DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

FOLIO OF THE
GOODNEWS AND HAGEMEISTER ISLAND QUADRANGLES REGION
OPEN FILE REPORT 78-9-0

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HISTOGRAMS

THESE MANUALLY DERIVED HISTOGRAMS GRAPHICALLY ILLUSTRATE THE FREQUENCY AND ABUNDANCE OF ZINC CONCENTRATIONS REPORTED IN TABLES OF GEOCHEMICAL ANALYSES (HESSIN AND OTHERS, 1978; EAKINS, 1968, 1969). COMPUTER-GENERATED HISTOGRAMS AND RELATED STATISTICS FROM DATA OF HESSIN AND OTHERS (1978) ARE INCLUDED WITH THE GEOCHEMICAL ANALYSES IN THEIR REPORT.

PERCENTILE 95 97

PAN CONCENTRATE
NON-MAGNETIC FRACTION

MEAN: 230 PPM

MINUS-80-MESH STREAM SEDIMENT

(ATOMIC ABSORPTION)

MEAN: 110 PPM

PARTS PER MILLION

(ATOMIC ABSORPTION)

Wood River Lakes Area (Eakins, 1968, fig.)

MEAN: 130 PPM

(OXALIC ACID LEACHATE)

MEAN: 680 PPM

WILLOW LEAVES

MEAN: 1700 PPM

PARTS PER MILLION

CONCENTRATION (PPM)

(AREA OF REPORT: Barnes and others,1976)

(AREA OF REPORT: CLARK, GRYBECK. GREENWOOD and others. 1978
CLARK, GRYBECK, HESSIN and others, 1978

(AREA OF REPORTS: Eakins, 1968 and 1969)

EXPLANATION

GEOLOGY GENERALIZED FROM HOARE AND COONRAD (1978)

CORRELATION OF MAP UNITS

SURFICIAL DEPOSITS

Qs — QUATERNARY

VOLCANIC, SEDIMENTARY, AND METAMORPHIC ROCKS

INTRUSIVE ROCKS

Qtb	Pleistocene	QUATERNARY
QTs	Plio-Pleistocene	QUATERNARY or TERTIARY
Tv	Early Tertiary	TERTIARY
Tif Tim Tn		TERTIARY
Tkg		TERTIARY AND CRETACEOUS
Ks	Late Cretaceous and Maestrichian ?	CRETACEOUS
Ks Ku Kls Klg	Upper and Lower Cretaceous / Lower Cretaceous	
KJvs	Lower Cretaceous to Middle Jurassic	CRETACEOUS AND JURASSIC
Jk Jvs	Middle to Lower Upper Jurassic	JURASSIC
Jtvs	Lower Jurassic	
Js Jun Jl		JURASSIC AND JURASSIC ?
MzPz	Lower Cretaceous to Lower Ordovician ?	MESOZOIC AND PALEOZOIC
Pzss	PALEOZOIC	Pzmg PALEOZOIC ?
pCk	PRE-CAMBRIAN	

DESCRIPTION OF MAP UNITS

SURFICIAL DEPOSITS

Qu — UNCONSOLIDATED SEDIMENTARY DEPOSITS

SEDIMENTARY, VOLCANIC, AND METAMORPHOSED ROCKS

Qtb — TOLUKAK BASALT

QTs — UNCONSOLIDATED MARINE BEACH SEDIMENTS

Tv — VOLCANIC ROCKS AND VOLCANOGENIC SEDIMENTS - Chiefly andesitic flows and tuffs

Tn — SUMMIT ISLAND FORMATION - Nonmarine conglomerate, sandstone, shale, and carbonaceous mudstone

Kk — KUSKOKWIM GROUP - Conglomerate overlain by interbedded graywacke, siltstone, and shale; commonly volcanoclastic mostly marine

Kn — BUCKEA RIDGE GRAYWACKE - Chiefly interbedded calcareous graywacke, siltstone, and conglomerate with local coquinas of Aucella sheells

Klg — LIMY GRIT AND LIMESTONE - Chiefly angular grit cemented by bioclastic limestone

Klv — TUFFS AND SEDIMENTARY ROCKS - Varied assemblage of andesitic tuffs, graywacke, siltstone, impure limestone, and tuffaceous cherts, tuff and tuffaceous sediments commonly leamonitized

