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Geochemical Data for Environmental Studies at Nabesna and Kennecott, Alaska: Water, Leachates, Stream-Sediments, Heavy-Mineral-Concentrates, and Rocks

By

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INTRODUCTION

In 1994, environmental geochemical studies were undertaken in the Nabesna mine/mill and surrounding areas, and in the vicinity of the Kennecott mill and the nearby Bonanza and Erie mines. The purpose of the studies is to determine the extent of possible environmental hazards associated with these historic mining areas and to establish pre-mining background levels for selected elements. Thus, concentrations of a large suite of trace elements were determined to assess metal loadings in the various sample media collected. This report presents analytical results, sample descriptions, and basic statistical data for water, leachate, stream-sediment, heavy-mineral-concentrate, and rock samples collected during these geochemical investigations. An interpretive report incorporating these geochemical data will follow.

The Nabesna gold mine is located in eastern Alaska, in the south-central part of the Nabesna 1° X 3° quadrangle, along the northern edge of Wrangell-St. Elias National Park and Preserve (fig. 1). Topography varies from relatively subdued near the valley bottom at the Nabesna mill (about 3000 ft/900 m in elevation), to the steep slopes and cliffs of White Mountain (about 6100 ft/1860 m) immediately to the west. The Nabesna and nearby Rambler mines are located on the eastern flank of White Mountain. The area is accessible to four-wheel drive vehicles by an unimproved mine road at the end of the Nabesna road, which branches off the Glenn Highway (Tok Cut-Off) at Slana.

The Kennecott mill and its associated copper deposits are located south of Nabesna, in the central part of the McCarthy 1° X 3° quadrangle, and are surrounded by Wrangell-St. Elias National Park and Preserve (fig. 1). The Kennecott mill complex lies at the base of Bonanza Peak (6983 ft/2128 m), along the edge of the Kennicott Glacier, at about 2000 ft (610 m) in elevation, while the mines which supplied the mill are located several thousand feet higher on the steep slopes of Bonanza Peak. Access to the Kennecott mill and associated mines is via foot or hired van from McCarthy. McCarthy is located at the end of the McCarthy road, which branches off the Edgerton Highway at Chitina.

GENERAL GEOLOGY, DEPOSIT SETTING, AND MINING HISTORY

Deposits at both Nabesna and Kennecott are found within the allochthonous Wrangellia terrane (Jones and others, 1977), one of the accretionary terranes that constitute the geology of southern Alaska. Wrangellia originated at low paleolatitudes in the proto-Pacific region and probably was sutured to southern Alaska in the Late Cretaceous (Plafker and Berg, 1994).

Nabesna

Rocks at White Mountain, near the Nabesna mine, consist predominantly of the Late Triassic Chitistone Limestone and lesser underlying Nikolai Greenstone, an amygdaloidal subaerial basalt of Middle to Late Triassic age (Wayland, 1943; Moffitt, 1943; Newberry, 1986). The Chitistone Limestone consists of about 1200 ft (366 m) of massive limestone, overlain by about 800 ft (244 m) of thin-bedded limestone (Wayland, 1943). The carbonate rocks are intruded by Early Cretaceous stocks and dikes of monzodiorite (Newberry, 1986). The above rocks are overlain unconformably by andesitic and basaltic lavas of the Tertiary to Quaternary Wrangell Group.

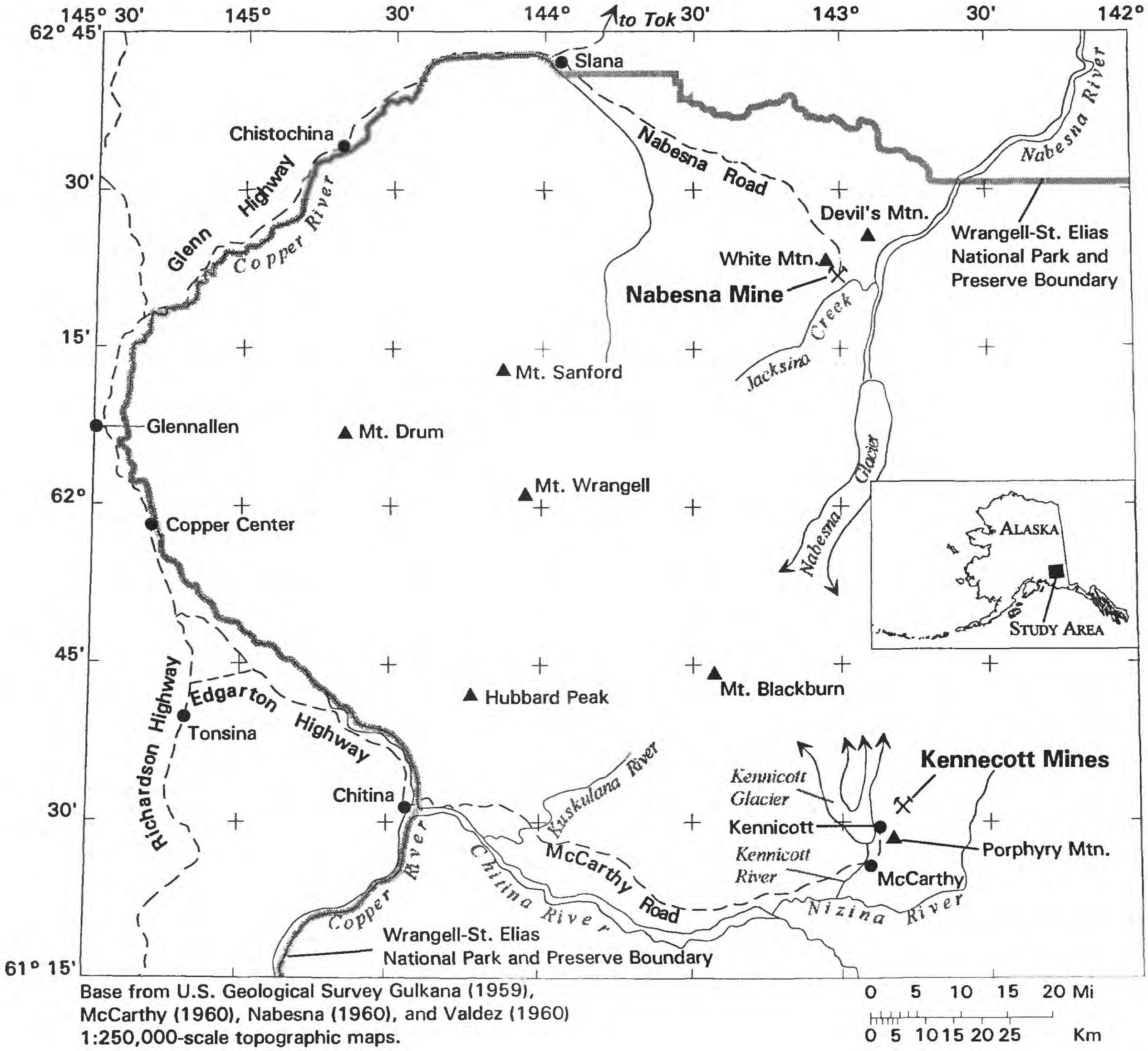


Figure 1. Location of the Nabesna and Kennecott mines, Alaska

The intrusion of the monzodiorite into the carbonate sequence produced areas of re-crystallized limestone and resulted in the formation of tactite and gold-bearing, iron-sulfide-rich skarn bodies, which were exploited at the Nabesna and Rambler mines. Principal ore minerals were pyrite, pyrrhotite, magnetite, and chalcopyrite, and minor galena, sphalerite, arsenopyrite, and stibnite. Gangue minerals include garnet, wollastonite, vesuvianite, epidote, actinolite, hornblende, chlorite, scapolite, apatite, serpentine, and quartz (Newberry, 1986; Wayland, 1943). Total production is listed in Theodore and others (1991) as 0.08 million tonnes at 25 g/t Au, and unquantified (probably small) production of silver. Iron was not produced.

Gold colors were first panned at the foot of White Mountain in 1899 (Wayland, 1943). The first claims were located in the Nabesna mine area between 1903 and 1905, and a small 3-stamp mill was hauled in by sled in 1907. Sporadic work continued in the area into the 1920's. In 1929, the Nabesna Mining Corporation was formed and mine development was accelerated. A tram was built linking the mill site with mines above on White Mountain. By 1935, the operation was running year-round and the mill was treating 60 tons of ore per day. By 1940, the deposits at the Nabesna mine were exhausted and production ceased. However, the discovery in 1941 of a nearby gold-bearing pyrrhotite skarn body prompted continued small-scale exploration (Moffit, 1944). Sporadic exploration and drilling continued at Nabesna into the 1980's.

Kennecott

Stratabound copper deposits in the Kennecott area are found in the lower part of the Chitistone Limestone, near the contact with the underlying Nikolai Greenstone. Basalt flows of the Nikolai Greenstone are well-developed, are mainly tholeiitic, have a high background copper content, and are more than 9000 ft (2740 m) thick in the Kennecott region (Mackevett and others, in press). Disconformably overlying the Nikolai Greenstone is the Chitistone Limestone, which grades upward into the Nizina Limestone. The carbonate rocks represent succession from an intertidal-supratidal, locally sabkha, environment (lower Chitistone Limestone) to a moderate-depth marine environment (Nizina Limestone) (Mackevett and others, in press). Chitistone Limestone in the area is about 1800 ft (549 m) thick.

The Kennecott deposits were mined for their spectacularly high-grade copper ore, which locally reached grades of 70 percent or greater copper. While genesis of the Kennecott copper deposits is conjectural, a modern interpretation by Mackevett and others (in press) suggests the following sequence: (1) copper-enriched Nikolai Greenstone formed during the Middle or Late Triassic, (2) carbonate sediments were deposited in a Late Triassic marine embayment as Chitistone Limestone on the Nikolai Greenstone, (3) sabkha-facies deposits rich in sulfates and organic matter formed locally in the embayment and restricted circulation and evaporation resulted in brine development, (4) karst features developed locally in exposed parts of the lower Chitistone Limestone, (5) the area was buried by up to 10,000 ft of sediments, (6) the rocks were folded, faulted and uplifted in the Late Jurassic to Early Cretaceous, (7) uplift and folding caused brine circulation and leaching of copper from the Nikolai Greenstone, (8) large ore bodies resulted from the mixing of copper-rich brines with reduced fluids in fissures and breccias in the lower Chitistone Limestone. The copper ore was composed mainly of chalcosite and djurleite, with lesser chalcopyrite, bornite, covellite, digenite, anilite, luzonite, idaite, malachite, azurite, chalcanthite, and orpiment

(Mackevett and others, in press). Numerous other minor to trace phases are listed in Bateman and McLaughlin (1920). More than 590,000 tons (535,000 tonnes) of copper and several million ounces of silver were produced from 1911 to 1938, the major period of mining activity (Mackevett and others, in press).

A mining history of the Kennecott mines is provided by Douglass (1964). Early Russian explorers reported implements of copper used by Copper River Indians at the mouth of the Copper River. Members of an 1885 U.S. Army expedition into the Copper River basin were shown copper nuggets, copper veins, and utensils made of copper by Chief Nikolai and his people. Prospecting in the region in the late 1890's probably was stimulated by the Klondike gold rush. The first Kennecott-type deposit was found by prospectors Jack Smith and Clarence Warner in 1900, when they found the copper-stained outcrops crowning the Bonanza deposit. The other principal deposits were located within the next few years. Through much legal wrangling, Stephen Birch gained control of the properties and founded the Kennecott Mines Company. The first ore was shipped in 1911, following completion of a railroad linking the mines with Cordova. The peak of mining activity was from 1915 to 1929. Extensive infrastructure supporting the mining at Kennecott included a mill, power plant, tramways, ammonia leach plant, housing, hospital, numerous shops, a school, and a general store. The mines ceased production in 1938 because of low reserves, low copper prices, and labor problems (Mackevett and others, in press).

METHODS OF STUDY

Sample Media

Geochemical sample media include rock, mine and mill tailings, stream-sediment, heavy-mineral-concentrate, and water samples. Rock samples were collected generally as composite chip samples from outcrop, alluvium, mine, and mill tailings. As a special study, several mine and mill tailings samples and a mineralized bedrock sample were collected in the Nabesna and Rambler mine areas for a synthetic meteoric water leachability test. Sample site maps for the various sample media are in figures 2 and 3 for the Nabesna area and figure 4 for the Kennecott area.

The stream-sediment and heavy-mineral-concentrate samples were collected at mined and nearby unmined areas to provide geochemical information about drainage basins within and adjacent to the mine areas. The chemical composition of a stream-sediment sample is controlled primarily by the major geologic units within the drainage basin and to a lesser degree by metal-scavenging materials such as amorphous iron- and manganese oxides, clays, and organic matter. Minor elemental constituents within the stream sediment, such as elements related to mineral deposits within the drainage basin, may be detected in the sediment analysis, but commonly have a small overall influence on the sample because of dilution by barren material.

Since elements related to mineral deposits are commonly found in heavy minerals, heavy-mineral-concentrate samples from stream sediment were also collected. Heavy-mineral concentrates provide chemical information about ore-related and rock-forming dense minerals, and permit chemical determination of some elements not easily detected in stream

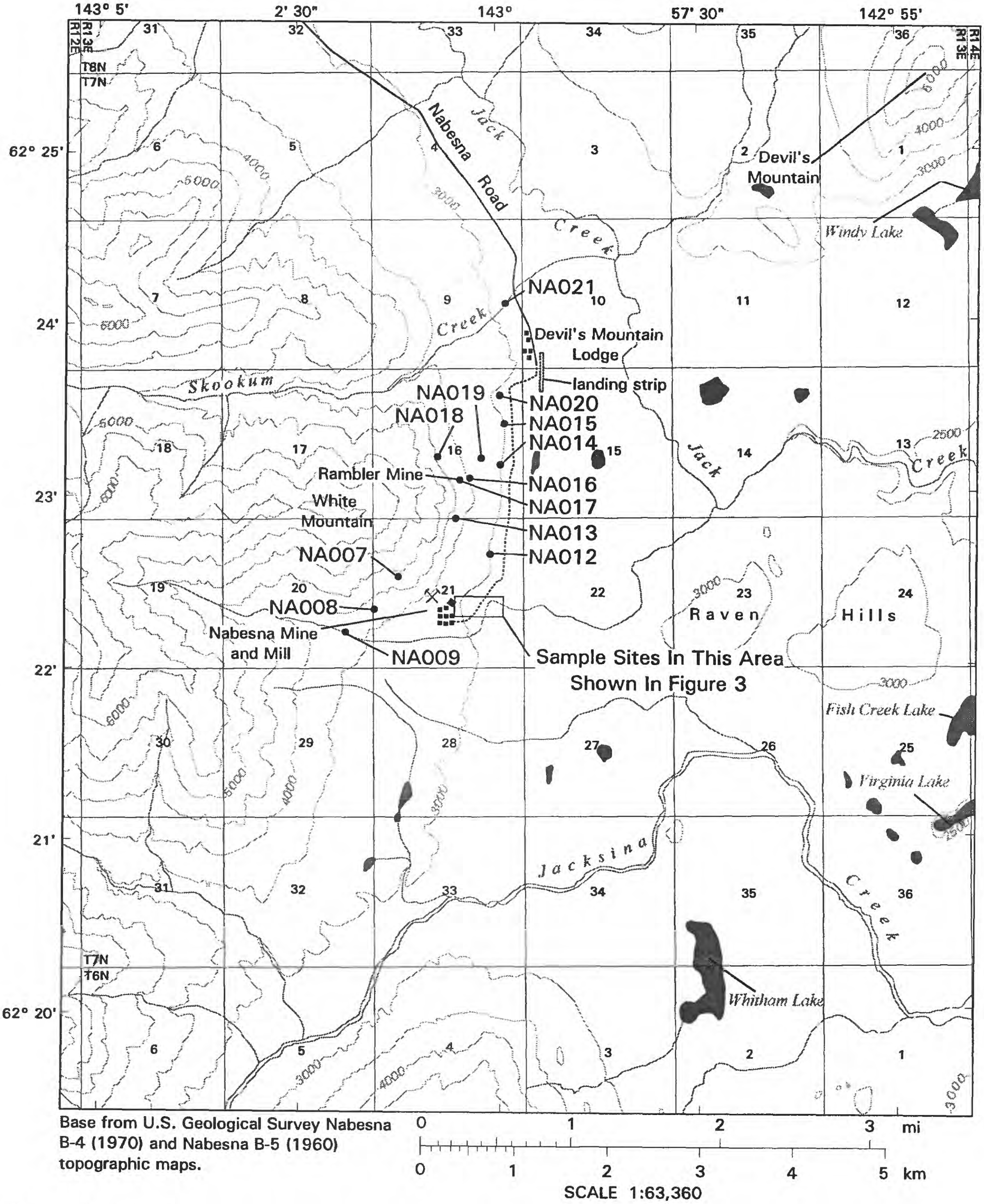


Figure 2. Site locations for samples collected in the Nabesna mine area, Alaska.

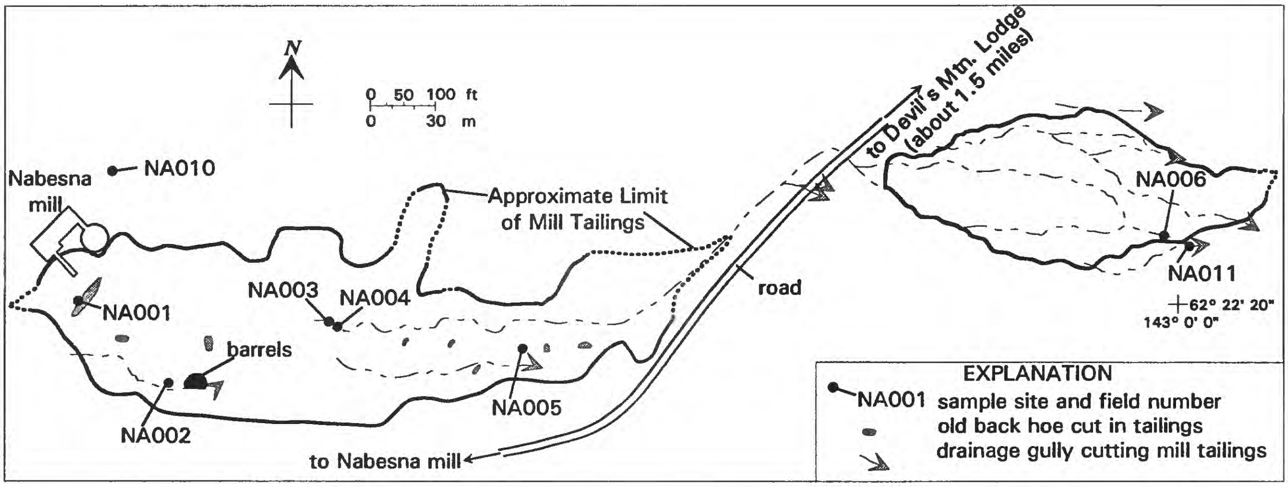
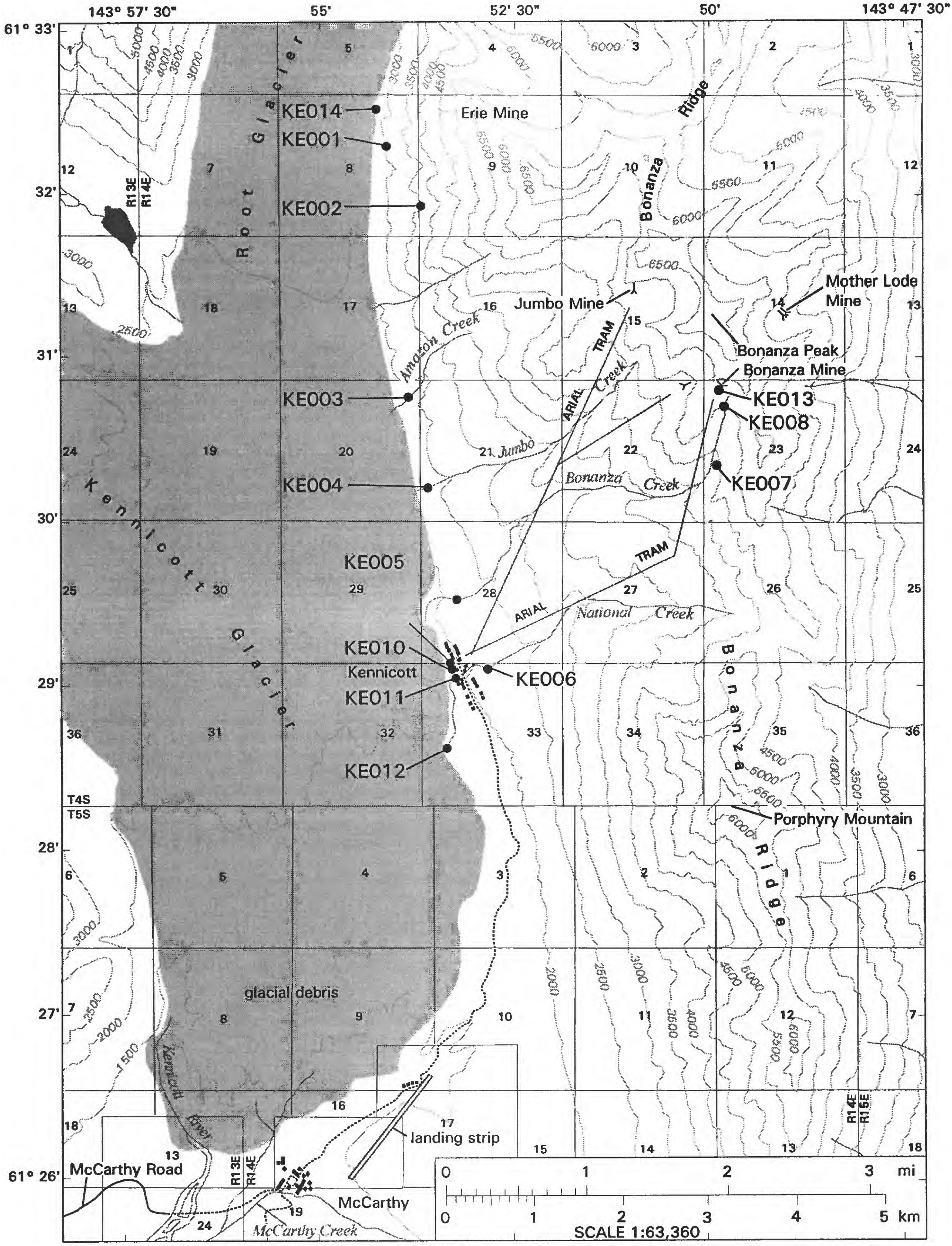


Figure 3. Detailed site locations for samples collected at the Nabesna mill, Alaska



Base from U.S. Geological Survey McCarthy B-5 (1970), B-6 (1959), C-5 (1959), and C-6 (1959) topographic maps.

Figure 4. Site locations for samples collected in the Kennecott mine area, Alaska.

-sediment samples. Further, microscopic identification of nonmagnetic minerals in heavy-mineral-concentrate samples may provide additional useful mineralogical information.

Water samples were collected from all available natural water sources, principally from flowing streams, but also from seeps and springs. Mineral deposits rich in sulfide minerals, solid waste from mine dumps and mill tailings derived from such deposits, and sulfide-rich rocks of non-economic significance are possible sources of acid and metal loading in the environment. Water samples collected in and around the Nabesna and Kennecott areas provide data reflecting the effects of mining on the environment and data indicating water quality associated with undeveloped mineralized areas.

Sample Collection and Preparation

Sediments

Stream-sediment samples were collected from 21 sites. Stream-sediment sample site duplicates were collected at 4 of the 21 sites, 2 in the Nabesna area and 2 in the Kennecott area, resulting a total of 25 samples for analysis. Each stream-sediment sample consisted of alluvium from the active stream channel, composited by collecting sediment from several localities along a 10 m stretch of the channel. The sediment was sieved with a stainless steel screen at the site to minus-10 mesh (2 mm). A 1 kg sample was collected in a cloth bag and air-dried. Sediment samples were also collected from mill tailings below the Nabesna mine. These were collected where small intermittent rivulets cut the tailings in a similar manner as described above. All the rivulets in the tailings were dry.

In the laboratory, stream-sediment samples were air-dried and sieved into two fractions: minus-80 (0.177 mm) mesh to plus-200 mesh (0.074 mm), and minus-200 mesh. The two sieve fractions were chosen to assess variation of metal content with sediment particle size. The two fractions were pulverized to a fine flour consistency (minus-100 mesh/0.149 mm). For each sample, an approximate 185 g portion was saved for chemical analyses; any remaining material was subsequently archived.

Heavy Mineral Concentrates

Panned concentrate samples were collected at 13 of the sediment sample sites, from the same active alluvium as sediment samples. Panned-concentrate samples were also collected at sediment sites from mill tailings below the Nabesna mine. Sediment for panning was collected from around boulders and in coarse gravels, in areas where heavy minerals tend to accumulate. A 14-inch stainless steel gold pan was filled with stream sediment sieved to minus-10 mesh (2 mm) with a stainless steel screen, resulting in approximately 7.5 kg of material. This sieved alluvium was panned at the site when running water was available, or collected in a cloth bag for later panning. The alluvium was panned until most of the less-dense minerals (primarily quartz and feldspar), organic materials, and clays were removed. Generally, one to three percent of the original sample remained after panning. The panned sample was bagged, air-dried, and saved for further laboratory preparation.

