Special Publication

Bureau of Mines
Mineral Investigations in the Juneau Mining District, Alaska, 1984–1988

Volume 2.–Detailed Mine, Prospect, and Mineral Occurrence Descriptions

Section C

West Lynn Canal Subarea

UNITED STATES DEPARTMENT OF THE INTERIOR

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West Lynn Canal Subarea

By Albert H. Clough and Earl C. Redman

UNITED STATES DEPARTMENT OF THE INTERIOR
Manuel Lujan, Jr., Secretary

BUREAU OF MINES
T S Ary, Director

WEST LYNN CANAL SUBAREA

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WEST LYNN CANAL SUBAREA

By Albert H. Clough[1] and Earl C. Redman[2]

INTRODUCTION

LOCATION, ACCESS AND LAND STATUS

The West Lynn Canal subarea of the Juneau Mining District (JMD) is defined by Lynn Canal on the east, Davidson Glacier to the north, Icy Strait to the south and the Glacier Bay National Park Boundary to the west (figs. C–1 and C–2). This area extends along the mainland west of Juneau (across Lynn Canal) northerly, to approximately 20 miles south of the city of Haines. The only roads in the area are relatively new logging roads at the southern end constructed to support a U.S. Forest Service timber sale. There is also local road access near the community of Excursion Inlet. Access to the remainder of the region is either by boat, aircraft, or foot. Helicopters provide the only time effective access to all but the coastal parts of the West Lynn Canal subarea. Coastal areas may be reached by small boat or float aircraft. There is an unimproved dirt airstrip just north of the mouth of the Endicott River. This airstrip is suitable for use by light aircraft.

The subarea lies within the Tongass National Forest and is managed by the Department of Agriculture, U.S. Forest Service. Approximately two-thirds of the forest lands are open to mineral entry under the current Tongass Land Management plan. The remaining forest lands comprise the Endicott River Wilderness area, which is closed to mineral entry. Private lands within the study area are sparse, with scattered homestead tracts along the coastal regions and in the Excursion Inlet area. Sealaska (Southeast Alaska Regional Native Corporation) also has land selections in the southern Chilkat Range. Tidal and submerged lands are owned by the State of Alaska.

BUREAU INVESTIGATIONS

Bureau investigations in the West Lynn Canal subarea of the JMD began in 1985, and continued seasonally into 1988. Results of the 1985 and 1986 mineral investigations were published as Bureau Open File Report 13–88 (*C–4*).[3] This report deals specifically with investigations in the southern portion of the subarea.

All Bureau investigations in the West Lynn Canal subarea were helicopter supported. Work was staged out of either Juneau or Skagway, with flights conducted on a daily basis into the selected field areas.

First Bureau priority was to examine known mines, prospects, and mineral occurrences within the subarea. Other areas with known favorable geology for hosting mineral deposits were then examined. Geochemical anomalies developed by the U.S. Geological Survey (USGS) and others were used as important tools to guide Bureau investigations into areas with favorable geology and other indicators of mineralization.

The majority of field activities conducted by the Bureau involved brief geologic investigations, supplemented by the collection of rock chip, stream sediment, and pan concentrate samples. Mine and prospect workings (where present and accessible) were selectively mapped and sampled. The area investigated covers parts of the Juneau and Skagway 1:250,000 scale quadrangle maps (fig. C–1).

The Bureau collected over 428 rock samples as part of this investigation. Mines, prospects, and occurrences in this report are discussed by deposit type, with the most significant first. Sample results are listed geographically by location in the Appendix. Sample locations are shown on figures which accompany the text. In most cases, too little information is available to make resource estimates; only the Alaska Endicott Mine and Howard Bay prospect have resource estimates.

ACKNOWLEDGMENTS

The author was assisted by Edmund Fogels (1986–1987), Ken Maas (1986–1988), Lance Miller (1985–1987), Terry Hayden (1986–1987), Richard Giraud (1985), and

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[3] Italic numbers in parentheses refer to list of references preceding the appendixes.

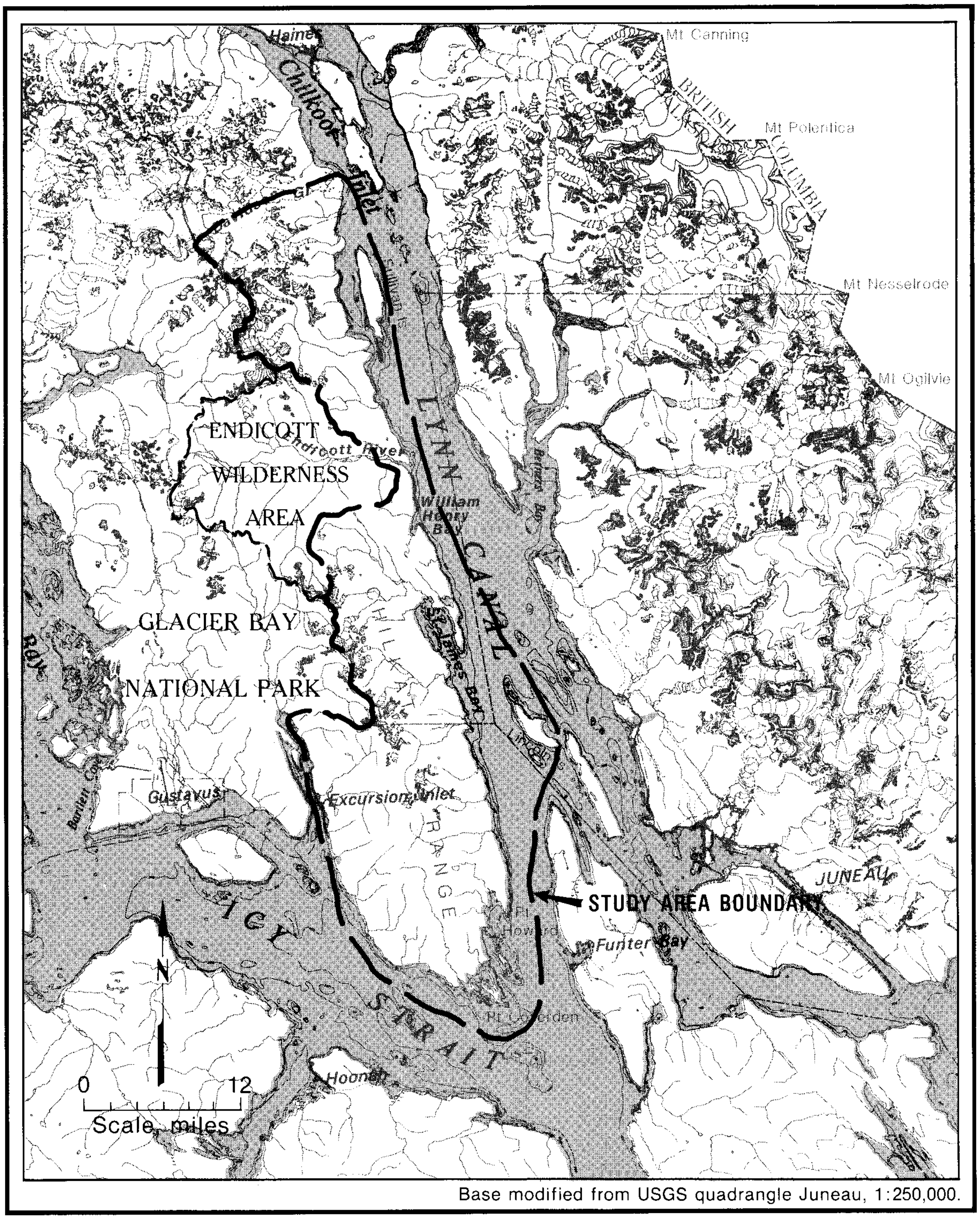

Figure C-1.—West Lynn Canal subarea location map.

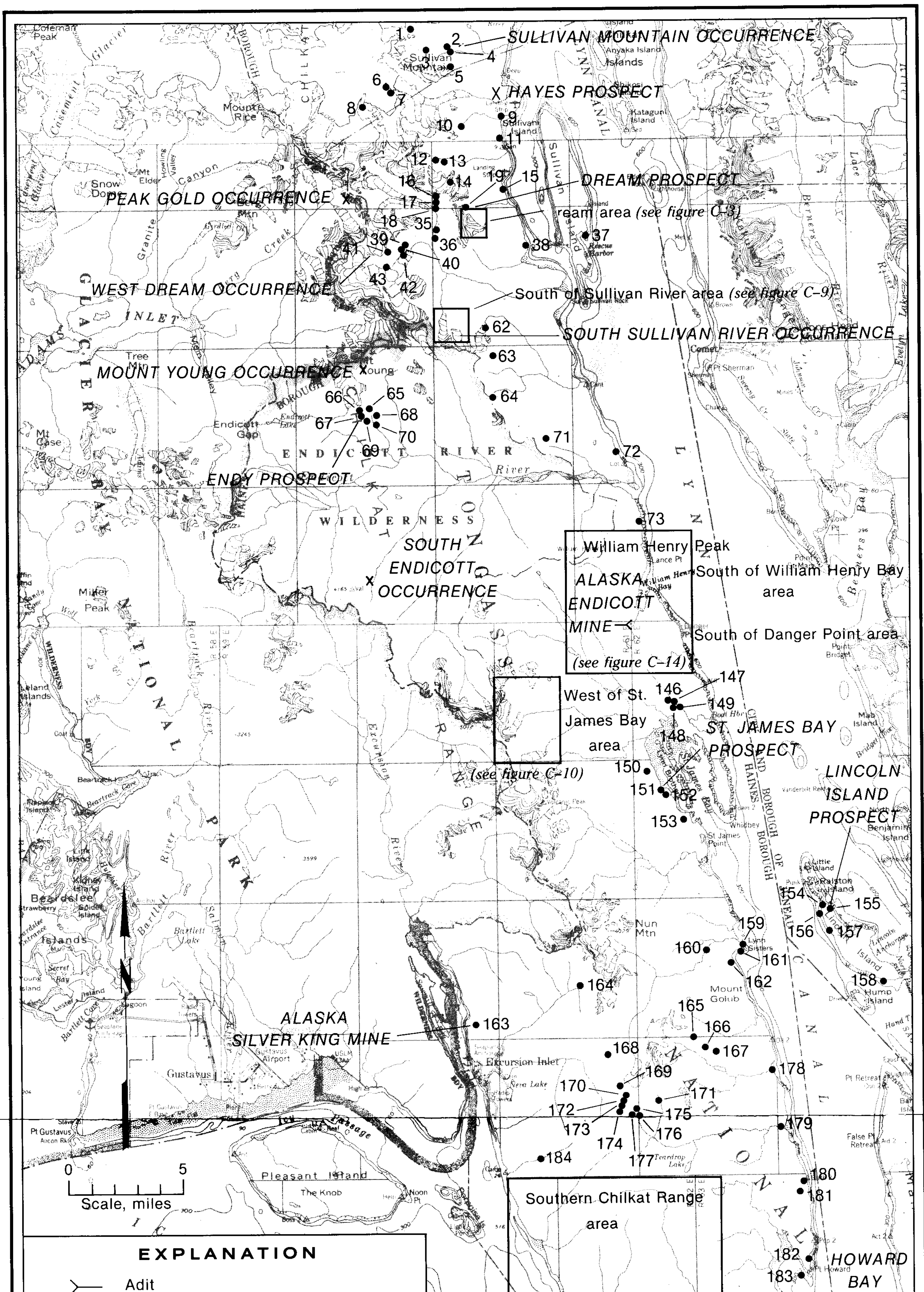

Figure C-2. — West Lynn Canal subarea, mine, prospect, occurrence, and sample location map.

Dennis Southworth (1986). These seasonal Bureau employees contributed greatly to the successful completion of the project. John Barnett, Alaskan Projects Manager, Curator American, Inc., was helpful by allowing Bureau personnel full access to the Dream prospect and in discussions about the geology and mineralization of the Dream area. His cooperation is greatly appreciated. Dale Henkins, local Juneau prospector, provided the Bureau with useful information concerning the subarea's prospects.

GEOLOGIC SETTING

Regional Geology

Bedrock geology of the West Lynn Canal subarea is dominated by rocks of the Alexander tectonostratigraphic terrain. These rocks are predominately metamorphosed Silurian and Devonian clastic sediments, limestone, and volcanic units with local areas of Permian limestone and siltstone. These rocks are intruded by a few scattered Cretaceous plutons (*C-3*).

Metamorphic grade of most of the area is lower greenschist but the grade increases to upper greenschist in the northernmost part of the area.

The southern two-thirds of the West Lynn Canal subarea is underlain by graywacke, mudstone, turbidite, and limestone of the Silurian Point Augusta Formation (*C-3*). The most widespread lithology is calcareous graywacke which contains fragments of carbonate, fossils, feldspar, quartz, and volcanic rocks. Forming a northwest-trending belt through the center of this unit are a series of thick limestone layers which can be traced for over 30 miles along strike.

At Nun Mountain and a few scattered locations to the west, the sediments are intruded by Cretaceous biotite-hornblende granodiorite plutons. The Nun Mountain granodiorite has been dated at 103 Ma (*C-3*).

The northern third of the West Lynn Canal subarea, north of the Endicott River and William Henry Bay area, is underlain by Silurian argillite and graywacke with thick limestone layers of the Point Augusta Formation and by Silurian and Devonian limestone, volcanic rocks, and graywacke of the Glacier Bay sequence, informally named by Brew and Ford (*C-3*). The Point Augusta units increase in metamorphic grade to the north. Another series of thick, northwest-trending limestone beds occur within the Point Augusta Formation.

Volcanic rocks are abundant in the Dream portion of the subarea (figs. C-1 and C-3). In this region tuffs, flows and agglomerates of varying composition are abundant.

A few scattered plutons intrude the Silurian and Devonian rocks in the northern third of the area. All of these intrusions are determined to be Cretaceous in age by Brew and Ford (*C-3*). A cluster of small sheared augite diorite bodies and diabase plugs occurs west of William Henry Bay and a biotite, hornblende quartz monzonite pluton is present north of the bay.

Structure

Three sets of faults cut the West Lynn Canal subarea. These fault sets trend north to northwesterly, northeasterly, and westerly. Most of the faults are mapped as high-angle structures but Brew and Ford (*C-3*) also show two thrust faults, one west of St. James Bay and the other northwest of William Henry Bay. Bureau and Curator American, Inc. mapping at the Dream prospect show other thrust faulting (or possible extensions of thrusting identified by the USGS).

Mineralization

With its diversity of rock types, the West Lynn Canal subarea contains a variety of mineral deposit types. These include stratiform sulfide (both volcanic- and sediment-hosted), vein, skarn, and magmatic uranium.

Known stratiform sulfides occur dominantly in volcanic rocks in the northern third of the area, but stratiform occurrences also are present in sedimentary units in the southern portion. Stratiform sulfides associated with volcanic rocks include the Dream prospect and Sullivan Mountain and West Dream occurrences. Mineral occurrences associated with sedimentary rocks include the area west of St. James Bay and the southern Chilkat Range.

Vein mineralization is found at the Alaska Endicott and Alaska Silver King Mines. In addition, small veins are located throughout the West Lynn Canal subarea. Veins are composed of calcite, quartz, or both and can contain pyrite, chalcopyrite, sphalerite, and galena. Tetrahedrite is likely the source of the silver mineralization at St. James Bay, the Buttercup, and the Alaska Silver King mines.

Skarns are localized around the limestone-bounded margins of the Nun Mountain pluton. Most of these deposits are small copper skarns with abundant garnet and epidote but limited chalcopyrite and sphalerite. These skarns occur near Teardrop Lake.

At William Henry Bay, an altered and brecciated quartz monzonite stock contains small amounts of uranium and thorium.

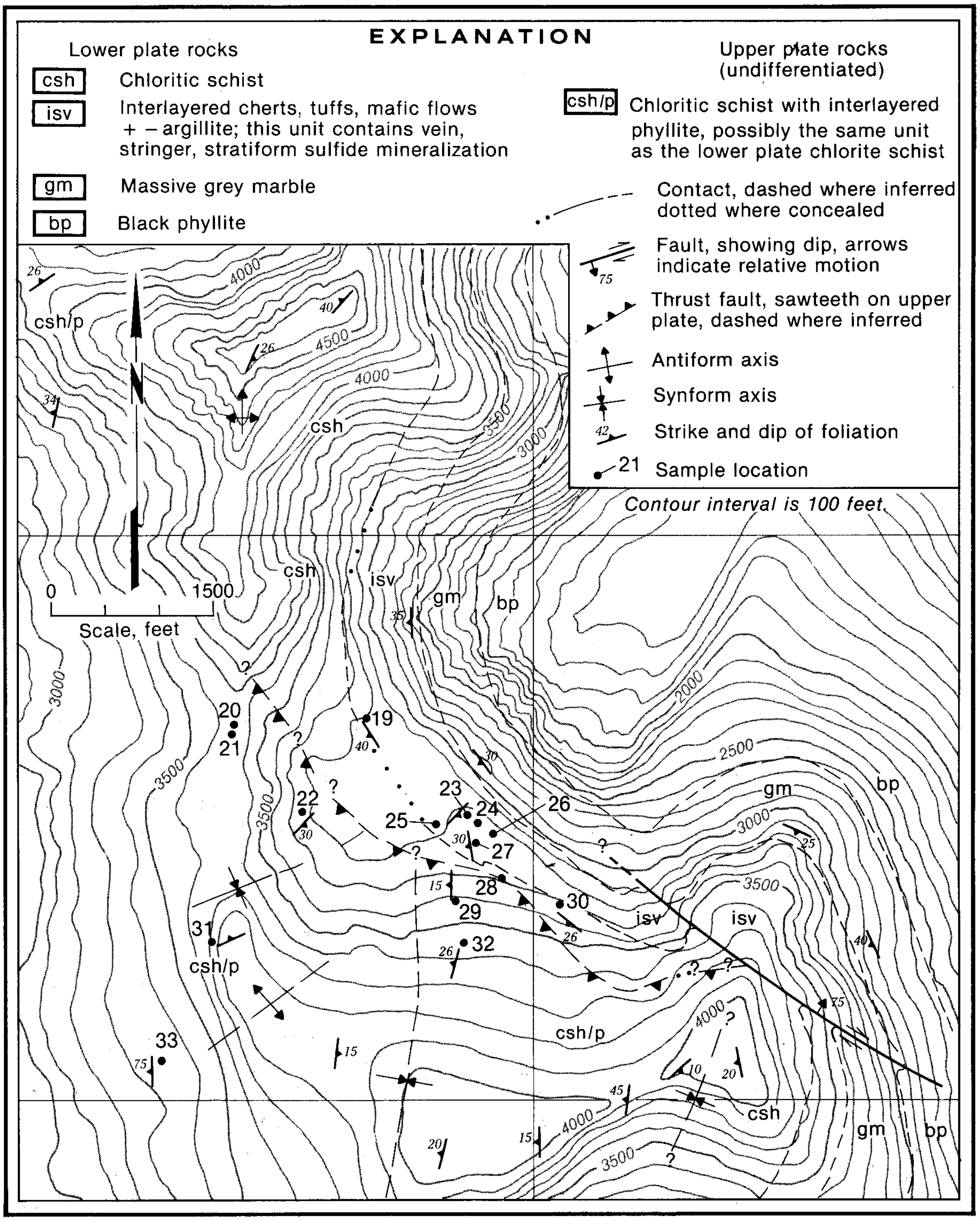

Figure C-3.—Dream Area, sample locations and geology.

VOLCANIC-ASSOCIATED STRATIFORM SULFIDE DEPOSITS

The Bureau examined three volcanic-associated sulfide deposits in the vicinity of the Dream prospect, and one other occurrence at Sullivan Mountain. These occurrences are hosted in andesitic volcanic rocks interbedded with metamorphosed argillite and graywacke. Underlying these rocks is a thick limestone unit. The mineralized rock sequence can be traced from the south Sullivan River area for a distance of at least 15 miles along strike to the north side of the Davidson Glacier.

Sulfide mineralization in this sequence includes massive lenses, pods, and stringers containing one or more of the following minerals: chalcopyrite, pyrite, pyrrhotite, galena, sphalerite, and arsenopyrite.

Occurrences of sulfides in volcanic rocks reported by Lathram and others (*C–7*) west of the Dream prospect and at Mount Young may also be stratiform sulfides.

DREAM PROSPECT

Introduction and Previous Work

The Dream prospect is located on a prominent mountain massif, immediately west of the southern part of Sullivan Island (fig. C-2). This massif is between two unnamed glacial rivers. The southernmost river, locally referred to as the Sullivan River, is the largest and has a prominent delta extending out into Lynn Canal.

One of the earliest reported mineral occurrences in this part of the Chilkat Range was "pyrite in quartz" reported a short distance west of the Dream prospect by the USGS in 1959 (*C–7*) . Later regional mapping and geochemical sampling by the USGS (*C–1*,*C–3*) located no additional mineralization. The first significant recent mineral discovery in the area was made by the Bureau in 1986. Bureau geologists collected samples from a mineralized quartz vein and recognized a favorable geologic environment for volcanogenic massive sulfide mineralization. Continuing Bureau investigations in 1987 resulted in the discovery of impressive gold, cobalt, arsenic, and copper mineralization. The discovery was made at the 3,200 foot level of an east-facing cirque. This cirque forms the eastern flank of an unnamed mountain massif immediately west of southern Sullivan Island (fig. C–3).

In 1987, 16 claims were staked by a group of Juneau prospectors as the "Dream" block. Curator American, Inc. optioned the ground in 1987 and expanded the group to 124 lode claims in January 1988 (fig. C–4). Curator conducted geologic mapping and sampling in the area during the 1988 field season and further enlarged their claim block to include over 500 claims by the fall of 1988. Curator conducted a reconnaissance-scale very-low frequency electromagnetic survey (VLF–EM) of the prospect area in late 1988.

Bureau Investigations

Geology and Mineralization

The Dream prospect area is composed of interlayered metavolcanic and metasedimentary rocks of middle to upper Paleozoic age (*C–3*,*C–7*). Brew and Ford (*C–3*) suggest that these rocks may be equivalent to Silurian and/or Devonian rocks to the south and west. Rocks in the Dream area have been regionally metamorphosed and moderately to intensely deformed.