Kcg — GRAYWACKE AND CONGLOMERATE - Marine graywacke, siltstone, and conglomerate; commonly calcareous

KJvs — VOLCANIC AND SEDIMENTARY ROCKS - Interbedded intermediate to mafic flows, tuffs, tuffaceous sedimentary rocks, and argillite; intermediate composition tuffaceous rocks commonly leamonitized

Jk — KOLUKAK GRAYWACKE - Chiefly very hard Iithic graywacke and siltstone with local conglomerate

Jvs — VOLCANIC AND SEDIMENTARY ROCKS - Andesitic, trachytic, and basaltic flows and breccias interbedded with volcanogenic sedimentary rocks

Jtvs — VOLCANIC AND SEDIMENTARY ROCKS - Mafic flows and breccias interbedded with volcanogenic sedimentary rocks; fractures commonly coated with leamonite

MzPz — MESOZOIC AND PALEOZOIC ROCKS UNDIVIDED - Widespread marine unit including mafic to intermediate volcanic rocks, tuffaceous sedimentary rocks, chert, argillite, siltstone, graywacke, conglomerate, and limestone

Mrk — VOLCANIC AND SEDIMENTARY ROCKS (Upper Triassic) - Locally differentiated marine unit of chert, tuffaceous cherty rocks, argillite, siltstone, wacke, conglomerate, limestone, and mafic flows and breccia

Pv — VOLCANIC ROCKS (Permian) - Locally differentiated marine unit of pillow basalts, massive mafic flows, breccia, and tuff

Pl — LIMESTONE (Permian) - Locally differentiated thin unit of marine limestone; generally tuffaceous, commonly has strong fetid odor

DOl — LIMESTONE - Thin-bedded to massive limestone with minor interbedded tuff and mafic flows; locally recrystallized to marble with interbedded quartzite and quartz-chlorite schist

Pzcs — CALCAREOUS SCHIST (Paleozoic or older?)

pCm — KANEKTOK METAMORPHIC COMPLEX - Gneiss, schist, amphibolite, and marble; upper greenschist to lower amphibolite facies

pCl — MARMORIZED LIMESTONE - Locally differentiated

INTRUSIVE ROCKS

Tif — FELSIC INTRUSIVE ROCKS - Chiefly rhyolitic to dacitic dikes and sills; locally mapped

Tim — MAFIC INTRUSIVE ROCKS - Diabase, basalt, dioritic, and gabbroic dikes and sills locally mapped

Tx — WANGKARUM COMPLEX - Quartz-rich porphyritic felsite intrusive-extrusive complex of dikes, sills, tuff, and breccias

TKg — GRANITIC ROCKS - Chiefly quartz monzonite, granodiorite, and quartz diorite stocks

Jk — GABBROIC ROCKS - Commonly shows compositional layering and generally associated with ultramafic rocks

Jum — ULTRAMAFIC ROCKS - Serpentinite, dunite, and websterite

Jt — TRONDHJEMITE - Associated with serpentinite and gabbro

Pzmg — METAGABBRO AND GREENSTONE - Probable dismembered ophiolite complex of mafic flows, dikes, volcaniclastic rocks, and gabbro altered by greenschist facies metamorphism and calcium metasomatism

GEOLOGIC SYMBOLS

Contact. Known, approximately located, gradational, and inferred. Most contacts between bedded rock units are probably faults

Fault or fault zone. Dashed where approximately located, inferred, or concealed

Thrust fault. Dashed where approximately located, inferred, or concealed. Sawteeth on upper plate

Hornfels

GEOCHEMICAL SYMBOLS

RM — RED MOUNTAIN ULTRAMAFIC BODY

RMCZ — RED MOUNTAIN CONTACT ZONE

GEOCHEMICAL SAMPLE SITES

- ROCK (CLARK, GRYBECK, GREENWOOD, AND OTHERS, 1978; COONRAD, AND OTHERS, 1978)
- CONCENTRATE (OVERSTREET, AND OTHERS, 1973)
- OFFSHORE AND ONSHORE SEDIMENTS (BARNES, AND OTHERS, 1978)
- BEACH AND STREAM SEDIMENTS (BERRYHILL, 1963)
- STREAM DRAINAGE SEDIMENT (HESSIN, AND OTHERS, 1978)
- STREAM DRAINAGE SEDIMENT (CLARK, GRYBECK, HESSIN, AND OTHERS, 1978)
- STREAM DRAINAGE SEDIMENT (EAKINS, 1968, 1969)