In the laboratory, panned concentrate samples were sieved to minus-20 mesh (0.84 mm), and then gravity separated using bromoform (specific gravity about 2.85) to remove remaining light minerals, primarily quartz and feldspar. The resultant heavy-mineral-concentrate sample was separated into magnetic, weakly magnetic, and nonmagnetic fractions using a modified Frantz Isodynamic Separator (Taylor, 1990). The magnetic fraction was extracted at a setting of 0.25 ampere and contains primarily magnetite and ilmenite. The weakly magnetic fraction was extracted at a setting of 1.75 ampere and consists largely of ferromagnesian silicates and iron oxides. The remaining nonmagnetic fraction may contain many ore-related minerals including sulfide minerals, gold and other native metals, and some accessory oxides and silicates. The nonmagnetic heavy-mineral-concentrate samples were split using a Jones splitter. One split was hand ground with an agate mortar and pestle for chemical analysis and the other split was used for microscopic mineralogical analysis. Clean quartz sand was hand ground between samples to clean the mortar and pestle, thereby reducing the risk of contamination among samples.

Rocks

A total of 29 rock samples were collected from outcrop and mineralized areas. Rock samples were typically composite chip samples collected at the sites. Single grab samples were collected where compositing was not possible. Rock descriptions were recorded in field notes and later entered into the rock data base.

In the laboratory, rock samples were coarsely crushed to pea-sized pieces and then split with a Jones splitter. For each sample, an approximate 185 g portion was pulverized and saved for chemical analysis and subsequent archival of any remaining material. Clean quartz rock and sand was crushed and pulverized, respectively, between samples to reduce the risk of contamination among samples.

Water

Water samples were collected at 22 sites. Site duplicates were collected at four of these sites, two in the Nabesna area and two in the Kennecott area (the same sites where sediment site duplicates were collected). Three water samples were collected at each site. (1) A 125 ml, unacidified, unfiltered raw water sample was collected for anion analysis. These samples were kept cool (on ice in the field, in a refrigerator in the laboratory) until they were analyzed. (2) A 60 ml, acidified, unfiltered sample was collected for trace and major cation analysis. (3) A 60 ml, acidified, filtered sample was collected for trace and major cation analysis. The acidified, unfiltered (2) and acidified, filtered (3) samples were both collected to provide a means for assessing suspended sediment in the water. Samples were filtered with 0.45 micron disposable filters and acidified with ultra-pure, concentrated nitric acid to prevent precipitation of metals and bacterial growth. All samples were collected in polypropylene bottles that were rinsed on site with a small amount of the water to be sampled for raw water samples and with filtered water for the filtered samples. Bottles for acidified samples were pre-rinsed in the laboratory with a 10 % nitric acid solution.

Other water data collected and recorded on-site include temperature, pH, conductivity, oxygen content, alkalinity, and a visual estimate of the water flow rate. Oxygen content was determined using a field-portable colorimetric test kit and alkalinity was measured using a field-portable titration kit.

Leached Samples

Mill tailings were collected at seven sites below the Nabesna mine and an outcrop sample was collected at the Rambler mine, for a total of eight samples for the synthetic meteoric water leachability test. The dry samples were collected by scraping material from the upper 2 cm of the surface layer and filling a large canvas bag with approximately 10 kg of material. These unsieved samples were saved for further preparation in the laboratory.

Laboratory preparation for the samples, described briefly below, followed the EPA Synthetic Precipitation Leaching Procedure 1312, a method designed to determine mobility of inorganic analytes present in samples of soils, wastes, and wastewaters. The solid, dry sample was passed through a 9.5 mm (0.375 mesh) sieve. Water used for leaching was organic-free, deionized water, acidified with sulfuric acid/nitric acid (60/40 weight percent mixture) to a pH of 5.00 $\pm$ 0.05, the pH recommended in the procedure to mimic meteoric waters west of the Mississippi River. East of the Mississippi River, a pH of about 4.2 is recommended, because of the higher acid content in rain water in the east. Using a ratio of 20:1 water to sample, 1 liter of acidified, deionized water (temperature, 23° C) was added to 50 g of sample in a rinsed polypropylene bottle. The mixture was rotated at 30 $\pm$ 2 rpm for 18 $\pm$ 2 hours. A blank sample using the acidified, deionized water was included. Following rotation, measurements for pH, conductivity, temperature, oxygen content, and alkalinity were collected. Samples for analysis were then collected from the mixture, by filtering through a 0.45 micron disposable filter and then acidifying with ultra-pure, concentrated nitric acid.

Analytical Techniques

A large number of chemical elements were determined, using a variety of quantitative and semi-quantitative analytical techniques. Table 1 shows the various elements determined and analytical methods used for each of the sample media collected in the study. A brief description for each analytical method is given below. Published references with more comprehensive descriptions and quality assurance/quality control (QA/QC) information are provided for each method. Updated descriptions and QA/QC protocol for many of the analytical methods used in this study are in press (Arbogast, 1995a; Arbogast, 1995b).

Inductively Coupled Plasma-Atomic Emission Spectrometry

Three ICP-AES methods were used in the study for multi-element analyses: (1) a 40-element total digestion method for stream sediments, mineralized and unmineralized rocks; (2) a 10-element, partial-extraction method for stream sediments, mineralized and unmineralized rocks; and (3) a trace- and major-element scan for acidified water and water-leach tailings samples. Methods (1) and (3) are designated "AE" in table 1 and in the data tables. Method (2) is designated "PA" in table 1 and in the data tables.

In the first multi-element method, 40-element ICP-AES, stream-sediment and rock samples were digested and analyzed following the procedure of Briggs (1990). Samples were digested using a mixture of hydrochloric, nitric, perchloric, and hydrofluoric acids, and the solutions were heated at 110° C until dry. Additional perchloric acid and water were added to the residue and the mixture was then taken to dryness at 150° C. Aqua regia and dilute nitric acid were added to the residue to bring the solution to a final volume, the solution was heated at 95° C for an hour, and then the sample was aspirated into the plasma and element concentrations were determined simultaneously with a multichannel ICP-AES instrument. Limits of determination for 40-element ICP-AES are shown in table 2.

In the second multi-element method, concentrations of Ag, As, Au, Bi, Cd, Cu, Mo, Pb, Sb, and Zn were determined on stream sediments and rocks by a 10-element ICP-AES partial extraction procedure developed by Motooka (1990). Samples were decomposed with concentrated hydrochloric acid and hydrogen peroxide in a hot-water bath. Metals were extracted in diisobutyl ketone (DIBK)/Aliquat 336 in the presence of ascorbic acid and potassium iodide. The DIBK/Aliquat 336 phase was then aspirated directly into the plasma and element concentrations were determined simultaneously with a multichannel ICP-AES instrument. Mineralized rock samples with high copper content (above 10,000 ppm) required dilution for the 10-element ICP-AES method because of copper interferences on other elements. Thus, the ICP-AES partial extraction (PA) trace-element analyses for mineralized rocks with high copper content (principally those from mines or prospects) are qualitative estimates and should be used cautiously. Limits of determination for 10-element ICP-AES are shown in table 3.

In the third multi-element method, acidified water samples were analyzed for major (Al, Ca, Fe, K, Mg, Na, and Si) and selected trace elements following the ICP-AES method of Briggs and Fey (1995). The water samples were preconcentrated by a factor of 20 to 1 by evaporation at 100° C and subsequent dissolution the residue in nitric acid. The residue solutions were then aspirated into the plasma and element concentrations were determined by ICP-AES. The preconcentration step is used when specific conductivities for the water samples are less than 2000 microsiemens/cm, a condition satisfied by all the acidified/filtered and acidified/unfiltered waters collected in this study. However, water samples derived from tailings in the synthetic meteoric water leachability test all had conductivities greater than 2400 microsiemens/cm. For these water samples, preconcentration was not necessary and the samples were analyzed directly by ICP-AES, using a modification of the method by Lichte and others (1987) (Paul H. Briggs, personal communication, 1995). Limits of determination for the multi-element ICP-AES method for water samples are shown in table 4.

A separate ICP-AES method was used to determine tungsten in stream-sediment and rock samples, the ion-exchange separation ICP-AES method developed by Doughten and Aruscavage (1995). The samples were decomposed with nitric, hydrofluoric, and hydrochloric acids and then evaporated to dryness. The residue was dissolved in hydrochloric acid and this solution was passed through an ion-exchange column, where the chloride form of tungsten was adsorbed onto the resin. Tungsten was eluted from the resin, dissolved in hydrochloric acid, and determined by ICP-AES. This method is designated IE in table 1 and in the data tables. Limits of determination for tungsten in stream-sediment and rock samples are shown in table 3.

Inductively Coupled Plasma-Mass Spectrometry

Acidified-filtered and acidified-unfiltered waters, and water from the synthetic meteoric water leach test were analyzed to determine 62 elements by ICP-MS using a new research method developed by the U.S. Geological Survey (A.L. Meier, personal commun., 1995; Meier and others, 1994). This method is designated MS in table 1 and in the data tables. The method is useful in its ability to determine over 60 elements directly in the water sample without the need for preconcentration or dilution. Element detection limits are in the sub-part-per-billion range and the working linear range is six orders of magnitude or more. By using derived response curves, percent of ionization, and natural isotopic abundances, semiquantitative estimates of concentration for all elements can be made in samples without the need of a calibration standard for every element. The method is most useful for trace elements in the parts-per-billion range; analyses for major elements in the parts-per-million range, such as Al, Ca, Fe, K, Mg, and Na, are less accurate. For these major elements in waters, values given by ICP-AES are more quantitative and should be used over the ICP-MS values. At this time, standardized analytical limits of determination have not been established for the ICP-MS procedure; lower limits of determination are indicated as necessary in the data tables.

Ion Chromatography

The anions Cl-, F-, NO_3^-, and SO_4^{2-} were determined sequentially by ion chromatography on unfiltered and unacidified (raw) water samples following a modification (d'Angelo and Ficklin, 1995) of the procedure of Fishman and Pyen (1979). The raw water samples were kept cool from the time of collection until they were analyzed. The samples were injected into a chromatograph where ions of interest separate along an ion exchange separator column at different rates, depending on the affinity of each species for the ion-exchange resin. Samples then passed into a flow-through conductivity cell where the anions were detected and their peak heights were recorded. Unknown samples were compared with peak heights of reference standards to determine sample concentrations. This method is designated IC in table 1 and in the data tables. Limits of determination for anions in raw water samples are shown in table 5.

Atomic Absorption Spectrophotometry

Various atomic absorption spectrophotometric (AAS) methods were used for determining selected elements in stream-sediment and rock samples. These methods are described individually below. Determination limits for these techniques are given in table 3.

Concentrations of thallium in the stream-sediment and rock samples were determined by the AAS technique of O'Leary (1995). The samples were digested using hydrofluoric acid, sulfuric acid, hydrochloric acid, and hydrogen peroxide. Thallium was extracted into a solution of 10 % Aliquat 336 and MIBK (methyl isobutyl ketone) in the presence of potassium iodide and ascorbic acid and determined by flame AAS. This method is designated AA in table 1 and in the data tables. Stream-sediment and rock samples for gold analysis were digested using a hydrobromic acid-bromine digestion, an MIBK extraction, and then gold was determined on the solutions by flame AAS . However, samples with gold concentrations of less than 0.050 ppm were subsequently analyzed by graphite-furnace AAS, which has a 0.002 ppm lower determination limit for gold (O'Leary and Meier (1990). The gold determinations are designated GF in table 1 and in the data tables.

Mercury was measured in stream-sediment and rock samples using the cold-vapor AAS technique of O'Leary and others (1990). The samples were decomposed with nitric acid and sodium dichromate. Mercury (II) was reduced to elemental mercury gas with hydroxylamine hydrochloride and stannous chloride in a continuous flow system, releasing mercury into the quartz cell of an atomic absorption spectrophotometer where the mercury concentration was determined. This method is designated CV in table 1 and in the data tables.

Stream-sediment and rock samples were analyzed for arsenic, antimony, and selenium using a continuous-flow hydride generation AAS (Welsch and others, 1990). The samples were digested using concentrated nitric, perchloric, sulfuric, and hydrofluoric acids; hydrochloric acid was added to form Se (IV), necessary for determination by hydride generation. A mixture of hydrochloric acid, sodium borohydride, and sodium hydroxide was added to produce selenium hydride. The selenium hydride was then stripped using a phase separator and transported with inert gas to the atomizer of the atomic absorption spectrophotometer where selenium concentration was determined. A similar procedure was used for arsenic and antimony. This method is designated HY in table 1 and in the data tables. Some of the samples were not analyzed for arsenic by the HY technique because of high arsenic concentrations beyond the working range of the method (for these, arsenic was determined by ICP-AES methods), because of elemental interferences in certain mineralized rock samples, or because of insufficient sample remaining following analyses by other methods (the HY method was the last method used).

Semiquantitative Emission Spectrography

The minus-20-mesh nonmagnetic heavy-mineral-concentrate samples were analyzed by a direct-current arc, semiquantitative emission spectrographic (SES) technique and 37 major, minor, and trace elements were determined (Adrian and others, 1990). Spectrographic results were determined by visually comparing spectra derived from the sample and recorded on photographic film against spectra obtained from laboratory reference standards. Standard concentrations are geometrically spaced over any given order of magnitude as follows: 100, 50, 20, 10, 5, 2 etc. Samples whose concentrations were estimated to fall between those values were assigned values of 70, 30, 15, 7, 3, 1.5 etc. The precision of this analytical technique is approximately ± one reporting interval at the 83 percent confidence level and ± two reporting intervals at the 96 percent confidence level (Motooka and Grimes, 1976). Elements determined by SES are Ag, As, Au, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, Ge, La, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Pd, Pt, Sb, Sc, Sn, Sr, Th, Ti, V, W, Y, Zn, and Zr. This method is designated ES in table 1 and in the data tables. Upper and lower limits of determination for elements determined by SES are listed in table 6.

In the data tables for the various sample media, discrepancies in element concentration for the same sample determined by different analytical methods (for example, gold) may be attributable to the particulate nature of certain elements, different sample weights used, different dissolution and extraction procedures, and to instrumental bias. For gold in particular, the AAS analytical method provides the most statistically representative results, due to the larger sample weight analyzed; a 10-gram sample weight is used for the AAS analysis, whereas a 10-milligram sample weight is used in the SES technique.

COMPUTERIZED DATA STORAGE

The analytical results and coded descriptive geologic information in tables 7-14 were entered into the National Geochemical Data base, maintained by the U.S. Geological Survey. The analytical data may be retrieved from the data base and converted to a binary format (STATPAC; VanTrump and Miesch, 1977; Grundy and Miesch, 1987) or to other formats by contacting the Chief, Branch of Geochemistry, U.S. Geological Survey, PO Box 25046, MS 973, Denver, CO 80225.

The digital version of this report (minus figures) is available on a 3.5 inch, 1.44 MB MS-DOS formatted, magnetic diskette as part B of this report. The diskette contains the analytical results, sample descriptions, and geographic coordinates for the water, stream-sediment, heavy-mineral-concentrate, and rock samples. Data files on the diskette are in dBASE 3 (.DBF) format. An ASCII file contains associated text describing analytical methods and listing determination limits, univariate statistics, and references. Access to this information requires an IBM compatible computer using MS DOS, a 3.5 inch high density disk drive, and a database program able to import .DBF files. The diskette version is available by contacting USGS Information Services, PO Box 25286, Denver, CO 80225.

DESCRIPTION OF DATA TABLES

Table 7 contains sample description and geochemical data for acidified, filtered water samples collected in this study. Corresponding data are found in table 8 for acidified, unfiltered water samples, table 9 for raw water samples, table 10 for water leachate samples derived from mill tailings, table 11 for minus-80 to plus-200 mesh stream-sediment samples, table 12 for minus-200 mesh stream-sediment samples, table 13 for nonmagnetic heavy-mineral-concentrate samples, and table 14 for rock samples. Sample site locations are given as latitude and longitude in both decimal degree and degree-minute-second formats in the tables. The following list summarizes sample descriptive information and associated column headings for the data tables.

Column Identifier	*Explanation*
COLUMN HEADINGS COMMON TO ALL SAMPLE MEDIA (ALL DATA TABLES):	
INDEX	sample sequence number in table
FIELDNO	sample field identification number
LABNO	sample laboratory identification number
DLAT	degrees latitude
MLAT	minutes latitude
SLAT	seconds latitude
DLON	degrees longitude
MLON	minutes longitude
SLON	seconds longitude
LATITUDE	latitude in decimal degrees
LONGITUDE	longitude in decimal degrees
ST	state
QUAD1X3	1° X 3° USGS quadrangle
QUAD15X	15-minute USGS quadrangle
M_D_YCOLL	month/day/year sample was collected
SAMPTYPE	type of sample media
DESCRIPTN	field name and brief sample description
SAMPCHAR	indicates composite or grab sample
SAMPSOURCE	sample collected from outcrop, float, alluvium, etc.
NEARMINE	qualitative YES or NO, indicating nearby presence of mine or prospect
COLUMN HEADINGS COMMON TO ALL WATER SAMPLE MEDIA ONLY:	
TEMP_DEGC	temperature of water at collection site in degrees Centigrade
PH	pH of water at collection site
CONDUCTVTY	specific conductivity of water at collection site, in microsiemens/cm
OXY_PPM	oxygen content of water at collection site, in parts per million
ALKAL_PPM	alkalinity of water at collection site, in parts per million
ESTIMFLOW	estimated flow rate of water at collection site

For all data tables, geochemical data follow the above descriptive information. Column identifiers consist of a single line. The first one or two letters give the chemical element symbol, then units of measurement, and finally a code letter for the analytical method used for the element in that particular column. These three items are separated by underscores. Element symbols and associated names are shown in table 1. Units of measurement are: PPM, parts per million; PPB, parts per billion; and PCT, percent. The analytical methods and associated code letters are as follows:

AA	atomic absorption spectrophotometry
AE	inductively coupled plasma-atomic emission spectrometry (total digestion)
CV	cold-vapor atomic absorption spectrophotometry
ES	semiquantitative emission spectrography
GF	graphite-furnace atomic absorption spectrophotometry
HY	hydride generation atomic absorption spectrophotometry
IC	ion chromatography
IE	ion exchange inductively coupled plasma-atomic emission spectrometry
MS	semiquantitative inductively coupled plasma-mass spectrometry
PA	inductively coupled plasma-atomic emission spectrometry (partial extraction)

For example, AS_PPM_AE indicates arsenic, in parts per million, determined by inductively coupled plasma-atomic emission spectrometry. For the geochemical data, the symbol "<" indicates that an element was not observed at the lower limit of determination shown. A ">" indicates that an element was detected but in concentration above the upper limit of determination shown. An H indicates that the sample was not analyzed because of an elemental interference. A 0.0B indicates that the sample was not analyzed for that particular element.

The field number coding scheme is as follows: The two letter prefix indicates samples from the Nabesna (NA) or Kennecott (KE) area. The next 3 digits indicate the sample site number. The suffix following the 3 digit number indicates media type (R, rock; S1, minus-200 mesh stream sediment; S2, minus-80 to plus-200 mesh stream sediment; C, heavy-mineral concentrate; W1, raw water; W2, acidified, unfiltered water; W3, acidified, filtered water; L, water leachate). Sample site duplicates and analytical duplicates are designated with DS or DA suffixes, respectively. For example, NA013W3DS indicates an acidified, filtered water sample collected in the Nabesna area. This sample is a site duplicate of sample NA013W3.

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Table 1. Elements determined and analytical methods used for all sample media collected in the Nabesna and Kennecott areas, Alaska. [MS, semiquantitative inductively coupled plasma-mass spectrometry; AE, inductively coupled plasma-atomic emission spectrometry; PA, partial-extraction inductively coupled plasma-atomic emission spectrometry; HY, hydride generation atomic absorption; GF, graphite-furnace atomic absorption; CV, cold-vapor atomic absorption; AA, atomic absorption; IE, ion exchange atomic absorption; ES, semiquantitative emission spectrography; IC, ion chromatography; 1, water, acidified-filtered and acidified-unfiltered samples; 2, raw water, unacidified, unfiltered samples; 3, water leaches, acidified-filtered and acidified-unfiltered samples; 4, stream-sediment samples; 5, rock samples; 6, nonmagnetic, heavy-mineral-concentrate samples.

Element	MS	AE	PA	HY	GF	CV	AA	IE	ES	IC
Ag, silver	1,3	3,4,5	4,5						6	
Al, aluminum	1,3	1,3,4,5								
As, arsenic	1,3	3,4,5	4,5	4,5					6	
Au, gold	1,3	4,5	4,5		4,5				6	
B, boron		1,3							6	
Ba, barium	1,3	1,3,4,5							6	
Be, beryllium	1,3	1,3,4,5							6	
Bi, bismuth	1,3	3,4,5	4,5						6	
Ca, calcium	1,3	1,3,4,5							6	
Cd, cadmium	1,3	1,3,4,5	4,5						6	
Ce, cerium	1,3	4,5								
Cl^-, chloride										2
Co, cobalt	1,3	1,3,4,5							6	
Cr, chromium	1,3	1,3,4,5							6	
Cs, cesium	1,3									
Cu, copper	1,3	1,3,4,5	4,5						6	
Dy, dysprosium	1,3									
Er, erbium	1,3									
Eu, europium	1,3	4,5								
Fe, iron	1,3	1,3,4,5							6	
F^-, fluoride										2
Ga, gallium	1,3	4,5							6	
Gd, gadolinium	1,3									
Ge, germanium	1,3								6	
Hf, hafnium	1,3									
Hg, mercury						4,5				
Ho, holmium	1,3	4,5								
Ir, iridium	1									
K, potassium	1,3	1,3,4,5								
La, lanthanum	1,3	4,5							6	
Li, lithium	1,3	1,3,4,5								

Table 1.--continued.

Element	MS	AE	PA	HY	GF	CV	AA	IE	ES	IC
Mg, magnesium	1,3	1,3,4,5							6	
Mn, manganese	1,3	1,3,4,5							6	
Mo, molybdenum	1,3	1,3,4,5	4,5						6	
Na, sodium	1,3	1,3,4,5							6	
Nb, niobium	1,3	4,5							6	
Nd, neodymium	1,3	4,5								
Ni, nickel	1,3	1,3,4,5							6	
NO_3^-, nitrate										2
Os, osmium	1									
P, phosphorous		1,3,4,5							6	
Pb, lead	1,3	1,3,4,5	4,5						6	
Pd, palladium	1								6	
Pr, praseodymium	1,3									
Pt, platinum	1								6	
Rb, rubidium	1,3									
Re, rhenium	1,3									
Rh, rhodium	1									
Ru, ruthenium	1									
Sb, antimony	1,3	3	4,5	4,5					6	
Sc, scandium	1,3	4,5							6	
Se, selenium				4,5						
Si, silicon		1,3								
Sm, samarium	1,3									
Sn, tin	1,3	3,4,5							6	
SO_4^{2-}, sulfate										2
Sr, strontium	1,3	1,3,4,5							6	
Ta, tantalum	1,3	4,5								
Tb, terbium	1,3									
Te, tellurium	1,3									
Th, thorium	1,3	4,5							6	
Ti, titanium	1,3	1,3,4,5							6	
Tl, thallium	1,3						4,5			
Tm, thulium	1,3									
U, uranium	1,3	4,5								
V, vanadium	1,3	1,3,4,5							6	
W, tungsten	1,3							4,5	6	
Y, yttrium	1,3	4,5							6	
Yb, ytterbium	1,3	4,5								
Zn, zinc	1,3	1,3,4,5	4,5						6	
Zr, zirconium	1,3								6	

Table 2. Limits of determination for stream-sediment and rock samples analyzed by 40-element inductively coupled plasma-atomic emission spectrometry. [Element names are shown in Table 1]

Element	Lower Determination Limit	Upper Determination Limit
	percent	
Al	0.005	50
Ca	0.005	50
Fe	0.02	25
K	0.01	50
Mg	0.005	5
Na	0.006	50
P	0.005	50
Ti	0.005	25
	parts per million	
Ag	2	10,000
As	10	50,000
Au	8	50,000
Ba	1	35,000
Be	1	5,000
Bi	10	50,000
Cd	2	25,000
Ce	5	50,000
Co	2	25,000
Cr	2	50,000
Cu	2	15,000
Eu	2	5,000
Ga	4	50,000
Ho	4	5,000
La	2	50,000
Li	2	50,000
Mn	4	50,000
Mo	2	50,000
Nb	4	50,000
Nd	9	50,000
Ni	3	50,000
Pb	4	50,000
Sc	2	50,000
Sn	5	50,000
Sr	2	15,000
Ta	40	50,000
Th	6	50,000
U	100	100,000
V	2	30,000
Y	2	25,000
Yb	1	5,000
Zn	2	15,000

Table 3. Limits of determination for selected elements in stream-sediment and rock samples. [Element names are shown in Table 1; PA, partial extraction 10-element inductively coupled plasma-atomic emission spectrometry; ; GF, graphite-furnace atomic absorption spectrophotometry; CV, cold-vapor atomic absorption spectrophotometry; HY, hydride generation atomic absorption spectrophotometry; AA, atomic absorption spectrophotometry; IE, ion exchange separation inductively coupled plasma-atomic emission spectrometry; all values are in ppm parts per million]

Element	**Analytical Method**	**Lower Determination Limit**[1]	**Upper Determination Limit**[1]
Ag	PA	0.08	400
As	PA	1.0	6,000
Au	PA	0.10	2,000
Bi	PA	1.0	6,000
Cd	PA	0.05	500
Cu	PA	0.05	500
Mo	PA	0.01	900
Pb	PA	1.0	6,000
Sb	PA	1.0	6,000
Zn	PA	0.05	500
Au	GF	0.002	
Hg	CV	0.02	
As	HY	0.2	40
Sb	HY	0.2	40
Se	HY	0.1	10
Tl	AA	0.05	20
W	IE	1.0	200

[1] Limits of determination shown here are nominal and limits may vary in the data tables. The variability in limits of determination is due to variable sample weight used, dilution of the sample solution, or instrumental interference correction. Determination limits are given for undiluted samples.