At the base of the rock sequence in the prospect area is a northerly-striking, westerly dipping limestone (gray marble in the prospect area) unit mapped as Silurian by Brew and Ford (*C–3*). The unit is overlain by an interlayered sequence of chert, tuff, mafic volcanic rocks, and argillite. This sequence contains vein, stringer, and stratiform sulfide mineralization. Overlying this package is a group of black phyllite and volcaniclastic rocks of felsic to intermediate composition intruded by dacitic sills and dikes. Dream prospect geology is shown on figure C–3.

Mineralization at the Dream prospect has been traced for at least 2 miles along strike (1 mile south and 1 mile north) of the original discovery outcrop. The mineralization is concentrated in a zone within the interlayered chert, tuff, mafic volcanic rock, and argillite. This interlayered sequence ranges in thickness from 50 to 200 feet. At the discovery outcrop, mineralization is hosted by meta-andesite, although the volcanics appear to grade into sedimentary rocks both north and south. Mineralization occurs both as cross-cutting veins and as stratiform stringers, pods, and lenses.

Sulfide minerals occur as massive layers and foliation-parallel stringers within the meta-andesite. Minerals present include chalcopyrite, pyrite, pyrrhotite, galena, sphalerite, and arsenopyrite. Layers of thinly-banded sphalerite and galena follow foliation and chalcopyrite is most commonly found in intensely-silicified cross-cutting fractures. Arsenopyrite occurs as concordant layers concentrated in a 10- to 50-foot interval which has been traced for several hundred feet along strike. The individual arsenopyrite layers range from several inches to 1 foot thick. Euhedral arsenopyrite prisms extend from the massive layers into the enclosing wallrocks. Cobalt is associated with arsenopyrite with streaks of erythrite ($Co_3(AsO_4)_2$ $8H_2O$) locally present in the massive arsenopyrite layers. Gold values are associated with both chalcopyrite and arsenopyrite. Figures C-5, C-6, and C-7 illustrate some of the various mineralized zones in the Dream area.

Both the Bureau and Curator American believe that distal and proximal volcanogenic sulfide mineralization is present at the Dream prospect. The intense silicification and cross-cutting chalcopyrite mineralization at the discovery outcrop is believed to represent a feeder zone. Furthermore, the stratiform sphalerite and galena found along strike are thought to represent a distal phase of the volcanogenic mineralization.

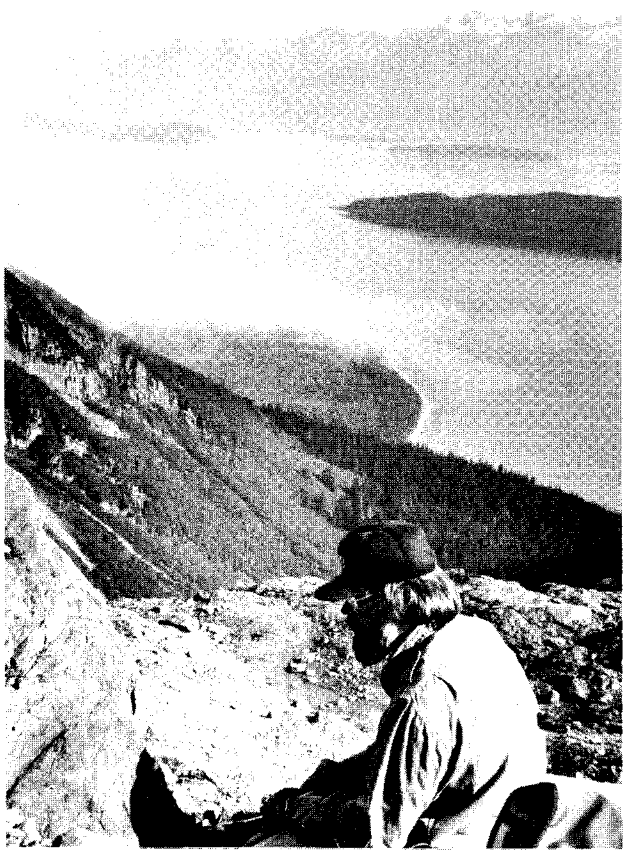

Figure C-4.—John Barnett, Curator American Inc., project manager, on the discovery outcrop at the Dream Prospect. View is to the north.

Sample Results

The Bureau collected 26 samples from the Dream prospect (fig. C-2, C-3, map Nos. 19-34). Three of these samples, (map Nos. 25 and 28) were from massive sulfide stringer zones and contained gold values of 43, 120, and 3.4 ppm, respectively. Sample 8447, map No. 25, also contained 250 ppm silver. None of the other three samples yielded silver values above detection limits. These samples were also highly enriched in arsenic, with a high value of 16% being reported for sample 8090, map No. 28. Dream samples area also was enriched in copper, zinc, cobalt, molybdenum, and chrome. In addition, sample 8446, map No. 25, contained 770 ppm tungsten.

Thin quartz veins also contained significant values in the eight samples collected (fig. C-2, map No. 19, fig. C-3, map Nos. 21, 22, 27, 28, and 33). These samples were of veins up to 1 foot thick and averaged 0.24 ppm gold, 14.7 ppm silver, 4,122 ppm copper, 2,730 ppm arsenic, 1,840 ppm zinc, and 917 ppm lead.

The remaining samples were taken from rock units in the Dream prospect area. A select sample of argillite about 1 foot thick (fig. C-2, map Nos. 24) contained 56 ppm gold and 2.1% copper while a select sample of chlorite schist taken over 1 foot (fig. C-2, map No. 31) carried 3.7 ppm gold.

Reconnaissance samples of the Dream prospect rock units to the north between the Dream prospect and the Sullivan Mountain occurrence and south to the Sullivan River contained a few scattered higher values (fig. C-2, map Nos. 8-18, 35-36). Copper was detected at map Nos. 11, 15, and 18 (fig. C-2). Quartz-calcite float at map Nos. 12 (fig. C-2) contained 0.1 ppm gold, 1,100 ppm copper, 1,800 ppm lead, and 5,000 ppm zinc and a quartz sample at map No. 35 (fig. C-2) yielded 1.5 ppm gold and 23 ppm silver.

Recommendations

The nature and extent of mineralization at the Dream prospect is too poorly known to estimate a resource. The high metal values and widespread nature of the mineralization, however, gives this area significant potential for occurrence of a precious and base metal sulfide deposit.

Further geologic investigations are required on the Dream prospect to aid in defining the extent and grade of mineralization. Lithologies of interest need to be thoroughly investigated both along and across strike for additional alteration and mineralization. Furthermore, geophysical prospecting techniques, both ground and airborne, could prove invaluable in delineating areas of possible metal concentration. Curator American, Inc., the property claimant, has already undertaken many of these activities.

WEST DREAM OCCURRENCE

Introduction and Previous Work

The West Dream area is located along the north flank of a tributary glacier, approximately 2 miles southwest of the Dream prospect (figs. C–1 and C–2) at an approximate elevation of 2,500 feet. The only previous work known for this area is regional geologic mapping done by the USGS (*C–3,C–7*).

Bureau Investigations

Geology and Mineralization

The dominant lithology in the West Dream area is a siliceous black argillite which strikes northerly and dips moderately to the west. This argillite unit is overlain by interbedded argillite, limestone, and volcaniclastic rocks. This unit is mapped as Silurian in age with an aggregate thickness of at least 3,000 feet (*C–3,C–7*). Sulfide mineralization occurs locally as discontinuous quartz veins and as stratiform and strata-bound sulfide pods and stringers in argillite. The predominate sulfide minerals are pyrite and pyrrhotite.

Sample Results

The Bureau examined the West Dream area to extend its investigation of the Dream prospect. The area is underlain by siliceous argillite locally containing pyrite, pyrrhotite, and minor chalcopyrite. Seven samples were collected (fig. C–2, map Nos. 39–43). One float sample, (8094, map No. 42) of layered massive pyrite, pyrrhotite, and chalcopyrite contained 12,000 ppm copper, 7,100 ppm nickel, 910 ppm cobalt, and 900 ppm chrome. A sample (7885, map No. 43) of a quartz vein in volcaniclastic rocks carried 0.58 ppm gold.

Recommendations

The West Dream occurrence needs additional regional-scale geologic mapping and sampling to better define the stratigraphy and mineralization of the area.

Figure C–5.—Stratiform arsenopyrite-pyrite mineralization at the Dream Prospect. Three Bureau samples across 2–6 inch sections of these layers averaged 55.5 ppm gold and 5.6% arsenic.

Airborne geophysics, combined with selected stream sediment and pan concentrate sampling could be useful in locating areas of potential massive sulfide mineralization. A geologic investigation of the stratigraphic section exposed on the mountain face to the north of the West Dream area is also recommended. The steep and exposed nature of this face would necessitate the use of mountaineering equipment and expertise.

SOUTH SULLIVAN RIVER OCCURRENCE

Introduction and Previous Work

The South Sullivan River occurrence is located several miles to the south of the Dream prospect. The main area of interest lies along a ridge which divides two small north-flowing cirque glaciers (fig. C-2) at elevations ranging from 1,800 to 3,000 feet.

This area is on the southern extension of the rock unit that hosts the Dream prospect and was mapped on a regional scale by the USGS (*C-3*,*C-7*). Several geochemical samples with elevated metal values were collected in the general area by the USGS in 1983 and 1984 (*C-1*). No additional references to mineralization are known.

Bureau Investigations

Geology and Mineralization

Lathram (*C-7*) and Brew and Ford (*C-3*) have mapped the area as being composed of Silurian and Devonian volcanic, graywacke, argillite, and carbonate rocks. This area is cut by northwest-trending faults of unknown displacement. Mafic to intermediate dikes, which trend 32° and dip 45° to the north, are common. Numerous quartz veins are present in the area, especially in the graywacke, argillite, and metavolcanic rocks. The veins commonly contain minor amounts of pyrite, chalcopyrite, and pyrrhotite.

Sample Results

The Bureau examined the south Sullivan River area because it contained rocks similar to those at the Dream prospect and stream sediment and pan concentrate samples taken by the USGS in some of the drainages contained elevated metal values. The Bureau collected 20 samples from the area (fig. C-9, map Nos. 44-61).

Six quartz or quartz-calcite veins were sampled (fig. C-9, map Nos. 46-48, 49-50, 53, and 61) and four contained notable metal values. The samples carried 3.9 and 0.6 ppm gold, 22,000, 1,400, 1,300, and 620 ppm copper, 1,300, 450, and 350 ppm cobalt, 1,300 ppm

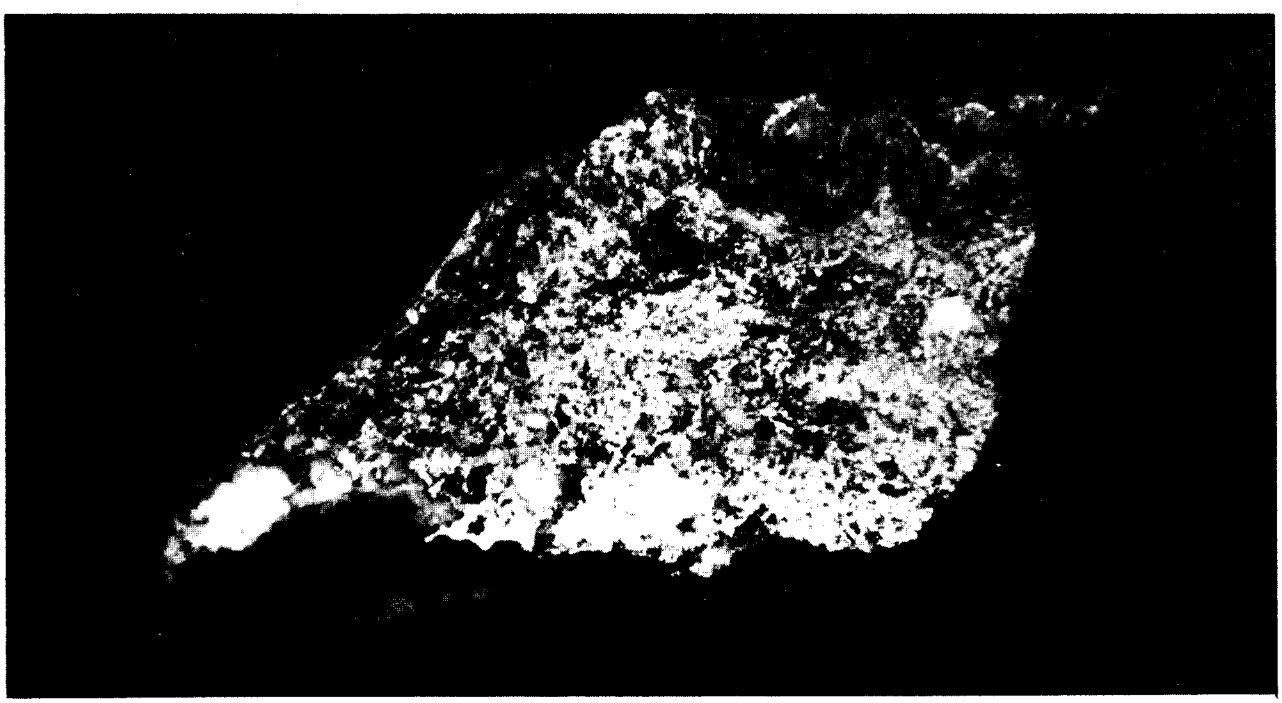

Figure C-6.—Polished slab of stringer mineralization at the discovery outcrop on the Dream prospect. Specimen is approximately 8 inches across and 4 inches thick and contains chalcopyrite, pyrrhotite, and pryite. This layer assayed 3.5 ounces gold/ton.

nickel, and 500 ppm zinc. Both gold-bearing samples were float, but other similar veins occur in the area.

Samples of bedrock also carried a few significant values. A sample of phyllite (fig. C-9, map No. 45) contained 6,000 ppm copper and a graphitic phyllite (map No. 53) had 890 ppm copper. Six samples of siliceous argillite were also collected with one (fig. C-10, map No 50) assaying 500 ppm zinc.

Five samples were taken between the south Sullivan river area and the mouth of the Endicott River (fig. C-2, map Nos. 62-64, 68-69). Quartz vein samples at locations 62 and 64 had 720 and 220 ppm copper and a sample of siliceous argillite (fig. C-2, map No. 71) contained 690 ppm copper, 630 ppm lead, and 1,400 ppm zinc.

Recommendations

Detailed stream sediment and rock sampling and geologic mapping should be used to locate and define possible mineralization in the area. Persistent snow cover is a problem for exploration but airborne geophysical prospecting could be an aid to locating mineralization.

SULLIVAN MOUNTAIN AREA

Introduction and Previous Work

The Sullivan Mountain area is located 2 miles west of Lynn Canal near the northern boundary of the West Lynn Canal subarea. It forms the mountain massif which separates the Davidson Glacier and an unnamed glacier to the south (figs. C-1 and C-2). This area was investigated by the Bureau because the geology of the Sullivan Mountain area is similar to that of the Dream prospect area.

Bureau Investigations

Geology and Mineralization

There is no published geology for the Sullivan Mountain area. Mapping by Brew and Ford (*C-3*) stops about 4 miles to the south and work by Gilbert (*C-6*) ends 2 or 3 miles to the north. Bureau investigations in the area found quartz schist and argillite which strike to the northwest. The rocks are moderately to intensely de-

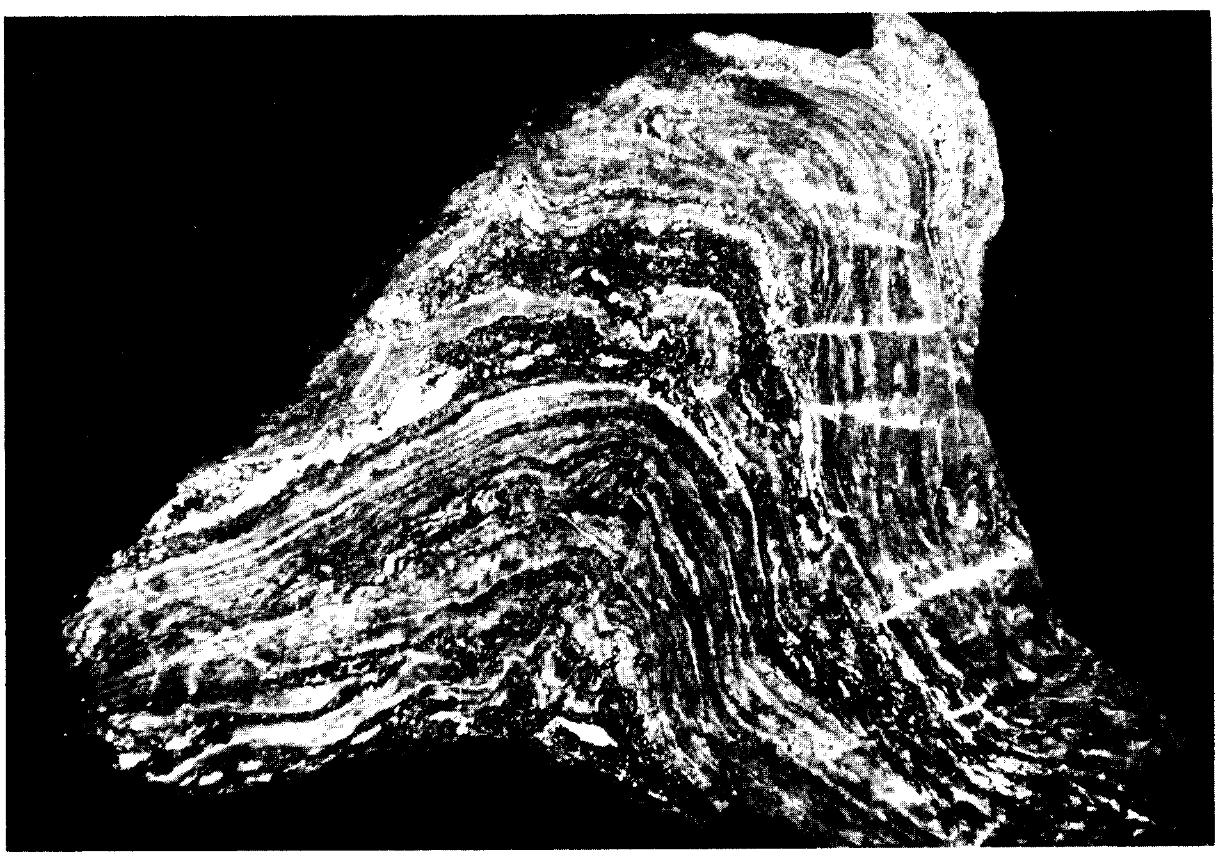

Figure C-7.—Stratiform sphalerite and galena from the Dream prospect. Sample is approximately 1 foot across.

formed. Quartz veins are common and thin, concordant bands of massive sulfide are scattered through the schist and argillite.

Sample Results

The Bureau collected five samples from the Sullivan Mountain area (fig. C-2, map Nos. 1-5,). One sample (8409, map No. 4) of a quartz schist, which had spalled off a cliff face, contained 0.18 ppm gold, 390 ppm cobalt, and 180 ppm copper. Another sample (8410, map No. 2) which contained visible chalcopyrite, massive pyrrhotite, and pyrite, carried 3,600 ppm copper and 2,700 ppm nickel.

Four other reconnaissance samples were collected southwest of Sullivan Mountain along the margin of a tributary to the Davidson Glacier (fig. C-2, map Nos. 6-8). A small skarn (8422, map No. 6) yielded 290 ppm copper.

Recommendations

The Sullivan Mountain area contains rock types and mineralization similar to those at the Dream prospect. The area needs, at the least, reconnaissance-scale geologic mapping to further define the local geology. Emphasis should be placed on delineating lithologies and environments favorable for massive sulfide mineralization. Airborne geophysical surveying designed specifically to locate massive sulfide mineralization would also be useful in defining areas for more specific investigations.

Figure C-8.—Bureau geologist in the rugged terrane of the central Chilkat Mountains, north of the Endicott River.

LINCOLN ISLAND PROSPECT

Introduction and Previous Work

A group of eight claims were staked at the north end of Lincoln Island in 1953. No other work has been reported at the prospect.

Bureau Investigations

Geology and Mineralization

The northeast and southern ends of Lincoln Island are composed of a sequence of chert, tuff, argillite, and mafic volcanic rocks which Brew and Ford (*C-3*) have called part of the Jurassic and Cretaceous Seymour Canal formation. All of the rocks contain various amounts of disseminated pyrite and pyrrhotite. The rest of the island is underlain by a sericitized hornblende-uralite gabbro pluton (*C-2*).

Locally, the mafic volcanic rocks at the Lincoln Island prospect contain concentrations of pyrite, pyrrhotite, and chalcopyrite in small blebs and stringers up to several inches thick and several feet long. Rocks around the sulfide concentrations have been stained bright red and yellow by the oxidation of sulfide minerals.

Sample Results

The Bureau conducted a VLF-EM geophysical survey over the best mineralization at the Lincoln Island prospect and extended the survey into the forested and overgrown areas. Beach exposures of mineralization gave a good conductivity response (cross over) but traverses along strike further inland failed to detect any additional conductors.

Seven samples were taken by the Bureau on the Lincoln Island prospect (fig. C-2, map Nos. 154-157). Three samples of siliceous sinter averaged 1,323 ppm copper and 27 ppm molybdenum. A skarn sample taken near the pluton contained 2,200 ppm copper.

