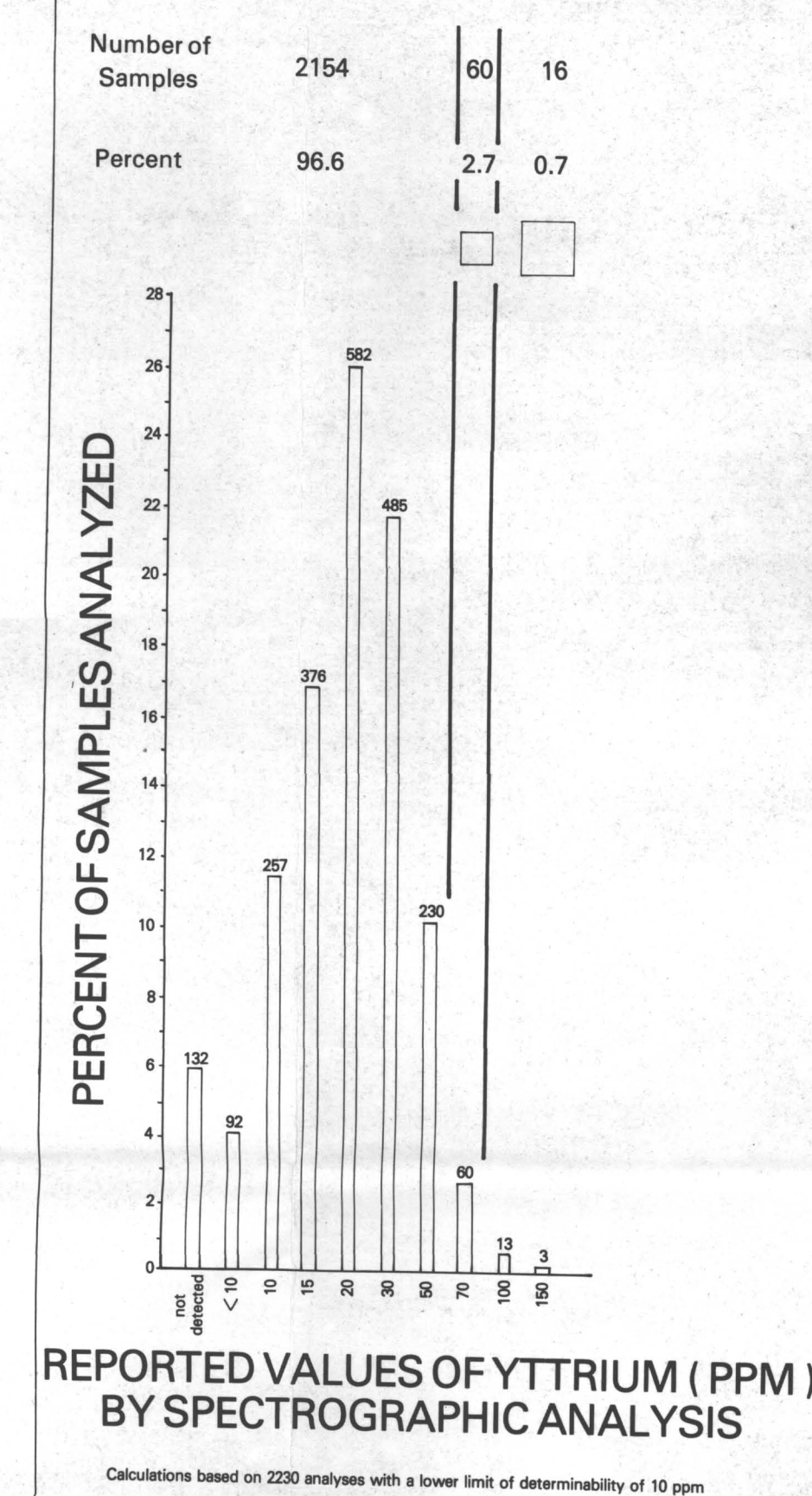
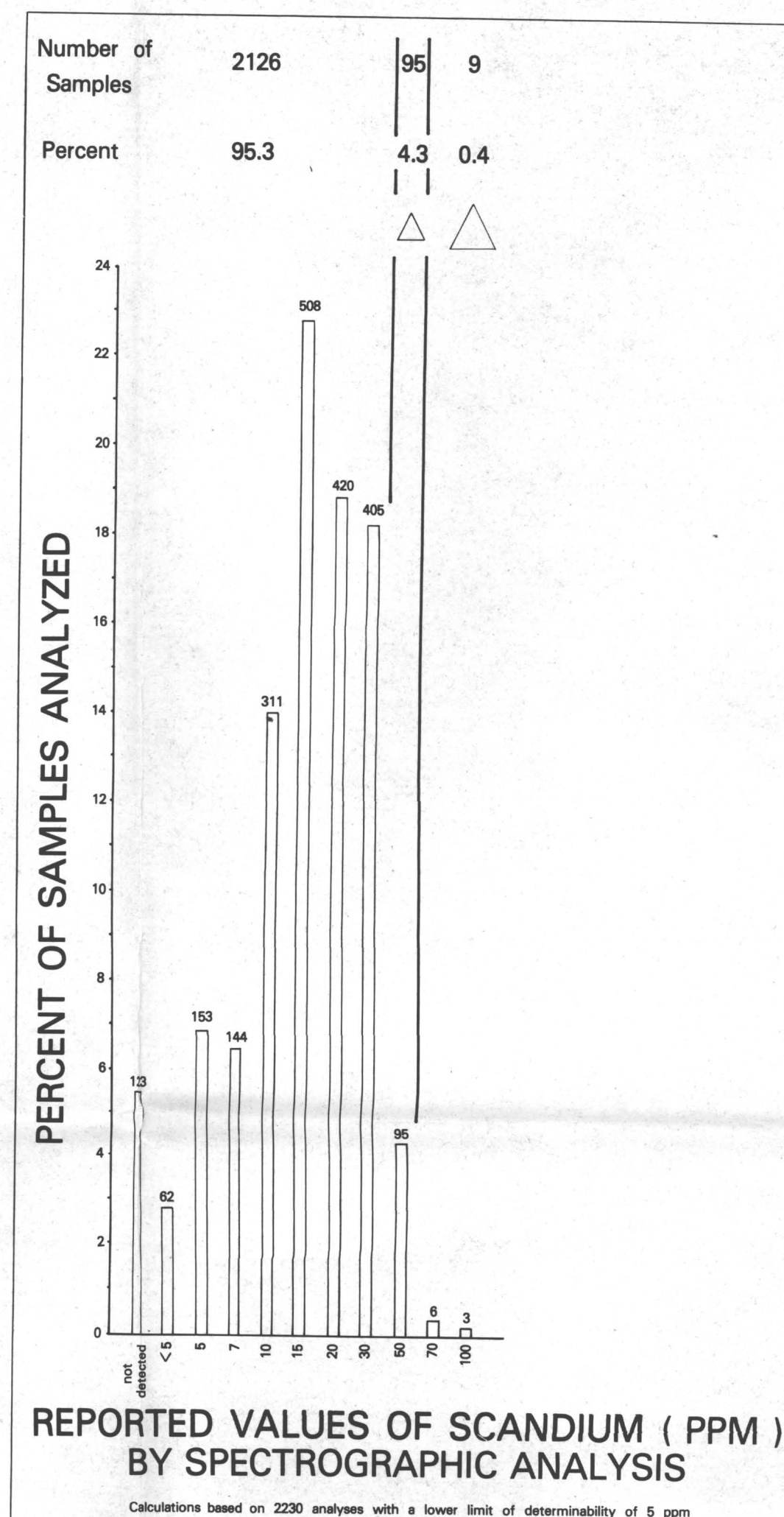
Qal	Alluvial deposits, undivided
Tt	Tertiary plutonic rocks
Wt	Neofe plutonic rocks
Wt	Neofe sill, extensively altered
Wt	Silica Group
Wt	Neofe plutonic rocks
Wt	Neofe plutonic rocks
Wt	Whitetrage Marble
Wt	Good Hope Gneiss
Wt	Undivided metamorphic, metasedimentary, and metaplutonic rocks

CORRELATION OF MAP UNITS

Qal	QUATERNARY
Tt	TERTIARY (?)
Wt	CRETACEOUS (?)
Wt	CRETACEOUS
Wt	CRETACEOUS AND JURASSIC
Wt	TRIASSIC (?)
Wt	MEZOZOIC AND PALEOZOIC

SYMBOLS

- Contact, approximately located, dotted where concealed
- Boundary of study area
- *
- Geochemical sample site
- △
- Scandium = 50 ppm
- △
- Scandium > 50 ppm
-
- Yttrium = 70 ppm
-
- Yttrium > 70 ppm



MAP SHOWING THE DISTRIBUTION AND ABUNDANCE OF SCANDIUM AND YTTRIUM IN BEDROCK SAMPLES, WESTERN CHICHAGOF AND YAKOBI ISLANDS WILDERNESS STUDY AREA, SOUTHEASTERN ALASKA

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1984

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards, but the geochronological nomenclature has been approved previously.