Table 4. Limits of determination for acidified water samples analyzed for selected elements by inductively coupled plasma-atomic emission spectrometry. [Element names are shown in Table 1; all values in parts per billion unless indicated otherwise]

Element	Lower Limit of Determination/ Not Preconcentrated	Upper Limit of Determination/ Not Preconcentrated	Lower Limit of Determination/ Preconcentrated	Upper Limit of Determination/ Preconcentrated
Al	0.5 ppm	1,000 ppm	0.025 ppm	1,000 ppm
Ba	20	10,000	1	10,000
Be	20	10,000	1	10,000
B	50	10,000	2.5	10,000
Cd	20	10,000	1	10,000
Ca	1 ppm	1,000 ppm	0.05 ppm	1,000 ppm
Cr	40	10,000	2	10,000
Co	40	10,000	2	10,000
Cu	80	10,000	4	10,000
Fe	0.5 ppm	1,000 ppm	0.025 ppm	1,000 ppm
Pb	100	10,000	5	10,000
Li	100	10,000	5	10,000
Mg	1 ppm	1,000 ppm	0.05 ppm	1,000 ppm
Mn	40	10,000	2	10,000
Mo	80	10,000	4	10,000
Ni	80	10,000	4	10,000
Na	1 ppm	1,000 ppm	0.05 ppm	1,000 ppm
P	0.5 ppm	1,000 ppm	0.025 ppm	1,000 ppm
K	1 ppm	1,000 ppm	0.05 ppm	1,000 ppm
Si	1 ppm	1,000 ppm	0.05 ppm	1,000 ppm
Sr	20	10,000	1	10,000
Ti	200	10,000	10	10,000
V	40	10,000	2	10,000
Zn	40	10,000	2	10,000

Table 5. Limits of determination for anions in water samples analyzed by ion chromatography. [Element names are shown in Table 1; all values in parts per million]

Anion	Lower Limit of Determination	Upper Limit of Determination[1]
Cl^-	0.1	4
F^-	0.05	2
NO_3^-	0.5	10
SO_4^{2-}	0.5	20

[1] Samples containing greater than the upper limits of determination listed here require dilution.

Table 6. Limits of determination for nonmagnetic heavy-mineral-concentrate samples analyzed by semiquantitative emission spectrography. [Element names are shown in Table 1]

Element	Lower Limit of Determination	Upper Limit of Determination
	percent	
Ca	0.1	50
Fe	0.1	50
Mg	0.05	20
Na	0.5	10
P	0.5	20
Ti	0.005	2
	parts per million	
Ag	1	10,000
As	500	20,000
Au	20	1,000
B	20	5,000
Ba	50	10,000
Be	2	2,000
Bi	20	2,000
Cd	50	1,000
Co	20	5,000
Cr	20	10,000
Cu	10	50,000
Ga	10	10,000
Ge	20	200
La	100	2,000
Mn	20	10,000
Mo	10	5,000
Nb	50	5,000
Ni	10	10,000
Pb	20	50,000
Pd	10	2,000
Pt	50	2,000
Sb	200	20,000
Sc	10	200
Sn	20	2,000
Sr	200	10,000
Th	200	5,000
V	20	20,000
W	50	20,000
Y	20	5,000
Zn	500	20,000
Zr	20	2,000

Table 7.--Analytical results for acidified, filtered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	LabNo	DLat	MLat	SLat	DLon	MLon	SLon	Latitude	Longitude	ST	Quad1X3	Quad15'	M_D_YColl	SampType
1	NA008W3	D571282	62	22	21.060	143	1	34.120	62.37252	143.02614	AK	Nabesna 1X3	Nabesna B-5	08/07/94	water
2	NA009W3	D571283	62	22	11.868	143	1	54.079	62.36996	143.03169	AK	Nabesna 1X3	Nabesna B-5	08/07/94	water
3	NA011W3	D571284	62	22	25.048	142	59	57.120	62.37362	142.99920	AK	Nabesna 1X3	Nabesna B-4	08/07/94	water
4	NA012W3	D571285	62	22	39.813	143	0	6.313	62.37773	143.00175	AK	Nabesna 1X3	Nabesna B-5	08/08/94	water
5	NA013W3	D571286	62	22	52.797	143	0	32.459	62.38133	143.00902	AK	Nabesna 1X3	Nabesna B-5	08/08/94	water
6	NA014W3	D571287	62	23	10.028	142	59	58.477	62.38612	142.99958	AK	Nabesna 1X3	Nabesna B-4	08/08/94	water
7	NA015W3	D571288	62	23	24.621	142	59	54.900	62.39017	142.99858	AK	Nabesna 1X3	Nabesna B-4	08/08/94	water
8	NA016W3	D571289	62	23	6.349	143	0	20.904	62.38510	143.00581	AK	Nabesna 1X3	Nabesna B-5	08/09/94	water
9	NA019W3	D571290	62	23	13.439	143	0	12.889	62.38707	143.00358	AK	Nabesna 1X3	Nabesna B-5	08/09/94	water
10	NA020W3	D571291	62	23	34.722	142	59	57.817	62.39298	142.99939	AK	Nabesna 1X3	Nabesna B-4	08/09/94	water
11	NA021W3	D571292	62	24	6.628	142	59	54.079	62.40184	142.99836	AK	Nabesna 1X3	Nabesna B-4	08/09/94	water
12	KE002W3	D571295	61	31	55.889	142	53	42.449	61.53219	142.89512	AK	McCarthy 1X3	McCarthy C-6	08/11/94	water
13	KE003W3	D571296	61	30	45.423	142	53	51.267	61.51262	142.89757	AK	McCarthy 1X3	McCarthy C-6	08/12/94	water
14	KE004W3	D571297	61	30	12.916	142	53	37.466	61.50359	142.89374	AK	McCarthy 1X3	McCarthy C-6	08/12/94	water
15	KE005W3	D571298	61	29	32.310	142	53	19.066	61.49231	142.88863	AK	McCarthy 1X3	McCarthy B-6	08/12/94	water
16	KE006W3	D571299	61	29	6.677	142	52	54.436	61.48519	142.88179	AK	McCarthy 1X3	McCarthy B-6	08/12/94	water
17	KE007W3	D571300	61	30	21.099	142	49	54.633	61.50586	142.83184	AK	McCarthy 1X3	McCarthy C-5	08/13/94	water
18	KE008W3	D571301	61	30	42.720	142	49	47.817	61.51187	142.82995	AK	McCarthy 1X3	McCarthy C-5	08/13/94	water
19	KE009W3	D571302	61	29	9.165	142	53	22.336	61.48588	142.88954	AK	McCarthy 1X3	McCarthy B-6	08/14/94	water
20	KE010W3	D571303	61	29	6.363	142	53	21.574	61.48510	142.88933	AK	McCarthy 1X3	McCarthy B-6	08/14/94	water
21	KE011W3	D571304	61	29	2.834	142	53	19.612	61.48412	142.88878	AK	McCarthy 1X3	McCarthy B-6	08/14/94	water
22	KE012W3	D571305	61	28	36.991	142	53	23.645	61.47694	142.88990	AK	McCarthy 1X3	McCarthy B-6	08/14/94	water
23	NA013W3DS	D571293	62	22	52.797	143	0	32.459	62.38133	143.00902	AK	Nabesna 1X3	Nabesna B-5	08/08/94	water
24	NA021W3DS	D571294	62	24	6.628	142	59	54.079	62.40184	142.99836	AK	Nabesna 1X3	Nabesna B-4	08/09/94	water
25	KE004W3DS	D571306	61	30	12.916	142	53	37.466	61.50359	142.89374	AK	McCarthy 1X3	McCarthy C-6	08/12/94	water
26	KE010W3DS	D571307	61	29	6.363	142	53	21.574	61.48510	142.88933	AK	McCarthy 1X3	McCarthy B-6	08/14/94	water
27	NA012W3DA	D571285	62	22	39.813	143	0	6.313	62.37773	143.00175	AK	Nabesna 1X3	Nabesna B-5	08/08/94	water
28	KE002W3DA	D571295	61	31	55.889	142	53	42.449	61.53219	142.89512	AK	McCarthy 1X3	McCarthy C-6	08/11/94	water
29	KE012W3DA	D571305	61	28	36.991	142	53	23.645	61.47694	142.88990	AK	McCarthy 1X3	McCarthy B-6	08/14/94	water
30	VA001W3	D571308	0	0	0	0	0	0	0	0	---	---	---	08/15/94	water

Table 7.--Analytical results for acidified, filtered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Descriptn	SampSource	SampChar	NearMine	Temp, degC	pH
1	NA008W3	filtered (0.45 micron), acidified spring water from drill road above Nabesna mine	spring	grab	yes	25	7.82
2	NA009W3	filtered (0.45 micron), acidified stream water, main stream south of Nabesna mine	stream	grab	no	24	8.03
3	NA011W3	filtered (0.45 micron), acidified water from spring just below Nabesna mill tailings	spring	grab	yes	11	7.12
4	NA012W3	filtered (0.45 micron), acidified water sample from spring in muskeg	spring	grab	no	2	7.48
5	NA013W3	filtered (0.45 micron), acidified stream water sample	stream	grab	no	17	7.89
6	NA014W3	filtered (0.45 micron), acidified water sample from spring in muskeg	spring	grab	no	3	7.45
7	NA015W3	filtered (0.45 micron), acidified water sample from spring in muskeg	spring	grab	no	8	7.51
8	NA016W3	filtered (0.45 micron), acidified water from spring just below Rambler mine tailings	spring	grab	yes	3	7.55
9	NA019W3	filtered (0.45 micron), acidified water sample from spring in muskeg	spring	grab	no	4	7.49
10	NA020W3	filtered (0.45 micron), acidified water sample from spring in muskeg	spring	grab	no	8	7.40
11	NA021W3	filtered (0.45 micron), acidified stream water sample, Skookum Creek	stream	grab	no	14	7.95
12	KE002W3	filtered (0.45 micron), acidified stream water sample above small snowfield	stream	grab	no	4	7.95
13	KE003W3	filtered (0.45 micron), acidified stream water sample, Amazon Creek	stream	grab	no	5	7.88
14	KE004W3	filtered (0.45 micron), acidified stream water sample, Jumbo Creek	stream	grab	no	7	7.97
15	KE005W3	filtered (0.45 micron), acidified stream water sample, Bonanza Creek	stream	grab	no	9	8.12
16	KE006W3	filtered (0,45 micron), acidified stream water sample, National Creek	stream	grab	no	7	7.66
17	KE007W3	filtered (0.45 micron), acidified water sample from spring	spring	grab	no	6	8.00
18	KE008W3	filtered (0.45 micron), acidified stream water from just below Bonanza mine	stream	grab	yes	2	8.15
19	KE009W3	filtered (0.45 micron), acidified ponded rainwater from just below Kennecott mill	other	grab	yes	13	7.85
20	KE010W3	filtered (0.45 micron), acidified spring water, flowing from Kennecott mill tailings	spring	grab	yes	6	7.90
21	KE011W3	filtered (0.45 micron), acidified stream water, National Creek below Kennecott mill	stream	grab	yes	8	7.96
22	KE012W3	filtered (0.45 micron), acidified stream water, National Cr. just above Kenn. glacier	stream	grab	no	18	8.08
23	NA013W3DS	site duplicate of NA013W3, filtered (0.45 micron), acidified	spring	grab	no	17	7.86
24	NA021W3DS	site duplicate of NA021W3, filtered (0.45 micron), acidified	stream	grab	no	14	8.02
25	KE004W3DS	site duplicate of KE004W3, filtered (0.45 micron), acidified	stream	grab	no	7	7.95
26	KE010W3DS	site duplicate of KE010W3, filtered (0.45 micron), acidified	spring	grab	yes	6	7.92
27	NA012W3DA	analytical duplicate of NA012W3, filtered (0.45 micron), acidified, ICP-MS only	spring	grab	no	2	7.48
28	KE002W3DA	analytical duplicate of KE002W3, filtered (0.45 micron), acidified, ICP-MS only	stream	grab	no	4	7.95
29	KE012W3DA	analytical duplicate of KE012W3, filtered (0.45 micron), acidified, ICP-MS only	stream	grab	no	18	8.08
30	VA001W3	blank sample, distilled water, filtered (0.45 micron), acidified	---	grab	---	25	5.50

Table 7.--Analytical results for acidified, filtered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Conductvty	Oxy, ppm	Alkal, ppm	EstimFlow	Ag, ppb-MS	Al, ppm-AE	Al, ppm-MS	As, ppb-MS	Au, ppb-MS	B, ppb-AE
1	NA008W3	1310	8	190	< 0.1 gal/min	< 0.1	0.2	< 0.04	4.3	< 0.2	190
2	NA009W3	144	8	60	< 0.1 gal/min	< 0.1	< 0.02	< 0.04	< 0.8	< 0.2	< 50
3	NA011W3	582	4	150	0.25 gal/min	< 0.1	0.04	< 0.04	< 0.8	< 0.2	73
4	NA012W3	394	11	160	stagnant	< 0.1	0.03	< 0.04	< 0.8	< 0.2	< 50
5	NA013W3	740	9	80	5 gal/min	< 0.1	0.04	< 0.04	1	< 0.2	< 50
6	NA014W3	780	7	350	2 gal/min	< 0.1	0.07	< 0.04	< 0.8	< 0.2	< 50
7	NA015W3	870	7	200	0.5 gal/min	< 0.1	0.06	< 0.04	< 0.8	< 0.2	< 50
8	NA016W3	1160	10	230	2 gal/min	< 0.1	0.1	< 0.04	< 0.8	< 0.2	< 50
9	NA019W3	770	7	260	0.5 gal/min	< 0.1	0.07	< 0.04	< 0.8	< 0.2	< 50
10	NA020W3	535	7	260	< 0.1 gal/min	< 0.1	0.1	< 0.04	< 0.8	< 0.2	< 50
11	NA021W3	132	8	55	10 cfs	< 0.1	0.03	< 0.04	< 0.8	< 0.2	< 50
12	KE002W3	145	11	60	50 gal/min	< 0.1	< 0.02	< 0.04	< 0.8	< 0.2	58
13	KE003W3	160	10	70	50 gal/min	< 0.1	0.02	< 0.04	3.2	< 0.2	< 50
14	KE004W3	144	10	70	20 cfs	< 0.1	0.02	< 0.04	2.4	< 0.2	< 50
15	KE005W3	188	11	80	8 cfs	< 0.1	0.03	< 0.04	1	< 0.2	54
16	KE006W3	133	10	60	15 cfs	< 0.1	0.03	< 0.04	< 0.8	< 0.2	< 50
17	KE007W3	145	9	55	3 gal/min	< 0.1	0.02	< 0.04	< 0.8	< 0.2	78
18	KE008W3	147	10	60	20 gal/min	< 0.1	0.02	< 0.04	2.4	< 0.2	< 50
19	KE009W3	105	8	45	stagnant	< 0.1	0.02	< 0.04	< 0.8	< 0.2	< 50
20	KE010W3	436	11	230	5 gal/min	< 0.1	0.04	< 0.04	7.4	< 0.2	< 50
21	KE011W3	145	11	60	15 cfs	< 0.1	< 0.02	< 0.04	< 0.8	< 0.2	< 50
22	KE012W3	149	11	65	15 cfs	< 0.1	0.03	< 0.04	0.8	< 0.2	< 50
23	NA013W3DS	740	9	75	5 gal/min	< 0.1	0.04	< 0.04	< 0.8	< 0.2	< 50
24	NA021W3DS	131	8	55	10 cfs	< 0.1	0.02	< 0.04	0.9	< 0.2	< 50
25	KE004W3DS	144	10	70	20 cfs	< 0.1	0.02	< 0.04	2.2	< 0.2	< 50
26	KE010W3DS	437	11	220	5 gal/min	< 0.1	0.04	< 0.04	7.1	< 0.2	< 50
27	NA012W3DA	394	11	160	stagnant	< 0.1	0.0 B	< 0.04	< 0.8	< 0.2	0.0 B
28	KE002W3DA	145	11	60	50 gal/min	< 0.1	0.0 B	< 0.04	1	< 0.2	0.0 B
29	KE012W3DA	149	11	65	15 cfs	< 0.1	0.0 B	< 0.04	1	< 0.2	0.0 B
30	VA001W3	0.4	10	< 10	---	< 0.1	< 0.02	< 0.04	< 0.8	< 0.2	< 50

Table 7.--Analytical results for acidified, filtered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Ba, ppb-AE	Ba, ppb-MS	Be, ppb-AE	Be, ppb-MS	Bi, ppb-MS	Ca, ppm-AE	Ca, ppm-MS	Cd, ppb-AE	Cd, ppb-MS	Ce, ppb-MS
1	NA008W3	18	17	< 1	< 0.4	< 0.5	200	140	< 1	< 2	< 0.1
2	NA009W3	3	2.5	< 1	< 0.4	< 0.5	19	15	< 1	< 2	< 0.1
3	NA011W3	17	16	< 1	< 0.4	< 0.5	110	81	4	4	< 0.1
4	NA012W3	12	10	< 1	< 0.4	< 0.5	77	60	< 1	< 2	0.1
5	NA013W3	4	3.7	< 1	< 0.4	< 0.5	140	97	< 1	< 2	< 0.1
6	NA014W3	12	11	< 1	< 0.4	< 0.5	140	100	< 1	< 2	< 0.1
7	NA015W3	19	17	< 1	< 0.4	< 0.5	150	110	< 1	< 2	< 0.1
8	NA016W3	21	19	< 1	< 0.4	< 0.5	190	160	< 1	< 2	< 0.1
9	NA019W3	9	8.0	< 1	< 0.4	< 0.5	110	88	< 1	< 2	< 0.1
10	NA020W3	5	4.4	< 1	< 0.4	< 0.5	71	67	< 1	< 2	< 0.1
11	NA021W3	5	4.4	< 1	< 0.4	< 0.5	13	12	< 1	< 2	< 0.1
12	KE002W3	< 1	0.4	< 1	< 0.4	< 0.5	19	19	< 1	< 2	< 0.1
13	KE003W3	5	3.3	< 1	< 0.4	< 0.5	22	23	< 1	< 2	< 0.1
14	KE004W3	10	8.1	< 1	< 0.4	< 0.5	19	22	< 1	< 2	< 0.1
15	KE005W3	36	33	< 1	< 0.4	< 0.5	24	26	< 1	< 2	< 0.1
16	KE006W3	29	25	< 1	< 0.4	< 0.5	15	16	< 1	< 2	< 0.1
17	KE007W3	2	1.6	< 1	< 0.4	< 0.5	16	18	< 1	< 2	< 0.1
18	KE008W3	3	1.9	< 1	< 0.4	< 0.5	19	21	< 1	< 2	< 0.1
19	KE009W3	9	7.4	< 1	< 0.4	< 0.5	18	21	< 1	< 2	< 0.1
20	KE010W3	39	36	< 1	< 0.4	< 0.5	72	74	< 1	< 2	< 0.1
21	KE011W3	29	26	< 1	< 0.4	< 0.5	16	19	< 1	< 2	< 0.1
22	KE012W3	31	28	< 1	< 0.4	< 0.5	17	19	< 1	< 2	< 0.1
23	NA013W3DS	4	3.3	< 1	< 0.4	< 0.5	140	110	< 1	< 2	< 0.1
24	NA021W3DS	5	4.6	< 1	< 0.4	< 0.5	13	12	< 1	< 2	< 0.1
25	KE004W3DS	10	9.7	< 1	< 0.4	< 0.5	19	21	< 1	< 2	< 0.1
26	KE010W3DS	39	35	< 1	< 0.4	< 0.5	72	69	< 1	< 2	< 0.1
27	NA012W3DA	0.0 B	9.4	0.0 B	< 0.4	< 0.5	0.0 B	78	0.0 B	< 2	< 0.1
28	KE002W3DA	0.0 B	0.4	0.0 B	< 0.4	< 0.5	0.0 B	20	0.0 B	< 2	< 0.1
29	KE012W3DA	0.0 B	28	0.0 B	< 0.4	< 0.5	0.0 B	19	0.0 B	< 2	< 0.1
30	VA001W3	< 1	0.1	< 1	< 0.4	< 0.5	0.05	4	< 1	< 2	< 0.1

Table 7.--Analytical results for acidified, filtered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Co, ppb-AE	Co, ppb-MS	Cr, ppb-AE	Cr, ppb-MS	Cs, ppb-MS	Cu, ppb-AE	Cu, ppb-MS	Dy, ppb-MS	Er, ppb-MS	Eu, ppb-MS
1	NA008W3	< 2	0.3	< 2	< 0.7	0.6	< 4	2	< 0.1	< 0.1	< 0.1
2	NA009W3	< 2	0.1	< 2	< 0.7	< 0.1	< 4	1	< 0.1	< 0.1	< 0.1
3	NA011W3	2	1.6	< 2	< 0.7	0.2	13	7.5	< 0.1	< 0.1	< 0.1
4	NA012W3	< 2	0.2	< 2	< 0.7	< 0.1	10	6.2	< 0.1	< 0.1	< 0.1
5	NA013W3	2	1.4	< 2	< 0.7	0.2	10	6.4	< 0.1	< 0.1	< 0.1
6	NA014W3	< 2	0.2	< 2	< 0.7	< 0.1	7	3.3	< 0.1	< 0.1	< 0.1
7	NA015W3	< 2	0.2	< 2	< 0.7	< 0.1	6	2	< 0.1	< 0.1	< 0.1
8	NA016W3	< 2	0.2	< 2	< 0.7	< 0.1	5	2.8	< 0.1	< 0.1	< 0.1
9	NA019W3	< 2	0.1	< 2	< 0.7	< 0.1	6	2.9	< 0.1	< 0.1	< 0.1
10	NA020W3	< 2	0.2	< 2	< 0.7	< 0.1	4	1	< 0.1	< 0.1	< 0.1
11	NA021W3	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	1	< 0.1	< 0.1	< 0.1
12	KE002W3	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	< 0.6	< 0.1	< 0.1	< 0.1
13	KE003W3	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	< 0.6	< 0.1	< 0.1	< 0.1
14	KE004W3	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	0.9	< 0.1	< 0.1	< 0.1
15	KE005W3	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	2	< 0.1	< 0.1	< 0.1
16	KE006W3	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	< 0.6	< 0.1	< 0.1	< 0.1
17	KE007W3	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	< 0.6	< 0.1	< 0.1	< 0.1
18	KE008W3	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	2	< 0.1	< 0.1	< 0.1
19	KE009W3	< 2	0.1	< 2	< 0.7	< 0.1	12	9.5	< 0.1	< 0.1	< 0.1
20	KE010W3	< 2	0.1	< 2	0.7	< 0.1	76	67	< 0.1	< 0.1	< 0.1
21	KE011W3	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	2	< 0.1	< 0.1	< 0.1
22	KE012W3	< 2	< 0.1	< 2	< 0.7	< 0.1	9	6.7	< 0.1	< 0.1	< 0.1
23	NA013W3DS	2	1.6	< 2	< 0.7	0.2	12	6.7	< 0.1	< 0.1	< 0.1
24	NA021W3DS	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	0.6	< 0.1	< 0.1	< 0.1
25	KE004W3DS	< 2	< 0.1	< 2	< 0.7	0.2	< 4	0.8	< 0.1	< 0.1	< 0.1
26	KE010W3DS	< 2	0.1	< 2	< 0.7	< 0.1	76	61	< 0.1	< 0.1	< 0.1
27	NA012W3DA	0.0 B	0.2	0.0 B	< 0.7	< 0.1	0.0 B	7.1	< 0.1	< 0.1	< 0.1
28	KE002W3DA	0.0 B	< 0.1	0.0 B	< 0.7	< 0.1	0.0 B	< 0.6	< 0.1	< 0.1	< 0.1
29	KE012W3DA	0.0 B	< 0.1	0.0 B	< 0.7	< 0.1	0.0 B	7.0	< 0.1	< 0.1	< 0.1
30	VA001W3	< 2	< 0.1	< 2	< 0.7	0.1	< 4	< 0.6	< 0.1	< 0.1	< 0.1