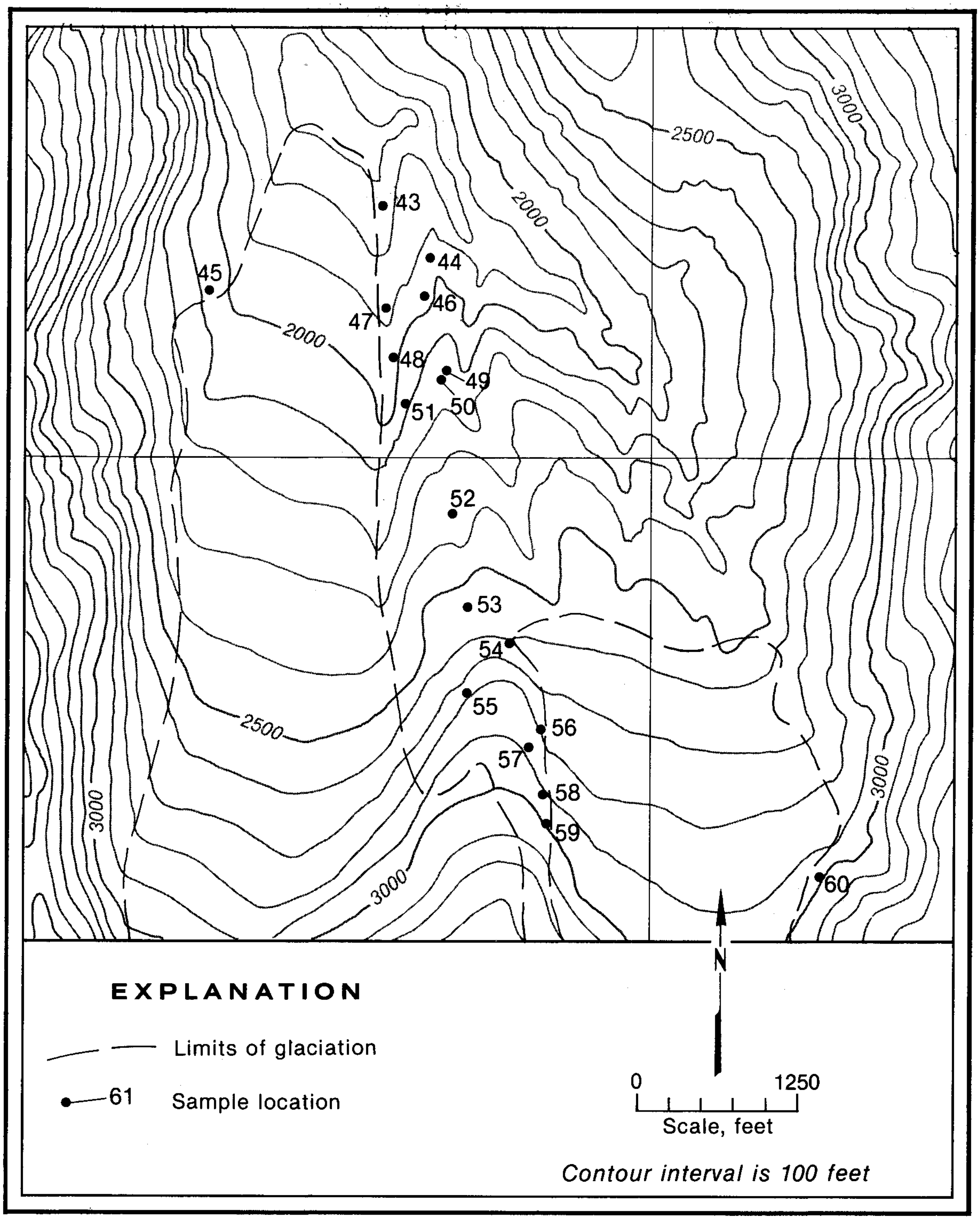

Figure C-9.—Sample location map, south of Sullivan River area.

A single sample of siliceous argillite taken from the southern end of the island did not contain significant metal values (fig. C–2, map No. 158).

Recommendations

Mineralization at the Lincoln Island prospect could not be followed inland from the beach using VLF–EM techniques. Soil sampling could possibly determine whether copper mineralization extends into the forested part of the island.

OTHER VOLCANIC-ASSOCIATED DEPOSITS

There are three other volcanic-associated stratiform sulfide prospects and occurrences in the West Lynn Canal subarea. These occurrences and prospects are located within the Endicott Wilderness area, which is closed to mineral entry. Two of them, the Peak 6010 and Mount Young occurrences, contain pyrite or chalcopyrite in volcanic rocks. These occurrences were located by Latham and others (*C–7*). The Peak 6010 occurrence is about 5 miles west of the Dream prospect (fig. C–2) and consists of greenschist with pyrrhotite, pyrite, and chalcopyrite. The Mount Young occurrence is within the Endicott Wilderness area and consists of pyrite and chalcopyrite in siliceous matrix associate with volcanic rocks. Neither of these sites was examined by the Bureau.

The Endy prospect is located north of the upper Endicott River (fig. C–2). This prospect is in a similar sequence of rocks to those found at the Dream prospect. Brew and Ford (*C–3*) have mapped the area as Paleozoic schist and Silurian argillite, graywacke, limestone, and volcanic rocks. The Endy prospect was located by St. Joseph Mining Co. in 1974 and reportedly consisted of stratiform massive copper-zinc mineralization (*C–17*).

The Bureau briefly visited the Endy prospect area and collected seven samples (fig. C–2, map Nos. 65–70). Samples of rhyolite (7863, map No. 68) contained 0.21 ppm gold, 270 ppm copper, 930 ppm chrome, and 330 ppm arsenic. A sample of quartz vein float (7551, map No. 69) contained 1,400 ppm copper.

SEDIMENTARY-ASSOCIATED SULFIDE DEPOSITS

The southern two-thirds of the West Lynn Canal subarea is underlain by Silurian graywacke, mudstone, turbidites, and limestone with the potential to host sedimentary-associated stratiform sulfide bodies. The area is poorly explored but has been examined by at least two minerals companies. In the mid-1970's St. Joseph Mining Co. did some work north and west of St. James Bay and more recently, Salisbury and Associates has examined the same area plus the region southeast of Excursion Inlet. This activity was presumably directed at sediment-associated stratiform sulfide deposits.

The Bureau examined both the St. James Bay area and the area southeast of Excursion Inlet.

ST. JAMES BAY AREA

Introduction and Previous Work

Two areas were examined around St. James Bay. One area is located approximately 5.5 miles due west of the head of St. James Bay at elevations ranging from 1,300 to 3,600 feet and the other is north of Boat Harbor. St. James Bay was originally prospected in the late 1890's. At least one quartz vein prospect was located on the shore of the bay. After that time, little work was done until St. Joseph Mining Co. ran a regional exploration in the area during the mid-1970's. Salisbury and Associates worked in the area during 1987 and 1988.

Brew and Ford (*C–3*) conducted regional mapping in the area and the USGS collected stream sediment and pan concentrate samples in the area in the early 1980's (*C–1*).

Bureau Investigations

Geology and Mineralization

The St. James Bay area (figs. C–2 and C–10) is mapped as Silurian graywacke, turbidite, and limestone of the Point Augusta Formation (*C–3*). The area also contains prominent northwesterly-striking Silurian limestone beds (*C–3*). The Bureau located pyrite mineralization in strata-bound pods and stringers in siliceous argillite and in quartz veins. Mineralization is spotty and discontinuous.

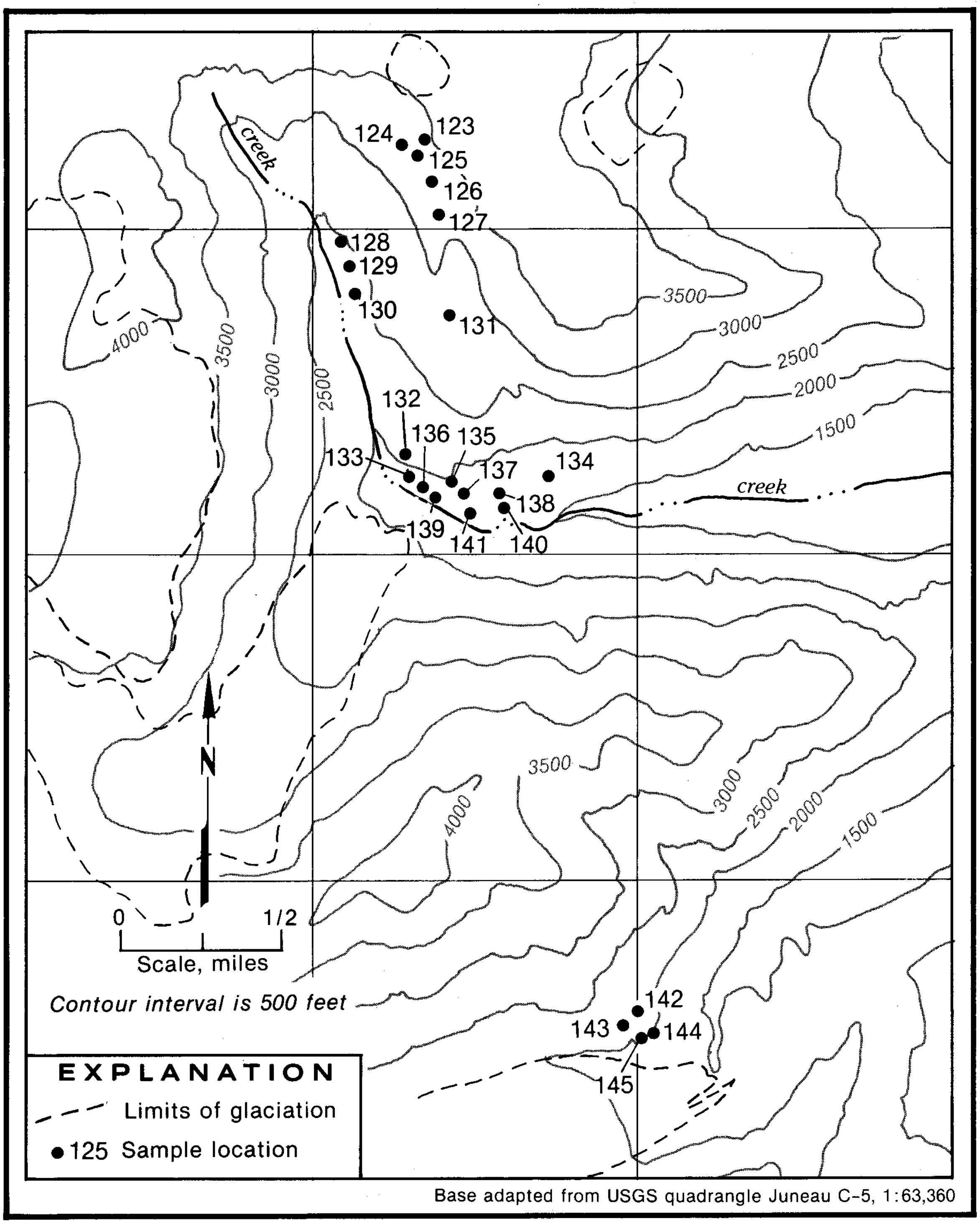

Figure C-10.—Sample location map, St. James Bay area.

Sample Results

The Bureau collected 45 rock samples (fig. C-10, map Nos. 123-145) in the area west of St. James Bay to follow-up anomalies reported by Bailey and others (*C-1*). The best results came from map Nos. 142-145 (fig. C-10) where five quartz and quartz-calcite veins averaged 1,435 ppm copper and 480 ppm zinc.

In a valley to the north, a total of 22 samples were taken of argillite and 12 of quartz and quartz-calcite veins (fig. C-10, map Nos. 123-141). Mineralization in the area was very spotty with only four samples containing values above background. The highest values were contained in a sample of massive pyrite/pyrrhotite in pods along foliation in laminated argillite. This sample (8065, map No. 134) assayed 390 ppm arsenic, 0.1 ppm gold, 87 ppm molybdenum, and 160 ppm lead. One quartz vein sample (8177, map No. 123) contained 260 ppm chrome and another (7540, map No. 128) carried 880 ppm copper, 570 ppm lead, and 710 ppm zinc. An argillite sample (8186, map No. 140) contained 0.18 ppm gold, 140 ppm copper, and 46 ppm molybdenum.

The area north of Boat Harbor was examined and a series of quartz veins in argillite were sampled. The veins range in width from 4 to 10 inches and contain chalcopyrite, pyrite, malachite, and traces of sphalerite. A total of 19 samples were collected (fig. C-2, map Nos. 146 through 149). Four of the samples contained 670, 610, 250, and 250 ppm copper and one carried 320 ppm lead. The sample with the highest copper value also carried 310 ppm zinc.

Recommendations

Bureau investigations in the St. James Bay area located only scattered mineralization. The area is potentially favorable for sediment-hosted stratiform sulfide mineralization. However, detailed geologic, geochemical, and geophysical exploration and prospecting are needed in the area to define target areas in which to concentrate more detailed investigations.

SOUTHERN CHILKAT RANGE AREA

Introduction and Previous Work

The southern Chilkat Range includes the terrain from Teardrop Lake, south to Pt. Couverden, exclusive of the coastal areas of Icy Strait, Excursion Inlet and Pt. Howard (figs. C-2, and C-11). This area is densely forested and outcrops are rare (fig. C-12), but recently approximately 30 miles of gravel logging roads, with their road cuts, borrow pits, and quarry sites have provided additional rock exposure. The area southeast of the mouth of Excursion Inlet has recently been covered by a large claim group staked by Salisbury and Associates.

Bureau Investigations

Geology and Mineralization

The most common lithology in this area is a black, carbonaceous limestone with subordinate interbedded argillite. These rocks have been mapped as Silurian (*C-3*) and are commonly folded and faulted (fig. C-12). The layered rocks strike predominately to the northwest with a steep northeasterly dip. The major faults trend northeast and dip steeply to the northwest. Most of these structures appear to be strike-slip, with minor dip-slip displacement (*C-4*).

The most common igneous rocks in the area are equigranular to slightly porphyritic andesite dikes. Chlorite and carbonate alteration products are common in the dikes. Less common basaltic dikes, also altered, were noted.

Narrow quartz veins locally cut sedimentary rocks. Some veins contained small amounts of pyrite, galena, sphalerite, and chalcopyrite.

Sample Results

The Bureau collected 124 samples (fig. C-11, map Nos. 185-265,) during mineral investigations of this area. The most obvious elevated values are arsenic from fault zones at map Nos. 195, 201, and 214. Map Nos. 195 and 201 are in an area 2 miles long and averaged 2,250 ppm arsenic and one of the samples had 0.1 ppm gold. No other metals have raised values in any of the samples. However, a fault gouge zone to the southeast (fig. C-11, map No. 230) contained over 30 ppm silver, 0.7 ppm gold, 9,200 ppm zinc, 4,070 ppm lead, and 210 ppm copper. A sample of andesite adjacent to the fault carried 1.7 ppm silver.

Eighteen samples were taken from quartz and quartz-calcite veins. One sample (fig. C-11, map No. 247) contained 1.2 ppm gold and 260 ppm copper while a sample from map No. 152 (fig. C-11) had 1,500 ppm copper. Another vein sample (8026, map No. 220) carried greater than 7,500 ppm lead and 3,800 ppm zinc. Other samples carried no significant values.

Four samples of skarn were taken (fig. C-11, map Nos. 192, 250, 254, and 256) from this area. The highest

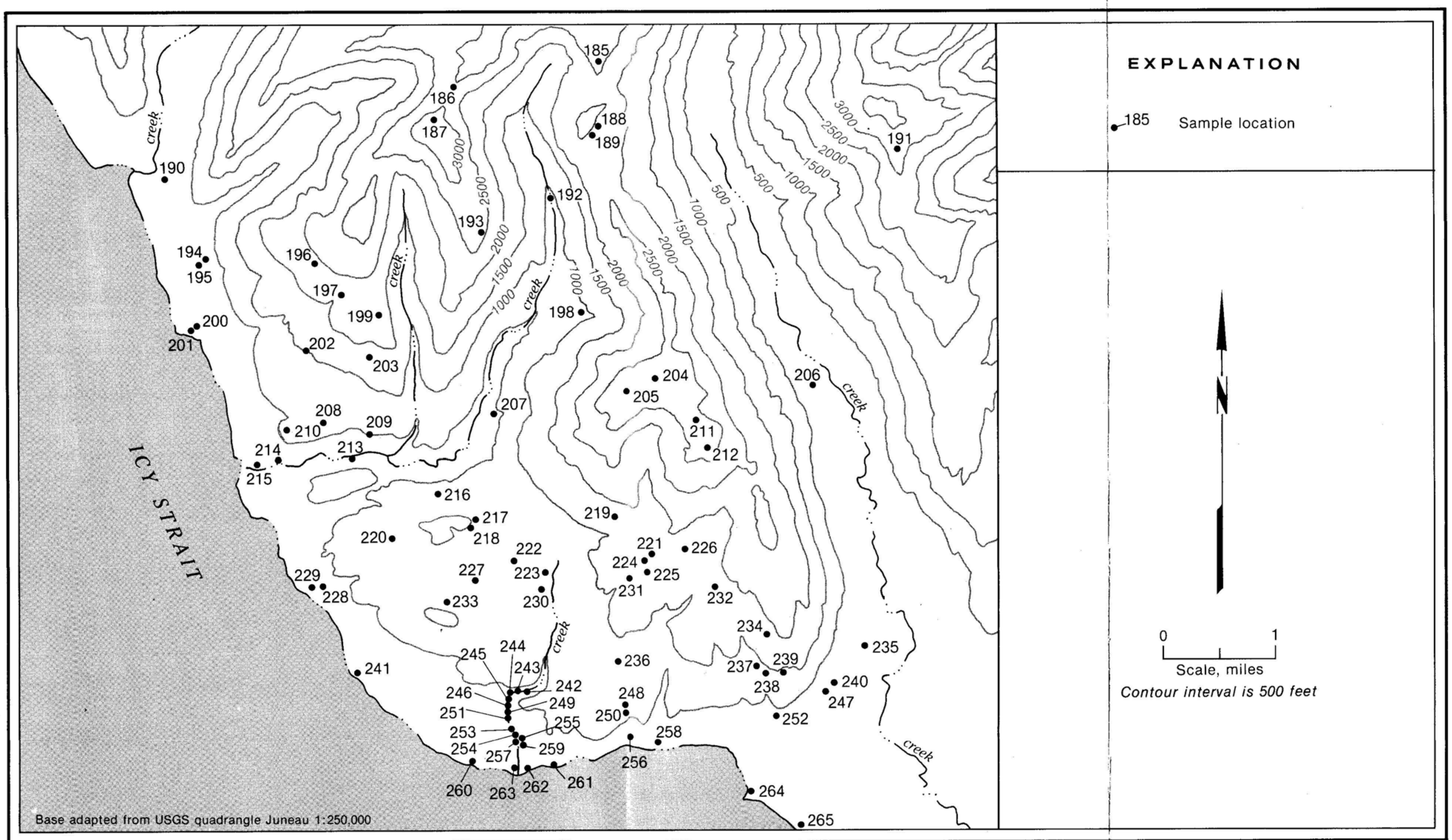

Figure C-11. — Sample location map, Southern Chilkat Range.

assay value was 440 ppm copper in sample 254.

Nineteen samples were collected from the black argillite in the area (fig. C–11, map Nos. 191, 198, 207, 258, 259). Two yielded 0.4 and 0.1 ppm gold, and five contained between 140 and 520 ppm copper.

Other samples of volcanic rocks, miscellaneous dikes, and limestone contained no significant metal values.

Recommendations

Modest metal values have been located by previous workers (*C–1*) in the southern Chilkat Range in addition to those reported here. Low-grade mineralization is sporadic but no concentrations are known to have been found. Bureau investigations did not identify the target of the large Salisbury and Associates claim block and sample results were not encouraging. Detailed stream sediment sampling and geologic mapping may help identify areas of better mineralization.

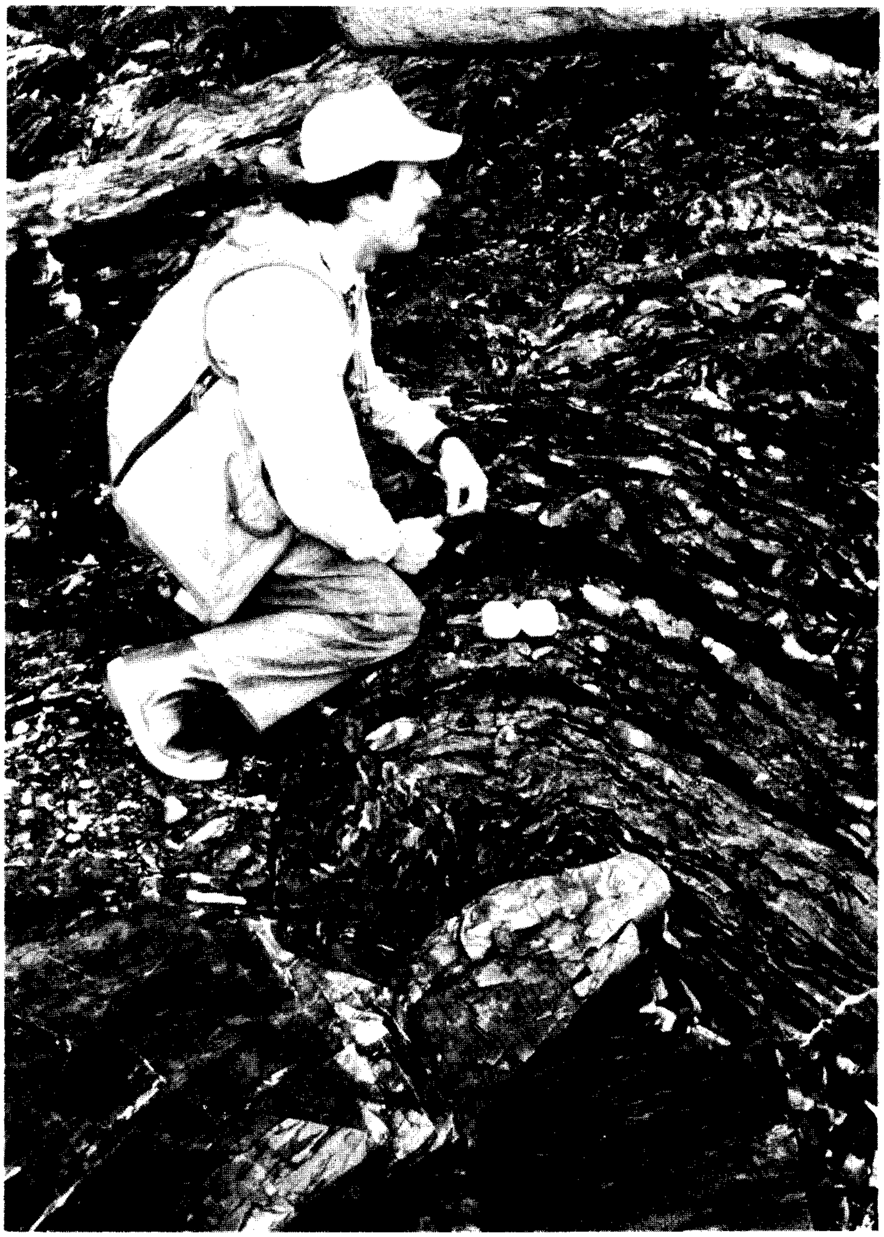

Figure C–12.—Folded Silurian black argillite, typical of the southern Chilkat Range.