ABUNDANCE

▼200 — NUMBER WITH SOLID ROCK SAMPLE-SITE SYMBOL REPRESENTS GEOCHEMICAL CONCENTRATION IN PARTS PER MILLION (PPM)(✱ INDICATES ATOMIC-ABSORPTION)

● — SOLID STREAM-DRAINAGE SAMPLE-SITE SYMBOL INDICATES GEOCHEMICAL ABUNDANCE OF 90TH PERCENTILE VALUE OR GREATER IN TWO OR MORE GEOCHEMICAL DETERMINATIONS AS SHOWN IN HISTOGRAMS

○ □ ◇ — ABUNDANCE SYMBOLS REPRESENTING 95TH PERCENTILE OR GREATER CONCENTRATIONS DETERMINED IN STREAM-DRAINAGE SITE SAMPLES ARE SHOWN WITH HISTOGRAMS

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Hoare, J. M., Coonrad, W. L., Hessin, T. D., Barnes, D. F., Clark, A. L., Griscom, Andrew, Singer, D. A., and Steele, W. C., 1978, The Alaskan Mineral Resources Assessment Program; background information to accompany folio of geologic, geochemical, geophysical, and mineral resource maps of the Goodnews and Hagemeister Island quadrangles region, southwestern Alaska: U.S. Geol. Survey Open-file Rept. 78-9.

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DISCUSSION OF GEOCHEMISTRY

THIS REPORT SHOWS THE DISTRIBUTION AND ABUNDANCE OF ZINC AS GEOCHEMICALLY DETERMINED IN VARIOUS SAMPLE MEDIA COLLECTED FROM LOCATIONS THROUGHOUT THE GOODNEWS AND HAGEMEISTER ISLAND QUADRANGLES REGION. DATA PRESENTED HAVE BEEN COMPILED FROM ANALYSES AND LOCATIONS REPORTED BY BARNES AND OTHERS (1978); BERRYHILL (1963); CLARK, GRYBECK, GREENWOOD, AND OTHERS (1978); CLARK, GRYBECK, HESSIN, AND OTHERS (1978); COONRAD AND OTHERS (1978); EAKINS (1968, 1969); HESSIN AND OTHERS (1978); AND OVERSTREET AND OTHERS (1973).

THE INCLUDED HISTOGRAMS HAVE BEEN USED TO IDENTIFY CONCENTRATIONS OF ZINC THAT MIGHT BE ANOMALOUS. HOWEVER, THE GENERALIZED GEOLOGIC MAP DATA INCLUDED IN THIS REPORT AND THE MORE DETAILED GEOLOGIC MAP OF THE REGION (HOARE AND COONRAD, 1978) SHOULD BE UTILIZED IN CONSIDERING POSSIBLE SOURCE ROCKS AND SIGNIFICANCE OF THE ZINC THAT HAS BEEN DETECTED IN VARIOUS GEOCHEMICAL SAMPLES.

BASE MAP INDEX

Base compiled from U.S. Geological Survey 1:63,360 (A) and 1:250,000 (B) scale topographic series 1952-1977 and advance field completion material (C) 1976 by Menlo Park Base Map Section

SCALE 1:250 000

CONTOUR INTERVALS 50, 100 AND 200 FEET
DATUM IS MEAN SEA LEVEL

BACKGROUND INFORMATION RELATING TO THIS REPORT IS PUBLISHED AS U.S. GEOLOGICAL SURVEY OPEN-FILE REPORT 78-9
AVAILABLE FROM THE SAME SOURCE AS THE MAP.

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

GEOCHEMICAL AND GENERALIZED GEOLOGICAL MAP SHOWING DISTRIBUTION AND ABUNDANCE OF ZINC IN THE GOODNEWS AND HAGEMEISTER ISLAND QUADRANGLES REGION, SOUTHWESTERN ALASKA

BY

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1978