Table 7.--Analytical results for acidified, filtered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Fe, ppm-AE	Fe, ppm-MS	Ga, ppb-MS	Gd, ppb-MS	Ge, ppb-MS	Hf, ppb-MS	Ho, ppb-MS	Ir, ppb-MS	K, ppm-AE	K, ppm-MS
1	NA008W3	< 0.02	0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	2.9	1.2
2	NA009W3	< 0.02	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.2	0.68
3	NA011W3	0.6	0.7	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	2.0	0.98
4	NA012W3	0.03	0.04	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.7	0.92
5	NA013W3	0.03	0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.9	0.89
6	NA014W3	0.03	0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	2.2	1.1
7	NA015W3	< 0.02	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	3.0	1.4
8	NA016W3	< 0.02	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	4.3	> 2
9	NA019W3	0.02	0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.8	0.94
10	NA020W3	0.1	0.14	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.7	0.57
11	NA021W3	0.03	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.0	0.69
12	KE002W3	< 0.02	0.04	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.25
13	KE003W3	< 0.02	0.04	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.34
14	KE004W3	< 0.02	0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.39
15	KE005W3	< 0.02	0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3	0.47
16	KE006W3	< 0.02	0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.5	0.59
17	KE007W3	< 0.02	0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.36
18	KE008W3	< 0.02	0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.39
19	KE009W3	< 0.02	0.07	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.4	0.63
20	KE010W3	< 0.02	0.07	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.7	0.87
21	KE011W3	< 0.02	0.06	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.5	0.7
22	KE012W3	< 0.02	0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.6	0.69
23	NA013W3DS	0.03	0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	2.0	1.1
24	NA021W3DS	< 0.02	0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.0	0.67
25	KE004W3DS	< 0.02	0.06	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.42
26	KE010W3DS	< 0.02	0.06	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.7	0.76
27	NA012W3DA	0.0 B	0.084	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.0 B	1.4
28	KE002W3DA	0.0 B	0.04	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.0 B	0.4
29	KE012W3DA	0.0 B	0.04	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.0 B	0.7
30	VA001W3	< 0.02	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	0.34

Table 7.--Analytical results for acidified, filtered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	La, ppb-MS	Li, ppb-AE	Li, ppb-MS	Mg, ppm-AE	Mg, ppm-MS	Mn, ppb-AE	Mn, ppb-MS	Mo, ppb-AE	Mo, ppb-MS	Na, ppm-AE
1	NA008W3	< 0.1	25	14	48	30	8	6.4	20	21	22
2	NA009W3	< 0.1	< 5	0.7	2.9	2	< 2	0.4	< 4	0.55	3.2
3	NA011W3	< 0.1	< 5	1.8	11	6.8	190	140	< 4	0.48	4.2
4	NA012W3	< 0.1	< 5	0.86	4.1	2.7	< 2	0.50	< 4	2.9	1.0
5	NA013W3	< 0.1	< 5	2.7	10	5.8	< 2	1.0	8	9.1	5.5
6	NA014W3	< 0.1	< 5	1.2	17	11	4	2.7	< 4	2.9	2.1
7	NA015W3	< 0.1	5	2.6	16	9.7	< 2	1.3	< 4	2.0	6.1
8	NA016W3	< 0.1	< 5	1.3	31	21	< 2	< 0.2	< 4	1.4	3.7
9	NA019W3	< 0.1	< 5	1.3	20	14	< 2	0.3	7	6.3	1.6
10	NA020W3	< 0.1	< 5	1.1	23	20	20	18	< 4	0.3	3.0
11	NA021W3	< 0.1	< 5	1.7	5.1	4	< 2	< 0.2	< 4	0.61	4.7
12	KE002W3	< 0.1	< 5	0.7	4.7	3.8	< 2	0.2	< 4	0.2	2.1
13	KE003W3	< 0.1	< 5	< 0.2	4.9	4.2	< 2	0.2	< 4	< 0.1	1.7
14	KE004W3	< 0.1	< 5	0.5	4.5	3.9	< 2	< 0.2	< 4	0.2	1.5
15	KE005W3	< 0.1	< 5	0.98	6.5	5.6	< 2	0.3	< 4	< 0.1	3.9
16	KE006W3	< 0.1	< 5	1.2	5.3	4.2	< 2	< 0.2	< 4	0.2	4.7
17	KE007W3	< 0.1	< 5	0.3	2.3	1.9	< 2	0.2	< 4	0.1	10
18	KE008W3	< 0.1	< 5	< 0.2	5.0	4.2	< 2	< 0.2	< 4	< 0.1	2.7
19	KE009W3	< 0.1	< 5	0.3	1.2	0.98	< 2	1.3	< 4	1.2	0.4
20	KE010W3	< 0.1	< 5	0.94	11	9.6	< 2	< 0.2	< 4	1.4	2.2
21	KE011W3	< 0.1	< 5	1.0	5.3	4.4	< 2	< 0.2	< 4	0.3	4.5
22	KE012W3	< 0.1	< 5	1.9	5.4	4.4	< 2	0.3	< 4	0.3	4.5
23	NA013W3DS	< 0.1	< 5	2.0	10	6.7	< 2	0.99	9	8.6	5.7
24	NA021W3DS	< 0.1	< 5	1.4	5.1	3.8	< 2	< 0.2	< 4	0.90	4.7
25	KE004W3DS	< 0.1	< 5	0.4	4.5	3.7	< 2	< 0.2	< 4	0.2	1.5
26	KE010W3DS	< 0.1	< 5	0.95	11	9	< 2	< 0.2	< 4	1.2	2.2
27	NA012W3DA	< 0.1	0.0 B	1.1	0.0 B	3.2	0.0 B	0.5	0.0 B	2.6	0.0 B
28	KE002W3DA	< 0.1	0.0 B	1.0	0.0 B	3.7	0.0 B	0.2	0.0 B	0.2	0.0 B
29	KE012W3DA	< 0.1	0.0 B	1.9	0.0 B	4.5	0.0 B	0.3	0.0 B	0.46	0.0 B
30	VA001W3	< 0.1	< 5	< 0.2	< 0.05	< 0.002	< 2	< 0.2	< 4	< 0.1	< 0.05

Table 7.--Analytical results for acidified, filtered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Na, ppm-MS	Nb, ppb-MS	Nd, ppb-MS	Ni, ppb-AE	Ni, ppb-MS	Os, ppb-MS	P, ppb-AE	Pb, ppb-AE	Pb, ppb-MS	Pd, ppb-MS
1	NA008W3	0.0 B	< 0.4	< 0.1	< 4	2.2	< 0.2	< 25	< 5	< 0.1	< 0.1
2	NA009W3	0.0 B	< 0.4	< 0.1	< 4	0.4	< 0.2	34	< 5	0.2	< 0.1
3	NA011W3	0.0 B	< 0.4	< 0.1	< 4	4.2	< 0.2	< 25	< 5	< 0.1	< 0.1
4	NA012W3	0.0 B	< 0.4	< 0.1	< 4	2.7	< 0.2	< 25	< 5	< 0.1	< 0.1
5	NA013W3	0.0 B	< 0.4	< 0.1	< 4	2.5	< 0.2	< 25	< 5	< 0.1	< 0.1
6	NA014W3	0.0 B	< 0.4	< 0.1	< 4	2.7	< 0.2	< 25	< 5	0.1	< 0.1
7	NA015W3	0.0 B	< 0.4	< 0.1	< 4	2.9	< 0.2	< 25	< 5	< 0.1	< 0.1
8	NA016W3	0.0 B	< 0.4	< 0.1	< 4	3.0	< 0.2	< 25	< 5	< 0.1	< 0.1
9	NA019W3	0.0 B	< 0.4	< 0.1	< 4	2.5	< 0.2	< 25	< 5	< 0.1	< 0.1
10	NA020W3	0.0 B	< 0.4	0.1	< 4	2.8	< 0.2	< 25	< 5	< 0.1	< 0.1
11	NA021W3	0.0 B	< 0.4	< 0.1	< 4	0.3	< 0.2	27	< 5	< 0.1	< 0.1
12	KE002W3	0.0 B	< 0.4	< 0.1	< 4	< 0.2	< 0.2	< 25	< 5	< 0.1	< 0.1
13	KE003W3	0.0 B	< 0.4	< 0.1	< 4	0.2	< 0.2	< 25	< 5	< 0.1	< 0.1
14	KE004W3	0.0 B	< 0.4	< 0.1	< 4	< 0.2	< 0.2	< 25	< 5	< 0.1	< 0.1
15	KE005W3	0.0 B	< 0.4	< 0.1	< 4	0.2	< 0.2	< 25	< 5	< 0.1	< 0.1
16	KE006W3	0.0 B	< 0.4	< 0.1	< 4	< 0.2	< 0.2	< 25	< 5	< 0.1	< 0.1
17	KE007W3	0.0 B	< 0.4	< 0.1	< 4	< 0.2	< 0.2	< 25	< 5	< 0.1	< 0.1
18	KE008W3	0.0 B	< 0.4	< 0.1	< 4	0.2	< 0.2	< 25	< 5	< 0.1	< 0.1
19	KE009W3	0.0 B	< 0.4	< 0.1	< 4	0.5	< 0.2	< 25	< 5	0.1	< 0.1
20	KE010W3	0.0 B	< 0.4	< 0.1	< 4	1.2	< 0.2	< 25	< 5	< 0.1	< 0.1
21	KE011W3	0.0 B	< 0.4	< 0.1	< 4	0.3	< 0.2	< 25	< 5	< 0.1	< 0.1
22	KE012W3	0.0 B	< 0.4	< 0.1	< 4	0.3	< 0.2	< 25	< 5	0.1	< 0.1
23	NA013W3DS	0.0 B	< 0.4	< 0.1	< 4	2.9	< 0.2	< 25	< 5	< 0.1	< 0.1
24	NA021W3DS	0.0 B	< 0.4	< 0.1	< 4	< 0.2	< 0.2	30	< 5	< 0.1	< 0.1
25	KE004W3DS	0.0 B	< 0.4	< 0.1	< 4	0.3	< 0.2	< 25	< 5	< 0.1	< 0.1
26	KE010W3DS	0.0 B	< 0.4	< 0.1	< 4	0.75	< 0.2	< 25	< 5	0.1	< 0.1
27	NA012W3DA	0.0 B	< 0.4	< 0.1	0.0 B	2.8	< 0.2	0.0 B	0.0 B	< 0.1	< 0.1
28	KE002W3DA	0.0 B	< 0.4	< 0.1	0.0 B	0.2	< 0.2	0.0 B	0.0 B	< 0.1	< 0.1
29	KE012W3DA	0.0 B	< 0.4	< 0.1	0.0 B	0.2	< 0.2	0.0 B	0.0 B	< 0.1	< 0.1
30	VA001W3	0.0 B	< 0.4	< 0.1	< 4	< 0.2	< 0.2	< 25	< 5	< 0.1	< 0.1

Table 7.--Analytical results for acidified, filtered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Pr, ppb-MS	Pt, ppb-MS	Rb, ppb-MS	Re, ppb-MS	Rh, ppb-MS	Ru, ppb-MS	Sb, ppb-MS	Sc, ppb-MS	Si, ppm-AE	Sm, ppb-MS
1	NA008W3	< 0.1	< 0.1	5.5	1.2	< 0.1	< 0.1	0.2	3.4	14	< 0.1
2	NA009W3	< 0.1	< 0.1	1.6	< 0.1	< 0.1	< 0.1	< 0.2	3.2	10	< 0.1
3	NA011W3	< 0.1	< 0.1	2.1	< 0.1	< 0.1	< 0.1	< 0.2	4.6	16	< 0.1
4	NA012W3	< 0.1	< 0.1	2.0	< 0.1	< 0.1	< 0.1	0.2	3.4	10	< 0.1
5	NA013W3	< 0.1	< 0.1	2.7	0.1	< 0.1	< 0.1	0.3	3.9	14	< 0.1
6	NA014W3	< 0.1	< 0.1	2.0	< 0.1	< 0.1	< 0.1	< 0.2	3.7	15	< 0.1
7	NA015W3	< 0.1	< 0.1	4.0	0.2	< 0.1	< 0.1	< 0.2	3.9	15	< 0.1
8	NA016W3	< 0.1	< 0.1	4.8	0.1	< 0.1	< 0.1	< 0.2	2	9.0	< 0.1
9	NA019W3	< 0.1	< 0.1	1.2	0.2	< 0.1	< 0.1	0.69	4.1	14	< 0.1
10	NA020W3	< 0.1	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.2	3.3	8.4	< 0.1
11	NA021W3	< 0.1	< 0.1	0.9	< 0.1	< 0.1	< 0.1	< 0.2	3.2	9.3	< 0.1
12	KE002W3	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.2	1	2.7	< 0.1
13	KE003W3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	1	1.8	< 0.1
14	KE004W3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	1	1.6	< 0.1
15	KE005W3	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.2	2	2.9	< 0.1
16	KE006W3	< 0.1	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.2	2	3.2	< 0.1
17	KE007W3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	1	2.3	< 0.1
18	KE008W3	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.2	1	1.6	< 0.1
19	KE009W3	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.2	1	< 1	< 0.1
20	KE010W3	< 0.1	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.2	2	5.2	< 0.1
21	KE011W3	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.2	2	3.3	< 0.1
22	KE012W3	< 0.1	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.2	2	3.4	< 0.1
23	NA013W3DS	< 0.1	< 0.1	2.7	0.2	< 0.1	< 0.1	0.3	3.9	14	< 0.1
24	NA021W3DS	< 0.1	< 0.1	0.8	< 0.1	< 0.1	< 0.1	< 0.2	2	9.4	< 0.1
25	KE004W3DS	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.2	1	1.6	< 0.1
26	KE010W3DS	< 0.1	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.2	2	5.2	< 0.1
27	NA012W3DA	< 0.1	< 0.1	2.1	< 0.1	< 0.1	< 0.1	< 0.2	3.7	0.0 B	< 0.1
28	KE002W3DA	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	1	0.0 B	< 0.1
29	KE012W3DA	< 0.1	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.2	2	0.0 B	< 0.1
30	VA001W3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	0.9	< 1	< 0.1

Table 7.--Analytical results for acidified, filtered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Sn, ppb-MS	Sr, ppb-AE	Sr, ppb-MS	Ta, ppb-MS	Tb, ppb-MS	Te, ppb-MS	Th, ppb-MS	Ti, ppb-AE	Ti, ppb-MS	Tl, ppb-MS
1	NA008W3	< 0.5	900	970	< 0.1	< 0.1	< 2	< 0.6	< 10	5	< 0.4
2	NA009W3	< 0.5	59	60	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
3	NA011W3	< 0.5	190	220	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
4	NA012W3	< 0.5	91	96	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
5	NA013W3	< 0.5	230	250	< 0.1	< 0.1	< 2	< 0.6	< 10	3	< 0.4
6	NA014W3	< 0.5	140	150	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
7	NA015W3	< 0.5	200	210	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
8	NA016W3	< 0.5	200	210	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
9	NA019W3	< 0.5	110	110	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
10	NA020W3	< 0.5	99	100	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
11	NA021W3	< 0.5	46	49	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
12	KE002W3	< 0.5	88	93	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
13	KE003W3	< 0.5	47	50	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
14	KE004W3	< 0.5	39	42	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
15	KE005W3	< 0.5	62	69	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
16	KE006W3	< 0.5	56	58	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
17	KE007W3	< 0.5	37	40	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
18	KE008W3	< 0.5	29	33	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
19	KE009W3	< 0.5	60	63	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
20	KE010W3	< 0.5	250	270	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
21	KE011W3	< 0.5	58	63	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
22	KE012W3	< 0.5	62	66	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
23	NA013W3DS	< 0.5	230	240	< 0.1	< 0.1	< 2	< 0.6	< 10	3	< 0.4
24	NA021W3DS	< 0.5	46	48	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
25	KE004W3DS	< 0.5	39	42	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
26	KE010W3DS	< 0.5	250	260	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
27	NA012W3DA	< 0.5	0.0 B	95	< 0.1	< 0.1	< 2	< 0.6	0.0 B	< 3	< 0.4
28	KE002W3DA	< 0.5	0.0 B	91	< 0.1	< 0.1	< 2	< 0.6	0.0 B	< 3	< 0.4
29	KE012W3DA	< 0.5	0.0 B	67	< 0.1	< 0.1	< 2	< 0.6	0.0 B	< 3	< 0.4
30	VA001W3	< 0.5	< 1	< 0.1	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4

Table 7.--Analytical results for acidified, filtered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Tm, ppb-MS	U, ppb-MS	V, ppb-AE	V, ppb-MS	W, ppb-MS	Y, ppb-MS	Yb, ppb-MS	Zn, ppb-AE	Zn, ppb-MS	Zr, ppb-MS
1	NA008W3	< 0.1	29	< 2	0.9	< 0.1	< 0.1	< 0.1	< 2	6.6	< 0.2
2	NA009W3	< 0.1	0.2	4	2.2	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
3	NA011W3	< 0.1	0.6	< 2	< 0.4	< 0.1	< 0.1	< 0.1	490	360	< 0.2
4	NA012W3	< 0.1	0.7	< 2	0.4	< 0.1	0.2	< 0.1	< 2	< 2	0.3
5	NA013W3	< 0.1	3.2	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
6	NA014W3	< 0.1	5.9	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
7	NA015W3	< 0.1	2.3	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
8	NA016W3	< 0.1	22	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
9	NA019W3	< 0.1	8.9	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	4	< 0.2
10	NA020W3	< 0.1	1	< 2	< 0.4	< 0.1	0.1	< 0.1	< 2	< 2	0.5
11	NA021W3	< 0.1	1.4	3	2.5	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
12	KE002W3	< 0.1	0.2	< 2	0.9	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
13	KE003W3	< 0.1	< 0.1	< 2	0.9	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
14	KE004W3	< 0.1	< 0.1	< 2	0.8	< 0.1	< 0.1	< 0.1	< 2	< 2	0.4
15	KE005W3	< 0.1	< 0.1	< 2	0.9	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
16	KE006W3	< 0.1	< 0.1	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
17	KE007W3	< 0.1	< 0.1	2	2.0	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
18	KE008W3	< 0.1	< 0.1	< 2	1.2	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
19	KE009W3	< 0.1	< 0.1	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
20	KE010W3	< 0.1	0.4	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
21	KE011W3	< 0.1	0.1	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
22	KE012W3	< 0.1	0.2	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
23	NA013W3DS	< 0.1	2.9	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
24	NA021W3DS	< 0.1	1.5	3	2.5	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
25	KE004W3DS	< 0.1	0.1	< 2	0.7	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
26	KE010W3DS	< 0.1	0.2	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
27	NA012W3DA	< 0.1	0.4	0.0 B	0.4	0.1	0.2	< 0.1	0.0 B	< 2	0.4
28	KE002W3DA	< 0.1	0.1	0.0 B	1.0	< 0.1	< 0.1	< 0.1	0.0 B	< 2	< 0.2
29	KE012W3DA	< 0.1	0.2	0.0 B	< 0.4	< 0.1	< 0.1	< 0.1	0.0 B	< 2	< 0.2
30	VA001W3	< 0.1	< 0.1	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2

Table 8.--Analytical results for acidified, unfiltered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	LabNo	DLat	MLat	SLat	DLon	MLon	SLon	Latitude	Longitude	ST	Quad1x3	Quad15'	M_D_YColl	SampType
1	NA008W2	D571255	62	22	21.060	143	1	34.120	62.37252	143.02614	AK	Nabesna 1X3	Nabesna B-5	08/07/94	water
2	NA009W2	D571256	62	22	11.868	143	1	54.079	62.36996	143.03169	AK	Nabesna 1X3	Nabesna B-5	08/07/94	water
3	NA011W2	D571257	62	22	25.048	142	59	57.120	62.37362	142.99920	AK	Nabesna 1X3	Nabesna B-4	08/07/94	water
4	NA012W2	D571258	62	22	39.813	143	0	6.313	62.37773	143.00175	AK	Nabesna 1X3	Nabesna B-5	08/08/94	water
5	NA013W2	D571259	62	22	52.797	143	0	32.459	62.38133	143.00902	AK	Nabesna 1X3	Nabesna B-5	08/08/94	water
6	NA014W2	D571260	62	23	10.028	142	59	58.477	62.38612	142.99958	AK	Nabesna 1X3	Nabesna B-4	08/08/94	water
7	NA015W2	D571261	62	23	24.621	142	59	54.900	62.39017	142.99858	AK	Nabesna 1X3	Nabesna B-4	08/08/94	water
8	NA016W2	D571262	62	23	6.349	143	0	20.904	62.38510	143.00581	AK	Nabesna 1X3	Nabesna B-5	08/09/94	water
9	NA019W2	D571263	62	23	13.439	143	0	12.889	62.38707	143.00358	AK	Nabesna 1X3	Nabesna B-5	08/09/94	water
10	NA020W2	D571264	62	23	34.722	142	59	57.817	62.39298	142.99939	AK	Nabesna 1X3	Nabesna B-4	08/09/94	water
11	NA021W2	D571265	62	24	6.628	142	59	54.079	62.40184	142.99836	AK	Nabesna 1X3	Nabesna B-4	08/09/94	water
12	KE002W2	D571268	61	31	55.889	142	53	42.449	61.53219	142.89512	AK	McCarthy 1X3	McCarthy C-6	08/11/94	water
13	KE003W2	D571269	61	30	45.423	142	53	51.267	61.51262	142.89757	AK	McCarthy 1X3	McCarthy C-6	08/12/94	water
14	KE004W2	D571270	61	30	12.916	142	53	37.466	61.50359	142.89374	AK	McCarthy 1X3	McCarthy C-6	08/12/94	water
15	KE005W2	D571271	61	29	32.310	142	53	19.066	61.49231	142.88863	AK	McCarthy 1X3	McCarthy B-6	08/12/94	water
16	KE006W2	D571272	61	29	6.677	142	52	54.436	61.48519	142.88179	AK	McCarthy 1X3	McCarthy B-6	08/12/94	water
17	KE007W2	D571273	61	30	21.099	142	49	54.633	61.50586	142.83184	AK	McCarthy 1X3	McCarthy C-5	08/13/94	water
18	KE008W2	D571274	61	30	42.720	142	49	47.817	61.51187	142.82995	AK	McCarthy 1X3	McCarthy C-5	08/13/94	water
19	KE009W2	D571275	61	29	9.165	142	53	22.336	61.48588	142.88954	AK	McCarthy 1X3	McCarthy B-6	08/14/94	water
20	KE010W2	D571276	61	29	6.363	142	53	21.574	61.48510	142.88933	AK	McCarthy 1X3	McCarthy B-6	08/14/94	water
21	KE011W2	D571277	61	29	2.834	142	53	19.612	61.48412	142.88878	AK	McCarthy 1X3	McCarthy B-6	08/14/94	water
22	KE012W2	D571278	61	28	36.991	142	53	23.645	61.47694	142.88990	AK	McCarthy 1X3	McCarthy B-6	08/14/94	water
23	NA013W2DS	D571266	62	22	52.797	143	0	32.459	62.38133	143.00902	AK	Nabesna 1X3	Nabesna B-5	08/08/94	water
24	NA021W2DS	D571267	62	24	6.628	142	59	54.079	62.40184	142.99836	AK	Nabesna 1X3	Nabesna B-4	08/09/94	water
25	KE004W2DS	D571279	61	30	12.916	142	53	37.466	61.50359	142.89374	AK	McCarthy 1X3	McCarthy C-6	08/12/94	water
26	KE010W2DS	D571280	61	29	6.363	142	53	21.574	61.48510	142.88933	AK	McCarthy 1X3	McCarthy B-6	08/14/94	water
27	NA008W2DA	D571255	62	22	21.060	143	1	34.120	62.37252	143.02614	AK	Nabesna 1X3	Nabesna B-5	08/07/94	water
28	NA021W2DA	D571265	62	24	6.628	142	59	54.079	62.40184	142.99836	AK	Nabesna 1X3	Nabesna B-4	08/09/94	water
29	KE009W2DA	D571275	61	29	9.165	142	53	22.336	61.48588	142.88954	AK	McCarthy 1X3	McCarthy B-6	08/14/94	water
30	VA001W2	D571281	0	0	0	0	0	0	0	0	--	--	--	08/15/94	water