VEIN DEPOSITS

All mine production in the West Lynn Canal subarea has come from vein deposits. The Alaska Endicott, Howard Bay, and Alaska Silver King veins each produced small amounts of ore. Other veins occur at St. James Bay.

Veins in this area tend to be composed of quartz and calcite (though the Alaska Endicott vein is dominantly calcite) and crosscut foliation and bedding in host rocks. Veins are common throughout the region, but the only known large veins occur in Silurian Point Augusta Formation.

ALASKA ENDICOTT MINE

Introduction and Previous Work

The Alaska Endicott Mine (figs. C–2, C–13, and C–14) is located approximately 1 mile south-southwest of the head of William Henry Bay at an elevation of 160 feet. The mine portal is located on the south side of an easterly flowing tributary to the Beardslee River, not the north side as shown on the 1:63,360 scale map of the area (Juneau C–4 quadrangle).

The Alaska Endicott vein was originally located prior to 1915. The prospect was acquired by the Alaska Endicott Mining and Milling Company in 1915 (*C–10*). By fall 1917, a 500-foot-long crosscut and 257 feet of drifting had been completed, and a 100-ton sample had been shipped to a smelter at Tacoma, Washington. The sample reportedly averaged 1.8% copper (*C–10*).

The main adit had been extended to a length of 1,800 feet by the end of 1919. A 30-stamp mill was brought to the Alaska Endicott Mine in October 1919, and 5 stamps were in operation by July 1920. A raise was also started in 1920.

During 1922, a new mill was erected and 15 stamps, obtained from the Comet Mine, were set up and working by late September. A small flotation plant was also built (*C–10*). Work slowed in 1923, and only a 700-foot diamond drill hole was completed in 1924. Minor work was done in 1925, but then the mine was closed (*C–10*).

The only recorded production the Alaska Endicott Mine is 48 ounces of gold and 20 ounces of silver from 200 tons of ore (*C–8*). Additional ore may have been milled by the company, but no records exist.

Bureau Investigations

Geology and Mineralization

The rocks in the William Henry Bay area are mapped as predominately argillite, shale, and limestone, interlayered with mafic volcanic rocks (*C–3*). North of the bay, greenstone predominates but argillite and graywacke are the most common rock types to the south.

The host rocks of the Alaska Endicott Mine, as mapped by the Bureau in 1985 (fig. C–13), consist of a well foliated greenstone bounded by fine-grained clastic rocks and local muscovite schist. The clastic rocks are mostly graywacke, dark gray argillite, and black phyllite.

In the vicinity of the Alaska Endicott vein, the greenstone is highly sheared and cut by both high- and low-angle faults. Most of the faults that displace the vein trend northerly and dip west. High-angle faults dip from 75° to vertical and low-angle faults dip 25° to 35°. The vein is emplaced in a shear which trends east-west, cutting bedding at an angle of about 25°, and dips 58° to 73° south.

Mineralization is confined to a calcite-quartz vein which strikes generally 290° and dips 58° to 85° to the south. The main vein ranges in thickness from nil to 25 feet, averaging about 5 feet in the stope area, and has been traced in the mine workings for 750 feet. The vein pinches and swells abruptly along strike. Marginal portions of the vein commonly contain abundant fragments of greenstone. Thin veinlets of calcite, which are generally parallel with the main vein, are common in the sheared greenstone as much as 50 to 75 feet away from the main vein. The vein is composed dominantly of calcite that has been strongly crushed and brecciated. Along the margins and in the core of the vein, shears within the calcite vein have been filled and annealed by quartz. The quartz contains many sharp fragments of calcite and forms both veins in the calcite and breccia cement for the crushed calcite.

Chalcopyrite, with minor pyrite, is associated with the quartz in the veins. In the quartz portions of the main vein, chalcopyrite commonly occurs in the quartz along the contact with calcite and as replacements of the calcite. Chalcopyrite in the replacement zones can usually be traced back to the larger veins of quartz.

Sulfide mineralization is concentrated in narrow zones near the margins, and, less commonly, in the center of the calcite vein. In these zones, chalcopyrite forms irregular, elongate masses and blebs parallel to vein margins. Within narrow limits, chalcopyrite forms up to 25% of the vein material although average values for the whole vein are less than 1%.

Sample Results

The Bureau collected 12 samples from the vein at the Alaska Endicott Mine (fig. C–13, map Nos. 112a-l).

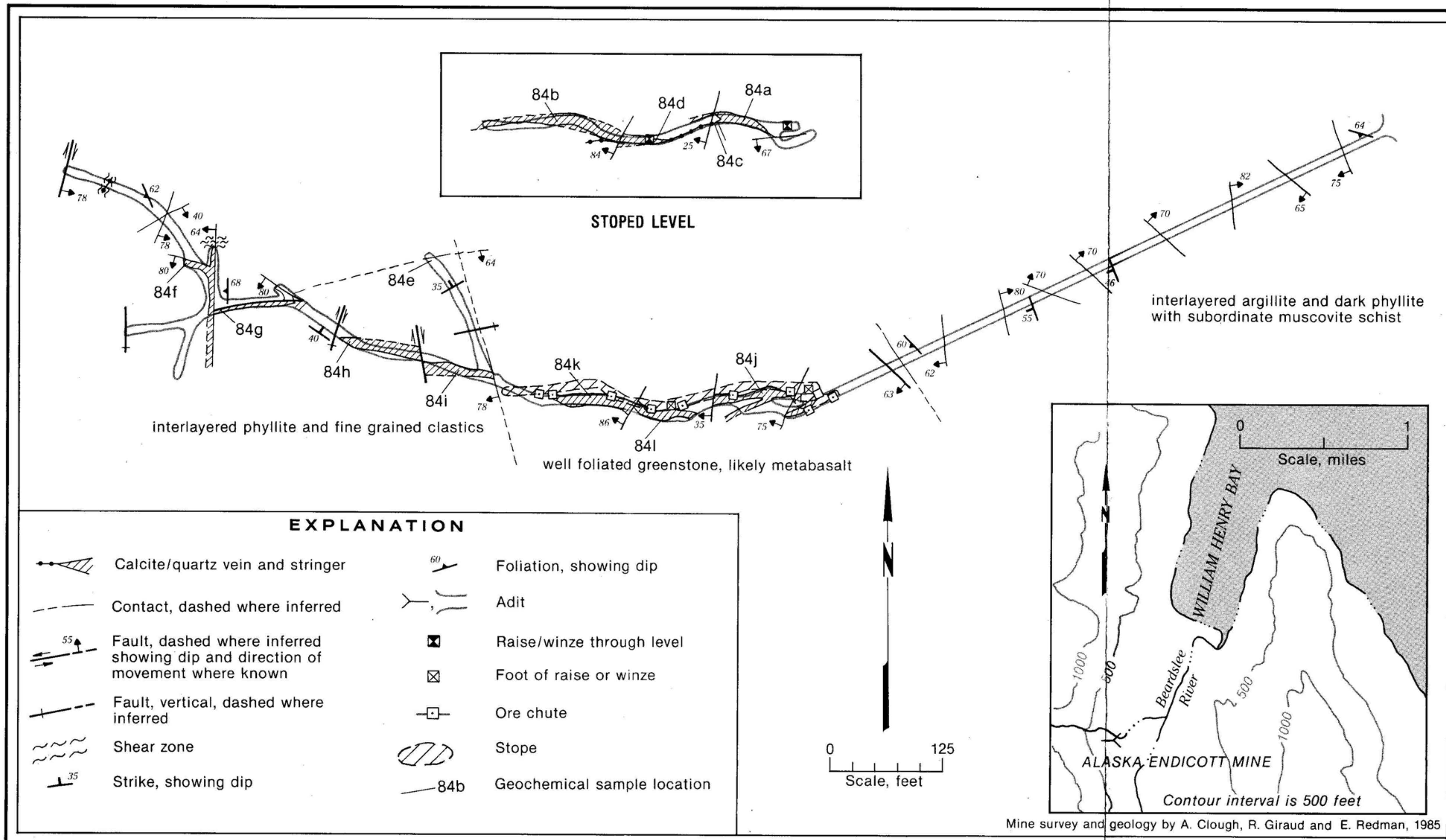

Figure C-13. — Geology and sample location map, Alaska Endicott Mine.

These samples averaged 0.46% copper and 1.2 ppm silver over an average width of 3.8 feet. Gold values were low. The best sample (fig. C–13, map No. 112g) contained 1.7% copper, 5.6 ppm silver, and 0.04 ppm gold.

Recommendations

The workings of the Alaska Endicott Mine contain an indicated resource of 20,000 tons of material with an average grade of 0.46% copper. This estimate is based on only 100 feet of vertical extent because vertical continuity is not known and the vein pinches and swells markedly along its strike. Drilling would be the best method to search for addition mineralization.

AREAS SOUTH OF WILLIAM HENRY BAY

Introduction and Previous Work

This area is along the western shoreline of Lynn Canal, approximately 0.5 to 3 miles south of the entrance to William Henry Bay (fig. C–14). Regional geologic mapping has been published for this area at 1:250,000 scale (*C–3*).

Bureau Investigations

Geology and Mineralization

The coastal area immediately to the south of the head of William Henry Bay (figs. C–2 and C–14) has been mapped as greenstone of Silurian or Devonian age (C–3), while the region south of Danger Point is mapped as undifferentiated Silurian graywacke, mudstone, turbidite, and limestone (*C–3*).

Bureau work in the William Henry Bay area and to the south (fig. C–14) revealed an intensely sheared greenstone with locally interlayered black argillite and rare quartz veins. Pyrite and pyrrhotite are common accessory minerals in the greenstone and argillite. These metasedimentary and metavolcanic rocks are commonly sheared, strike northwesterly and dip vertically or steeply to the south.

The Bureau examined the area south of Danger Point because of a subtle color anomaly visible from the air. The color anomaly proved to be caused by areas of jasperoid along the shoreline (fig. C–14). The jasperoids are the result of silica flooding limestones and limy argillites. Thin fractures filled with creamy white silica are common. The rocks are highly fractured and pyrite is noted throughout the jasperoid in varying concentrations.

Sample Results

The Bureau made brief investigations of William Henry Bay and in the area south of William Henry Bay because of close proximity to the mineralization at the Alaska Endicott Mine. Samples were collected from William Henry Bay, the coast of Lynn Canal a half mile south of the mouth of the bay, and south of Danger Point.

Six samples were taken in William Henry Bay (fig. C–14, map Nos. 103–108). Of the six samples (fig. C–14, map No. 108), a sample of silicified limestone assayed 1.1 ppm gold and a chert (fig. C–14, map No. 105) contained 490 ppm copper and 360 ppm zinc.

A half mile south of the bay, two samples of greenstone and one of the quartz (fig. C–14, map Nos. 109–111) were collected. The quartz sample, (7877, map No. 109), a representative chip sample from a 1-foot-thick quartz-calcite vein with up to 50% pyrite, contained 2.7 ppm gold, 2,500 ppm copper, and 200 ppm cobalt. This vein strikes 315° and dips 70° to the south and approximately parallels the foliation of the sheared greenstone. A sample of the sheared greenstone (7875, map No. 111) carried 0.15 ppm gold and 550 ppm copper.

In the area south of Danger Point, Bureau geologists took 35 samples. Twenty-four of the samples were from jasperoid (fig. C–14, map Nos.117–121). Six samples were of quartz veins (fig. C–14, map Nos. 113, 114, 116, and 121), and five were of unsilicified host rock (fig. C–2, map Nos. 114, 115, and 122). Only two of the jasperoid samples carried more than background metal values. One (7582, map No. 118) had 290 ppm lead and 17 ppm molybdenum while the other (8114, map No. 120) contained 50 ppm arsenic and 24 ppm lead. A sample of graphitic argillite (7585, map No. 115) contained 270 ppm copper and 18 ppm molybdenum while a shale sample (8111, map No. 122) had 800 ppm zinc and 18 ppm molybdenum.

Recommendations

Geology of the area south of William Henry Bay is favorable for hosting vein and strata-bound mineralization. Stream sediment and soil sampling could identify mineralization buried under the thick vegetation (fig. C–15) in the area.

Bureau sampling of the jasperoids south of Danger Point did not reveal any significant metal values. However, it is felt the silicified zone represents an important geologic, potentially mineralizing, event. Therefore, the south Danger Point jasperoids warrant additional investigations before being written off as a barren zone of silicified limestone.

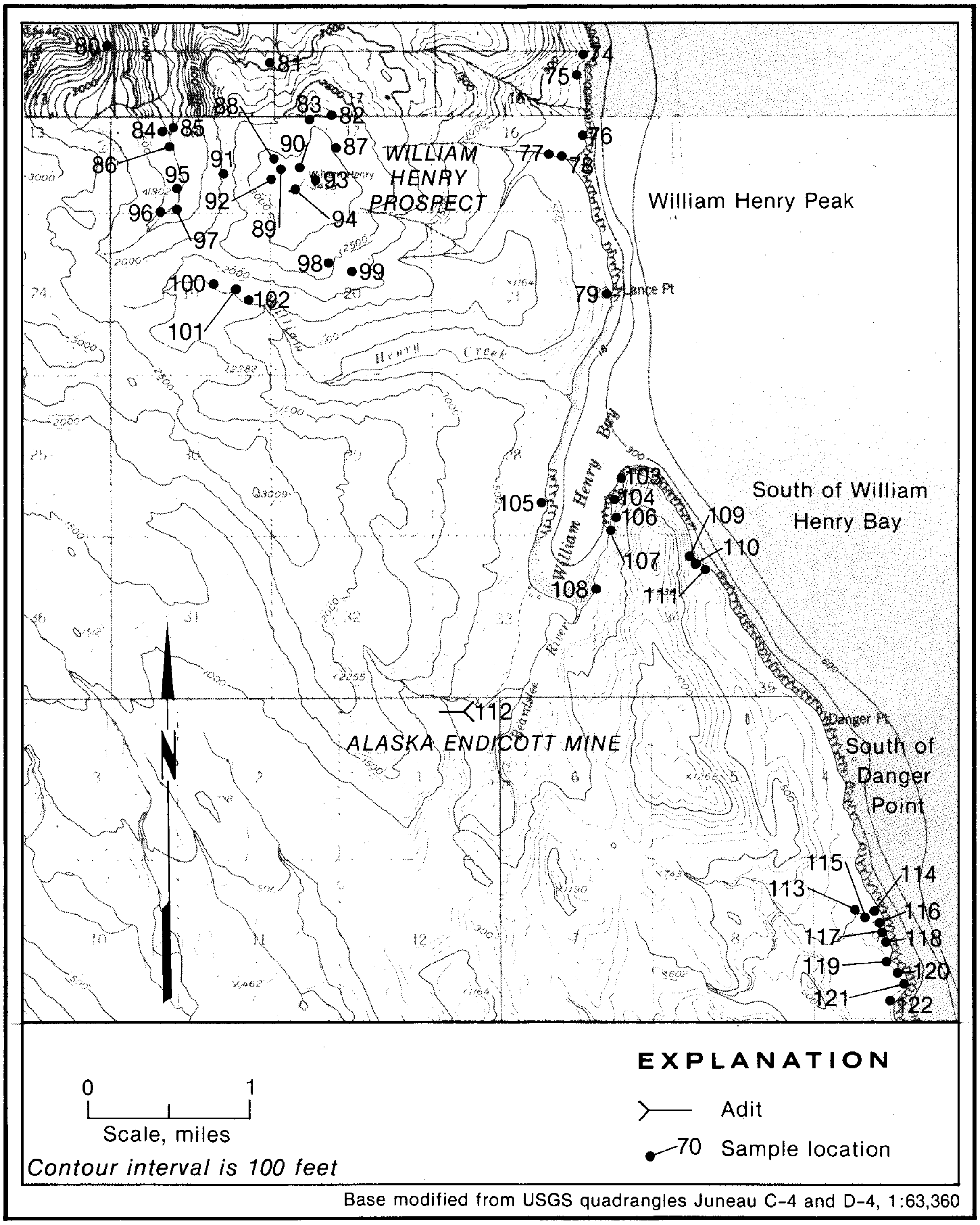

Figure C-14.—Sample locations; William Henry Bay area (William Henry prospect, Alaska Endicott Mine, William Henry Bay, and south of Danger Point).

ALASKA SILVER KING MINE

Introduction and Previous Work

The Alaska Silver King Mine is located at an elevation of 1,070 feet on the east side of Excursion Inlet (fig. C-2).

The Alaska Silver King vein was discovered in 1938 by C. Parker, Floyd Ogden, Oren Jones, and Erwin Hubey (*C-13*). The discovery was made in a steep-walled creek several miles to the north of the cannery at Excursion Inlet (figs. C-1 and C-2). Initial development work consisted of the construction of a trail and a 3,000-foot-long aerial tram from the prospect to the beach on Excursion Inlet. An open cut 30 feet long and 8 to 10 feet deep was excavated and over a ton of high-grade silver ore was mined and shipped to a smelter at Tacoma, Washington. Although high values were reported from this shipment, no further known work was done. The Bureau examined the mine in 1948 and traced spotty vein mineralization several hundred feet to the north (*C-13*).

Bureau Investigations

Geology and Mineralization

The Excursion Inlet area is underlain by Silurian graywacke, mudstone, turbidite, volcanics, and limestone (*C-3*). The rocks strike north-northwest with variable but steep dips. A granodiorite stock crops out approximately 1 mile to the north of the Alaska Silver King Mine. North-south faulting extends from the granite pluton south through the Alaska Silver King Mine (*C-3*).

Mineralization at the Alaska Silver King Mine consists of small, discontinuous veins trending 75° and dipping nearly vertically in graywacke (*C-13*). The main vein is exposed for approximately 200 feet and ranges from 4 inches to 10 inches thick; shorter, thinner veins occur in a zone up to 8 feet wide. Mineralization consists of sphalerite, galena, stibnite, tetrahedrite, and pyrite in a quartz-calcite gangue (*C-13*). Samples taken by Thorne (*C-13*) contained 1,933 and 204 ppm silver and 2.3% and 1.35% lead from a sample 4 inches wide.

Figure C-15.—Typical ground cover for the lowlands in the West Lynn Canal area. Note geologist for scale.

Thorne (*C–13*) located similar mineralization in three steep gulches north of the Alaska Silver King Mine. A gulch 200 feet north of the mine contained only weak mineralization but high-grade veins were exposed in gulches 400 and 550 feet north of the mine. A vein 2.7 feet wide exposed by blasting in the closer gulch contained pyrite with traces of galena and assayed up to 10 ppm silver. In the further gulch, a vein 5 feet long and up to 3 inches wide was exposed. This vein was noted to contain pyrite and galena. A sample of a 4-inch sulfide-rich lens yielded 2,528 ppm silver, 1.6% lead, 7.5% zinc, and 1.5% antimony.

In 1985, the Bureau was unable to locate the old workings or exposures because of dense vegetation. Furthermore, the mine site is located centered in a major avalanche path. Years of violent snow slide activity have removed or concealed all traces of the original workings. The Bureau did examine a series of thick-bedded dark gray to black, limy siltites which strike 310° and dip 70° to the north in the vicinity of the Alaska Silver King Mine. These metasedimentary rocks locally contain pyrite, minor amounts of chert, and in places are rich with siderite or ferroan dolomite. The ridge area east of the Alaska Silver King deposit was found to be composed of argillite and siltite, with local carbonate interlayers, cut by latite dikes. No mineralization or alteration was noted in this area.

Sample Results

A traverse through avalanche debris below the old claim site located minor carbonate breccia containing traces of pyrite and pyrrhotite. One sample was taken of the carbonate breccia which contained only 0.07 ppm silver and 0.055 ppm gold (fig. C–2, map No. 163).

Recommendations

Thorne estimated that there were 20 tons of measured resource at the Alaska Silver King Mine which contain over 3 ounces/ton silver (*C–13*). The veins, however, are short and narrow and the potential for large, economic veins is not good. Detailed geologic mapping, stream sediment and soil sampling could delineate other veins, as well as rediscover the known ones.

HOWARD BAY (BUTTERCUP) PROSPECT

Introduction and Previous Work

The Howard Bay prospect is located on a prominent point of land which extends into the head of Howard Bay (fig. C–2). The property is on the west side of a narrow peninsula that juts seaward along the western shore of Lynn Canal, north of Point Howard. The prospect was discovered prior to 1917 and examined briefly by a geologist from the Perseverance Mine. The vein was restaked in 1921 and a 20-foot shaft and several open cuts were excavated. Seven tons of high-grade ore were shipped to a smelter at Tacoma, Washington, which assayed 44 ounces/ton silver, 0.07 ounces/ton gold, 3.55% copper, and a trace of zinc (*C–12*). Little work was done on the prospect after 1921.

Other names for the property include Vevelstad's lode, Silverton No. 1 lode, McKecknie prospect, and, most recently, Buttercup.

Bureau Investigations

Geology and Mineralization

The Howard Bay area consists of a wedge of Silurian limestone surrounded by Silurian argillite, mudstone, turbidite, and limestone (*C–3*). Rocks at the Howard Bay prospect are predominately limestone which has been folded into an asymmetrical north-plunging anticline. A brecciated calcite-quartz vein cross cuts northwest-trending limestone and argillite and strikes 10°, dipping 76° south. The vein is roughly parallel to the axial plane of the anticline. The vein, which varies from 2.5 to 4.5 feet wide, is truncated to the south by a thick mafic dike, and disappears 125 feet to the north underneath cover. Sulfide minerals include pyrite, chalcopyrite, galena, and sphalerite. Ankerite is also present.

