



ANOMALOUS GOLD, SILVER, ARSENIC, AND BARIUM

EXPLANATION
 ○ SAMPLE LOCALITY—on small inset map
 ● SAMPLE LOCALITY—on large map
 ○ SAMPLE QUADRANT—each quadrant shows anomalous silver (Ag), barium (Ba), gold (Au), and arsenic (As).
 Radius of quadrant shows percent of element present. See table below.

Radius	Ag	Ba	Au	As
0.7
1.0	1000	0.1	200	
3.0	1500	.5	300	
5.0	2000	1.0	1000	

DESCRIPTION OF MAP UNITS

SURFICIAL DEPOSITS (HOLOCENE AND PLEISTOCENE) - Unconsolidated alluvium, alluvial fans, and glacial, marine, lake, swamp, colluvial, and landslide deposits; mainly silt, sand, gravel, pumice, and rock fragments.

BEAR LAKE FORMATION (MIOCENE) - Sandstone, siltstone, shale, minor coal, and conglomerate; nonmarine.

YOLSTE FORMATION (Eocene and Paleocene) - Sandstone, conglomerate, siltstone, shale, coal, and tuff; dominantly volcaniclastic and nonmarine.

HODDGE AND CHODER FORMATIONS, UNDIVIDED (UPPER CRETACEOUS) - Hodge Formation: dark muscovite-bedded siltstone and shale; minor thin sandstone, deep-water marine. Choder Formation: sandstone, conglomerate, siltstone, and shale, mainly shallow marine.

STANLEYHOVEN AND MANER FORMATIONS, UNDIVIDED (LOWER CRETACEOUS AND UPPER JURASSIC) - Stanleyhoventh Formation of Late Jurassic and Early Cretaceous age: thin-bedded feldspathic sandstone, commonly laminitic; siltstone, siltstone, and shale. Maner Formation of Late Jurassic age: thin-bedded sandstone and conglomerate in lower part; abundant granitic- and metamorphic rock clasts in upper part; massive, lower part consisting of flint.

SHELBY FORMATION (MIDDLE JURASSIC) - Dark siltstone and shale with limestone concretions, sandstone, and conglomerate; nonmarine to near-shore marine, and deep-water turbidite.

KALAGAYE FORMATION (MIDDLE AND LOWER JURASSIC) - Sandstone, siltstone, mudstone, and shale; mainly shallow water marine.

TALKEETNA FORMATION (LOWER JURASSIC) - Turfaceous sandstone, siltstone, and limestone; minor bedded tuff.

LIMESTONE (UPPER PERMIAN) - Light-gray massive crystalline limestone.

SEDIMENTARY AND VOLCANIC ROCKS

VOLCANIC ROCKS

Qv VOLCANIC ROCKS (HOLOCENE AND PLEISTOCENE) - Block and ash flows, debris flow, volcanic mud flows, cinder cones, one monogenic and dacitic (see flow); includes minor hypabyssal rocks.

Vk VOLCANIC ROCKS (Pliocene to Oligocene) - Basalt, andesite, and dacite lava flows, volcanic breccia, and rubble flows; locally includes hypabyssal rocks.

W WEIGHT FORMATION (OLIGOCENE AND EOCENE) - Basalt flows, volcanic rubble flow, and lahars; locally minor volcanogenic sedimentary rocks.

INTRUSIVE ROCKS

Qz QUARTZ DIORITE (Pliocene to Oligocene) - Aegirine-kyanite plagioclase, hornblende-biotite and pyroxene-quartz diorite; locally medium to coarse grained.

Id INTRUSIVE ROCKS (Pliocene to Oligocene) - Diorite, quartz diorite, hypabyssal andesite and dacite.

Qd QUARTZ DIORITE (MIDDLE AND LOWER JURASSIC) - Medium to coarse grained, hornblende and biotite bearing; part of one Alaska-shoshonite range batholith.

CONTACT—dotted where concealed

FAULT—dotted where concealed; queried where probable; U, uppermost side; O, opposite side. Arrow indicates relative lateral movement.

THRUST OR HIGH-ANGLE REVERSE FAULT—dotted where concealed, sawtooth on upper plate

FOLD—Showing trace of axial plane; dotted where concealed, queried where probable. Arrow indicates direction of plunge

Anticline

Syncline

LINEMENT

VOLCANIC CRATER

VOLCANIC VENT OR CINDER CONE (OTHER THAN WITHIN CRATERS)

HORNRELS

ALTERATION—Includes sericitic alteration and silicification

EXPLORATORY DRILL HOLE

OIL SEEPS

HOT SPRING

COLD SPRING

GAZ SEEP—Carbon dioxide

Table 2.—Emission and generic means for rock-sample geochemistry, UGASHIK and the western part of KARLUK quadrangles, Alaska
 [Upper row for each element is semiquantitative emission spectrometry; lower observation error. M, atomic absorption; S, instrumental analysis; S2, specific ion analysis. FA, Fe; Cu, and Ti in percent, all others in parts per million; N.A., not available]

Element	All rock samples	Sedimentary rocks	Metamorphic rocks	All igneous rocks	Sedimentary rocks	All igneous rocks	Sedimentary rocks	Metamorphic rocks	All igneous rocks	Sedimentary rocks	Metamorphic rocks	All igneous rocks	Sedimentary rocks	Metamorphic rocks	All igneous rocks	Sedimentary rocks	Metamorphic rocks	All igneous rocks	Sedimentary rocks	Metamorphic rocks	
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	
Ag	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
Ba	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Au	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
As	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

MAPS AND TABLES SHOWING DATA AND ANALYSES OF SEMIQUANTITATIVE EMISSION SPECTROMETRY AND ATOMIC-ABSORPTION SPECTROPHOTOMETRY OF ROCK SAMPLES, UGASHIK, BRISTOL BAY, AND PART OF KARLUK QUADRANGLES, ALASKA

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