Table 8.--Analytical results for acidified, unfiltered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Descriptn	SampSource	SampChar	NearMine	Temp, DegC	pH
1	NA008W2	unfiltered, acidified spring water sample on drill road above Nabesna mine	spring	grab	yes	25	7.82
2	NA009W2	unfiltered, acidified stream water sample, main stream south of Nabesna mine	stream	grab	no	24	8.03
3	NA011W2	unfiltered, acidified water sample from spring just below Nabesna mill tailings	spring	grab	yes	11	7.12
4	NA012W2	unfiltered, acidified water sample from spring in muskeg	spring	grab	no	2	7.48
5	NA013W2	unfiltered, acidified stream water sample	stream	grab	no	17	7.89
6	NA014W2	unfiltered, acidified water sample from spring in muskeg	spring	grab	no	3	7.45
7	NA015W2	unfiltered, acidified water sample from spring in muskeg	spring	grab	no	8	7.51
8	NA016W2	unfiltered, acidified water sample from spring just below Rambler mine tailings	spring	grab	yes	3	7.55
9	NA019W2	unfiltered, acidified water sample from spring in muskeg	spring	grab	no	4	7.49
10	NA020W2	unfiltered, acidified water sample from spring in muskeg	spring	grab	no	8	7.40
11	NA021W2	unfiltered, acidified stream water sample, Skookum Creek	stream	grab	no	14	7.95
12	KE002W2	unfiltered, acidified stream water sample above small snowfield	stream	grab	no	4	7.95
13	KE003W2	unfiltered, acidified stream water sample, Amazon Creek	stream	grab	no	5	7.88
14	KE004W2	unfiltered, acidified stream water sample, Jumbo Creek	stream	grab	no	7	7.97
15	KE005W2	unfiltered, acidified stream water sample, Bonanza Creek	stream	grab	no	9	8.12
16	KE006W2	unfiltered, acidified stream water sample, National Creek	stream	grab	no	7	7.66
17	KE007W2	unfiltered, acidified water sample from spring	spring	grab	no	6	8.00
18	KE008W2	unfiltered, acidified stream water sample, just below Bonanza mine	stream	grab	yes	2	8.15
19	KE009W2	unfiltered, acidified ponded rainwater sample, just below Kennecott mill	other	grab	yes	13	7.85
20	KE010W2	unfiltered, acidified spring water sample, flowing from Kennecott mill tailings	spring	grab	yes	6	7.90
21	KE011W2	unfiltered, acidified stream water sample, National Creek below Kennecott mill	stream	grab	yes	8	7.96
22	KE012W2	unfiltered, acidified stream water sample, National Cr. just above Ken. glacier	stream	grab	no	18	8.08
23	NA013W2DS	site duplicate of NA013W2, unfiltered, acidified	spring	grab	no	17	7.86
24	NA021W2DS	site duplicate of NA021W2, unfiltered, acidified	stream	grab	no	14	8.02
25	KE004W2DS	site duplicate of KE004W2, unfiltered, acidified	stream	grab	no	7	7.95
26	KE010W2DS	site duplicate of KE010W2, unfiltered, acidified	spring	grab	yes	6	7.92
27	NA008W2DA	analytical duplicate of NA008W2, unfiltered, acidified, ICP-MS only	spring	grab	yes	25	7.82
28	NA021W2DA	analytical duplicate of NA021W2, unfiltered, acidified, ICP-MS only	stream	grab	no	14	7.95
29	KE009W2DA	analytical duplicate of KE009W2, unfiltered, acidified, ICP-MS only	other	grab	yes	13	7.85
30	VA001W2	blank sample, distilled water, unfiltered, acidified	--	grab	--	25	5.50

Table 8.--Analytical results for acidified, unfiltered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Conductvty	Oxy, ppm	Alkal, ppm	EstimFlow	Ag, ppb-MS	Al, ppm-AE	Al, ppm-MS	As, ppb-MS	Au, ppb-MS	B, ppb-AE
1	NA008W2	1310	8	190	< 0.1 gal/min	< 0.1	0.2	< 0.04	4.4	< 0.2	190
2	NA009W2	144	8	60	< 0.1 gal/min	< 0.1	0.02	< 0.04	< 0.8	< 0.2	< 50
3	NA011W2	582	4	150	0.25 gal/min	< 0.1	0.06	< 0.04	1	< 0.2	79
4	NA012W2	394	11	160	stagnant	< 0.1	0.03	< 0.04	< 0.8	< 0.2	< 50
5	NA013W2	740	9	80	5 gal/min	< 0.1	0.3	0.05	3.9	< 0.2	49
6	NA014W2	780	7	350	2 gal/min	< 0.1	0.07	< 0.04	1	< 0.2	< 50
7	NA015W2	870	7	200	0.5 gal/min	< 0.1	0.06	< 0.04	< 0.8	< 0.2	< 50
8	NA016W2	1160	10	230	2 gal/min	< 0.1	0.5	0.13	< 0.8	< 0.2	< 50
9	NA019W2	770	7	260	0.5 gal/min	< 0.1	0.08	< 0.04	< 0.8	< 0.2	< 50
10	NA020W2	535	7	260	< 0.1 gal/min	< 0.1	0.1	< 0.04	< 0.8	< 0.2	< 50
11	NA021W2	132	8	55	10 cfs	< 0.1	0.04	< 0.04	0.8	< 0.2	< 50
12	KE002W2	145	11	60	50 gal/min	< 0.1	0.04	< 0.04	0.9	< 0.2	59
13	KE003W2	160	10	70	50 gal/min	< 0.1	0.03	< 0.04	3.2	< 0.2	< 50
14	KE004W2	144	10	70	20 cfs	< 0.1	0.03	< 0.04	2.0	< 0.2	< 50
15	KE005W2	188	11	80	8 cfs	< 0.1	0.03	< 0.04	0.8	< 0.2	56
16	KE006W2	133	10	60	15 cfs	< 0.1	0.04	< 0.04	< 0.8	< 0.2	< 50
17	KE007W2	145	9	55	3 gal/min	< 0.1	0.05	< 0.04	< 0.8	< 0.2	81
18	KE008W2	147	10	60	20 gal/min	< 0.1	0.03	< 0.04	2.0	< 0.2	< 50
19	KE009W2	105	8	45	stagnant	< 0.1	0.07	0.04	1	< 0.2	< 50
20	KE010W2	436	11	230	5 gal/min	< 0.1	0.05	< 0.04	7.7	< 0.2	< 50
21	KE011W2	145	11	60	15 cfs	< 0.1	0.03	< 0.04	< 0.8	< 0.2	< 50
22	KE012W2	149	11	65	15 cfs	< 0.1	0.03	< 0.04	1	< 0.2	< 50
23	NA013W2DS	740	9	75	5 gal/min	< 0.1	0.1	0.04	2.7	< 0.2	< 50
24	NA021W2DS	131	8	55	10 cfs	< 0.1	0.03	< 0.04	0.8	< 0.2	< 50
25	KE004W2DS	144	10	70	20 cfs	< 0.1	0.03	< 0.04	2	< 0.2	< 50
26	KE010W2DS	437	11	220	5 gal/min	< 0.1	0.04	< 0.04	7.8	< 0.2	< 50
27	NA008W2DA	1310	8	190	< 0.1 gal/min	< 0.1	0.0 B	< 0.04	5.2	< 0.2	0.0 B
28	NA021W2DA	132	8	55	10 cfs	< 0.1	0.0 B	< 0.04	0.8	< 0.2	0.0 B
29	KE009W2DA	105	8	45	stagnant	< 0.1	0.0 B	0.04	0.8	< 0.2	0.0 B
30	VA001W2	0.4	10	< 10	--	< 0.1	< 0.02	< 0.04	< 0.8	< 0.2	< 50

Table 8.--Analytical results for acidified, unfiltered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Ba, ppb-AE	Ba, ppb-MS	Be, ppb-AE	Be, ppb-MS	Bi, ppb-MS	Ca, ppm-AE	Ca, ppm-MS	Cd, ppb-AE	Cd, ppb-MS	Ce, ppb-MS
1	NA008W2	18	17	< 1	< 0.4	< 0.5	160	170	< 1	< 2	0.1
2	NA009W2	3	2.4	< 1	< 0.4	< 0.5	19	15	< 1	< 2	< 0.1
3	NA011W2	18	17	< 1	< 0.4	< 0.5	110	80	6	6.0	< 0.1
4	NA012W2	12	11	< 1	< 0.4	< 0.5	77	60	< 1	< 2	0.1
5	NA013W2	4	4.0	< 1	< 0.4	< 0.5	130	100	< 1	< 2	0.1
6	NA014W2	12	11	< 1	< 0.4	< 0.5	140	100	< 1	< 2	< 0.1
7	NA015W2	18	16	< 1	< 0.4	< 0.5	140	100	< 1	< 2	< 0.1
8	NA016W2	23	20	< 1	< 0.4	< 0.5	180	150	< 1	< 2	0.3
9	NA019W2	9	8.3	< 1	< 0.4	< 0.5	110	85	< 1	< 2	< 0.1
10	NA020W2	5	4.4	< 1	< 0.4	< 0.5	72	61	< 1	< 2	0.1
11	NA021W2	5	4.8	< 1	< 0.4	< 0.5	13	10	< 1	< 2	< 0.1
12	KE002W2	1	0.7	< 1	< 0.4	< 0.5	19	16	< 1	< 2	< 0.1
13	KE003W2	5	4.0	< 1	< 0.4	< 0.5	21	19	< 1	< 2	< 0.1
14	KE004W2	10	9.3	< 1	< 0.4	< 0.5	19	18	< 1	< 2	0.1
15	KE005W2	36	31	< 1	< 0.4	< 0.5	24	20	< 1	< 2	< 0.1
16	KE006W2	28	25	< 1	< 0.4	< 0.5	14	13	< 1	< 2	< 0.1
17	KE007W2	2	1.7	< 1	< 0.4	< 0.5	16	14	< 1	< 2	< 0.1
18	KE008W2	2	2.4	< 1	< 0.4	< 0.5	19	17	< 1	< 2	< 0.1
19	KE009W2	9	7.9	< 1	< 0.4	< 0.5	18	17	< 1	< 2	0.1
20	KE010W2	40	36	< 1	< 0.4	< 0.5	71	62	< 1	< 2	< 0.1
21	KE011W2	30	27	< 1	< 0.4	< 0.5	16	14	< 1	< 2	< 0.1
22	KE012W2	31	28	< 1	< 0.4	< 0.5	17	15	< 1	< 2	< 0.1
23	NA013W2DS	4	3.4	< 1	< 0.4	< 0.5	120	93	< 1	< 2	0.1
24	NA021W2DS	5	4.2	< 1	< 0.4	< 0.5	13	10	< 1	< 2	< 0.1
25	KE004W2DS	10	9.0	< 1	< 0.4	< 0.5	19	18	< 1	< 2	< 0.1
26	KE010W2DS	40	36	< 1	< 0.4	< 0.5	71	63	< 1	< 2	< 0.1
27	NA008W2DA	0.0 B	18	0.0 B	< 0.4	< 0.5	0.0 B	230	0.0 B	< 2	< 0.1
28	NA021W2DA	0.0 B	4.5	0.0 B	< 0.4	< 0.5	0.0 B	15	0.0 B	< 2	< 0.1
29	KE009W2DA	0.0 B	8.3	0.0 B	< 0.4	< 0.5	0.0 B	22	0.0 B	< 2	0.1
30	VA001W2	< 1	< 0.1	< 1	< 0.4	< 0.5	0.07	2	< 1	< 2	< 0.1

Table 8.--Analytical results for acidified, unfiltered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Co, ppb-AE	Co, ppb-MS	Cr, ppb-AE	Cr, ppb-MS	Cs, ppb-MS	Cu, ppb-AE	Cu, ppb-MS	Dy, ppb-MS	Er, ppb-MS	Eu, ppb-MS
1	NA008W2	< 2	0.31	< 2	< 0.7	0.6	< 4	2.4	< 0.1	< 0.1	< 0.1
2	NA009W2	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	0.8	< 0.1	< 0.1	< 0.1
3	NA011W2	2	1.8	< 2	< 0.7	< 0.1	22	14	< 0.1	< 0.1	< 0.1
4	NA012W2	< 2	0.2	< 2	< 0.7	< 0.1	10	6.5	< 0.1	< 0.1	< 0.1
5	NA013W2	4	3.0	< 2	< 0.7	0.3	22	14	< 0.1	< 0.1	< 0.1
6	NA014W2	< 2	0.2	< 2	< 0.7	< 0.1	7	3.4	< 0.1	< 0.1	< 0.1
7	NA015W2	< 2	0.30	< 2	< 0.7	< 0.1	5	2.4	< 0.1	< 0.1	< 0.1
8	NA016W2	< 2	0.55	< 2	< 0.7	< 0.1	6	4.0	< 0.1	< 0.1	< 0.1
9	NA019W2	< 2	0.2	< 2	< 0.7	< 0.1	5	2.9	< 0.1	< 0.1	< 0.1
10	NA020W2	< 2	0.2	< 2	< 0.7	< 0.1	< 4	2.1	< 0.1	< 0.1	< 0.1
11	NA021W2	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	< 0.6	< 0.1	< 0.1	< 0.1
12	KE002W2	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	< 0.6	< 0.1	< 0.1	< 0.1
13	KE003W2	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	0.6	< 0.1	< 0.1	< 0.1
14	KE004W2	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	1	< 0.1	< 0.1	< 0.1
15	KE005W2	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	2.4	< 0.1	< 0.1	< 0.1
16	KE006W2	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	0.9	< 0.1	< 0.1	< 0.1
17	KE007W2	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	< 0.6	< 0.1	< 0.1	< 0.1
18	KE008W2	< 2	< 0.1	< 2	< 0.7	0.2	6	3.8	< 0.1	< 0.1	< 0.1
19	KE009W2	< 2	0.2	< 2	< 0.7	< 0.1	12	11	< 0.1	< 0.1	< 0.1
20	KE010W2	< 2	0.2	< 2	< 0.7	< 0.1	82	67	< 0.1	< 0.1	< 0.1
21	KE011W2	< 2	< 0.1	< 2	< 0.7	< 0.1	5	3.5	< 0.1	< 0.1	< 0.1
22	KE012W2	< 2	< 0.1	< 2	< 0.7	< 0.1	12	10	< 0.1	< 0.1	< 0.1
23	NA013W2DS	3	2.3	< 2	< 0.7	0.3	17	10	< 0.1	< 0.1	< 0.1
24	NA021W2DS	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	0.6	< 0.1	< 0.1	< 0.1
25	KE004W2DS	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	0.9	< 0.1	< 0.1	< 0.1
26	KE010W2DS	< 2	0.1	< 2	< 0.7	< 0.1	80	65	< 0.1	< 0.1	< 0.1
27	NA008W2DA	0.0 B	0.39	0.0 B	< 0.7	0.6	0.0 B	2.7	< 0.1	< 0.1	< 0.1
28	NA021W2DA	0.0 B	< 0.1	0.0 B	< 0.7	< 0.1	0.0 B	0.6	< 0.1	< 0.1	< 0.1
29	KE009W2DA	0.0 B	0.2	0.0 B	< 0.7	< 0.1	0.0 B	11	< 0.1	< 0.1	< 0.1
30	VA001W2	< 2	< 0.1	< 2	< 0.7	< 0.1	< 4	< 0.6	< 0.1	< 0.1	< 0.1

Table 8.--Analytical results for acidified, unfiltered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Fe, ppm-AE	Fe, ppm-MS	Ga, ppb-MS	Gd, ppb-MS	Ge, ppb-MS	Hf, ppb-MS	Ho, ppb-MS	Ir, ppb-MS	K, ppm-AE	K, ppm-MS
1	NA008W2	0.03	0.07	0.2	< 0.1	0.1	< 0.1	< 0.1	< 0.1	2.8	1.4
2	NA009W2	< 0.02	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.0	0.57
3	NA011W2	1.2	1.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	2.0	0.93
4	NA012W2	0.03	0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.7	0.88
5	NA013W2	1.5	1.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.9	0.89
6	NA014W2	0.06	0.076	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	2.3	1
7	NA015W2	0.06	0.06	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	3.0	1.3
8	NA016W2	0.3	0.31	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	4.3	1.8
9	NA019W2	0.03	0.04	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.8	0.85
10	NA020W2	0.2	0.23	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.8	0.52
11	NA021W2	< 0.02	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.0	0.57
12	KE002W2	0.03	0.06	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.2
13	KE003W2	< 0.02	0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.2
14	KE004W2	0.02	0.03	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	0.22
15	KE005W2	< 0.02	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.3	0.24
16	KE006W2	0.02	0.03	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.5	0.39
17	KE007W2	0.06	0.07	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.2
18	KE008W2	< 0.02	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.2
19	KE009W2	0.07	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.5	0.39
20	KE010W2	< 0.02	0.02	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	0.8	0.55
21	KE011W2	0.02	0.04	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.5	0.41
22	KE012W2	< 0.02	0.03	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.6	0.42
23	NA013W2DS	0.6	0.53	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.9	0.84
24	NA021W2DS	< 0.02	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.0	0.56
25	KE004W2DS	< 0.02	0.03	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.22
26	KE010W2DS	< 0.02	0.02	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	0.7	0.55
27	NA008W2DA	0.0 B	0.11	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.0 B	> 2
28	NA021W2DA	0.0 B	0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.0 B	1
29	KE009W2DA	0.0 B	0.17	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.0 B	0.78
30	VA001W2	< 0.02	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	0.2

Table 8.--Analytical results for acidified, unfiltered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	La, ppb-MS	Li, ppb-AE	Li, ppb-MS	Mg, ppm-AE	Mg, ppm-MS	Mn, ppb-AE	Mn, ppb-MS	Mo, ppb-AE	Mo, ppb-MS	Na, ppm-AE
1	NA008W2	< 0.1	25	14	47	35	9	8.6	20	22	22
2	NA009W2	< 0.1	< 5	0.85	2.9	2	< 2	0.5	< 4	0.41	3.0
3	NA011W2	< 0.1	< 5	1.5	11	7.2	230	170	< 4	0.4	4.2
4	NA012W2	< 0.1	< 5	1.0	4.1	2.9	< 2	0.56	< 4	2.3	1.0
5	NA013W2	< 0.1	< 5	1.9	10	6.3	8	6.6	8	6.6	5.5
6	NA014W2	< 0.1	< 5	1.4	17	11	4	3.3	< 4	2.7	2.1
7	NA015W2	< 0.1	5	2.8	16	9.5	3	2.0	< 4	2.0	6.0
8	NA016W2	0.1	< 5	1.2	31	20	10	7.6	< 4	1.0	3.6
9	NA019W2	< 0.1	< 5	1.6	20	14	< 2	0.83	7	6.6	1.6
10	NA020W2	< 0.1	< 5	0.7	23	18	27	26	< 4	< 0.1	3.3
11	NA021W2	< 0.1	< 5	1.4	5.1	3.7	2	0.4	< 4	0.62	4.7
12	KE002W2	< 0.1	< 5	0.4	4.7	3.5	< 2	1.2	< 4	0.2	2.1
13	KE003W2	< 0.1	< 5	0.3	5.0	3.9	< 2	0.2	< 4	0.1	1.7
14	KE004W2	< 0.1	< 5	0.6	4.5	3.8	< 2	0.5	< 4	0.2	1.5
15	KE005W2	< 0.1	< 5	1.2	6.5	5.1	< 2	0.2	< 4	0.2	3.9
16	KE006W2	< 0.1	< 5	1.6	5.1	4.1	< 2	0.83	< 4	0.2	4.6
17	KE007W2	< 0.1	< 5	0.2	2.4	1.8	< 2	1.3	< 4	0.1	10
18	KE008W2	< 0.1	< 5	< 0.2	5.1	4.2	< 2	0.3	< 4	0.1	2.7
19	KE009W2	< 0.1	< 5	0.3	1.2	1	6	5.8	< 4	1.2	0.4
20	KE010W2	< 0.1	< 5	0.7	11	9.1	< 2	0.2	< 4	1.4	2.2
21	KE011W2	< 0.1	< 5	1.8	5.3	4.2	< 2	0.92	< 4	0.2	4.5
22	KE012W2	< 0.1	< 5	1.7	5.4	4.3	< 2	0.6	< 4	0.3	4.6
23	NA013W2DS	< 0.1	< 5	2.1	10	5.7	5	3.8	7	7.2	5.4
24	NA021W2DS	< 0.1	< 5	1.3	5.2	3.5	< 2	0.4	< 4	0.89	4.7
25	KE004W2DS	< 0.1	< 5	0.6	4.5	3.7	< 2	0.3	< 4	0.1	1.5
26	KE010W2DS	< 0.1	< 5	0.94	11	9	< 2	0.3	< 4	1.1	2.2
27	NA008W2DA	< 0.1	0.0 B	19	0.0 B	43	0.0 B	9.0	0.0 B	22	0.0 B
28	NA021W2DA	< 0.1	0.0 B	2.3	0.0 B	4.2	0.0 B	0.4	0.0 B	1.0	0.0 B
29	KE009W2DA	< 0.1	0.0 B	0.5	0.0 B	1	0.0 B	6.2	0.0 B	1.2	0.0 B
30	VA001W2	< 0.1	< 5	< 0.2	< 0.05	< 0.002	< 2	< 0.2	< 4	< 0.1	< 0.05

Table 8.--Analytical results for acidified, unfiltered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Na, ppm-MS	Nb, ppb-MS	Nd, ppb-MS	Ni, ppb-AE	Ni, ppb-MS	Os, ppb-MS	P, ppb-AE	Pb, ppb-AE	Pb, ppb-MS	Pd, ppb-MS
1	NA008W2	0.0 B	< 0.4	< 0.1	< 4	3.6	< 0.2	< 25	< 5	0.1	< 0.1
2	NA009W2	0.0 B	< 0.4	< 0.1	< 4	0.3	< 0.2	34	< 5	< 0.1	< 0.1
3	NA011W2	0.0 B	< 0.4	< 0.1	< 4	3.8	< 0.2	< 25	< 5	0.3	< 0.1
4	NA012W2	0.0 B	< 0.4	< 0.1	< 4	2.6	< 0.2	< 25	< 5	< 0.1	< 0.1
5	NA013W2	0.0 B	< 0.4	< 0.1	< 4	3.6	< 0.2	< 25	< 5	0.4	< 0.1
6	NA014W2	0.0 B	< 0.4	< 0.1	< 4	3.0	< 0.2	< 25	< 5	< 0.1	< 0.1
7	NA015W2	0.0 B	< 0.4	< 0.1	< 4	2.7	< 0.2	< 25	< 5	0.2	< 0.1
8	NA016W2	0.0 B	< 0.4	0.2	< 4	3.6	< 0.2	< 25	< 5	0.1	< 0.1
9	NA019W2	0.0 B	< 0.4	< 0.1	< 4	2.8	< 0.2	< 25	< 5	< 0.1	< 0.1
10	NA020W2	0.0 B	< 0.4	< 0.1	< 4	2.6	< 0.2	< 25	< 5	0.3	< 0.1
11	NA021W2	0.0 B	< 0.4	< 0.1	< 4	0.2	< 0.2	32	< 5	< 0.1	< 0.1
12	KE002W2	0.0 B	< 0.4	< 0.1	< 4	0.2	< 0.2	< 25	< 5	< 0.1	< 0.1
13	KE003W2	0.0 B	< 0.4	< 0.1	< 4	0.3	< 0.2	< 25	< 5	< 0.1	< 0.1
14	KE004W2	0.0 B	< 0.4	< 0.1	< 4	0.51	< 0.2	< 25	< 5	0.2	< 0.1
15	KE005W2	0.0 B	< 0.4	< 0.1	< 4	0.3	< 0.2	< 25	< 5	< 0.1	< 0.1
16	KE006W2	0.0 B	< 0.4	< 0.1	< 4	0.2	< 0.2	< 25	< 5	0.2	< 0.1
17	KE007W2	0.0 B	< 0.4	0.1	< 4	0.4	< 0.2	< 25	< 5	0.1	< 0.1
18	KE008W2	0.0 B	< 0.4	< 0.1	< 4	0.4	< 0.2	< 25	< 5	0.2	< 0.1
19	KE009W2	0.0 B	< 0.4	< 0.1	< 4	0.58	< 0.2	< 25	< 5	0.4	< 0.1
20	KE010W2	0.0 B	0.6	< 0.1	< 4	1.1	< 0.2	< 25	< 5	0.1	< 0.1
21	KE011W2	0.0 B	< 0.4	< 0.1	< 4	0.3	< 0.2	< 25	< 5	0.1	< 0.1
22	KE012W2	0.0 B	< 0.4	< 0.1	< 4	0.3	< 0.2	< 25	< 5	< 0.1	< 0.1
23	NA013W2DS	0.0 B	< 0.4	< 0.1	< 4	2.8	< 0.2	< 25	< 5	0.50	< 0.1
24	NA021W2DS	0.0 B	< 0.4	< 0.1	< 4	0.3	< 0.2	32	< 5	< 0.1	< 0.1
25	KE004W2DS	0.0 B	< 0.4	< 0.1	< 4	0.4	< 0.2	< 25	< 5	< 0.1	< 0.1
26	KE010W2DS	0.0 B	< 0.4	< 0.1	< 4	1.0	< 0.2	< 25	< 5	< 0.1	< 0.1
27	NA008W2DA	0.0 B	< 0.4	< 0.1	0.0 B	3.6	< 0.2	0.0 B	0.0 B	< 0.1	< 0.1
28	NA021W2DA	0.0 B	< 0.4	0.1	0.0 B	< 0.2	< 0.2	0.0 B	0.0 B	< 0.1	< 0.1
29	KE009W2DA	0.0 B	< 0.4	< 0.1	0.0 B	0.84	< 0.2	0.0 B	0.0 B	0.2	< 0.1
30	VA001W2	0.0 B	< 0.4	< 0.1	< 4	< 0.2	< 0.2	< 25	< 5	< 0.1	< 0.1