Sample Results

The Bureau collected five samples from the Howard Bay prospect (fig. C–2, map Nos. 183) though all of the old workings were completely overgrown and sloughed. Three samples of the vein averaged over 1 ounce/ton silver, over 0.9% zinc, and 0.47% copper.

The Bureau also collected four samples of sedimentary rock along the coast north of the Howard Bay prospect (fig. C–2). None contained significant metal values.

Recommendations

The Howard Bay prospect has an inferred resource of 2,350 tons of material with an unknown grade. Overall grade is believed less than the 44 ounces/ton silver reported from the early smelter returns. This high-grade value is thought to represent a selected sample. Two of the Bureau samples exceeded the upper detection limit of the analytical method and were not assayed to determine actual values; thus grade is unknown. Trenching and soil sampling could be used to trace the mineralized vein to the north.

ST. JAMES BAY PROSPECT

Introduction and Previous Work

Prospectors worked on a series of quartz veins along the west shore of St. James Bay opposite the largest of the Lynn Brothers Islands in the 1890's. In 1896, William Goldstein drove two adits, 400 feet apart, with lengths of 40 and 35 feet. One of the adits was driven through a vein but little other work was done (*C–9*).

Bureau Investigations

Geology and Mineralization

Three parallel veins, which have been traced for 3,000 feet, occur at the St. James Bay prospect. The veins fill shears which follow contacts between graywacke and black phyllite. The veins trend 305° and dip about 76° northeast. The westernmost No. 1 vein is reported to be up to 15 feet thick and contains carbonate segregations with galena (*C–11*). The largest masses of galena were 4 inches in diameter. Scattered grains of pyrite occur in the quartz. Vein No. 2 is 50 feet east of No. 1 and is up to 5 feet wide with similar mineralization as that vein. No. 3 vein is another 100 feet toward the beach. This vein is entirely in black phyllite and is up to 8 feet thick. There is much more evidence of shearing in the vein and considerable graphite is present in the quartz. Mineralization is much the same as in the other veins except that it is more abundant (*C–11*). The adit, now caved, cuts No. 3 vein from the beach (*C–11*).

Sample Results

The Bureau was unable to locate the old adit or the large veins but did locate swarms of smaller veins up to 2 feet thick. The Bureau collected six samples in the area of the St. James Bay prospect (fig. C–2, map Nos. 150–153), five of which were of quartz vein material. One sample (7114, map No. 152) contained 4.8 ppm silver, 5,280 ppm lead, and 15,100 ppm zinc. Other samples averaged 1.3 ppm silver and 833 ppm zinc.

Recommendations

Additional investigations are warranted to search for the larger vein system reported. The area these veins are thought to occur in is densely vegetated. Soil sampling and VLF–EM (to look for a conductivity response at the reported black phyllite-shear contact) could be helpful in this search. The veins exposed along the west shore of the bay seem insignificant.

SKARNS

Skarn deposits occur scattered throughout the West Lynn Canal subarea. The Nun Mountain pluton has created small garnet-epidote skarns but pyrite-magnetite-chalcopyrite skarns have been found southeast of Sullivan Mountain and between the Endicott and Excursion Rivers.

THE NUN MOUNTAIN-MOUNT GOLUB AREA

Introduction and Previous Work

This area lies between Nun Mountain, Mount Golub, and Teardrop Lake in the central Chilkat Range (figs. C–1 and C–2). The USGS conducted regional geological mapping and geochemical sampling in this area (*C–1*,*C–3*) but no other work is known. The Bureau examined the area because of the potential for skarn mineralization where a large granodiorite pluton intruded an area with thick limestone beds.

Bureau Investigations

Geology and Mineralization

A Cretaceous granodiorite pluton underlies the area between Nun Mountain, Mount Golub, and Teardrop Lake. The pluton cuts a series of thick limestone bands which trend northwesterly through the area. Along with limestone, other country rocks in this area include mudstone, argillite, graywacke, and turbidite (*C-3*). Skarn mineralization occurs at or near contact between the granites and limestones. The skarns are small, discontinuous garnet-epidote bodies up to 1 foot thick and several feet in length, with sparse pyrite and chalcopyrite.

Sample Results

The Bureau collected 17 samples from the area (fig. C-2, map Nos. 165-182). Four samples were taken of different skarns but metal values were modest. Copper values ranged from 30 to 2,400 ppm and the best gold value was 0.5 ppm. A sample of limestone from the ridge south of Mount Golub contained 110 ppm silver, 1,600 ppm lead, 1,600 ppm zinc, and 430 ppm copper. Other metal values included 1,100 ppm arsenic and 340 ppm chrome from altered limestone, 44 ppm molybdenum from a quartz vein, and 150 ppm copper from diorite.

Recommendations

No significant skarns were located by the Bureau but the contact between the pluton and limestone is extensive. Regional stream sampling and geologic mapping may locate larger, more metal-rich skarns.

OTHER SKARNS

Location and Previous Work

The other known skarns in the West Lynn Canal subarea occur at the Hayes prospect, about 2 miles southeast of Sullivan Mountain and the south Endicott occurrence approximately 4.5 miles south of the Endicott River and 11.5 miles west of William Henry Bay. The Hayes prospect was discovered prior to 1972 by Howard Hayes. The occurrence south of the Endicott River was discovered by Lathram and others (*C-7*). No other work is known.

Bureau Investigations

Geology and Mineralization

Both of these skarn occurrences contain magnetite and chalcopyrite and neither is associated with known igneous rocks. The Hayes occurrence is formed in "metasedimentary rocks including marble and limestone" (*C-17*). Samples of mineralized rock containing magnetite, chalcopyrite, and hematite were collected from talus below a cliff; the in-place mineralization was not examined.

The south Endicott River occurrence consists of pyrite and magnetite in an iron-stained greenstone granulite (*C-17*).

The Bureau did not examine these occurrences during the JMD study. They are included in order to give a complete list of prospects in the study area.

MAGMATIC URANIUM

WILLIAM HENRY PROSPECT

Introduction and Previous Work

The William Henry prospect is located approximately 2 miles north-northwest of William Henry Bay (fig. C-2 and C-8). Regional airborne radiometric surveys flown in 1955 located radioactive anomalies on the eastern flank of William Henry peak (fig. C-14). This anomalous area was subsequently staked as the Lucky Six prospect, and drilled under a Defense Minerals Exploration Administration (DMEA) contract. One sample obtained during drilling was reported to contain 0.20% eU (uranium equivalent). Work on the Lucky Six property was unable to develop any significant grade or tonnage of mineralization. The only recent activity in the area has been reconnaissance level mapping and sampling. Eakins (*C-5*), examined the area for the State of Alaska in the 1970's. Today the prospect is known as the William Henry prospect.

Bureau Investigations

Geology and Mineralization

The William Henry prospect is underlain by Silurian graywacke and Devonian and Silurian greenstone that have been intruded by a small Cretaceous quartz monzonite plug and an even smaller syenite body (<0.25 mile square)(*C-16*). The quartz monzonite contains feldspar crystals up to 4 inches long and is highly altered to sericite, chlorite, epidote, and clay with disseminated pyrite. Most of the sedimentary and volcanic rocks are silicified and contain abundant disseminated pyrite. Carbonatite is present throughout the intrusion and can be observed in surface exposures and by the pseudokarst topography of the area. The carbonatite forms north-northwest-trending veins to 1 foot thick which are composed mostly of pure white calcite (soviite) and minor feldspar phenocrysts (*C-16*). Variable amounts of pyrite, galena, molybdenite, barite, rutile, and biotite also occur in the veins. Rare euxenite has been reported (*C-5*).

Bureau investigators from Fairbanks took several samples from the William Henry prospect as part of ongoing investigations for rare-earth-elements (REE)(*C-16*). Small amounts of rare earth elements were detected in some samples (*C-16*).

Sample Results

During the JMD study, the Bureau collected 33 samples from the William Henry prospect area (fig. C-14, map Nos. 80-102). Eight of the samples carried between 150 and 2,000 ppm copper and four contained from 320 to 17,000 ppm zinc. The sample with the high zinc value, taken from a quartz vein, also contained 1,400 ppm lead. One other quartz vein sample, which had 1,200 ppm zinc, also contained 0.2 ppm gold. A sample of an andesite dike carried 650 ppm chrome and one from a limestone contained 12 ppm molybdenum.

Eight additional samples were collected along the shore from Lance Point to the north (fig. C-2, map Nos. 73-79). A sample of greenstone carried 0.3 ppm gold and 19 ppm molybdenum but none of the others contained significant values.

Recommendations

The William Henry prospect contains widespread alteration and mineralization but no known ore zones. Large areas of low-grade mineralization have some potential for uranium-thorium, REE, and gold, copper, and zinc. A detailed soil geochemical survey and deep drilling could determine whether economic mineralization exists on the prospect.

SUMMARY

Fortunately, a recent 1:250,000 scale geologic map has been compiled for most of the West Lynn Canal subarea (*C-3*). Additionally, stream sediment and pan concentrate samples have been collected and analyzed for the main drainages in the subarea (*C-1*). Both of these publications were of help during the Bureau's investigations. However, no previous comprehensive mineral resource investigation has been undertaken in the subarea.

The lack of regional mineral resource data hampered the Bureau's investigations. The following section provides Bureau recommendations for additional mineral deposit investigations in the West Lynn Canal subarea.

During the introductory remarks for this report five deposit types were listed as permissive for the West Lynn Canal subarea. These deposit types, by way of review, are volcanogenic massive sulfide, sediment-hosted massive sulfide, vein, skarn, and magmatic uranium. Mineral investigations into the West Lynn Canal subarea were concentrated into areas with potential for hosting the indicated deposit types.

VOLCANOGENIC MASSIVE SULFIDES

Volcanogenic massive sulfide deposits offer the best potential for hosting significant metallic mineral deposits within the West Lynn Canal subarea of the JMD. Areas which show characteristics of volcanogenic massive sulfide mineralization have been identified in at least five portions of the West Lynn Canal area (Dream, West Dream, South Sullivan River, Sullivan Mountain area, and the Lincoln Island prospect). Of these areas, the Dream prospect offers the best potential and is by far the most significant. Not only have high metal values been obtained from rock sampling on the Dream prospect but as stated in the Dream section, several different styles of mineralization have been recognized. These styles include 1) stringer, 2) vein, 3) stratiform volcanic, and 4) stratiform sediment hosted.

Bureau and Curator American geologists believe that the various styles of mineralization identified at the Dream prospect strongly indicate the presence of a large-scale volcanogenic mineralizing system. Both proximal and distal phases of sulfide mineralization are recognized in the Dream area, as shown by stringer chalcopyrite-pyrite-galena-quartz veins and the more distal stratiform sphalerite and galena within a siliceous limy argillite.

The Dream prospect area, combined with similar lithologies along strike are prime target areas for additional massive sulfide mineral discoveries. Therefore these areas warrant thorough geologic investigations, much of which is currently in progress by Curator American, based on the Bureau's and their successes to date.

Not enough is known concerning the other areas of the West Lynn Canal area which shown volcanogenic massive sulfide characteristics to make any specific recommendations other that what has already been stated previously in this text.

SEDIMENT HOSTED MASSIVE SULFIDES

Sediment hosted massive sulfide occurrences are known within the West Lynn Canal subarea at St. James Bay and within the southern part of the subarea. Neither of these occurrences are well defined of delineated. Also, the proximal mineralization at the Dream prospect is of sedimentary affinity, but definitely believed to be related to the Dream volcanogenic system.

The extensive clastic and carbonate stratigraphy of the West Lynn Canal subarea is geologically favorable for containing significant sediment hosted massive sulfide mineralization. However, too little is known about these rocks to further delineate their potential.

Detailed study of the clastic and carbonate stratigraphy could help define the more favorable areas for mineralization. Similarly, airborne geophysical surveys would also be useful in this area of much cover and little outcrop.

SKARNS

Skarn occurrences are known at several locations throughout the subarea. The contact zone of the Nun Mountain pluton is likely the most important skarn area. This contact zone is in many places a limestone-granite contact, which makes it favorable for skarn development. Skarn rocks have been located intermittently along the Nun Mountain pluton contact zone, however no large or extensive skarn zones have been identified. Even though many areas of limestone granite contact have not been investigated, it is felt that the skarn potential in the West Lynn Canal subarea is limited.

VEIN DEPOSITS

The only past production of metallic minerals from the West Lynn Canal subarea has come from vein deposits. Specifically, the deposits at the Alaska Endicott Mine, the Howard Bay Mine, and the Alaska Silver King Mine all had some mineral production. In addition to these mines, numerous small, discontinuous, variable grade vein occurrences are scattered throughout the area. No large vein systems analogous to those which occur in the Juneau Gold Belt are known within the West Lynn Canal subarea.

Undoubtedly, other veins are present in the subarea which have not been discovered. However, since the known vein systems in the subarea are small, discontinuous, and only have minor production it is problematical whether the geology of the West Lynn Canal subarea is favorable for the formation of large veins systems. Small, high-grade veins could likely be profitably exploited within the subarea. However, exploration for such small, nebulous targets is not recommended. Essentially, the West Lynn Canal subarea does not offer significant potential for hosting large scale vein deposits and mineral investigations should not be concentrated on vein exploration.

MAGMATIC URANIUM

The only known magmatic uranium occurrence in the subarea is the William Henry (Lucky Six) prospect on the eastern flank of William Henry peak, north of William Henry Bay. This prospect has been intermittently explored since its discovery in the late 1950's. Exploration has included several diamond drill holes along with pits, trenches, and surface sampling. No significant mineralization has been located through these efforts.

Detailed soil sampling or additional radiometric surveys might locate significant mineralization in the William Henry area lateral to the known spotty, low-grade occurrences. Similarly, better grade mineralization could lie at depth.

The lack of success to date in locating significant magmatic uranium mineralization in the William Henry area is believed to indicate the area has limited potential. The authors do not recommend concentrated efforts in uranium exploration be undertaken in the West Lynn Canal subarea.

CONCLUSIONS

Previous investigations in the West Lynn Canal subarea have either been regional in scope, such as reconnaissance-scale geologic mapping or very focused such as individual mine surveys. This report represents the first effort to tie together the known mineralization of the region.

The results of this effort show the West Lynn Canal subarea to have significant potential for containing volcanogenic and sediment hosted massive sulfide deposits. Although skarn, vein, and magmatic uranium mineralization is known within the subarea, the potential for these deposits is minor when compared to the massive sulfides. Therefore, it is suggested that mineral activities in the West Lynn Canal subarea be concentrated on volcanogenic and sediment hosted massive sulfide deposits. The northern part of the subarea, which contains the Dream prospect, is the most highly recommended target area.

EXPLANATION OF ANALYTICAL TECHNIQUES

Samples collected during this investigation were submitted to Nuclear Activation Services, Inc., of Ann Arbor, Michigan for analysis. All samples were crushed and ground to -200 mesh prior to analysis. Grinding was done in chrome steel mills.

Copper, lead, and tin were analyzed by using direct current plasma emission spectrometry. All other elements were determined using instrumental nuclear activation analytical techniques.

Detection limits for each element listed are given as follows, with the minimum detection limit shown in parenthesis following the element symbol; Au (0.01), Ag (0.5), As (2), Ba (150), Co (1), Cr (2), Cu (0.5), Mo (5), Ni (200), Pb (2), Sb (0.2), Sn (2.0), Th (0.5), U (0.5), W (3), and Zn (0.5). All values are given in ppm.

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APPENDIX C-1.—GLOSSARY OF ABBREVIATIONS

Cc = Rock chip sample, representative across a measured width.
Ch = Channel sample, continuous across a measured width.
Pc = Pan concentrate sample, heavy mineral concentration from stream sediments.
Pl = Placer sample, heavy mineral concentrate obtained by processing 0.10 cubic yards of stream gravels through a sluice box.
S = Select sample, commonly a grab sample, not necessarily representative of a measured interval.
Ss = Stream sediment sample.

Appendix C-2.— Complete assay results, West Lynn Canal subarea

all elements reported in ppm, (—) indicates not analyzed for

Map No.	Sample No. Width (ft)	Name or location	Sample type	Sample lithology	Ag	As	Au	Ba	Co	Cr	Cu	Mo	Ni	Pb	Sb	Sn	Th	U	W	Zn
1	7916 (3)	Davidson Glacier	Cc	Chert	<0.5	120	0.03	<150	2	8	130	<5	<200	5	<0.2	3	<0.5	<0.5	<3	20
2	8410 (na)	Sullivan Mountain	Fl	Quartz schist	<0.5	3	0.04	<150	190	180	3600	<5	2700	11	0.2	4	0.8	0.8	<3	70
3	7915 (na)		Fl	Quartz vein	<0.5	<2	0.01	<150	130	6	850	<5	<200	8	0.3	4	<0.5	<0.5	<3	20
4	8409 (na)		Fl	Quartz schist	<0.5	100	0.18	300	390	5	180	90	<200	66	<0.2	6	4.1	2.1	32	180
5	8411 (2)		S	Quartz vein	<0.5	<2	<0.01	<150	3	17	42	10	<200	2	<0.2	2	0.5	1.8	<3	20
6	8422 (2)	Davidson Glacier	S	Skarn	<0.5	4	<0.01	<150	35	9	290	<5	<200	8	0.9	4	1.7	0.9	<3	120
7	8420 (20)		Ch	Siliceous argillite	<0.5	35	<0.01	300	10	21	86	<5	<200	16	0.4	4	3.3	2.1	<3	40
	8421 (25)		Ch	Chert	<0.5	140	<0.01	300	11	21	61	<5	<200	13	0.9	3	3.3	2.2	<3	50
8	8086 (4)		S	Argillite	<0.5	37	0.03	400	6	29	56	9	<200	26	3.9	3	2.6	2.7	<3	<30
9	7856 (2)	Lynn Canal	S	Tuff	<0.5	<2	<0.01	1000	11	70	66	<5	<200	10	<0.2	<2	4.9	3.8	<3	30
10	8406 (na)	S. Sullivan Mountain	Fl	Siliceous argillite	<0.5	5	<0.01	200	29	35	130	<5	<200	48	0.5	3	2.7	2.2	<3	160
11	7854 (2)	Lynn Canal	S	Chert	<0.5	150	<0.01	<150	48	4	480	16	<200	4	0.2	<2	2.0	1.6	<3	<20
	7855 (2)		S	Chert	<0.5	8	<0.01	<150	19	5	1200	<5	<200	4	<0.2	4	3.1	1.3	<3	<20
12	7859 (na)	North Dream	Fl	Quartz-calcite vein	<0.5	19	0.14	500	43	14	1100	<5	<200	1800	0.8	<2	2.6	1.2	<3	5000
13	7858 (na)		Fl	Siliceous argillite	<0.5	3	<0.01	700	30	180	130	<5	<200	18	0.4	<2	2.2	3.9	<3	90
14	7886 (4)		S	Argillite	<0.5	10	<0.01	200	23	91	470	<5	<200	8	1.6	5	1.6	1.1	<3	50
15	7852 (4)	Lynn Canal	S	Quartz schist	<0.5	2	0.01	<150	2	3	7	<5	<200	8	<0.2	<2	16	4.0	<3	<20
	7853 (2)		S	Quartz schist	<0.5	<2	<0.01	<150	1	3	8	<5	<200	10	0.2	<2	19	3.8	<3	<20
16	7842 (6)	North Dream	S	Graphitic argillite	<0.5	6	0.01	<150	13	52	36	<5	<200	15	0.2	5	3.2	1.3	<3	40
17	7841 (4)		S	Chlorite schist	<0.5	<2	0.01	400	9	34	69	<5	<200	32	<0.2	4	2.4	2.3	<3	<40
18	7843 (2)		S	Tuff	<0.5	6	0.02	400	32	54	210	33	<200	17	1.5	5	2.0	10.1	<3	90
	7844 (4)		S	Graphitic argillite	<0.5	<2	0.01	<150	38	62	46	<5	<200	8	0.2	4	1.1	<0.5	<3	120
19	7795 (3)	Dream	Cc	Black argillite	<0.5	20	0.01	500	5	50	62	<5	<200	8	1.4	<2	3.7	2.9	<3	150
	7796 (1)		Cc	Quartz vein	<0.5	<2	<0.01	<150	4	9	24	<5	<200	14	.2	<2	<.5	<.5	<3	30
	7799 (3)		S	Quartz vein	51	14	1.60	<150	18	6	>4000	<5	<200	4	.4	8	.9	<.5	5	300
	7797 (10)		Cc	Black argillite	<0.5	16	<0.01	400	3	69	87	6	<200	18	1.1	<2	2.9	4.2	<3	150
	7798 (4)		S	Black argillite	<0.5	3	<0.01	700	10	48	89	<5	<200	8	.8	2	4.4	4.5	<4	180
20	7871 (2)		S	Felsic tuff	<0.5	350	0.93	<150	140	6	480	8	<200	160	2.1	4	4.9	2.3	<3	80
21	8405 (1)		S	Quartz vein	45	10	1.20	<150	13	<2	8700	<5	<200	4800	1.7	3	<0.5	<0.5	<3	5500
22	8456 (4)		Cc	Quartz vein	38	32	0.15	<150	13	3	9300	<5	<200	6	0.3	4	0.6	<0.5	<3	1600
23	7887 (1)		Cc	Argillite	<0.5	29	0.26	200	56	36	4800	<5	<200	13	1.3	5	2.0	1.3	<3	80
24	7870 (1)		S	Argillite	<0.5	5700	56.00	<150	1900	200	21000	840	500	110	12	8	1.0	5.6	84	440
25	8446 (3)		S	Massive sulfide	<10	4600	43.00	<500	1100	180	16000	400	400	91	8.8	8	0.7	7.0	770	280
	8447 (3)		S	Massive sulfide	250	3900	120.00	<500	1300	200	8400	640	<200	400	4.9	8	<1.0	4.7	28	290
26	8445 (2)		S	Meta-basalt	<10	23000	0.15	500	30	120	350	59	<200	12	15	6	4.2	1.7	<5	130
27	7869 (na)		Fl	Quartz-calcite vein	<0.5	24	0.01	<150	2	8	270	<5	<200	670	33	<2	<0.5	0.9	<3	3800
28	8090 (1)		S	Massive sulfide	<20	160000	3.40	800	400	36	610	<5	400	13	200	<2	<2.0	<4.0	INT	30
	8091 (2)		Cc	Quartz vein	5	2300	0.09	<150	21	230	5900	<5	<200	8	1.6	4	<0.5	1.7	<3	60
	8092 (1)		S	Quartz vein	<0.5	14000	0.13	<150	65	32	430	10	<200	13	9.9	4	<0.5	1.1	<4	80
	8093 (4)		Cc	Quartz schist	<0.5	130	0.16	500	57	44	1400	5	<200	13	0.8	4	1.3	2.4	3	140

Appendix C-2.—Complete assay results, West Lynn Canal subarea—Continued

Map No.	Sample No. Width (ft)	Name or location	Sample type	Sample lithology	Ag	As	Au	Ba	Co	Cr	Cu	Mo	Ni	Pb	Sb	Sn	Th	U	W	Zn
28	8449 (3)		Cc	Chlorite schist	<0.5	38	0.04	<150	20	100	76	<5	<200	16	0.2	3	4.6	2.6	<3	50
29	8448 (20)	Dream	Cc	Black slate	<0.5	69	0.13	300	10	210	80	7	<200	11	1.4	3	2.7	4.1	<3	140
30	8453 (3)		Cc	Garnet schist	<0.5	7	<0.01	800	11	18	30	<5	<200	7	0.2	3	11	3.5	<3	30
31	8450 (2)		S	Chlorite schist	<0.5	6700	3.70	<150	410	84	2600	200	<200	20	7.1	8	<0.5	6.1	<4	100
32	7872 (1)		S	Felsic tuff	<0.5	29	0.08	600	16	25	160	<5	<200	13	1.3	5	6.4	3.3	<3	160
	8454 (3)		Cc	Garnet schist	<0.5	8	<0.01	<150	3	2	7	<5	<200	<2	0.5	3	<0.5	0.5	<3	<20
33	8455 (1)		S	Quartz vein	<0.5	12	<0.01	<150	8	2	130	<5	<200	2	0.2	4	<0.5	<0.5	<3	<20
34	7873 (2)		S	Mafic tuff	<0.5	14	<0.01	400	10	39	210	29	<200	22	0.8	5	5.6	5.2	<3	70
35	7845 (1)	North Sullivan River	S	Quartz vein	23	8	1.50	<150	6	52	16	<5	<200	410	4.9	2	<0.5	<0.5	<3	70
	7846 (2)		S	Quartz vein	<0.5	8	0.01	<150	27	61	130	<5	<200	9	1.5	3	<0.5	0.6	<3	190
36	7847 (1)		S	Quartz vein	<0.5	<2	<0.01	1300	15	17	130	<5	<200	12	0.7	3	3.3	2.4	<3	140
	7848 (na)		S	Argillite	<0.5	58	<0.01	<150	58	710	140	<5	200	12	5.7	3	1.9	2.8	<3	450
37	8432 (5)	Sullivan Island	Cc	Graphitic argillite	<0.5	<2	<0.01	900	11	71	33	5	<200	15	<0.2	4	5.0	2.6	<3	50
38	7850 (3)	Lynn Canal	S	Paragneiss	<0.5	<2	0.10	500	2	2	6	<5	<200	2	<0.2	<2	19	3.2	<3	20
	7851 (3)		S	Quartz vein	<0.5	<2	<0.01	<150	<1	<2	5	<5	<200	<2	<0.2	<2	<0.5	<0.5	<3	<20
39	7874 (3)	West Dream	Cc	Gossan	<0.5	5	0.01	400	42	13	480	5	<200	28	0.6	5	2.0	1.2	<3	20
40	8451 (3)		Cc	Pyritic argillite	<0.5	100	0.22	300	6	160	55	18	<200	12	8.5	3	2.1	5.9	<3	160
41	8423 (2)		S	Siliceous argillite	<0.5	30	<0.01	200	2	48	29	8	<200	25	0.5	3	2.1	3.2	<3	30
	8424 (1)		S	Quartz vein	<0.5	40	0.04	<150	3	11	29	5	<200	7	1.2	3	1.0	1.0	<3	20
42	8094 (na)		Fl	Massive sulfide	<0.5	100	0.05	<150	910	900	12000	<5	7100	12	3.4	7	0.7	<0.5	<3	200
	8452 (4)		Cc	Felsic tuff	<0.5	680	0.06	300	30	78	150	<5	<200	19	1.2	4	3.4	2.4	<3	60
43	7885 (1)		S	Quartz vein	<0.5	110	0.58	<150	28	18	120	<5	<200	33	16	2	1.2	<0.5	4	20
44	8401 (5)	S. Sullivan River	Cc	Siliceous limestone	<0.5	7	<0.01	600	13	45	44	<5	<200	8	1.0	4	6.3	2.1	<3	20
45	7902 (na)		Fl	Phyllite	<0.5	3	0.02	<150	30	11	6000	<5	<200	8	0.5	3	1.3	0.9	<3	30
46	8400 (na)		Fl	Quartz-calcite vein	<0.5	<2	<0.01	<150	50	44	160	<5	<200	6	<0.2	2	<0.5	<0.5	<3	<20
47	8402 (na)		Fl	Quartz-calcite vein	<0.5	710	0.60	<150	450	6	620	<5	<200	66	38	3	<0.5	<0.5	<3	30
48	7914 (4)		Cc	Chert	<0.5	5	<0.01	<150	10	15	250	<5	<200	8	0.2	3	1.7	0.9	<3	<40
49	7912 (1)		S	Quartz-calcite vein	<0.5	13	0.01	<150	220	8	450	<5	<200	14	1.0	5	<0.5	<0.5	<3	40
50	8403 (1)		S	Quartz-calcite vein	22	19	0.16	<150	130	19	22000	<5	200	7	2.3	<2	<0.5	<0.5	<3	500
51	7901 (2)		S	Siliceous argillite	<0.5	4	<0.01	<150	16	30	53	6	<200	13	2.4	3	2.1	1.8	<3	30
52	7913 (5)		Cc	Chert	<0.5	12	0.01	300	52	44	70	<5	<200	11	0.7	3	2.1	2.2	<3	<30
53	8404 (na)		Fl	Quartz vein	<0.5	3	3.90	<150	350	45	1300	<5	<200	15	0.6	8	<0.5	<0.5	<3	50
54	7900 (na)		Fl	Graphitic phyllite	<0.5	21	0.01	<150	180	14	890	<5	200	17	0.8	4	0.6	0.8	<3	<20
55	7898 (2)		S	Siliceous argillite	<0.5	100	0.03	200	49	43	46	<5	<200	17	4.8	3	1.4	2.1	<3	<20
	7899 (1)		S	Siliceous argillite	<0.5	54	0.01	200	43	39	39	<5	<200	11	3.3	3	0.5	1.1	<3	<20
56	7904 (3)		S	Siliceous argillite	<0.5	89	0.02	<150	24	28	66	5	<200	22	2.4	4	3.4	3.1	<3	<20
57	7910 (2)		S	Siliceous argillite	<0.5	120	0.05	<150	59	27	13	6	<200	19	4.8	3	2.2	2.5	<3	20
	7911 (2)		S	Graphitic argillite	<0.5	83	0.04	<150	23	7	11	<5	<200	13	3.3	3	<0.5	0.9	<3	<20
58	7895 (3)		S	Fault breccia	<0.5	70	0.02	<150	21	81	120	<5	<200	10	4.7	5	1.2	1.1	<3	<20
59	7896 (3)		S	Greenstone	<0.5	54	0.03	<150	16	33	42	<5	<200	20	2.8	4	4.2	1.8	<3	<20
60	7897 (2)		S	Pyritic greenstone	<0.5	120	0.04	<150	54	30	42	<5	<200	14	3.6	5	1.8	0.8	<3	30
61	7903 (1)		S	Quartz vein	<0.5	2	0.04	<150	1300	12	1400	<5	1300	11	2.4	7	<0.5	<0.5	<3	170
62	8430 (na)	SE Sullivan River	Fl	Quartz vein	<0.5	25	0.02	<150	120	8	720	<5	<200	15	6.5	4	<0.5	<0.5	<3	30

Appendix C-2.—Complete assay results, West Lynn Canal subarea—Continued

Map No.	Sample No. Width (ft)	Name or location	Sample type	Sample lithology	Ag	As	Au	Ba	Co	Cr	Cu	Mo	Ni	Pb	Sb	Sn	Th	U	W	Zn
63	8429 (1)		S	Quartz vein	<0.5	<2	<0.01	<150	4	13	110	<5	<200	8	0.3	3	<0.5	<0.5	<3	<20
64	8431 (1)		S	Quartz vein	<0.5	7	0.01	<150	54	7	220	<5	<200	6	0.7	3	<0.5	<0.5	<3	30
65	7864 (4)	Endy	S	Rhyolite	<0.5	3	<0.01	<150	43	930	<1	<5	200	8	1.1	4	0.5	0.5	<3	110
66	7865 (3)		S	Chert	<0.5	16	<0.01	400	2	20	7	5	<200	23	1.2	3	3.7	3.6	<3	50
67	7543 (10)		Cc	Meta tuff	<0.5	110	0.01	300	2	<2	43	<5	<200	20	1.3	<2	5.5	4.6	<3	80
68	7863 (2)		S	Rhyolite	<0.5	330	0.21	600	15	4	270	13	<200	86	13	4	5.3	4.6	<3	30
69	7550 (2)	Endy	S	Pyritic tuff	<0.5	29	0.01	400	2	3	86	<5	<200	30	1.2	6	5.4	5.1	3	80
	7551 (na)		Fl	Quartz vein	<0.5	18	0.02	400	96	3	1400	22	<200	20	.6	4	1.2	1.3	<3	50
70	7535 (10)		Cc	Tuff (intermediate)	<0.5	3	<0.01	700	5	7	5	14	<200	12	1.6	2	4.1	3.2	7	20
71	7857 (2)	North Endicott River	S	Siliceous argillite	<0.5	5	<0.01	600	31	65	690	12	<200	630	0.6	4	5.2	2.9	<3	1400
72	7834 (2)	Lynn Canal	S	Graphitic argillite	<0.5	7	0.01	<150	5	14	1	<5	<200	8	1.1	<2	0.9	1.1	<3	20
73	7542 (2)	North Lance Point	Cc	Black argillite	<0.5	2	<0.01	<150	6	260	38	5	<200	4	.2	<2	1.9	3.1	<3	50
74	6384 (2)		Cc	Agglomerate	<0.5	6	<0.01	1500	5	2	8	<5	<200	20	.3	<2	6.6	3.9	<3	70
	6385 (3)		S	Greenstone	<0.5	150	0.28	1500	36	110	32	19	<200	28	2.1	<2	4.6	2.4	7	80
75	6367 (2)		S	Argillite	<0.5	4	<0.01	<150	15	49	97	5	<200	6	.4	2	1.8	3.7	<3	30
	6386 (3)		Cc	Mylonite	<0.5	5	<0.01	<150	7	39	58	10	<200	12	1	<2	2.3	4	<3	20
76	7541 (2)		Cc	Metachert, argillite	<0.5	9	<0.01	300	20	86	96	<5	<200	6	.4	<2	2.8	1.4	<3	70
77	6387 (na)		Fl	Argillite	<0.5	4	<0.01	300	19	38	140	<5	<200	6	.6	<2	3.3	1.9	<3	70
78	6388 (na)		Fl	Quartz	<0.5	2	<0.01	<150	8	7	26	<5	<200	6	.9	2	.6	.7	<3	330
79	7190 (1)	Lance Point	Ch	Quartz vein	<0.5	<2	<0.01	<150	2	130	9	<5	<200	8	<.2	<2	.7	<.5	<3	<30
80	6366 (1)	William Henry	S	Quartz in slate	<0.5	2	<0.01	200	2	13	<1	<5	<200	2	.2	<2	.9	.7	<3	40
81	7552 (2)		Cc	Siliceous argillite	<0.5	36	0.02	200	19	72	160	<5	<200	6	.5	<2	2.8	2.8	<3	70
82	8266 (2)		Cc	Quartz vein	<0.5	8	0.17	400	23	26	77	<5	<200	21	1.0	2	<0.5	<0.5	<3	1200
	8267 (1)		Cc	Quartz vein	<0.5	22	0.09	200	19	7	550	<5	<200	1400	0.9	<2	<0.5	<0.5	<3	17000
83	8076 (6)		Cc	Siliceous argillite	<0.5	13	<0.01	1200	24	68	120	<5	<200	100	0.2	4	2.2	1.0	<3	350
84	7571 (1)		S	Quartz vein	<0.5	3	<0.01	<150	4	16	38	<5	<200	2	.3	<2	<.5	<.5	<3	30
85	7572 (1)		S	Argillite	<0.5	110	0.05	<150	50	5	110	21	<200	12	1.3	2	3.8	5.2	<3	<30
86	7573 (2)		S	Argillite	<0.5	13	0.02	200	53	23	<1	<5	<200	6	.2	<2	3.2	1.5	<3	60
	7574 (4)		Cc	Black argillite	<0.5	3	<0.01	300	48	11	12	<5	<200	6	.4	<2	4.8	2.2	<3	110
87	8268 (3)		Cc	Argillite	<0.5	14	0.09	400	39	37	560	<5	<200	9	2.1	5	0.9	0.7	<3	320
88	8253 (1)		Cc	Quartz vein	<0.5	6	0.06	<150	23	9	2000	<5	<200	11	1.3	4	<0.5	<0.5	<3	150
89	8254 (na)		S	Argillite	<0.5	3	0.01	800	20	12	200	<5	<200	11	0.4	3	1.7	2.6	<3	100
	8255 (2)		Cc	Argillite	<0.5	8	0.01	<150	59	11	170	<5	<200	14	1.7	4	<0.5	0.8	<3	130
	8256 (1)		Cc	Diorite dike	<0.5	6	0.01	200	59	45	590	<5	<200	5	1.1	6	<0.5	<0.5	<3	120
90	8074 (10)		S	Argillite	<0.5	7	0.01	400	21	55	150	<5	<200	9	0.7	3	2.0	2.0	<3	120
91	8252 (2)		Cc	Argillite	<0.5	18	0.01	1200	14	25	110	<5	<200	12	0.8	4	4.2	4.5	<3	100
92	8072 (1)		S	Quartz vein	<0.5	2	0.06	<150	46	4	89	<5	<200	7	1.0	6	<0.5	<0.5	<3	260
	8073 (2)		S	Quartz vein	<0.5	2	<0.01	<150	4	2	95	<5	<200	3	1.5	2	<0.5	<0.5	<3	20
93	8257 (1)		Cc	Quartz vein	<0.5	<2	<0.01	<150	6	3	30	<5	<200	6	0.3	3	<0.5	<0.5	<3	240
94	8071 (1)		Cc	Quartz vein	<0.5	4	0.01	<150	13	14	81	<5	<200	9	0.5	3	0.9	0.5	<3	50
	8251 (na)		S	Quartz vein	<0.5	9	<0.01	<150	12	4	100	<5	<200	7	2.3	3	<0.5	<0.5	<3	180
95	7570 (na)		Fl	Black argillite	<0.5	4	0.01	300	8	62	62	<5	<200	10	.6	<2	3.6	4.4	<3	50
96	7564 (3)		Cc	Black argillite	<0.5	10	<0.01	300	11	61	29	<5	<200	10	.6	<2	4.5	1.6	<3	90
	7565 (na)		Fl	Argillite	<0.5	5	<0.01	300	17	37	29	<5	<200	10	.4	<2	8.4	3.1	<3	40

Appendix C-2.—Complete assay results, West Lynn Canal subarea—Continued

Map No.	Sample No. Width (ft)	Name or location	Sample type	Sample lithology	Ag	As	Au	Ba	Co	Cr	Cu	Mo	Ni	Pb	Sb	Sn	Th	U	W	Zn
96	7566 (2)		Cc	Andesite dike	<0.5	3	<0.01	<150	35	650	61	<5	<200	8	.4	2	2.8	1.4	<3	90
97	7567 (3)		Cc	Limestone	<0.5	<2	<0.01	900	5	5	3	<5	<200	2	.2	<2	17	5.2	<3	50
	7568 (2)		S	Limestone	<0.5	6	<0.01	3000	8	12	<1	<5	<200	4	2.9	<2	.6	1	<3	20
	7569 (2)		S	Limestone	<0.5	16	0.01	2000	19	20	<1	12	<200	8	4.7	<2	.9	3.2	<3	20
98	8269 (2)		Cc	Quartz vein	<0.5	3	<0.01	400	10	5	86	<5	<200	31	1.9	3	<0.5	<0.5	<3	270
99	8077 (1)		Cc	Quartz vein	<0.5	<2	<0.01	<150	2	3	34	<5	<200	5	<0.2	4	<0.5	<0.5	<3	<20
100	3338 (na)		Fl	Siliceous argillite	<0.5	24	<0.01	200	43	26	140	<5	<200	10	1.5	<2	3.9	1.8	<3	80
101	3337 (na)		Fl	Argillite	<0.5	9	<0.01	700	75	39	290	<5	<200	4	.6	<2	3.1	2.2	<3	80
102	3336 (na)		Cc	Argillite	.3	20	<0.01	—	—	—	72	—	—	4	—	—	—	—	—	92
103	7184 (4)	William Henry Bay	Cc	Black argillite	<0.5	62	0.01	900	17	110	89	<5	<200	48	2	<2	4.3	5.2	<3	140
104	7183 (3)		Cc	Metachert	<0.5	<2	<0.01	600	4	5	7	<5	<200	8	.2	<2	5.5	4.1	<3	90
105	7187 (4)		Ch	Metachert	<0.5	53	0.05	300	42	33	490	<5	<200	18	2.5	<2	4	2.6	<3	360
106	7185 (25)	William Henry Bay	Cc	Siliceous limestone	<0.5	4	<0.01	800	6	5	99	<5	<200	8	.2	<2	5.6	2.3	<3	130
107	7182 (1)		Cc	Siliceous limestone	<0.5	50	<0.01	400	3	6	24	12	<200	18	1.8	<2	3.7	1.9	<3	110
108	7186 (4)		Cc	Siliceous limestone	<0.5	24	1.10	<150	50	14	51	5	<200	6	.8	2	2.4	.8	<3	250
109	7877 (1)	S. William Henry Bay	Cc	Quartz-calcite vein	<0.5	100	2.70	<150	200	10	2500	<5	<200	25	4.6	4	<0.5	<0.5	<3	50
110	7876 (3)		Cc	Greenstone	<0.5	25	0.02	500	9	76	89	<5	<200	12	3.2	4	4.7	2.4	<3	40
111	7875 (2)		S	Sheared greenstone	<0.5	63	0.15	<150	110	15	550	<5	<200	15	5.9	5	1.2	1.0	<3	<20
112a	3423 (8)	Alaska Endicott	Cc	Calcite vein	4.5	—	<0.01	—	—	—	15400	—	—	11	—	—	—	—	—	24
b	3424 (5)		Cc	Calcite vein	.8	—	<0.01	—	—	—	4050	—	—	6	—	—	—	—	—	12
c	7060 (2)		Cc	Calcite vein	000	—	<0.01	—	—	—	1880	—	—	7	—	—	—	—	—	55
d	7061 (3)		Cc	Calcite vein	000	—	0.02	—	—	—	1430	—	—	6	—	—	—	—	—	35
e	7021 (2)		Cc	Quartz vein	<.2	—	<0.01	—	—	—	525	—	—	4	—	—	—	—	—	10
f	7018 (1)		Cc	Calcite vein	1.4	—	<0.01	—	—	—	3340	—	—	3	—	—	—	—	—	30
g	7017 (2)		Cc	Quartz vein	5.6	—	0.04	—	—	—	17200	—	—	6	—	—	—	—	—	25
h	7019 (4)		Cc	Quartz vein	.4	—	<0.01	—	—	—	835	—	—	6	—	—	—	—	—	392
i	7020 (6)		Cc	Quartz vein	.5	—	<0.01	—	—	—	2180	—	—	5	—	—	—	—	—	11
j	3425 (3)		Cc	Calcite vein	.3	—	<0.01	—	—	—	1530	—	—	8	—	—	—	—	—	37
k	3427 (5)		Cc	Calcite vein	<.2	—	<0.01	—	—	—	520	—	—	13	—	—	—	—	—	9
l	3426 (4)		Cc	Calcite vein	<.2	—	<0.01	—	—	—	985	—	—	9	—	—	—	—	—	13
113	7584 (2)	South Danger Point	Cc	Quartz vein	<0.5	<2	<0.01	<150	2	18	5	<5	<200	4	0.5	3	1.1	<0.5	<3	<20
114	7586 (2)		S	Quartz vein	<0.5	4	<0.01	200	3	42	<1	<5	<200	6	0.3	3	1.2	1.3	<3	30
	7587 (?)		S	Limestone	<0.5	13	<0.01	700	7	130	7	<5	<200	13	1.1	4	2.9	3.8	<3	70
	7588 (na)		S	Quartz vein	<0.5	<2	0.01	<150	1	5	7	<5	<200	3	<0.2	3	<0.5	<0.5	<3	<20
115	7585 (na)		S	Graphitic argillite	<0.5	3	<0.01	500	11	33	270	18	<200	6	0.4	3	2.6	4.0	<3	20
116	7529 (3)		Cc	Rhyolite	<0.5	18	<0.01	1900	16	7	<1	<5	<200	16	8.8	<2	4	3.2	<3	30
	7530 (1)		Cc	Quartz vein	<0.5	2	<0.01	800	4	3	3	<5	<200	14	1.7	<2	.8	<.5	<3	30
	7531 (1)		Cc	Rhyolite	<0.5	3	<0.01	2200	8	6	<1	<5	<200	14	13	6	4	2.3	<3	20
117	7532 (na)		Fl	Silicified volcanic	<0.5	110	0.02	1000	95	3	16	5	<200	` 200	31	<2	4.8	2.5	<3	60