Table 8.--Analytical results for acidified, unfiltered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Pr, ppb-MS	Pt, ppb-MS	Rb, ppb-MS	Re, ppb-MS	Rh, ppb-MS	Ru, ppb-MS	Sb, ppb-MS	Sc, ppb-MS	Si, ppm-AE	Sm, ppb-MS
1	NA008W2	< 0.1	< 0.1	6.0	1.1	< 0.1	< 0.1	0.4	5.2	15	< 0.1
2	NA009W2	< 0.1	< 0.1	1.4	< 0.1	< 0.1	< 0.1	< 0.2	3.1	10	< 0.1
3	NA011W2	< 0.1	< 0.1	2.0	< 0.1	< 0.1	< 0.1	< 0.2	4.6	16	< 0.1
4	NA012W2	< 0.1	< 0.1	2.0	< 0.1	< 0.1	< 0.1	< 0.2	3.7	10	< 0.1
5	NA013W2	< 0.1	< 0.1	2.9	0.1	< 0.1	< 0.1	0.4	4.2	14	< 0.1
6	NA014W2	< 0.1	< 0.1	2.1	< 0.1	< 0.1	< 0.1	< 0.2	4.4	15	< 0.1
7	NA015W2	< 0.1	< 0.1	4.1	0.3	< 0.1	< 0.1	< 0.2	3.8	15	< 0.1
8	NA016W2	< 0.1	< 0.1	5.4	< 0.1	< 0.1	< 0.1	< 0.2	3	9.6	< 0.1
9	NA019W2	< 0.1	< 0.1	1.2	< 0.1	< 0.1	< 0.1	0.56	3.9	14	< 0.1
10	NA020W2	< 0.1	< 0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.2	2	8.5	< 0.1
11	NA021W2	< 0.1	< 0.1	0.9	< 0.1	< 0.1	< 0.1	< 0.2	3	9.4	< 0.1
12	KE002W2	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.2	1	2.8	< 0.1
13	KE003W2	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.2	0.9	1.8	< 0.1
14	KE004W2	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.2	0.9	1.6	< 0.1
15	KE005W2	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.2	1	2.9	< 0.1
16	KE006W2	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.2	1	3.3	< 0.1
17	KE007W2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.9	2.3	< 0.1
18	KE008W2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.9	1.6	< 0.1
19	KE009W2	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	0.2	< 0.9	< 1	< 0.1
20	KE010W2	< 0.1	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.2	2	5.3	< 0.1
21	KE011W2	< 0.1	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.2	1	3.4	< 0.1
22	KE012W2	< 0.1	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.2	1	3.4	< 0.1
23	NA013W2DS	< 0.1	< 0.1	2.6	0.1	< 0.1	< 0.1	0.3	3.3	14	< 0.1
24	NA021W2DS	< 0.1	< 0.1	1.0	< 0.1	< 0.1	< 0.1	< 0.2	3	9.4	< 0.1
25	KE004W2DS	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.2	1	1.6	< 0.1
26	KE010W2DS	< 0.1	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.2	2	5.2	< 0.1
27	NA008W2DA	< 0.1	< 0.1	5.9	1.2	< 0.1	< 0.1	0.3	6.2	0.0 B	< 0.1
28	NA021W2DA	< 0.1	< 0.1	1.0	< 0.1	< 0.1	< 0.1	< 0.2	3.9	0.0 B	< 0.1
29	KE009W2DA	< 0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.2	1	0.0 B	< 0.1
30	VA001W2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.9	< 1	< 0.1

Table 8.--Analytical results for acidified, unfiltered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Sn, ppb-MS	Sr, ppb-AE	Sr, ppb-MS	Ta, ppb-MS	Tb, ppb-MS	Te, ppb-MS	Th, ppb-MS	Ti, ppb-AE	Ti, ppb-MS	Tl, ppb-MS
1	NA008W2	< 0.5	760	1000	< 0.1	< 0.1	< 2	< 0.6	< 10	5	< 0.4
2	NA009W2	< 0.5	60	63	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
3	NA011W2	< 0.5	190	220	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
4	NA012W2	< 0.5	91	99	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
5	NA013W2	< 0.5	210	250	< 0.1	< 0.1	< 2	< 0.6	< 10	6	< 0.4
6	NA014W2	< 0.5	140	160	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
7	NA015W2	< 0.5	180	210	< 0.1	< 0.1	< 2	< 0.6	< 10	4	< 0.4
8	NA016W2	< 0.5	180	230	< 0.1	< 0.1	< 2	< 0.6	< 10	9.6	< 0.4
9	NA019W2	< 0.5	100	110	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
10	NA020W2	< 0.5	100	100	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
11	NA021W2	< 0.5	46	49	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
12	KE002W2	< 0.5	88	92	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
13	KE003W2	< 0.5	48	50	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
14	KE004W2	< 0.5	40	42	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
15	KE005W2	< 0.5	62	62	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
16	KE006W2	< 0.5	54	57	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
17	KE007W2	< 0.5	37	39	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
18	KE008W2	< 0.5	30	31	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
19	KE009W2	< 0.5	60	63	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
20	KE010W2	< 0.5	250	270	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
21	KE011W2	< 0.5	58	61	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
22	KE012W2	< 0.5	62	64	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
23	NA013W2DS	< 0.5	200	240	< 0.1	< 0.1	< 2	< 0.6	< 10	3	< 0.4
24	NA021W2DS	< 0.5	46	49	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
25	KE004W2DS	< 0.5	40	42	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
26	KE010W2DS	< 0.5	250	270	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4
27	NA008W2DA	< 0.5	0.0 B	990	< 0.1	< 0.1	< 2	1	0.0 B	9.0	< 0.4
28	NA021W2DA	< 0.5	0.0 B	49	< 0.1	< 0.1	< 2	< 0.6	0.0 B	< 3	< 0.4
29	KE009W2DA	< 0.5	0.0 B	66	< 0.1	< 0.1	< 2	< 0.6	0.0 B	< 3	< 0.4
30	VA001W2	< 0.5	< 1	< 0.1	< 0.1	< 0.1	< 2	< 0.6	< 10	< 3	< 0.4

Table 8.--Analytical results for acidified, unfiltered water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Tm, ppb-MS	U, ppb-MS	V, ppb-AE	V, ppb-MS	W, ppb-MS	Y, ppb-MS	Yb, ppb-MS	Zn, ppb-AE	Zn, ppb-MS	Zr, ppb-MS
1	NA008W2	< 0.1	17	< 2	1.4	< 0.1	< 0.1	< 0.1	< 2	8.2	< 0.2
2	NA009W2	< 0.1	< 0.1	3	2.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
3	NA011W2	< 0.1	0.4	< 2	< 0.4	< 0.1	< 0.1	< 0.1	480	360	< 0.2
4	NA012W2	< 0.1	0.4	< 2	0.5	< 0.1	0.2	< 0.1	< 2	< 2	0.4
5	NA013W2	< 0.1	2.8	< 2	0.6	< 0.1	0.1	< 0.1	2	3	< 0.2
6	NA014W2	< 0.1	4.7	< 2	0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
7	NA015W2	< 0.1	1.6	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
8	NA016W2	< 0.1	18	< 2	0.6	< 0.1	0.2	< 0.1	< 2	3	< 0.2
9	NA019W2	< 0.1	6.9	< 2	0.4	< 0.1	< 0.1	< 0.1	< 2	4	< 0.2
10	NA020W2	< 0.1	0.9	< 2	< 0.4	< 0.1	0.1	< 0.1	< 2	2	0.4
11	NA021W2	< 0.1	0.9	3	2.3	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
12	KE002W2	< 0.1	< 0.1	< 2	1.0	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
13	KE003W2	< 0.1	0.1	< 2	0.9	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
14	KE004W2	< 0.1	0.1	< 2	0.8	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
15	KE005W2	< 0.1	< 0.1	< 2	0.7	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
16	KE006W2	< 0.1	0.1	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	0.6
17	KE007W2	< 0.1	< 0.1	2	1.8	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
18	KE008W2	< 0.1	< 0.1	< 2	1.2	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
19	KE009W2	< 0.1	< 0.1	< 2	0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
20	KE010W2	< 0.1	0.2	< 2	0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
21	KE011W2	< 0.1	< 0.1	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	2	< 0.2
22	KE012W2	< 0.1	< 0.1	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
23	NA013W2DS	< 0.1	2.6	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	2	< 0.2
24	NA021W2DS	< 0.1	1.2	3	2.2	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
25	KE004W2DS	< 0.1	0.2	< 2	0.8	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
26	KE010W2DS	< 0.1	0.3	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2
27	NA008W2DA	< 0.1	25	0.0 B	1.1	0.3	< 0.1	< 0.1	0.0 B	7.7	< 0.2
28	NA021W2DA	< 0.1	1.1	0.0 B	3.0	0.1	< 0.1	< 0.1	0.0 B	< 2	< 0.2
29	KE009W2DA	< 0.1	< 0.1	0.0 B	< 0.4	0.1	< 0.1	< 0.1	0.0 B	< 2	< 0.2
30	VA001W2	< 0.1	< 0.1	< 2	< 0.4	< 0.1	< 0.1	< 0.1	< 2	< 2	< 0.2

Table 9.--Analytical results for raw water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	FieldNo	LabNo	DLat	MLat	SLat	DLon	MLon	SLon	Latitude	Longitude	ST	Quad1X3	Quad15'	M_D_YColl
1	NA008W1	NA008W1	D571228	62	22	21.060	143	1	34.120	62.37252	143.02614	AK	Nabesna 1X3	Nabesna B-5	08/07/94
2	NA009W1	NA009W1	D571229	62	22	11.868	143	1	54.079	62.36996	143.03169	AK	Nabesna 1X3	Nabesna B-5	08/07/94
3	NA011W1	NA011W1	D571230	62	22	25.048	142	59	57.120	62.37362	142.99920	AK	Nabesna 1X3	Nabesna B-4	08/07/94
4	NA012W1	NA012W1	D571231	62	22	39.813	143	0	6.313	62.37773	143.00175	AK	Nabesna 1X3	Nabesna B-5	08/08/94
5	NA013W1	NA013W1	D571232	62	22	52.797	143	0	32.459	62.38133	143.00902	AK	Nabesna 1X3	Nabesna B-5	08/08/94
6	NA014W1	NA014W1	D571233	62	23	10.028	142	59	58.477	62.38612	142.99958	AK	Nabesna 1X3	Nabesna B-4	08/08/94
7	NA015W1	NA015W1	D571234	62	23	24.621	142	59	54.900	62.39017	142.99858	AK	Nabesna 1X3	Nabesna B-4	08/08/94
8	NA016W1	NA016W1	D571235	62	23	6.349	143	0	20.904	62.38510	143.00581	AK	Nabesna 1X3	Nabesna B-5	08/09/94
9	NA019W1	NA019W1	D571236	62	23	13.439	143	0	12.889	62.38707	143.00358	AK	Nabesna 1X3	Nabesna B-5	08/09/94
10	NA020W1	NA020W1	D571237	62	23	34.722	142	59	57.817	62.39298	142.99939	AK	Nabesna 1X3	Nabesna B-4	08/09/94
11	NA021W1	NA021W1	D571238	62	24	6.628	142	59	54.079	62.40184	142.99836	AK	Nabesna 1X3	Nabesna B-4	08/09/94
12	KE002W1	KE002W1	D571241	61	31	55.889	142	53	42.449	61.53219	142.89512	AK	McCarthy 1X3	McCarthy C-6	08/11/94
13	KE003W1	KE003W1	D571242	61	30	45.423	142	53	51.267	61.51262	142.89757	AK	McCarthy 1X3	McCarthy C-6	08/12/94
14	KE004W1	KE004W1	D571243	61	30	12.916	142	53	37.466	61.50359	142.89374	AK	McCarthy 1X3	McCarthy C-6	08/12/94
15	KE005W1	KE005W1	D571244	61	29	32.310	142	53	19.066	61.49231	142.88863	AK	McCarthy 1X3	McCarthy B-6	08/12/94
16	KE006W1	KE006W1	D571245	61	29	6.677	142	52	54.436	61.48519	142.88179	AK	McCarthy 1X3	McCarthy B-6	08/12/94
17	KE007W1	KE007W1	D571246	61	30	21.099	142	49	54.633	61.50586	142.83184	AK	McCarthy 1X3	McCarthy C-5	08/13/94
18	KE008W1	KE008W1	D571247	61	30	42.720	142	49	47.817	61.51187	142.82995	AK	McCarthy 1X3	McCarthy C-5	08/13/94
19	KE009W1	KE009W1	D571248	61	29	9.165	142	53	22.336	61.48588	142.88954	AK	McCarthy 1X3	McCarthy B-6	08/14/94
20	KE010W1	KE010W1	D571249	61	29	6.363	142	53	21.574	61.48510	142.88933	AK	McCarthy 1X3	McCarthy B-6	08/14/94
21	KE011W1	KE011W1	D571250	61	29	2.834	142	53	19.612	61.48412	142.88878	AK	McCarthy 1X3	McCarthy B-6	08/14/94
22	KE012W1	KE012W1	D571251	61	28	36.991	142	53	23.645	61.47694	142.88990	AK	McCarthy 1X3	McCarthy B-6	08/14/94
23	NA013W1DS	NA013W1DS	D571239	62	22	52.797	143	0	32.459	62.38133	143.00902	AK	Nabesna 1X3	Nabesna B-5	08/08/94
24	NA021W1DS	NA021W1DS	D571240	62	24	6.628	142	59	54.079	62.40184	142.99836	AK	Nabesna 1X3	Nabesna B-4	08/09/94
25	KE004W1DS	KE004W1DS	D571252	61	30	12.916	142	53	37.466	61.50359	142.89374	AK	McCarthy 1X3	McCarthy C-6	08/12/94
26	KE010W1DS	KE010W1DS	D571253	61	29	6.363	142	53	21.574	61.48510	142.88933	AK	McCarthy 1X3	McCarthy B-6	08/14/94
27	VA001W1	VA001W1	D571254	0	0	0	0	0	0	0	0	--	--	--	08/15/94

Table 9.--Analytical results for raw water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	SampType	Descriptn	SampSource	SampChar	NearMine
1	NA008W1	water	unfiltered, unacidified spring water sample on drill road above Nabesna mine	spring	grab	yes
2	NA009W1	water	unfiltered, unacidified stream water sample, main stream south of Nabesna mine	stream	grab	no
3	NA011W1	water	unfiltered, unacidified water sample from spring just below Nabesna mill tailings	spring	grab	yes
4	NA012W1	water	unfiltered, unacidified water sample from spring in muskeg	spring	grab	no
5	NA013W1	water	unfiltered, unacidified stream water sample	stream	grab	no
6	NA014W1	water	unfiltered, unacidified water sample from spring in muskeg	spring	grab	no
7	NA015W1	water	unfiltered, unacidified water sample from spring in muskeg	spring	grab	no
8	NA016W1	water	unfiltered, unacidified water sample from spring just below Rambler mine tailings	spring	grab	yes
9	NA019W1	water	unfiltered, unacidified water sample from spring in muskeg	spring	grab	no
10	NA020W1	water	unfiltered, unacidified water sample from spring in muskeg	spring	grab	no
11	NA021W1	water	unfiltered, unacidified stream water sample, Skookum Creek	stream	grab	no
12	KE002W1	water	unfiltered, unacidified stream water sample above small snowfield	stream	grab	no
13	KE003W1	water	unfiltered, unacidified stream water sample, Amazon Creek	stream	grab	no
14	KE004W1	water	unfiltered, unacidified stream water sample, Jumbo Creek	stream	grab	no
15	KE005W1	water	unfiltered, unacidified stream water sample, Bonanza Creek	stream	grab	no
16	KE006W1	water	unfiltered, unacidified stream water sample, National Creek	stream	grab	no
17	KE007W1	water	unfiltered, unacidified water sample from spring	spring	grab	no
18	KE008W1	water	unfiltered, unacidified stream water sample, just below Bonanza mine	stream	grab	yes
19	KE009W1	water	unfiltered, unacidified ponded rainwater sample, just below Kennecott mill	other	grab	yes
20	KE010W1	water	unfiltered, unacidified spring water sample, flowing from Kennecott mill tailings	spring	grab	yes
21	KE011W1	water	unfiltered, unacidified stream water sample, National Creek below Kennecott mill	stream	grab	yes
22	KE012W1	water	unfiltered, unacidified stream water sample, National Cr. just above Kenn. glacier	stream	grab	no
23	NA013W1DS	water	site duplicate of NA013W1, unfiltered, unacidified	spring	grab	no
24	NA021W1DS	water	site duplicate of NA021W1, unfiltered, unacidified	stream	grab	no
25	KE004W1DS	water	site duplicate of KE004W1, unfiltered, unacidified	stream	grab	no
26	KE010W1DS	water	site duplicate of KE010W1, unfiltered, unacidified	spring	grab	yes
27	VA001W1	water	blank sample, distilled water, unfiltered, unacidified	--	grab	--

Table 9.--Analytical results for raw water samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Temp, DegC	pH	Conductvty	Oxy, ppm	Alkal, ppm	EstimFlow	Cl-,ppm-IC	F-,ppm-IC	NO3,ppm-IC	SO4,ppm-IC
1	NA008W1	25	7.82	1310	8	190	< 0.1 gal/min	3.2	0.23	< 0.5	615
2	NA009W1	24	8.03	144	8	60	< 0.1 gal/min	0.42	0.07	< 0.5	24
3	NA011W1	11	7.12	582	4	150	0.25 gal/min	0.50	0.08	< 0.5	178
4	NA012W1	2	7.48	394	11	160	stagnant	0.34	0.08	0.56	36
5	NA013W1	17	7.89	740	9	80	5 gal/min	1.3	0.11	< 0.5	331
6	NA014W1	3	7.45	780	7	350	2 gal/min	0.86	0.21	< 0.5	110
7	NA015W1	8	7.51	870	7	200	0.5 gal/min	0.99	0.12	< 0.5	268
8	NA016W1	3	7.55	1160	10	230	2 gal/min	1.3	0.23	16	412
9	NA019W1	4	7.49	770	7	260	0.5 gal/min	0.67	0.28	3.1	110
10	NA020W1	8	7.40	535	7	260	< 0.1 gal/min	0.85	0.12	< 0.5	21
11	NA021W1	14	7.95	132	8	55	10 cfs	0.21	0.07	< 0.5	16
12	KE002W1	4	7.95	145	11	60	50 gal/min	0.13	< 0.05	< 0.5	12
13	KE003W1	5	7.88	160	10	70	50 gal/min	0.11	< 0.05	< 0.5	14
14	KE004W1	7	7.97	144	10	70	20 cfs	0.20	< 0.05	< 0.5	6.3
15	KE005W1	9	8.12	188	11	80	8 cfs	0.13	< 0.05	0.98	7.8
16	KE006W1	7	7.66	133	10	60	15 cfs	0.13	0.06	0.84	6.0
17	KE007W1	6	8.00	145	9	55	3 gal/min	< 0.1	< 0.05	< 0.5	15
18	KE008W1	2	8.15	147	10	60	20 gal/min	0.17	< 0.05	0.50	10
19	KE009W1	13	7.85	105	8	45	stagnant	0.37	0.10	< 0.5	6.1
20	KE010W1	6	7.90	436	11	230	5 gal/min	0.33	0.08	11	9.7
21	KE011W1	8	7.96	145	11	60	15 cfs	0.14	0.06	1.1	6.1
22	KE012W1	18	8.08	149	11	65	15 cfs	0.16	0.06	1.0	6.2
23	NA013W1DS	17	7.86	740	9	75	5 gal/min	1.3	0.12	< 0.5	348
24	NA021W1DS	14	8.02	131	8	55	10 cfs	0.20	0.07	< 0.5	16
25	KE004W1DS	7	7.95	144	10	70	20 cfs	0.15	< 0.05	< 0.5	6.8
26	KE010W1DS	6	7.92	437	11	220	5 gal/min	0.27	0.07	11	9.8
27	VA001W1	25	5.50	0.4	10	< 10	--	< 0.1	< 0.05	< 0.5	< 0.5

Table 10.--Analytical results for water leachates from mill tailings and outcrop samples from the Nabesna and Rambler Mines, AK.

Index	FieldNo	LabNo	DLat	MLat	SLat	DLon	MLon	SLon	Latitude	Longitude	ST	Quad1X3	Quad15'	M_D_YColl	SampType
1	NA001L2	D573690	62	22	20.205	143	0	31.812	62.37228	143.00884	AK	Nabesna 1X3	Nabesna B-5	08/06/94	water leach
2	NA002L2	D573691	62	22	18.906	143	0	29.120	62.37192	143.00809	AK	Nabesna 1X3	Nabesna B-5	08/06/94	water leach
3	NA003L2	D573692	62	22	21.043	143	0	27.679	62.37251	143.00769	AK	Nabesna 1X3	Nabesna B-5	08/06/94	water leach
4	NA004L2	D573693	62	22	20.889	143	0	26.000	62.37247	143.00722	AK	Nabesna 1X3	Nabesna B-5	08/06/94	water leach
5	NA005L2	D573694	62	22	20.217	143	0	22.305	62.37228	143.00620	AK	Nabesna 1X3	Nabesna B-5	08/06/94	water leach
6	NA006L2	D573695	62	22	25.289	143	0	4.550	62.37369	143.00126	AK	Nabesna 1X3	Nabesna B-5	08/06/94	water leach
7	NA017L2	D573696	62	23	5.455	143	0	27.613	62.38485	143.00767	AK	Nabesna 1X3	Nabesna B-5	08/09/94	water leach
8	NA017L4	D573697	62	23	5.455	143	0	27.613	62.38485	143.00767	AK	Nabesna 1X3	Nabesna B-5	08/09/94	water leach
9	NA001L3	D573700	62	22	20.205	143	0	31.812	62.37228	143.00884	AK	Nabesna 1X3	Nabesna B-5	08/06/94	water leach
10	NA002L3	D573701	62	22	18.906	143	0	29.120	62.37192	143.00809	AK	Nabesna 1X3	Nabesna B-5	08/06/94	water leach
11	NA003L3	D573702	62	22	21.043	143	0	27.679	62.37251	143.00769	AK	Nabesna 1X3	Nabesna B-5	08/06/94	water leach
12	NA004L3	D573703	62	22	20.889	143	0	26.000	62.37247	143.00722	AK	Nabesna 1X3	Nabesna B-5	08/06/94	water leach
13	NA005L3	D573704	62	22	20.217	143	0	22.305	62.37228	143.00620	AK	Nabesna 1X3	Nabesna B-5	08/06/94	water leach
14	NA006L3	D573705	62	22	25.289	143	0	4.550	62.37369	143.00126	AK	Nabesna 1X3	Nabesna B-5	08/06/94	water leach
15	NA017L3	D573706	62	23	5.455	143	0	27.613	62.38485	143.00767	AK	Nabesna 1X3	Nabesna B-5	08/09/94	water leach
16	NA017L5	D573707	62	23	5.455	143	0	27.613	62.38485	143.00767	AK	Nabesna 1X3	Nabesna B-5	08/09/94	water leach
17	VA002W2	D573699	0	0	0	0	0	0	0	0	---	---	---	10/12/94	water
18	VA002W3	D573709	0	0	0	0	0	0	0	0	---	---	---	10/12/94	water
19	NA001L2DA	D573690	62	22	20.205	143	0	31.812	62.37228	143.00884	AK	Nabesna 1X3	Nabesna B-5	08/06/94	water leach
20	NA001L3DA	D573700	62	22	20.205	143	0	31.812	62.37228	143.00884	AK	Nabesna 1X3	Nabesna B-5	08/06/94	water leach

Table 10.--Analytical results for water leachates from mill tailings and outcrop samples from the Nabesna and Rambler Mines, AK.

Index	FieldNo	Descriptn	SampSource	SampChar	NearMine	Temp_DegC	pH
1	NA001L2	unfiltered, acidified, water leach of NA001R4, Nabesna mine mill tailings	tailing	grab	yes	23	2.46
2	NA002L2	unfiltered, acidified water leach of NA002R2, Nabesna mine mill tailings	tailing	grab	yes	23	2.17
3	NA003L2	unfiltered, acidified water leach of NA003R2, Nabesna mine mill tailings	tailing	grab	yes	23	2.36
4	NA004L2	unfiltered, acidified water leach of NA004R2, Nabesna mine mill tailings	tailing	grab	yes	23	2.57
5	NA005L2	unfiltered, acidified water leach of NA005R2, Nabesna mine mill tailings	tailing	grab	yes	23	6.4
6	NA006L2	unfiltered, acidified water leach of NA006R2, Nabesna mine mill tailings	tailing	grab	yes	23	3.41
7	NA017L2	unfiltered, acidified water leach of NA017R2, Rambler mine tailings	tailing	grab	yes	23	2.32
8	NA017L4	unfiltered, acidifed water leach of NA017R3, outcrop above Rambler mine adit	outcrop	grab	yes	23	2.18
9	NA001L3	filtered (0.45 mic.), acidified, water leach of NA001R4, Nabesna mine mill tailings	tailing	grab	yes	23	2.46
10	NA002L3	filtered (0.45 micron), acidified water leach of NA002R2, Nabesna mine mill tailings	tailing	grab	yes	23	2.17
11	NA003L3	filtered (0.45 micron), acidified water leach of NA003R2, Nabesna mine mill tailings	tailing	grab	yes	23	2.36
12	NA004L3	filtered (0.45 micron), acidified water leach of NA004R2, Nabesna mine mill tailings	tailing	grab	yes	23	2.57
13	NA005L3	filtered (0.45 micron), acidified water leach of NA005R2, Nabesna mine mill tailings	tailing	grab	yes	23	6.4
14	NA006L3	filtered (0.45 micron), acidified water leach of NA006R2, Nabesna mine mill tailings	tailing	grab	yes	23	3.41
15	NA017L3	filtered (0.45 micron), acidified water leach of NA017R2, Rambler mine tailings	tailing	grab	yes	23	2.32
16	NA017L5	filtered (0.45 mic.), acidified water leach of NA017R3, outcrop above Rambler mine	outcrop	grab	yes	23	2.18
17	VA002W2	blank sample, distilled water, unfiltered, acidified	---	grab	---	23	5.02
18	VA002W3	blank sample, distilled water, filtered (0.45 micron), acidified	---	grab	---	23	5.02
19	NA001L2DA	analytical duplicate of NA001L2, unfiltered, acidified water leach, ICP-MS only	tailing	grab	yes	23	2.46
20	NA001L3DA	anal. duplicate of NA001L3, filtered (0.45 mic.), acidif. water leach, ICP-MS only	tailing	grab	yes	23	2.46

Table 10.--Analytical results for water leachates from mill tailings and outcrop samples from the Nabesna and Rambler Mines, AK.