Appendix C-2.—Complete assay results, West Lynn Canal subarea—Continued

Map No.	Sample No. Width (ft)	Name or location	Sample type	Sample lithology	Ag	As	Au	Ba	Co	Cr	Cu	Mo	Ni	Pb	Sb	Sn	Th	U	W	Zn
117	7533 (10)		Ch	Silicified volcanic	<0.5	3	<0.01	800	4	4	<1	<5	<200	8	5.3	2	8.3	3.9	<3	40
	7534 (10)		Ch	Silicified volcanic	<0.5	4	<0.01	1600	5	2	3	<5	<200	8	5.4	6	7	3.7	<3	20
118	7581 (2)		S	Jasperoid	<0.5	20	<0.01	1200	15	<2	<1	<5	<200	18	6.1	3	7.5	2.5	<3	<20
	7582 (2)		S	Jasperoid	<0.5	190	0.02	4200	58	5	15	17	<200	290	19	3	3.2	1.8	<3	<20
	7583 (10)		Cc	Jasperoid	<0.5	21	<0.01	1500	14	<2	<1	<5	<200	25	5.1	3	4.8	2.3	<3	<20
119	7575 (15)		Cc	Jasperoid	<0.5	3	<0.01	1000	3	<2	<1	<5	<200	5	3.9	3	8.4	3.4	<3	30
	7576 (10)		Cc	Jasperoid	<0.5	6	<0.01	1900	9	4	<1	<5	<200	17	3.9	3	6.7	2.9	<3	<20
	7577 (10)		Cc	Jasperoid	<0.5	3	<0.01	600	5	3	10	<5	<200	12	3.9	4	6.3	2.7	<3	<20
	7578 (10)		Cc	Jasperoid	<0.5	3	<0.01	700	5	<2	3	<5	<200	10	3.2	3	7.3	2.9	<3	<20
	7579 (10)		Cc	Jasperoid	<0.5	4	<0.01	800	6	<2	5	<5	<200	12	4.7	3	6.5	2.6	<3	<20
	7580 (10)		Cc	Jasperoid	<0.5	6	<0.01	5000	3	6	<1	<5	<200	6	4.5	4	6.4	2.8	<3	30
120	8114 (2)		S	Jasperoid	<0.5	50	<0.01	1400	14	INT	8	<5	<200	24	12	5	8.2	2.5	<3	<20
121	8100 (10)		Cc	Jasperoid	<0.5	3	0.01	2000	14	14	10	<5	<200	14	5.6	3	4.0	3.4	<3	<20
	8101 (10)		Cc	Jasperoid	<0.5	2	0.01	1800	11	13	<1	<5	<200	13	5.0	4	4.5	2.9	<3	40
	8102 (10)		Cc	Jasperoid	<0.5	5	<0.01	1200	11	3	<1	<5	<200	8	3.0	4	5.4	2.6	<3	<20
	8103 (10)		Cc	Jasperoid	<0.5	5	<0.01	1100	10	4	<1	<5	<200	4	2.9	3	5.2	2.7	<3	30
	8104 (15)		Cc	Jasperoid	<0.5	2	<0.01	1000	7	7	<1	<5	<200	5	2.6	2	5.8	2.2	<3	<20
	8105 (15)		Cc	Jasperoid	<0.5	<2	<0.01	1500	4	<2	<1	<5	<200	8	2.5	4	7.3	2.3	<3	<20
	8106 (15)		Cc	Jasperoid	<0.5	3	<0.01	1700	14	30	16	<5	<200	7	4.6	4	5.0	2.0	<3	<20
	8107 (10)		Cc	Jasperoid	<0.5	3	<0.01	1100	17	37	12	<5	<200	9	4.7	3	3.7	1.9	<3	<20
	8108 (10)		Cc	Jasperoid	<0.5	5	<0.01	1600	8	7	2	<5	<200	11	3.9	3	7.1	2.8	<3	<20
	8109 (10)		Cc	Jasperoid	<0.5	4	<0.01	1900	12	2	<1	<5	<200	10	4.1	4	5.1	2.6	<3	30
	8110 (1)		Cc	Quartz-calcite vein	<0.5	<2	<0.01	700	3	<2	<1	<5	<200	8	1.1	3	2.1	1.0	<3	<20
	8112 (2)		Cc	Jasperoid	<0.5	2	<0.01	600	18	3	<1	<5	<200	4	2.5	4	1.4	1.0	<3	60
	8113 (1)		S	Quartz vein	<0.5	2	<0.01	400	10	2	<1	<5	<200	9	1.2	3	0.7	0.6	<3	30
122	8111 (2)	South Danger Point	Cc	Shale	<0.5	54	<0.01	1500	8	44	39	18	<200	9	4.2	3	6.6	8.1	<3	800
123	8176 (5)	West St. James Bay	Cc	Argillite	<0.5	130	0.02	1300	12	110	70	12	<200	38	6.4	5	8.0	6.8	<3	160
	8177 (1)		Cc	Quartz vein	<0.5	3	<0.01	600	10	260	33	<5	<200	19	0.3	4	4.3	1.8	<3	70
124	8178 (2)		Cc	Gossan	<0.5	34	0.02	400	18	89	83	9	<200	24	9.0	3	2.7	3.1	<3	140
125	8056 (2)		Cc	Quartz vein	<0.5	<2	<0.01	300	4	47	36	<5	<200	10	0.2	2	1.0	<0.5	<3	30
	8057 (2)		Cc	Quartz vein	<0.5	7	<0.01	500	5	26	62	9	<200	14	1.2	3	2.3	4.2	<3	170
	8058 (na)		S	Argillite	<0.5	23	0.01	1000	4	61	87	17	<200	24	4.1	4	6.8	14.0	<3	130
126	8179 (1)		Cc	Quartz vein	<0.5	2	<0.01	<150	5	19	130	<5	<200	51	0.4	3	0.7	0.5	<3	60
127	8180 (2)		Cc	Graywacke	<0.5	10	0.01	1000	15	140	48	<5	<200	15	1.5	3	5.9	2.6	<3	80
128	7540 (2)		S	Quartz vein	<0.5	21	<0.01	<150	2	5	880	<5	<200	570	.3	2	<.5	<.5	<3	710
129	7553 (2)		S	Argillite	<0.5	40	0.01	600	11	77	42	19	<200	20	2.6	<2	5.4	6	<3	80
130	7602 (1)		S	Black slate	<0.5	28	0.01	600	11	79	29	9	<200	14	4.3	<2	5	4.9	<3	100
131	8059 (4)		Cc	Quartz vein	<0.5	<2	<0.01	<150	2	7	25	<5	<200	4	0.2	3	0.5	<0.5	<3	20
132	7554 (1)		S	Siliceous limestone	<0.5	120	0.05	600	9	36	55	45	<200	50	20	<2	4.7	5	<3	70
	7555 (1)		Cc	Quartz vein	<0.5	3	<0.01	<150	4	15	27	<5	<200	4	.4	6	1	.7	<3	80
	7556 (4)		Cc	Jasperoid	<0.5	14	0.01	600	7	110	48	7	<200	20	2.9	8	4.5	4.4	<3	130
133	8191 (2)		Cc	Quartz vein	<0.5	61	0.03	800	8	66	43	31	<200	20	6.0	4	2.5	3.3	<3	30
	8192 (2)		Cc	Graphitic argillite	<0.5	16	<0.01	800	10	100	58	10	<200	16	4.3	4	5.8	4.7	<3	100

Appendix C-2.—Complete assay results, West Lynn Canal subarea—Continued

Map No.	Sample No. Width (ft)	Name or location	Sample type	Sample lithology	Ag	As	Au	Ba	Co	Cr	Cu	Mo	Ni	Pb	Sb	Sn	Th	U	W	Zn
134	8065 (10)		S	Massive sulfide	<0.5	390	0.10	1600	15	7	89	87	<200	160	30	4	4.4	11.2	<3	70
	8066 (10)		Cc	Argillite	<0.5	28	<0.01	800	12	130	56	8	<200	19	3.3	3	5.7	4.2	<3	40
135	8061 (10)		Ch	Argillite	<0.5	18	0.01	700	8	91	51	6	<200	21	5.2	4	4.3	5.6	<3	90
	8062 (10)		Cc	Argillite	<0.5	23	0.01	700	9	100	110	10	<200	19	3.3	2	6.5	8.9	<3	140
	8063 (10)		Cc	Argillite	<0.5	5	<0.01	400	8	110	47	<5	<200	6	0.9	3	3.8	2.6	<3	40
	8064 (10)		Cc	Argillite	<0.5	20	0.01	900	6	92	56	8	<200	30	4.2	3	5.1	5.4	<3	80
136	8193 (2)		Cc	Argillite	<0.5	18	<0.01	1000	9	38	52	8	<200	20	3.6	4	3.9	3.2	<3	30
137	8195 (25)		Cc	Argillite	<0.5	12	<0.01	800	13	140	50	<5	<200	13	3.9	3	6.0	3.4	<3	100
138	8187 (10)		Cc	Siliceous argillite	<0.5	36	0.01	1000	16	95	70	10	<200	22	2.1	4	7.5	6.3	<3	80
	8188 (10)		Cc	Argillite	<0.5	13	0.01	800	13	140	73	<5	<200	19	1.4	4	7.4	4.4	<3	90
	8189 (6)		Cc	Argillite	<0.5	12	0.01	900	16	120	71	<5	<200	21	1.8	4	7.1	4.5	<3	130
	8190 (10)		Cc	Argillite	<0.5	4	<0.01	600	13	150	52	<5	<200	8	0.2	4	5.5	2.0	<3	60
139	8194 (3)		Ch	Quartz-calcite vein	<0.5	2	<0.01	<150	3	11	28	<5	<200	6	0.6	3	0.6	0.5	<3	60
140	8181 (1)		Ch	Argillite	<0.5	69	0.02	700	12	85	73	19	<200	63	19	4	5.8	7.0	<3	90
	8182 (5)		Ch	Argillite	<0.5	13	<0.01	500	13	100	48	<5	<200	15	2.4	4	4.5	3.0	<3	70
	8183 (1)		Ch	Argillite	<0.5	9	<0.01	500	14	150	46	<5	<200	7	0.7	<2	4.7	2.1	<3	60
	8184 (20)		Cc	Argillite	<0.5	18	<0.01	600	17	180	55	<5	<200	11	2.3	2	5.8	3.1	<3	90
	8185 (1)		Cc	Quartz vein	<0.5	2	<0.01	<150	3	10	56	<5	<200	6	0.3	3	<0.5	<0.5	<3	50
	8186 (5)		Ch	Graphitic argillite	<0.5	140	0.18	800	24	80	140	46	<200	67	58	<2	5.7	6.6	<3	190
141	8067 (1)		Cc	Quartz vein	<0.5	54	<0.01	<150	6	40	23	<5	<200	5	1.5	2	1.3	0.7	<3	30
142	8068 (na)		S	Quartz vein	<0.5	4	<0.01	<150	5	31	2700	<5	<200	8	0.3	3	1.9	0.9	<3	440
	8069 (1)		Cc	Quartz vein	<0.5	3	<0.01	<150	2	23	170	<5	<200	8	0.2	3	0.8	0.5	<3	60
	8070 (1)		Cc	Mafic dike	<0.5	2	<0.01	400	10	8	47	<5	<200	7	<0.2	4	3.1	1.2	<3	70
143	8196 (2)		Cc	Quartz-calcite vein	<0.5	<2	<0.01	<150	2	5	4000	<5	<200	5	<0.2	3	<0.5	<0.5	<3	1600
	8197 (na)		S	Quartz vein	<0.5	<2	<0.01	<150	2	5	270	<5	<200	4	<0.2	3	<0.5	<0.5	<3	230
144	8032 (5)		Cc	Argillite	<.2	—	<0.01	—	—	—	47	—	—	15	—	—	—	—	—	90
145	8198 (2)		Cc	Quartz-calcite vein	<0.5	2	<0.01	<150	3	12	36	<5	<200	6	<0.2	3	1.0	0.5	<3	70
	8199 (3)		Cc	Black argillite	<0.5	15	<0.01	300	8	64	61	7	<200	15	1.1	3	5.4	2.6	<3	70
146	7597 (na)	North Boat Harbor	S	Quartz vein	<0.5	3	<0.01	400	3	33	7	<5	<200	5	<0.2	3	1.1	0.5	<3	30
147	7558 (na)		Fl	Breccia	<0.5	8	<0.01	1800	15	33	14	<5	<200	8	.4	4	3.2	1.8	<3	80
148	7559 (2)		Cc	Quartz vein	<0.5	17	<0.01	200	13	11	610	<5	<200	320	.2	<2	.6	<.5	<3	180
149	7589 (na)		S	Quartz vein	<0.5	4	0.01	<150	6	7	250	<5	<200	19	<0.2	2	<0.5	<0.5	<3	230
	7590 (na)		S	Argillite	<0.5	15	<0.01	600	19	190	41	<5	<200	8	0.6	4	6.7	2.6	<3	40
	7591 (6)		Cc	Quartz vein	2	4	<5	<200	50	<0.2	2	<0.5	<0.5	<3	90					
	7592 (1)		Cc	Quartz vein	<0.5	2	0.01	200	3	20	10	<5	<200	9	<0.2	3	0.6	<0.5	<3	<20
149	7593 (2)	North Boat Harbor	Cc	Quartz vein	<0.5	4	<0.01	200	5	21	670	<5	<200	19	<0.2	2	0.5	<0.5	<3	310
	7594 (1)		Cc	Quartz vein	<0.5	<2	<0.01	<150	2	24	15	<5	<200	83	<0.2	2	<0.5	<0.5	<3	20
	7595 (1)		Cc	Quartz vein	<0.5	<2	0.01	<150	2	16	4	<5	<200	5	<0.2	2	<0.5	<0.5	<3	<20
	7596 (2)		S	Quartz vein	<0.5	<2	<0.01	<150	2	22	9	<5	<200	14	<0.2	2	0.5	<0.5	<3	<20
	8115 (1)		Cc	Quartz vein	<0.5	<2	0.01	<150	2	18	50	<5	<200	140	<0.2	3	0.8	<0.5	<3	60
	8116 (na)		S	Quartz-calcite vein	<0.5	2	0.01	1100	9	72	7	<5	<200	38	0.2	3	2.9	0.9	<3	110
	8117 (1)		Cc	Quartz vein	<0.5	4	0.01	200	3	34	250	<5	<200	17	<0.2	3	0.6	<0.5	<3	60
	8118 (2)		Cc	Quartz vein	<0.5	2	<0.01	200	3	31	36	<5	<200	11	<0.2	3	1.0	<0.5	<3	70
	8119 (2)		Cc	Quartz vein	<0.5	<2	<0.01	<150	1	10	3	<5	<200	21	<0.2	2	<0.5	<0.5	<3	20

Appendix C-2.—Complete assay results, West Lynn Canal subarea—Continued

Map No.	Sample No. Width (ft)	Name or location	Sample type	Sample lithology	Ag	As	Au	Ba	Co	Cr	Cu	Mo	Ni	Pb	Sb	Sn	Th	U	W	Zn
149	8120 (2)		Cc	Quartz vein	<0.5	<2	<0.01	<150	2	16	20	<5	<200	7	<0.2	3	<0.5	<0.5	<3	<20
	8121 (2)		Cc	Andesite dike	<0.5	2	<0.01	700	26	7	38	<5	<200	9	<0.2	4	1.3	0.5	<3	60
	8122 (1)		Cc	Quartz vein	<0.5	<2	<0.01	300	3	28	5	<5	<200	8	<0.2	2	0.9	<0.5	<3	60
150	7527 (2)	St. James Bay	Cc	Greenstone	<0.5	3	<0.01	700	12	250	14	<5	<200	10	.4	<2	4.8	1.7	<3	70
151	7528 (2)		S	Quartz vein	<0.5	2	<0.01	<150	1	6	3	<5	<200	12	.2	4	.5	<.5	<3	30
152	7112 (3)		S	Quartz vein	1.4	—	<0.01	—	—	—	45	2	—	48	—	—	—	—	—	1460
	7113 (2)		S	Quartz vein	1.4	—	<0.01	—	—	—	11	2	—	20	—	—	—	—	—	1460
	7114 (4)		S	Quartz vein	4.8	—	0.01	—	—	—	43	2	—	5280	—	—	—	—	—	15100
153	7115 (2)		S	Quartz vein	1.0	—	<0.01	—	—	—	4	2	—	296	—	—	—	—	—	384
154	7173 (2)	Lincoln Island	Cc	Pyritic metachert	<0.5	<2	<0.01	3600	11	43	64	46	<200	<2	.4	<2	3.2	1.7	<3	110
155	7188 (2)		Ch	Skarn	<0.5	8	0.04	<150	76	170	2200	<5	<200	6	3.6	<2	1.6	5	<3	80
156	7174 (4)		Cc	Siliceous sinter	<0.5	<2	0.03	200	140	30	1900	69	<200	8	.7	6	1.6	3.3	10	50
	7175 (1)		Ch	Siliceous sinter	<0.5	<2	0.02	4000	81	32	1600	13	<200	4	.9	<2	1.7	1.5	66	60
	7176 (2)		Ch	Siliceous sinter	<0.5	2	0.02	1200	86	30	470	<5	<200	14	.7	<2	1.9	2.6	41	70
	7177 (2)		Ch	Argillite	<0.5	2	<0.01	1700	15	130	80	<5	<200	6	1.5	<2	2.3	2.2	<3	130
157	7178 (3)		Cc	Greenstone	<0.5	82	0.02	200	47	160	36	<5	<200	6	1.5	2	.7	<.5	<3	140
158	7179 (1)	South Lincoln Island	Cc	Silicious argillite	<0.5	<2	<0.01	1900	19	180	90	62	<200	8	1.5	<2	3.7	10.2	<3	240
159	7155 (1)	Lynn Sisters Area	Cc	Chlorite schist	<0.5	<2	<0.01	<150	1	7	2	<5	<200	4	<.2	<2	.8	<.5	<3	<20
	7156 (1)		Cc	Quartz vein	<0.5	<2	<0.01	<150	5	4	2	<5	<200	4	<.2	<2	.7	<.5	<3	<20
	7157 (1)		Ch	Breccia zone	<0.5	16	<0.01	500	41	75	51	<5	<200	8	.6	<2	2.6	1.3	<3	120
160	7158 (5)		Ch	Metachert	<0.5	120	0.04	700	1	—	5	<5	<200	10	.3	8	14	6.9	<3	550
	7159 (2)		S	Pyritic chert	<0.5	94	0.03	600	1	—	13	<5	<200	44	1.3	<2	13	6.9	<3	90
161	7506 (na)		Pl	na	<0.5	3	0.03	<150	48	150	2	<5	<200	14	<.2	<2	6	3	4	220
162	7160 (2)		Cc	Skarn	<0.5	<2	<0.01	400	15	58	45	12	<200	4	<.2	<2	4.5	2.6	<3	170
163	3170 (na)	Alaska Silver King	Fl	Limestone breccia	.7	—	0.05	—	—	—	71	6	—	20	—	—	—	—	3	104
164	7023 (3)	W. Nun Mt.	Cc	Skarn	.2	—	<0.01	—	—	—	21	5	—	15	—	—	—	—	—	30
165	7517 (2)	S. Mt. Golub	Cc	Altered basalt	<0.5	<2	<0.01	300	51	250	160	<5	<200	6	<.2	2	2	.8	<3	130
166	7518 (1)		S	Hornfels (skarn)	<0.5	3	<0.01	500	12	120	35	8	<200	6	.4	2	7.3	3.5	<3	80
167	7519 (3)		S	Limestone	110	11	0.02	<150	21	200	430	<5	<200	1600	75	<2	3.2	1.4	4	1600
	7520 (1)		S	Felsic intrusive	<25	<2	<0.01	200	33	240	48	<5	<200	8	.6	<2	4.7	1.7	<3	70
	7521 (2)		Cc	Metavolcanic	<0.5	4	<0.01	200	39	340	51	5	<200	6	.7	<2	8.7	3.7	<3	100
168	8079 (2)	S. Nun Mt.-Mt. Golub pluton	S	Epidote skarn	<0.5	4	0.05	<150	29	16	2400	35	<200	11	0.8	5	0.6	3.9	6	240
	8283 (3)		Cc	Garnet skarn	<0.5	<2	<0.01	300	14	20	130	8	<200	8	0.4	4	1.3	<0.5	<3	30
169	8284 (3)		Cc	Garnet skarn	<0.5	<2	0.52	200	17	72	30	5	<200	2	0.3	3	4.6	3.2	7	150
170	7513 (na)		S	Siliceous argillite	<0.5	<2	<0.01	1000	16	110	45	5	<200	10	.6	4	6.4	2.6	<3	80
171	7514 (2)		S	Limestone	<0.5	1100	<0.01	300	16	65	24	<5	<200	6	.8	<2	2.2	.9	<3	<30
172	7526 (na)		Fl	Limestone	<0.5	<2	<0.01	<150	3	21	<1	<5	<200	2	.2	<2	1.2	.8	<3	<30
173	7515 (3)		S	Black argillite	<0.5	30	<0.01	600	13	120	64	7	<200	18	1.7	<2	4.9	6.1	<3	70
174	7516 (na)	S. Nun Mt.-Mt. Golub pluton	Fl	Altered limestone	<0.5	13	<0.01	500	44	340	32	<5	<200	4	.3	<2	2.3	.9	<3	70
175	7523 (na)		Fl	Skarn	<0.5	<2	<0.01	200	31	190	120	<5	<200	2	<.2	<2	2.8	1.2	<3	70
	7524 (na)		Fl	Quartz vein	<0.5	<2	<0.01	<150	16	250	110	44	<200	<2	<.2	<2	.6	<.5	<3	<20
176	7525 (na)		Fl	Quartz diorite	<0.5	<2	<0.01	600	7	77	150	7	<200	4	<.2	<2	2.1	.8	<3	<30
177	7522 (na)		Fl	Siliceous argillite	<0.5	4	<0.01	700	22	120	44	<5	<200	12	1.5	<2	6.5	2.6	<3	150

Appendix C-2.—Complete assay results, West Lynn Canal subarea—Continued

Map No.	Sample No. Width (ft)	Name or location	Sample type	Sample lithology	Ag	As	Au	Ba	Co	Cr	Cu	Mo	Ni	Pb	Sb	Sn	Th	U	W	Zn
178	7508 (1)	W. Lynn Canal	Cc	Fractured chert	<0.5	9	<0.01	200	14	54	48	<5	<200	12	.3	<2	4	2.6	<3	90
179	7507 (1)		S	Rhyolite dike	<0.5	40	0.01	300	30	100	33	<5	<200	12	4.3	<2	3	1.4	<3	70
180	3332 (3)		Cc	Brecciated mudstone	<0.5	4	<0.01	500	19	170	27	<5	<200	8	.3	<2	6.9	1.7	<3	90
181	3333 (na)		Fl	Sedimentary breccia	<0.5	20	0.01	<150	4	17	2	<5	<200	2	.4	<2	1.3	.6	<3	20
182	3334 (1)		S	Chert	<0.5	12	<0.01	<150	24	18	52	<5	<200	12	.7	<2	3.6	2	<3	60
	3335 (2)		Cc	Graywacke	<0.5	7	<0.01	200	22	20	32	<5	<200	12	.6	<2	2.9	1.8	<3	90
183	7054 (2)	Howard Bay	Cc	Breccia (qtz)	>30	—	0.02	—	—	—	6450	—	—	36	—	—	—	—	—	3500
	7055 (2)		Cc	Breccia (qtz,carb)	3.8	—	0.01	—	—	—	49	—	—	14	—	—	—	—	—	2650
	7056 (1)		S	Quartz vein	>30	—	0.08	—	—	—	7540	—	—	245	—	—	—	—	—	>20000
	7057 (1)		S	Fault gouge	17	—	0.01	—	—	—	850	—	—	14	—	—	—	—	—	1860
	7058 (2)		S	Limestone	2.9	—	<0.01	—	—	—	80	—	—	23	—	—	—	—	—	144
184	7189 (1)	S. Excursion Inlet	S	Quartz-ankerite vein	<0.5	8	<0.01	<150	3	42	5	<5	<200	4	.6	2	1.2	<.5	<3	40
185	8050 (1)	South Chilkat Range	Cc	Quartz vein	<0.5	4	<0.01	<150	3	6	51	<5	<200	<2	0.2	3	<0.5	<0.5	<3	20
	8167 (3)		Cc	Graywacke	<0.5	6	<0.01	300	14	91	68	<5	<200	7	0.6	3	4.1	2.2	<3	100
	8168 (2)		Cc	Andesite	<0.5	5	0.01	400	14	38	47	<5	<200	11	0.9	<2	5.1	2.3	<3	70
186	8174 (1)		S	Quartz vein	<0.5	<2	<0.01	<150	2	8	24	<5	<200	2	0.2	<2	<0.5	<0.5	<3	20
187	8055 (2)		S	Quartz vein	<0.5	4	<0.01	<150	7	11	20	<5	<200	5	0.5	3	0.5	<0.5	<3	50
188	8169 (2)		Cc	Mafic dike	<0.5	<2	<0.01	500	2	2	9	<5	<200	8	0.8	3	6.3	4.6	<3	30
189	8051 (2)		Cc	Quartz vein	<0.5	<2	<0.01	<150	3	14	10	<5	<200	5	0.3	3	0.5	0.5	<3	20
190	8024 (2)		Cc	Limestone	<.2	—	<0.01	—	—	—	36	—	—	7	—	—	—	—	—	66
191	6394 (4)		Cc	Argillite	<0.5	24	<0.01	500	24	15	67	<5	<200	14	2	<2	7	2.6	<3	100
192	8157 (na)		S	Skarn	<0.1	—	<0.01	—	—	—	40	—	—	11	—	—	—	—	—	161
193	8175 (2)		Cc	Mafic dike	<0.5	<2	<0.01	700	7	6	43	<5	<200	9	0.8	3	4.4	2.1	<3	50
194	6421 (2)		S	Meta volcanic	1.5	—	0.01	—	—	—	90	—	—	32	—	—	—	—	—	50
195	8075 (10)		Cc	Altered volcanic	<0.5	9	<0.01	200	24	30	57	<5	<200	8	1.1	3	2.6	0.6	<3	70
	8258 (2)		Cc	Sheared limestone	<0.5	27	<0.01	500	20	67	70	<5	<200	14	2.6	4	5.7	3.3	<3	70
	8259 (2)		Cc	Fault gouge	<0.5	760	<0.01	300	25	110	57	<5	<200	10	5.0	4	1.6	0.8	<3	60
	8260 (1)		S	Quartz-calcite vein	<0.5	14	<0.01	<150	7	25	20	<5	<200	5	2.2	3	1.3	0.7	<3	20
	8261 (2)		Cc	Breccia	<0.5	10000	0.05	<150	27	16	66	<5	<200	18	45	2	1.7	1.7	<3	30
196	8009 (3)		Cc	Calcareous argillite	<.2	—	<0.01	—	—	—	27	—	—	<2	—	—	—	—	—	66
	8010 (5)		Cc	Graywacke	<.2	—	0.01	—	—	—	55	—	—	2	—	—	—	—	—	86
	8011 (1)		Cc	Volcanic dike	<.2	—	0.01	—	—	—	40	—	—	<2	—	—	—	—	—	64
197	8015 (2)		Cc	Andesite	<.2	—	<0.01	—	—	—	30	—	—	7	—	—	—	—	—	68
198	6395 (4)		Cc	Calcareous argillite	<0.5	8	<0.01	300	10	81	29	<5	<200	8	.7	<2	3.8	2.6	<3	100
	6396 (3)		Cc	Tuff	<0.5	<2	<0.01	400	18	37	43	<5	<200	6	.6	<2	1.8	.9	<3	90
199	8012 (3)		Cc	Limestone	<.2	—	<0.01	—	—	—	48	—	—	3	—	—	—	—	—	90
	8013 (2)		Cc	Volcanic dike	<.2	—	0.04	—	—	—	31	—	—	6	—	—	—	—	—	80
	8014 (10)		Cc	Limestone	<.2	—	<0.01	—	—	—	60	—	—	23	—	—	—	—	—	100
200	8028 (2)		Cc	Mylonite	.8	—	0.04	—	—	—	61	—	—	52	—	—	—	—	—	114

Appendix C-2.—Complete assay results, West Lynn Canal subarea—Continued

Map No.	Sample No. Width (ft)	Name or location	Sample type	Sample lithology	Ag	As	Au	Ba	Co	Cr	Cu	Mo	Ni	Pb	Sb	Sn	Th	U	W	Zn
201	8262 (10)		Cc	Mylonite	<0.5	630	0.01	200	14	27	67	<5	<200	9	9.7	2	2.9	1.1	<3	50
	8263 (10)		Cc	Mylonite	<0.5	59	<0.01	300	10	7	35	<5	<200	8	4.0	3	3.2	1.2	<3	70
	8264 (10)		Cc	Mylonite	<0.5	500	0.02	2700	14	31	36	<5	<200	9	8.6	4	2.4	0.8	<3	90
	8265 (6)		Cc	Sheared andesite	<0.5	660	0.03	200	13	19	57	<5	<200	18	9.8	3	2.8	1.1	<3	120
202	8017 (3)		Cc	Limestone	.2	—	<0.01	—	—	—	132	—	—	9	—	—	—	—	—	94
	8018 (3)		Ch	Limestone	<.2	—	0.01	—	—	—	34	—	—	4	—	—	—	—	—	66
203	8016 (4)		Cc	Andesite porphyry	<.2	—	<0.01	—	—	—	55	—	—	<2	—	—	—	—	—	102
204	8274 (3)	South Chilkat Range	Cc	Limestone	<0.5	12	<0.01	<150	14	110	83	<5	<200	17	0.5	3	4.2	2.2	<3	70
	8275 (1)		Cc	Quartz-calcite vein	<0.5	3	<0.01	<150	5	36	1	<5	<200	6	<0.2	2	1.4	0.5	<3	<20
205	8276 (2)		Cc	Andesite dike	<0.5	6	<0.01	300	41	200	69	<5	<200	8	0.4	4	1.7	<0.5	<3	110
206	6412 (2)		S	Siliceous andesite	<.2	—	<0.01	—	—	—	15	—	—	<2	—	—	—	—	—	66
207	6397 (2)		Ch	Black argillite	<0.5	49	<0.01	300	19	71	50	<5	<200	10	7	<2	4.3	2.7	<3	130
	6398 (2)		Ch	Green argillite	<0.5	19	<0.01	300	42	140	71	<5	<200	10	4.7	2	.9	<.5	<3	130
	6399 (3)		Ch	Siliceous argillite	<0.5	32	<0.01	400	19	120	65	<5	<200	24	4.6	<2	4.5	2.8	<3	160
	8001 (1)		Ch	Green argillite	<0.5	11	<0.01	300	37	100	95	<5	<200	8	4	<2	1.4	<.5	<4	150
	8002 (3)		Ch	Argillite	<0.5	23	<0.01	300	43	190	85	<5	<200	10	3.7	2	1.4	<.5	<4	150
208	8003 (3)		Cc	Limestone	<0.5	17	<0.01	400	11	14	45	<5	<200	6	2.5	2	2.5	.8	<3	70
209	8004 (2)		Cc	Rhyodacite	<0.5	49	<0.01	400	25	74	63	<5	<200	8	4.3	<2	1.7	.7	<3	100
	8005 (1)		S	Quartz vein	<0.5	3	<0.01	<150	1	6	6	<5	<200	4	.7	2	<.5	<.5	<3	<20
210	8019 (5)		Ch	Mylonite	<.2	—	<0.01	—	—	—	60	—	—	6	—	—	—	—	—	80
211	8277 (1)		Cc	Quartz vein	<0.5	<2	0.01	<150	2	9	110	<5	<200	5	0.2	2	<0.5	<0.5	<3	190
212	8278 (3)		Cc	Andesite dike	<0.5	10	0.01	200	33	220	68	<5	<200	8	0.7	3	1.5	0.6	<3	30
213	8046 (na)		S	Metavolcanic	<0.5	3	<0.01	300	20	29	19	<5	<200	10	1.0	<2	2.1	0.7	<3	40
214	8156 (1)		Cc	Mylonite	<0.5	950	0.06	200	12	4	32	<5	<200	13	8.0	<2	1.4	0.6	<3	70
215	8045 (1)		S	Meta andesite	<0.5	<2	<0.01	400	24	72	43	<5	<200	11	0.2	<2	2.8	1.3	<3	30
216	8029 (1)		S	Limestone	<.2	—	<0.01	—	—	—	30	—	—	14	—	—	—	—	—	72
	8030 (1)		S	Calcite vein	<.2	—	<0.01	—	—	—	7	—	—	13	—	—	—	—	—	14
	8031 (1)		S	Andesite	<.2	—	<0.01	—	—	—	60	—	—	3	—	—	—	—	—	60
217	6422 (na)		S	Andesite	<.2	—	<0.01	—	—	—	52	—	—	5	—	—	—	—	—	80
218	8027 (1)		Ch	Siliceous dike	.2	—	<0.01	—	—	—	44	—	—	71	—	—	—	—	—	132
219	8023 (2)		Cc	Basaltic dike	<.2	—	<0.01	—	—	—	50	—	—	<2	—	—	—	—	—	74
220	8025 (2)		Cc	Siliceous dike	.8	—	<0.01	—	—	—	41	—	—	172	—	—	—	—	—	184
	8026 (1)		Cc	Quartz vein	>30	—	<0.01	—	—	—	170	—	—	>7500	—	—	—	—	—	3800
221	6382 (2)		S	Andesite	<0.5	8	<0.01	300	33	110	48	<5	<200	2	1.2	<2	1.1	<.5	<5	120
222	6376 (3)		S	Gossan in andesite	<0.5	60	0.02	200	21	130	110	<5	<200	280	8.6	4	1.1	<.5	<5	420
	6377 (2)		S	Gabbro	<0.5	4	<0.01	200	41	140	53	<5	<200	8	1.4	<2	1.2	<.5	<6	150
223	6378 (2)		S	Andesite porphyry	<0.5	90	0.03	200	24	61	19	<5	<200	98	5.6	<2	1.4	.7	<5	170
	6379 (2)		S	Diabase dike	<0.5	9	<0.01	200	23	80	50	<5	<200	10	3	<2	1.7	.5	<4	90
224	6381 (2)		S	Andesite breccia	<0.5	3	<0.01	<150	5	26	10	<5	<200	2	.4	<2	1.3	.9	<3	50
225	6383 (3)		S	Andesite	<0.5	3	<0.01	700	27	34	66	<5	<200	8	.5	<2	3.4	1.5	<4	140
226	6404 (2)		S	Meta volcanic	<.2	—	<0.01	—	—	—	40	—	—	<2	—	—	—	—	—	64
227	6375 (2)		S	Mafic volcanic	<0.5	3	<0.01	300	35	69	48	<5	<200	6	.5	<2	1.7	<.5	<7	180
228	8166 (3)		Cc	Hornfels	<0.5	34	0.02	200	30	51	230	<5	<200	12	5.4	5	4.0	2.5	<3	130
229	8049 (2)		Cc	Andesite	<0.5	31	0.01	<150	21	91	27	6	<200	7	2.5	3	0.9	0.5	<3	90

Appendix C-2.—Complete assay results, West Lynn Canal subarea—Continued

Map No.	Sample No. Width (ft)	Name or location	Sample type	Sample lithology	Ag	As	Au	Ba	Co	Cr	Cu	Mo	Ni	Pb	Sb	Sn	Th	U	W	Zn
230	6413 (30)		Cc	Limestone	<.2	—	<0.01	—	—	—	45	—	—	13	—	—	—	—	—	100
	6414 (3)		S	Andesite porphyry	1.7	—	.012	—	—	—	23	—	—	27	—	—	—	—	—	430
	6415 (14)		S	Gouge zone	>30	—	.021	—	—	—	210	—	—	4070	—	—	—	—	—	9200
231	6380 (6)		Cc	Andesite	<0.5	<2	<0.01	700	32	190	86	<5	<200	6	.2	<2	3.6	1.8	<3	110
232	6405 (2)		S	Limy argillite	<.2	—	0.01	—	—	—	38	—	—	8	—	—	—	—	—	100
	6406 (2)		S	Meta andesite	<.2	—	<0.01	—	—	—	43	—	—	<2	—	—	—	—	—	72
233	6374 (12)		Cc	Andesite	<0.5	10	<0.01	400	16	31	19	<5	<200	6	1.7	4	2.6	1	<4	140
234	6407 (1)		S	Andesite porphyry	<.2	—	<0.01	—	—	—	40	—	—	<2	—	—	—	—	—	50
235	8020 (10)		Cc	Andesite	<.2	—	<0.01	—	—	—	59	—	—	11	—	—	—	—	—	118
236	8048 (3)		Cc	Siliceous argillite	<0.5	15	<0.01	500	24	63	60	<5	<200	9	2.4	4	3.8	2.3	<3	<20
237	6408 (2)		S	Siliceous andesite	<.2	—	<0.01	—	—	—	25	—	—	<2	—	—	—	—	—	66
238	6409 (2)		S	Andesite	<.2	—	<0.01	—	—	—	4	—	—	<2	—	—	—	—	—	82
239	6410 (1)		S	Fault gouge	<.2	—	<0.01	—	—	—	62	—	—	24	—	—	—	—	—	144
240	6411 (2)		S	Rhyolite dike	<.2	—	<0.01	—	—	—	52	—	—	6	—	—	—	—	—	94
241	8172 (1)		Cc	Quartz-calcite vein	<0.5	13	0.01	400	12	16	38	<5	<200	5	2.6	4	0.7	0.5	<3	40
242	8137 (3)		Cc	Argillite	<0.5	5	0.01	200	20	53	180	<5	<200	6	1.4	3	4.7	2.5	<3	60
243	8135 (4)		S	Mylonite	<0.5	23	0.01	<150	10	11	18	<5	<200	2	1.0	3	1.5	0.5	<3	20
	8136 (3)		Cc	Argillite	<0.5	4	0.01	600	26	65	140	<5	<200	7	1.7	4	4.4	2.4	<3	50
244	8134 (na)	South Chilkat Range	Fl	Argillite	<0.5	48	0.43	300	35	52	520	<5	<200	11	3.6	4	2.3	1.2	<3	50
245	8133 (2)		S	Andesite	<0.5	29	0.01	300	31	82	49	<5	<200	8	1.3	4	2.0	0.7	<3	70
246	8132 (3)		Cc	Fault breccia	<0.5	26	<0.01	<150	8	29	7	<5	<200	5	0.8	3	0.5	<0.5	<3	20
247	6420 (3)		S	Limestone	.2	—	<0.01	—	—	—	56	—	—	27	—	—	—	—	—	126
	8021 (2)		Cc	Volcanic dike	<.2	—	<0.01	—	—	—	68	—	—	3	—	—	—	—	—	90
248	8165 (1)		Cc	Quartz vein	<0.5	4	1.20	<150	67	35	290	<5	<200	15	2.3	5	2.0	1.0	<3	420
249	8130 (2)		Cc	Andesite dike	<0.5	2	<0.01	300	20	48	61	<5	<200	5	0.6	4	1.5	0.6	<3	<30
	8131 (1)		Ch	Mylonite	<0.5	26	0.01	400	26	80	78	<5	<200	9	1.0	4	1.5	0.5	<3	<20
250	8164 (na)		Fl	Skarn	<0.5	21	0.02	<150	23	41	29	<5	<200	9	8.5	3	1.9	1.6	13	50
251	8129 (3)		Cc	Andesite	<0.5	3	<0.01	300	13	7	37	<5	<200	9	0.5	3	2.3	0.6	<3	<30
252	8022 (8)		Ch	Volcanic dike	<.2	—	<0.01	—	—	—	34	—	—	<2	—	—	—	—	—	70
253	8127 (1)		S	Quartz vein	<0.5	3	0.01	<150	17	45	260	<5	<200	8	4.2	4	2.0	1.4	<3	30
	8128 (1)		S	Quartz vein	<0.5	2	<0.01	<150	4	68	100	5	<200	8	1.4	5	2.4	1.4	<3	20
254	7600 (1)		S	Skarn	<0.5	6	0.03	300	80	49	440	<5	<200	12	2.6	6	2.3	1.7	<3	50
	8126 (3)		S	Argillite	<0.5	3	0.01	300	9	47	130	7	<200	5	1.3	5	3.3	2.0	<3	<20
255	7598 (3)		S	Limestone	<0.5	4	0.08	300	12	110	20	<5	<200	6	1.5	4	3.9	2.3	<3	50
256	8047 (5)		Cc	Felsic dike	<0.5	7	<0.01	600	14	4	24	5	<200	7	0.9	4	1.7	1.0	<3	50
257	7599 (2)		S	Skarn	<0.5	9	0.01	600	21	83	120	<5	<200	9	2.1	5	3.7	2.1	<3	60
	7510 (3)		S	Meta-andesite	<0.5	5	0.01	300	15	14	54	<5	<200	<2	.9	2	2.9	1	<3	40
	7509 (3)		S	Cherty limestone	<0.5	6	0.09	900	13	76	36	<5	<200	4	2.8	<2	5.2	3.1	<3	100
258	8124 (1)		Ch	Andesite dike	<0.5	6	<0.01	500	33	230	32	<5	<200	13	0.6	4	2.8	0.5	<3	90
	8125 (3)		Cc	Argillite	<0.5	3	0.10	300	32	73	240	<5	<200	4	1.5	5	2.9	1.9	<3	50
259	7511 (2)		S	Limy argillite	<0.5	8	<0.01	300	14	75	61	<5	<200	<2	.7	<2	4.4	2.7	<3	140
	7512 (na)		Fl	Cherty limestone	<0.5	11	<0.01	<150	12	55	9	<5	<200	4	1	<2	1.1	<.5	<3	<30
260	8054 (1)		Cc	Quartz vein	<0.5	3	0.07	300	26	9	1500	<5	<200	7	0.4	4	4.3	1.2	<3	50
	8279 (1)		Cc	Quartz vein	<0.5	4	0.01	500	11	12	200	13	<200	14	0.4	3	4.6	0.9	<3	<20

Appendix C-2.—Complete assay results, West Lynn Canal subarea—Continued

Map No.	Sample No. Width (ft)	Name or location	Sample type	Sample lithology	Ag	As	Au	Ba	Co	Cr	Cu	Mo	Ni	Pb	Sb	Sn	Th	U	W	Zn
260	8280 (2)		Cc	Granitic dike	<0.5	7	<0.01	900	8	5	83	<5	<200	15	0.3	2	6.6	1.7	<3	<20
	8281 (3)		Cc	Argillite	<0.5	4	0.01	200	25	130	120	<5	<200	8	1.4	4	4.3	2.6	<3	50
	8282 (3)		Cc	Diorite	<0.5	2	0.03	400	13	8	120	<5	<200	6	0.5	3	2.1	0.8	<3	<20
261	8053 (1)		Cc	Quartz-calcite vein	<0.5	17	<0.01	400	14	57	21	<5	<200	3	3.4	2	0.5	<0.5	<3	80
262	8123 (2)		Cc	Volcanic dike	<0.5	17	<0.01	400	13	4	42	<5	<200	8	1.2	3	2.8	1.2	<3	50
263	8171 (2)		Cc	Mylonite	<0.5	120	0.02	<150	52	12	200	<5	<200	7	1.8	3	<0.5	<0.5	<3	70
264	8170 (2)		Cc	Volcanic dike	<0.5	<2	<0.01	200	20	29	38	<5	<200	7	0.2	3	0.6	<0.5	<3	100
265	8052 (2)		Cc	Felsic dike	<0.5	2	<0.01	300	20	17	60	<5	<200	8	0.2	4	1.0	<0.5	<3	60

NA Not available.