Index	FieldNo	Conductvty	Oxy, ppm	Alkal, ppm	Ag, ppb-AE	Ag, ppb-MS	Al, ppm-AE	Al, ppm-MS	As, ppb-AE	As, ppb-MS	Au, ppb-MS
1	NA001L2	5240	12	< 1	< 40	17	16	3.4	2000	1200	< 0.1
2	NA002L2	5450	12	< 1	< 40	0.3	23	7.2	< 200	26	0.1
3	NA003L2	5120	12	< 1	< 40	0.4	130	> 9	4000	2100	< 0.1
4	NA004L2	3440	12	< 1	< 40	8.6	4	1.5	< 200	59	0.1
5	NA005L2	2410	6	220	< 40	1.9	< 1	0.1	< 200	22	0.75
6	NA006L2	2600	5	< 1	< 40	0.2	9	3.7	< 200	60	< 0.1
7	NA017L2	6600	12	< 1	< 40	3.1	4	0.45	< 200	2	< 0.1
8	NA017L4	5570	12	< 1	< 40	29	8	2.1	< 200	16	< 0.1
9	NA001L3	5240	12	< 1	< 40	16	16	3.8	2000	1100	< 0.1
10	NA002L3	5450	12	< 1	< 40	0.1	23	7.0	< 200	29	0.1
11	NA003L3	5120	12	< 1	< 40	0.2	130	> 9	4000	2200	< 0.1
12	NA004L3	3440	12	< 1	< 40	1.3	5	1.5	< 200	38	< 0.1
13	NA005L3	2410	6	220	< 40	< 0.1	< 1	< 0.01	< 200	2	0.7
14	NA006L3	2600	5	< 1	< 40	< 0.1	9	4.0	< 200	26	< 0.1
15	NA017L3	6600	12	< 1	< 40	2.8	4	0.52	< 200	2	< 0.1
16	NA017L5	5570	12	< 1	40	27	8	2.4	< 200	20	< 0.1
17	VA002W2	3.2	6	< 1	< 40	< 0.1	< 1	< 0.01	< 200	< 1	< 0.1
18	VA002W3	3.2	6	< 1	< 40	< 0.1	< 1	< 0.01	< 200	< 1	< 0.1
19	NA001L2DA	5240	12	< 1	0.0B	18	0.0B	4.6	0.0B	1200	0.1
20	NA001L3DA	5240	12	< 1	0.0B	16	0.0B	4.4	0.0B	1200	< 0.1

Table 10.--Analytical results for water leachates from mill tailings and outcrop samples from the Nabesna and Rambler Mines, AK.

Index	FieldNo	B, ppb-AE	Ba, ppb-AE	Ba, ppb-MS	Be, ppb-AE	Be, ppb-MS	Bi, ppb-AE	Bi, ppb-MS	Ca, ppm-AE	Ca, ppm-MS	Cd, ppb-AE
1	NA001L2	200	< 20	7.0	< 20	< 2	< 200	29	560	160	< 40
2	NA002L2	< 100	< 20	0.4	< 20	< 2	< 200	4.6	630	240	100
3	NA003L2	200	< 20	< 0.2	< 20	< 2	< 200	3.0	590	150	< 40
4	NA004L2	< 100	< 20	8.3	< 20	< 2	< 200	25	670	290	< 40
5	NA005L2	< 100	< 20	0.89	< 20	< 2	< 200	20	760	350	< 40
6	NA006L2	< 100	< 20	5.5	< 20	< 2	< 200	2.9	660	320	200
7	NA017L2	400	< 20	0.83	< 20	< 2	< 200	27	550	94	< 40
8	NA017L4	200	< 20	1.1	< 20	< 2	< 200	43	430	130	< 40
9	NA001L3	200	< 20	7.3	< 20	< 2	< 200	27	570	180	< 40
10	NA002L3	< 100	< 20	0.2	< 20	< 2	< 200	1.0	630	250	90
11	NA003L3	200	< 20	< 0.2	< 20	< 2	< 200	2.2	590	170	< 40
12	NA004L3	< 100	< 20	6.6	< 20	< 2	< 200	0.8	670	310	< 40
13	NA005L3	< 100	< 20	< 0.2	< 20	< 2	< 200	< 0.6	760	340	< 40
14	NA006L3	< 100	< 20	5.3	< 20	< 2	< 200	< 0.6	660	350	200
15	NA017L3	400	< 20	1.0	< 20	< 2	< 200	15	540	120	< 40
16	NA017L5	200	< 20	1.0	< 20	< 2	< 200	21	430	160	< 40
17	VA002W2	< 100	< 20	1.9	< 20	< 2	< 200	< 0.6	< 1	< 1	< 40
18	VA002W3	< 100	< 20	< 0.2	< 20	< 2	< 200	< 0.6	< 1	2	< 40
19	NA001L2DA	0.0B	0.0B	8.6	0.0B	< 2	0.0B	38	0.0B	220	0.0B
20	NA001L3DA	0.0B	0.0B	7.4	0.0B	< 2	0.0B	29	0.0B	220	0.0B

Table 10.--Analytical results for water leachates from mill tailings and outcrop samples from the Nabesna and Rambler Mines, AK.

Index	FieldNo	Cd, ppb-MS	Ce, ppb-MS	Co, ppb-AE	Co, ppb-MS	Cr, ppb-AE	Cr, ppb-MS	Cs, ppb-MS	Cu, ppb-AE	Cu, ppb-MS	Dy, ppb-MS
1	NA001L2	23	10	600	280	30	9.9	5.2	13000	4600	1.1
2	NA002L2	76	14	500	320	70	23	2.7	25000	11000	2.4
3	NA003L2	15	26	900	400	90	25	2.7	35000	11000	3.1
4	NA004L2	11	9.2	80	36	< 20	4.3	0.9	3000	1500	0.9
5	NA005L2	6	0.2	40	14	< 20	2.0	< 0.4	300	160	< 0.1
6	NA006L2	130	32	100	54	< 20	< 0.8	4.3	1000	730	3.6
7	NA017L2	17	4.3	1000	360	< 20	0.9	< 0.4	88000	20000	0.6
8	NA017L4	6	2.2	900	430	< 20	4.2	< 0.4	18000	6800	0.2
9	NA001L3	24	11	600	300	30	11	5.5	13000	4900	1.3
10	NA002L3	78	15	500	320	60	23	2.8	25000	11000	2.5
11	NA003L3	16	29	900	440	90	28	2.9	35000	12000	4.2
12	NA004L3	11	8.5	70	36	< 20	4.1	0.7	3000	1400	0.9
13	NA005L3	6	< 0.1	40	12	< 20	< 0.8	< 0.4	< 20	18	< 0.1
14	NA006L3	130	31	90	57	< 20	< 0.8	4.2	1000	770	3.5
15	NA017L3	17	4.4	1000	410	< 20	< 0.8	< 0.4	87000	> 20000	0.9
16	NA017L5	7	2.2	900	470	< 20	4.4	< 0.4	18000	7800	0.2
17	VA002W2	< 3	< 0.1	< 20	0.2	< 20	< 0.8	< 0.4	< 20	6.5	< 0.1
18	VA002W3	< 3	< 0.1	< 20	< 0.2	< 20	< 0.8	< 0.4	< 20	0.8	< 0.1
19	NA001L2DA	23	11	0.0B	330	0.0B	13	5.7	0.0B	5800	1.3
20	NA001L3DA	23	11	0.0B	330	0.0B	14	5.4	0.0B	5800	1.3

Table 10.--Analytical results for water leachates from mill tailings and outcrop samples from the Nabesna and Rambler Mines, AK.

Index	FieldNo	Er, ppb-MS	Eu, ppb-MS	Fe, ppm-AE	Fe, ppm-MS	Ga, ppb-MS	Gd, ppb-MS	Ge, ppb-MS	Hf, ppb-MS	Ho, ppb-MS	K, ppm-AE
1	NA001L2	0.3	0.4	1470	> 200	2.5	1.4	1.1	< 0.1	0.3	1
2	NA002L2	1.2	0.9	590	> 200	2.3	2.6	0.6	< 0.1	0.5	1
3	NA003L2	1.5	1.4	1310	> 200	9.3	3.7	1.5	0.3	0.7	1
4	NA004L2	0.1	0.4	190	120	0.6	1.0	0.3	< 0.1	0.2	1
5	NA005L2	< 0.1	< 0.1	14	5.1	< 0.1	< 0.1	< 0.3	< 0.1	< 0.1	1
6	NA006L2	1.7	1.0	15	3	0.2	4.5	< 0.3	< 0.1	0.8	3
7	NA017L2	< 0.1	0.1	2910	> 200	0.3	0.6	0.7	< 0.1	0.2	1
8	NA017L4	< 0.1	0.1	1260	> 200	1.1	0.4	0.6	< 0.1	< 0.1	1
9	NA001L3	0.1	0.6	1470	> 200	2.4	1.4	0.95	< 0.1	0.2	1
10	NA002L3	0.8	0.8	580	> 200	2.2	2.8	0.4	< 0.1	0.5	1
11	NA003L3	1.9	1.6	1310	> 200	10	4.1	1.4	0.3	0.8	1
12	NA004L3	< 0.1	0.3	170	120	0.6	1.1	< 0.3	< 0.1	0.2	1
13	NA005L3	< 0.1	< 0.1	1	< 0.8	< 0.1	< 0.1	< 0.3	< 0.1	< 0.1	1
14	NA006L3	1.5	1.0	< 1	< 0.8	< 0.1	4.2	< 0.3	< 0.1	0.8	2
15	NA017L3	< 0.1	0.2	2780	> 200	0.2	0.7	0.8	< 0.1	0.2	1
16	NA017L5	< 0.1	< 0.1	1250	> 200	1.1	0.2	0.5	< 0.1	< 0.1	1
17	VA002W2	< 0.1	< 0.1	2	< 0.8	< 0.1	< 0.1	< 0.3	< 0.1	< 0.1	1
18	VA002W3	< 0.1	< 0.1	1	< 0.8	< 0.1	< 0.1	< 0.3	< 0.1	< 0.1	1
19	NA001L2DA	0.3	0.4	0.0B	> 200	2.7	1.4	1.3	< 0.1	0.2	0.0B
20	NA001L3DA	< 0.1	0.4	0.0B	> 200	2.8	1.3	1.2	< 0.1	0.2	0.0B

Table 10.--Analytical results for water leachates from mill tailings and outcrop samples from the Nabesna and Rambler Mines, AK.

Index	FieldNo	K, ppm-MS	La, ppb-MS	Li, ppb-AE	Li, ppb-MS	Mg, ppm-AE	Mg, ppm-MS	Mn, ppb-AE	Mn, ppb-MS	Mo, ppb-AE	Mo, ppb-MS
1	NA001L2	0.1	6.6	< 40	1.1	10	2.3	1000	910	< 40	4.1
2	NA002L2	0.2	7.4	< 40	3.0	20	6.8	12000	> 4000	< 40	< 0.2
3	NA003L2	< 0.07	11	< 40	3.9	31	7.1	2000	1100	< 40	35
4	NA004L2	0.22	5.7	< 40	0.8	3	1	700	450	< 40	6.8
5	NA005L2	0.26	0.1	< 40	2.5	23	9.7	4000	1900	< 40	< 0.2
6	NA006L2	0.7	16	< 40	12	66	29	2000	910	< 40	< 0.2
7	NA017L2	< 0.07	2.5	< 40	0.6	51	6.9	1000	720	< 40	< 0.2
8	NA017L4	0.07	1.0	< 40	1.1	32	9	400	500	< 40	< 0.2
9	NA001L3	0.2	7.2	< 40	1.6	10	2.7	1000	980	< 40	2.8
10	NA002L3	0.2	7.9	< 40	3.6	19	6.6	12000	> 4000	< 40	< 0.2
11	NA003L3	0.08	13	< 40	4.5	31	7.6	2000	1200	< 40	35
12	NA004L3	0.24	5.9	< 40	0.4	3	1	700	450	< 40	2.8
13	NA005L3	0.24	0.2	< 40	1.4	23	8.7	4000	1800	< 40	< 0.2
14	NA006L3	0.8	16	< 40	10	66	30	2000	980	< 40	< 0.2
15	NA017L3	< 0.07	2.6	< 40	0.6	51	7.8	1000	830	< 40	< 0.2
16	NA017L5	0.1	1.4	< 40	0.8	33	10	400	560	< 40	< 0.2
17	VA002W2	0.2	< 0.1	< 40	< 0.4	< 1	0.006	< 80	< 4	< 40	< 0.2
18	VA002W3	0.27	< 0.1	< 40	< 0.4	< 1	< 0.006	< 80	< 4	< 40	< 0.2
19	NA001L2DA	0.22	7.7	0.0B	1.4	0.0B	3.2	0.0B	1100	0.0B	3.3
20	NA001L3DA	0.23	7.4	0.0B	1.1	0.0B	3.1	0.0B	1100	0.0B	3.4

Table 10.--Analytical results for water leachates from mill tailings and outcrop samples from the Nabesna and Rambler Mines, AK.

Index	FieldNo	Na, ppm-AE	Na, ppm-MS	Nb, ppb-MS	Nd, ppb-MS	Ni, ppb-AE	Ni, ppb-MS	P, ppb-AE	Pb, ppb-AE	Pb, ppb-MS	Pr, ppb-MS
1	NA001L2	1	0.22	< 0.7	6.0	70	33	< 1000	2000	2300	1.5
2	NA002L2	< 1	0.05	< 0.7	9.1	100	53	< 1000	< 80	18	2.1
3	NA003L2	5	0.86	< 0.7	16	100	54	1000	< 80	7.4	3.7
4	NA004L2	< 1	0.08	< 0.7	5.4	< 40	13	< 1000	6000	5000	1.3
5	NA005L2	< 1	0.11	< 0.7	0.2	< 40	10	< 1000	500	300	< 0.1
6	NA006L2	5	1.8	< 0.7	18	< 40	24	< 1000	300	100	4.1
7	NA017L2	< 1	0.03	< 0.7	3.3	< 40	10	2000	200	730	0.7
8	NA017L4	< 1	0.04	< 0.7	1.1	< 40	10	< 1000	3000	3800	0.3
9	NA001L3	1	0.26	< 0.7	6.3	70	36	< 1000	2000	2700	1.6
10	NA002L3	< 1	0.04	< 0.7	9.6	100	55	< 1000	< 80	7.6	2.3
11	NA003L3	5	1	0.8	18	100	56	1000	< 80	1.1	4.4
12	NA004L3	< 1	0.07	< 0.7	5.0	< 40	15	< 1000	3000	2500	1.1
13	NA005L3	< 1	0.07	< 0.7	< 0.2	< 40	13	< 1000	< 80	0.85	< 0.1
14	NA006L3	5	2	< 0.7	16	40	29	< 1000	< 80	54	4.0
15	NA017L3	< 1	< 0.03	< 0.7	3.3	< 40	12	2000	700	840	0.7
16	NA017L5	< 1	0.07	< 0.7	1.3	< 40	12	< 1000	3000	3500	0.3
17	VA002W2	< 1	< 0.03	< 0.7	< 0.2	< 40	< 0.6	< 1000	< 80	0.5	< 0.1
18	VA002W3	< 1	0.07	< 0.7	< 0.2	< 40	< 0.6	< 1000	< 80	< 0.2	< 0.1
19	NA001L2DA	0.0B	0.38	< 0.7	6.4	0.0B	38	0.0B	0.0B	2700	1.6
20	NA001L3DA	0.0B	0.37	< 0.7	7.1	0.0B	41	0.0B	0.0B	2700	1.7

Table 10.--Analytical results for water leachates from mill tailings and outcrop samples from the Nabesna and Rambler Mines, AK.

Index	FieldNo	Rb, ppb-MS	Re, ppb-MS	Sb, ppb-AE	Sb, ppb-MS	Sc, ppb-MS	Si, ppb-AE	Sm, ppb-MS	Sn, ppb-AE	Sn, ppb-MS	Sr, ppb-AE
1	NA001L2	4.4	< 0.1	< 100	1	< 2	< 1000	1.0	< 100	< 0.5	400
2	NA002L2	0.6	< 0.1	< 100	< 0.4	4	1000	2.2	< 100	< 0.5	300
3	NA003L2	0.2	0.1	< 100	2.2	7	< 1000	3.5	< 100	0.8	500
4	NA004L2	1.0	< 0.1	< 100	2	< 2	< 1000	1.2	< 100	< 0.5	300
5	NA005L2	1.2	< 0.1	< 100	0.5	3	7000	< 0.1	< 100	< 0.5	200
6	NA006L2	24	< 0.1	< 100	0.8	< 2	2000	3.4	< 100	< 0.5	800
7	NA017L2	0.1	< 0.1	< 100	< 0.4	< 2	< 1000	0.6	< 100	< 0.5	300
8	NA017L4	0.3	< 0.1	< 100	< 0.4	< 2	< 1000	0.2	< 100	< 0.5	100
9	NA001L3	4.2	< 0.1	< 100	1	< 2	< 1000	1.3	< 100	0.6	400
10	NA002L3	0.6	< 0.1	< 100	< 0.4	4	1000	2.3	< 100	< 0.5	300
11	NA003L3	0.2	0.1	< 100	2.1	8.5	< 1000	4.2	< 100	1	500
12	NA004L3	0.7	< 0.1	< 100	0.6	< 2	< 1000	0.9	< 100	< 0.5	300
13	NA005L3	0.9	< 0.1	< 100	< 0.4	2	6000	< 0.1	< 100	< 0.5	200
14	NA006L3	25	0.1	< 100	< 0.4	< 2	< 1000	3.9	< 100	< 0.5	700
15	NA017L3	0.2	< 0.1	< 100	< 0.4	< 2	< 1000	0.9	< 100	< 0.5	300
16	NA017L5	0.4	< 0.1	< 100	0.4	< 2	< 1000	0.3	< 100	< 0.5	100
17	VA002W2	< 0.1	< 0.1	< 100	< 0.4	2	< 1000	< 0.1	< 100	< 0.5	< 40
18	VA002W3	< 0.1	< 0.1	< 100	< 0.4	< 2	< 1000	< 0.1	< 100	< 0.5	< 40
19	NA001L2DA	4.8	< 0.1	0.0B	2	2	0.0B	1.6	0.0B	< 0.5	0.0B
20	NA001L3DA	4.7	< 0.1	0.0B	0.8	2	0.0B	1.6	0.0B	< 0.5	0.0B

Table 10.--Analytical results for water leachates from mill tailings and outcrop samples from the Nabesna and Rambler Mines, AK.

Index	FieldNo	Sr, ppb-MS	Ta, ppb-MS	Tb, ppb-MS	Te, ppb-MS	Th, ppb-MS	Ti, ppb-AE	Ti, ppb-MS	Tl, ppb-MS	Tm, ppb-MS	U, ppb-MS
1	NA001L2	310	< 0.1	0.2	9.1	0.7	< 1000	66	4.0	0.1	2.3
2	NA002L2	240	< 0.1	0.4	< 0.8	1.5	< 1000	20	< 0.5	0.2	9.6
3	NA003L2	420	< 0.1	0.6	9.0	3.7	2000	500	< 0.5	0.3	6.1
4	NA004L2	290	< 0.1	0.1	1	0.5	< 1000	33	2	< 0.1	1.4
5	NA005L2	200	< 0.1	< 0.1	< 0.8	< 0.4	< 1000	10	< 0.5	< 0.1	1.1
6	NA006L2	670	< 0.1	0.6	< 0.8	< 0.4	< 1000	20	0.9	0.3	3.9
7	NA017L2	220	< 0.1	0.2	< 0.8	< 0.4	< 1000	20	< 0.5	< 0.1	120
8	NA017L4	84	< 0.1	< 0.1	< 0.8	0.5	< 1000	20	1	< 0.1	26
9	NA001L3	310	< 0.1	0.2	9.4	1.0	< 1000	75	4.0	< 0.1	2.6
10	NA002L3	230	< 0.1	0.4	< 0.8	2.2	< 1000	20	< 0.5	0.2	10
11	NA003L3	420	0.1	0.6	10	5.0	2000	550	< 0.5	0.3	8.2
12	NA004L3	280	< 0.1	0.2	0.9	0.4	< 1000	30	1	< 0.1	1.4
13	NA005L3	200	< 0.1	< 0.1	< 0.8	< 0.4	< 1000	9	< 0.5	< 0.1	0.6
14	NA006L3	680	< 0.1	0.6	< 0.8	< 0.4	< 1000	20	0.8	0.3	3.6
15	NA017L3	220	0.1	0.2	< 0.8	< 0.4	< 1000	20	< 0.5	< 0.1	120
16	NA017L5	88	< 0.1	< 0.1	< 0.8	< 0.4	< 1000	20	1	< 0.1	25
17	VA002W2	0.1	< 0.1	< 0.1	< 0.8	< 0.4	< 1000	< 9	< 0.5	< 0.1	< 0.1
18	VA002W3	< 0.1	< 0.1	< 0.1	< 0.8	< 0.4	< 1000	< 9	< 0.5	< 0.1	< 0.1
19	NA001L2DA	330	< 0.1	0.2	7.3	0.9	0.0B	87	4.2	0.1	3.4
20	NA001L3DA	330	< 0.1	0.2	7.6	0.9	0.0B	85	4.4	< 0.1	3.6

Table 10.--Analytical results for water leachates from mill tailings and outcrop samples from the Nabesna and Rambler Mines, AK.

Index	FieldNo	V, ppb-AE	V, ppb-MS	W, ppb-MS	Y, ppb-MS	Yb, ppb-MS	Zn, ppb-AE	Zn, ppb-MS	Zr, ppb-MS
1	NA001L2	< 40	9.8	0.37	5.8	0.4	7000	1800	5.8
2	NA002L2	< 40	0.6	< 0.1	13	1.1	10000	3400	0.4
3	NA003L2	< 40	10	1.3	14	1.8	4000	880	12
4	NA004L2	< 40	1.5	0.81	4.4	0.4	1000	430	0.9
5	NA005L2	< 40	0.6	< 0.1	0.2	< 0.1	200	65	< 0.1
6	NA006L2	< 40	0.9	< 0.1	19	1.7	8000	3000	0.2
7	NA017L2	< 40	0.4	< 0.1	4.0	0.4	2000	310	0.6
8	NA017L4	< 40	2.5	< 0.1	1.5	0.2	500	150	3.6
9	NA001L3	< 40	10	0.2	5.6	0.4	7000	1800	5.6
10	NA002L3	< 40	< 0.4	< 0.1	13	1.2	10000	3400	0.4
11	NA003L3	< 40	11	1.3	14	2.3	4000	940	13
12	NA004L3	< 40	1.2	0.1	4.4	0.3	1000	410	0.4
13	NA005L3	< 40	< 0.4	< 0.1	< 0.1	< 0.1	100	33	< 0.1
14	NA006L3	< 40	< 0.4	< 0.1	19	1.4	8000	3000	3.6
15	NA017L3	< 40	0.4	< 0.1	4.1	0.4	2000	340	0.5
16	NA017L5	< 40	2.9	< 0.1	1.4	0.2	600	170	3.1
17	VA002W2	< 40	< 0.4	< 0.1	< 0.1	< 0.1	< 40	< 2	< 0.1
18	VA002W3	< 40	< 0.4	< 0.1	< 0.1	< 0.1	< 40	7.1	< 0.1
19	NA001L2DA	0.0B	12	0.32	5.9	0.6	0.0B	2000	6.0
20	NA001L3DA	0.0B	12	0.1	6.2	0.6	0.0B	2000	6.0

Table 11.--Analytical results for minus-80 to plus-200 mesh stream-sediment samples from the Nabesna and Kennecott areas, AK.

Index	FieldNo	LabNo	DLat	MLat	SLat	DLon	MLon	SLon	Latitude	Longitude	ST	Quad1X3	Quad15'	M_D_YColl	SampType
1	NA009S2	D571203	62	22	11.868	143	1	54.079	62.36996	143.03169	AK	Nabesna 1X3	Nabesna B-5	08/07/94	sediment
2	NA011S2	D571204	62	22	25.048	142	59	57.120	62.37362	142.99920	AK	Nabesna 1X3	Nabesna B-4	08/07/94	sediment
3	NA012S2	D571205	62	22	39.813	143	0	6.313	62.37773	143.00175	AK	Nabesna 1X3	Nabesna B-5	08/08/94	sediment
4	NA013S2	D571206	62	22	52.797	143	0	32.459	62.38133	143.00902	AK	Nabesna 1X3	Nabesna B-5	08/08/94	sediment
5	NA014S2	D571207	62	23	10.028	142	59	58.477	62.38612	142.99958	AK	Nabesna 1X3	Nabesna B-4	08/08/94	sediment
6	NA015S2	D571208	62	23	24.621	142	59	54.900	62.39017	142.99858	AK	Nabesna 1X3	Nabesna B-4	08/08/94	sediment
7	NA016S2	D571209	62	23	6.349	143	0	20.904	62.38510	143.00581	AK	Nabesna 1X3	Nabesna B-5	08/09/94	sediment
8	NA018S2	D571210	62	23	13.815	143	0	45.233	62.38717	143.01256	AK	Nabesna 1X3	Nabesna B-5	08/09/94	sediment
9	NA020S2	D571211	62	23	34.722	142	59	57.817	62.39298	142.99939	AK	Nabesna 1X3	Nabesna B-4	08/09/94	sediment
10	NA021S2	D571212	62	24	6.628	142	59	54.079	62.40184	142.99836	AK	Nabesna 1X3	Nabesna B-4	08/09/94	sediment
11	KE001S2	D571215	61	32	17.685	142	54	10.551	61.53825	142.90293	AK	McCarthy 1X3	McCarthy C-6	08/11/94	sediment
12	KE002S2	D571216	61	31	55.889	142	53	42.449	61.53219	142.89512	AK	McCarthy 1X3	McCarthy C-6	08/11/94	sediment
13	KE003S2	D571217	61	30	45.423	142	53	51.267	61.51262	142.89757	AK	McCarthy 1X3	McCarthy C-6	08/12/94	sediment
14	KE004S2	D571218	61	30	12.916	142	53	37.466	61.50359	142.89374	AK	McCarthy 1X3	McCarthy C-6	08/12/94	sediment
15	KE005S2	D571219	61	29	32.310	142	53	19.066	61.49231	142.88863	AK	McCarthy 1X3	McCarthy B-6	08/12/94	sediment
16	KE006S2	D571220	61	29	6.677	142	52	54.436	61.48519	142.88179	AK	McCarthy 1X3	McCarthy B-6	08/12/94	sediment
17	KE008S2	D571221	61	30	42.720	142	49	47.817	61.51187	142.82995	AK	McCarthy 1X3	McCarthy C-5	08/13/94	sediment
18	KE009S2	D571222	61	29	9.165	142	53	22.336	61.48588	142.88954	AK	McCarthy 1X3	McCarthy B-6	08/14/94	sediment
19	KE010S2	D571223	61	29	6.363	142	53	21.574	61.48510	142.88933	AK	McCarthy 1X3	McCarthy B-6	08/14/94	sediment
20	KE011S2	D571224	61	29	2.834	142	53	19.612	61.48412	142.88878	AK	McCarthy 1X3	McCarthy B-6	08/14/94	sediment
21	KE012S2	D571225	61	28	36.991	142	53	23.645	61.47694	142.88990	AK	McCarthy 1X3	McCarthy B-6	08/14/94	sediment
22	NA018S2DS	D571213	62	23	13.815	143	0	45.233	62.38717	143.01256	AK	Nabesna 1X3	Nabesna B-5	08/09/94	sediment
23	NA021S2DS	D571214	62	24	6.628	142	59	54.079	62.40184	142.99836	AK	Nabesna 1X3	Nabesna B-4	08/09/94	sediment
24	KE004S2DS	D571226	61	30	12.916	142	53	37.466	61.50359	142.89374	AK	McCarthy 1X3	McCarthy C-6	08/12/94	sediment
25	KE010S2DS	D571227	61	29	6.363	142	53	21.574	61.48510	142.88933	AK	McCarthy 1X3	McCarthy B-6	08/14/94	sediment

Table 11.--Analytical results for minus-80 to plus-200 mesh stream-sediment samples from the Nabesna and Kennecott areas, AK.

Index	FieldNo	Descriptn	SampSource	SampChar	NearMine
1	NA009S2	-80 to +200 mesh fraction, unconsolidated stream sediment	alluvium	composite	no
2	NA011S2	-80 to +200 mesh fraction, unconsolidated stream sediment, just below Nabesna mill tailings	alluvium	composite	yes
3	NA012S2	-80 to +200 mesh fraction, unconsolidated stream sediment	alluvium	composite	no
4	NA013S2	-80 to +200 mesh fraction, unconsolidated stream sediment	alluvium	composite	no
5	NA014S2	-80 to +200 mesh fraction, unconsolidated stream sediment	alluvium	composite	no
6	NA015S2	-80 to +200 mesh fraction, unconsolidated stream sediment	alluvium	composite	no
7	NA016S2	-80 to +200 mesh fraction, unconsolidated stream sediment just below Ramber mine tailings	alluvium	composite	yes
8	NA018S2	-80 to +200 mesh fraction, unconsolidated stream sediment	alluvium	composite	no
9	NA020S2	-80 to +200 mesh fraction, unconsolidated stream sediment	alluvium	composite	no
10	NA021S2	-80 to +200 mesh fraction, unconsolidated stream sediment, Skookum Creek	alluvium	composite	no
11	KE001S2	-80 to +200 mesh fraction, unconsolidated stream sediment	alluvium	composite	no
12	KE002S2	-80 to +200 mesh fraction, unconsolidated stream sediment	alluvium	composite	no
13	KE003S2	-80 to +200 mesh fraction, unconsolidated stream sediment, Amazon Creek	alluvium	composite	no
14	KE004S2	-80 to +200 mesh fraction, unconsolidated stream sediment, Jumbo Creek	alluvium	composite	no
15	KE005S2	-80 to +200 mesh fraction, unconsolidated stream sediment, Bonanza Creek	alluvium	composite	no
16	KE006S2	-80 to +200 mesh fraction, unconsolidated stream sediment, National Creek	alluvium	composite	no
17	KE008S2	-80 to +200 mesh fraction, unconsolidated stream sediment, just below Bonanza mine tailings	alluvium	composite	yes
18	KE009S2	-80 to +200 mesh fraction, unconsolidated sediment from rainwater pool, just below Kennecott mill	alluvium	composite	yes
19	KE010S2	-80 to +200 mesh fraction, unconsolidated sediment from spring draining Kennecott mill tailings	alluvium	composite	yes
20	KE011S2	-80 to +200 mesh fraction, unconsolidated stream sediment, National Creek, below Kennecott mill	alluvium	composite	yes
21	KE012S2	-80 to +200 mesh fraction, unconsolidated stream sediment, National Creek, at Kennicott glacier	alluvium	composite	no
22	NA018S2DS	site duplicate of NA018S2, -80 to +200 mesh, unconsolidated stream sediment	alluvium	composite	no
23	NA021S2DS	site duplicate of NA021S2, -80 to +200 mesh, unconsolidated stream sediment, Skookum Creek	alluvium	composite	no
24	KE004S2DS	site duplicate of KE004S2, -80 to +200 mesh, unconsolidated stream sediment, Jumbo Creek	alluvium	composite	no
25	KE010S2DS	site duplicate of KE010S2, -80 to +200 mesh, unconsol. sediment from spring draining Kennecott mill tailings	alluvium	composite	yes

Table 11.--Analytical results for minus-80 to plus-200 mesh stream-sediment samples from the Nabesna and Kennecott areas, AK.

Index	FieldNo	Ag, ppm-AE	Ag, ppm-PA	Al, pct-AE	As, ppm-AE	As, ppm-PA	As, ppm-HY	Au, ppm-AE	Au, ppm-PA	Au, ppm-GF	Ba, ppm-AE
1	NA009S2	< 2	< 0.080	9.2	< 10	< 1.0	1.7	< 8	< 0.10	< 0.002	520
2	NA011S2	4	7.0	7.0	290	300	0.0B	< 8	5.2	4.9	240
3	NA012S2	< 2	0.16	7.7	14	9.7	0.0B	< 8	< 0.10	0.014	470
4	NA013S2	< 2	0.34	2.5	310	340	0.0B	< 8	< 0.10	0.026	120
5	NA014S2	< 2	0.26	2.9	20	8.8	0.0B	< 8	< 0.10	0.020	170
6	NA015S2	< 2	< 0.080	7.8	< 10	4.1	6.0	< 8	< 0.10	0.006	520
7	NA016S2	< 2	0.15	2.3	11	8.3	0.0B	< 8	< 0.10	0.10	110
8	NA018S2	< 2	< 0.080	8.4	< 10	1.3	3.3	< 8	< 0.10	0.002	570
9	NA020S2	< 2	< 0.080	7.9	< 10	2.6	5.4	< 8	< 0.10	0.10	460
10	NA021S2	< 2	< 0.080	8.6	< 10	1.3	3.4	< 8	< 0.10	< 0.002	520
11	KE001S2	< 2	< 0.080	5.6	19	14	0.0B	< 8	< 0.10	0.002	71
12	KE002S2	< 2	< 0.080	7.2	11	4.9	0.0B	< 8	< 0.10	0.004	120
13	KE003S2	< 2	< 0.080	5.7	37	44	0.0B	< 8	< 0.10	0.002	170
14	KE004S2	< 2	< 0.080	6.8	48	34	0.0B	< 8	< 0.10	0.002	220
15	KE005S2	< 2	0.65	7.1	52	40	0.0B	< 8	< 0.10	0.004	430
16	KE006S2	< 2	0.14	7.2	24	19	0.0B	< 8	< 0.10	0.002	850
17	KE008S2	2	2.7	2.0	86	96	0.0B	< 8	< 1.0	0.006	73
18	KE009S2	< 2	0.31	7.5	16	15	0.0B	< 8	< 0.15	0.006	510
19	KE010S2	3	2.0	1.3	210	120	0.0B	< 8	< 1.0	< 0.002	170
20	KE011S2	< 2	0.50	7.1	37	34	0.0B	< 8	< 0.10	0.30	830
21	KE012S2	2	1.6	1.4	230	110	0.0B	< 8	< 1.0	< 0.002	180
22	NA018S2DS	< 2	< 0.080	8.6	< 10	1.3	3.3	< 8	< 0.10	0.008	580
23	NA021S2DS	< 2	< 0.080	8.6	< 10	1.2	2.9	< 8	< 0.10	< 0.002	510
24	KE004S2DS	< 2	0.11	6.8	44	37	0.0B	< 8	< 0.10	0.002	220
25	KE010S2DS	3	3.2	6.2	140	210	0.0B	< 8	< 1.0	< 0.002	550

Table 11.--Analytical results for minus-80 to plus-200 mesh stream-sediment samples from the Nabesna and Kennecott areas, AK.

Index	FieldNo	Be, ppm-AE	Bi, ppm-AE	Bi, ppm-PA	Ca, pct-AE	Cd, ppm-AE	Cd, ppm-PA	Ce, ppm-AE	Co, ppm-AE	Cr, ppm-AE	Cu, ppm-AE
1	NA009S2	1	< 10	< 1.0	4.0	< 2	< 0.050	25	19	25	27
2	NA011S2	< 1	15	18	4.0	< 2	1.8	22	27	32	410
3	NA012S2	1	< 10	< 1.0	5.4	< 2	0.26	27	24	53	75
4	NA013S2	< 1	< 10	1.6	22	< 2	1.3	8	120	35	470
5	NA014S2	< 1	< 10	1.5	19	< 2	0.28	8	13	25	110
6	NA015S2	1	< 10	< 1.0	3.9	< 2	0.29	31	16	26	80
7	NA016S2	< 1	< 10	< 1.0	25	< 2	0.35	8	9	24	40
8	NA018S2	1	< 10	< 1.0	4.2	< 2	0.15	30	18	26	47
9	NA020S2	< 1	< 10	< 1.0	6.0	< 2	0.11	21	18	88	37
10	NA021S2	1	< 10	< 1.0	4.5	< 2	0.055	25	23	46	30
11	KE001S2	< 1	< 10	< 1.0	12	< 2	0.13	6	32	180	120
12	KE002S2	< 1	< 10	< 1.0	8.3	< 2	< 0.050	10	45	500	120
13	KE003S2	< 1	< 10	< 1.0	10	< 2	0.16	13	29	110	140
14	KE004S2	< 1	< 10	< 1.0	7.7	< 2	0.21	9	37	230	160
15	KE005S2	1	< 10	< 1.0	4.9	< 2	0.45	15	37	190	1100
16	KE006S2	1	< 10	< 1.0	1.9	< 2	0.15	21	23	98	75
17	KE008S2	< 1	< 10	< 10	18	< 2	1.3	< 4	13	56	3600
18	KE009S2	1	< 10	< 1.5	3.9	< 2	0.35	40	22	71	180
19	KE010S2	< 1	< 10	< 10	30	14	9.2	6	4	15	4800
20	KE011S2	1	< 10	< 1.0	3.0	< 2	1.0	18	24	110	520
21	KE012S2	< 1	< 10	< 10	29	14	6.4	6	5	15	5000
22	NA018S2DS	1	< 10	< 1.0	4.3	< 2	0.15	33	18	26	56
23	NA021S2DS	1	< 10	< 1.0	4.6	< 2	0.066	25	23	48	36
24	KE004S2DS	< 1	< 10	< 1.0	7.9	< 2	0.21	10	37	220	170
25	KE010S2DS	1	< 10	< 10	7.9	9	9.4	22	19	88	4000

Table 11.--Analytical results for minus-80 to plus-200 mesh stream-sediment samples from the Nabesna and Kennecott areas, AK.

Index	FieldNo	Cu, ppm-PA	Eu, ppm-AE	Fe, pct-AE	Ga, ppm-AE	Hg, ppm-CV	Ho, ppm-AE	K, pct-AE	La, ppm-AE	Li, ppm-AE	Mg, pct-AE
1	NA009S2	12	< 2	4.2	19	< 0.02	< 4	1.3	16	14	1.8
2	NA011S2	380	< 2	9.7	15	0.28	< 4	0.93	13	13	1.7
3	NA012S2	48	< 2	4.4	16	< 0.02	< 4	1.1	15	17	2.1
4	NA013S2	430	< 2	8.8	6	< 0.02	< 4	0.30	7	11	0.98
5	NA014S2	51	< 2	2.4	6	0.02	< 4	0.48	7	9	4.7
6	NA015S2	70	< 2	4.0	17	0.02	< 4	1.3	18	23	1.7
7	NA016S2	30	< 2	1.6	4	< 0.02	< 4	0.43	4	7	5.3
8	NA018S2	40	< 2	4.0	18	< 0.02	< 4	1.4	18	19	1.7
9	NA020S2	23	< 2	3.7	16	< 0.02	< 4	1.0	13	14	2.7
10	NA021S2	20	< 2	5.3	19	< 0.02	< 4	1.1	15	14	2.2
11	KE001S2	110	< 2	5.7	14	0.05	< 4	0.26	5	18	6.1
12	KE002S2	100	< 2	7.3	18	0.02	< 4	0.40	6	20	4.2
13	KE003S2	120	< 2	5.7	14	0.11	< 4	0.48	8	16	3.8
14	KE004S2	150	< 2	7.5	17	0.11	< 4	0.43	7	19	4.2
15	KE005S2	940	< 2	8.0	19	0.20	< 4	0.68	10	33	2.9
16	KE006S2	76	< 2	5.1	17	0.11	< 4	1.6	12	54	1.3
17	KE008S2	3200	< 2	2.1	6	0.38	< 4	0.24	2	8	9.5
18	KE009S2	180	< 2	4.4	16	0.09	< 4	1.3	24	21	1.9
19	KE010S2	2600	< 2	0.88	< 4	3.1	< 4	0.27	5	5	1.1
20	KE011S2	480	< 2	6.0	16	0.39	< 4	1.5	11	49	1.6
21	KE012S2	1800	< 2	0.91	< 4	3.0	< 4	0.28	7	5	1.1
22	NA018S2DS	38	< 2	4.1	19	< 0.02	< 4	1.4	20	20	1.7
23	NA021S2DS	19	< 2	5.4	18	< 0.02	< 4	1.1	15	13	2.3
24	KE004S2DS	140	< 2	7.3	18	0.03	< 4	0.43	7	19	4.3
25	KE010S2DS	3000	< 2	4.8	14	1.4	< 4	1.2	12	29	2.7

Table 11.--Analytical results for minus-80 to plus-200 mesh stream-sediment samples from the Nabesna and Kennecott areas, AK.

Index	FieldNo	Mn, ppm-AE	Mo, ppm-AE	Mo, ppm-PA	Na, pct-AE	Nb, ppm-AE	Nd, ppm-AE	Ni, ppm-AE	P, pct-AE	Pb, ppm-AE	Pb, ppm-PA
1	NA009S2	880	< 2	0.25	3.1	14	14	19	0.10	< 4	1.2
2	NA011S2	870	< 2	4.7	2.2	10	11	21	0.09	310	340
3	NA012S2	840	< 2	1.2	2.2	11	14	33	0.08	16	15
4	NA013S2	670	2	6.7	0.55	< 4	< 4	26	0.05	17	19
5	NA014S2	490	< 2	0.50	0.83	7	< 4	17	0.05	7	5.2
6	NA015S2	710	< 2	1.2	2.3	12	16	23	0.09	7	3.4
7	NA016S2	330	< 2	0.61	0.57	5	< 4	12	0.02	< 4	3.6
8	NA018S2	990	< 2	0.76	2.7	14	15	21	0.09	6	1.9
9	NA020S2	650	< 2	0.34	2.4	13	10	37	0.06	5	3.5
10	NA021S2	990	< 2	0.65	2.7	14	14	32	0.09	4	2.6
11	KE001S2	850	< 2	0.46	1.7	11	4	68	0.05	< 4	< 1.0
12	KE002S2	1200	< 2	0.34	2.2	13	8	100	0.04	< 4	< 1.0
13	KE003S2	850	< 2	0.62	1.9	11	7	49	0.05	< 4	1.6
14	KE004S2	930	< 2	0.60	2.2	16	8	79	0.07	< 4	1.9
15	KE005S2	990	< 2	0.72	1.9	19	11	72	0.07	< 4	8.3
16	KE006S2	1000	< 2	1.1	1.8	12	12	48	0.06	13	14
17	KE008S2	370	< 2	1.4	0.49	< 4	< 4	26	0.07	4	14
18	KE009S2	680	< 2	1.9	2.2	14	21	38	0.10	28	30
19	KE010S2	110	< 2	1.1	0.37	< 4	< 4	7	0.06	22	22
20	KE011S2	1000	< 2	1.5	1.9	10	12	48	0.05	46	69
21	KE012S2	120	< 2	1.1	0.38	< 4	< 4	7	0.06	31	19
22	NA018S2DS	1000	< 2	0.74	2.7	14	17	22	0.09	4	2.0
23	NA021S2DS	1000	< 2	0.67	2.7	16	13	32	0.09	4	2.1
24	KE004S2DS	920	< 2	0.66	2.3	15	11	78	0.07	< 4	3.5
25	KE010S2DS	780	< 2	1.9	2.0	8	13	36	0.04	44	41

Table 11.--Analytical results for minus-80 to plus-200 mesh stream-sediment samples from the Nabesna and Kennecott areas, AK.

Index	FieldNo	Sb, ppm-PA	Sb, ppm-HY	Sc, ppm-AE	Se, ppm-HY	Sn, ppm-AE	Sr, ppm-AE	Ta, ppm-AE	Th, ppm-AE	Ti, pct-AE	Ti, ppm-AA
1	NA009S2	< 1.0	0.2	14	< 0.1	< 5	540	< 40	< 4	0.51	0.13
2	NA011S2	3.0	4.4	12	1.2	< 5	390	< 40	< 4	0.43	0.32
3	NA012S2	< 1.0	1.1	14	0.5	< 5	480	< 40	5	0.41	0.20
4	NA013S2	2.7	3.7	7	2.4	< 5	300	< 40	5	0.13	0.11
5	NA014S2	< 1.0	1.2	5	1.5	< 5	250	< 40	< 4	0.15	0.13
6	NA015S2	< 1.0	0.7	12	1.7	< 5	410	< 40	< 4	0.36	0.21
7	NA016S2	< 1.0	0.9	5	0.3	< 5	240	< 40	< 4	0.12	0.08
8	NA018S2	< 1.0	0.3	12	0.5	< 5	450	< 40	< 4	0.41	0.21
9	NA020S2	< 1.0	0.6	16	0.1	< 5	460	< 40	5	0.52	0.22
10	NA021S2	< 1.0	< 0.2	16	< 0.1	< 5	530	< 40	< 4	0.61	0.14
11	KE001S2	< 1.0	0.4	23	< 0.1	< 5	160	< 40	< 4	0.64	0.08
12	KE002S2	< 1.0	0.4	42	< 0.1	< 5	150	< 40	< 4	0.81	0.10
13	KE003S2	< 1.0	1.0	21	0.2	< 5	250	< 40	< 4	0.62	0.15
14	KE004S2	< 1.0	0.4	30	0.4	< 5	170	< 40	< 4	1.2	0.16
15	KE005S2	< 1.0	0.8	28	0.4	< 5	210	< 40	< 4	1.1	0.18
16	KE006S2	1.0	0.7	17	0.4	< 5	160	< 40	< 4	0.56	0.23
17	KE008S2	< 10	1.5	7	0.1	5	130	< 40	< 4	0.22	0.11
18	KE009S2	1.8	1.1	17	1.1	< 5	310	< 40	4	0.48	0.0B
19	KE010S2	< 10	3.3	4	0.4	< 5	360	< 40	< 4	0.08	0.15
20	KE011S2	1.4	1.3	17	0.3	< 5	170	< 40	< 4	0.69	0.31
21	KE012S2	< 10	2.2	4	0.4	< 5	360	< 40	< 4	0.09	0.15
22	NA018S2DS	< 1.0	0.2	12	0.4	< 5	450	< 40	4	0.42	0.18
23	NA021S2DS	< 1.0	0.4	16	< 0.1	< 5	530	< 40	< 4	0.63	0.15
24	KE004S2DS	< 1.0	0.5	29	0.3	< 5	160	< 40	< 4	1.2	0.14
25	KE010S2DS	< 10	2.5	15	0.3	< 5	220	< 40	4	0.59	0.26

Table 11.--Analytical results for minus-80 to plus-200 mesh stream-sediment samples from the Nabesna and Kennecott areas, AK.

Index	FieldNo	U, ppm-AE	V, ppm-AE	W, ppm-IE	Y, ppm-AE	Yb, ppm-AE	Zn, ppm-AE	Zn, ppm-PA
1	NA009S2	< 100	110	< 1.0	16	2	68	21
2	NA011S2	< 100	100	1.8	12	2	270	250
3	NA012S2	< 100	120	< 1.0	14	1	93	62
4	NA013S2	< 100	68	1.1	7	< 1	260	250
5	NA014S2	< 100	52	< 1.0	7	< 1	61	28
6	NA015S2	< 100	86	< 1.0	16	2	110	77
7	NA016S2	< 100	40	< 1.0	5	< 1	31	22
8	NA018S2	< 100	95	< 1.0	17	2	91	49
9	NA020S2	< 100	110	< 1.0	11	2	63	35
10	NA021S2	< 100	170	< 1.0	14	2	85	40
11	KE001S2	< 100	220	< 1.0	13	2	61	57
12	KE002S2	< 100	320	< 1.0	16	2	76	67
13	KE003S2	< 100	230	< 1.0	16	1	71	53
14	KE004S2	< 100	380	< 1.0	16	2	83	73
15	KE005S2	< 100	360	< 1.0	16	2	120	110
16	KE006S2	< 100	190	< 1.0	11	< 1	110	110
17	KE008S2	< 100	72	< 1.0	5	< 1	46	46
18	KE009S2	< 100	140	< 1.0	20	2	79	73
19	KE010S2	< 100	24	< 1.0	5	< 1	35	23
20	KE011S2	< 100	240	< 1.0	11	< 1	130	120
21	KE012S2	< 100	25	< 1.0	6	< 1	36	16
22	NA018S2DS	< 100	96	< 1.0	18	2	90	48
23	NA021S2DS	< 100	170	< 1.0	14	1	86	40
24	KE004S2DS	< 100	350	< 1.0	16	2	79	77
25	KE010S2DS	< 100	210	< 1.0	11	1	96	71

Table 12.--Analytical results for minus-200 mesh stream-sediment samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	LabNo	DLat	MLat	SLat	DLon	MLon	SLon	Latitude	Longitude	ST	Quad1X3	Quad15'	M_D_YColl	SampType
1	NA009S1	D571178	62	22	11.868	143	1	54.079	62.36996	143.03169	AK	Nabesna 1X3	Nabesna B-5	08/07/94	sediment
2	NA011S1	D571179	62	22	25.048	142	59	57.120	62.37362	142.99920	AK	Nabesna 1X3	Nabesna B-4	08/07/94	sediment
3	NA012S1	D571180	62	22	39.813	143	0	6.313	62.37773	143.00175	AK	Nabesna 1X3	Nabesna B-5	08/08/94	sediment
4	NA013S1	D571181	62	22	52.797	143	0	32.459	62.38133	143.00902	AK	Nabesna 1X3	Nabesna B-5	08/08/94	sediment
5	NA014S1	D571182	62	23	10.028	142	59	58.477	62.38612	142.99958	AK	Nabesna 1X3	Nabesna B-4	08/08/94	sediment
6	NA015S1	D571183	62	23	24.621	142	59	54.900	62.39017	142.99858	AK	Nabesna 1X3	Nabesna B-4	08/08/94	sediment
7	NA016S1	D571184	62	23	6.349	143	0	20.904	62.38510	143.00581	AK	Nabesna 1X3	Nabesna B-5	08/09/94	sediment
8	NA018S1	D571185	62	23	13.815	143	0	45.233	62.38717	143.01256	AK	Nabesna 1X3	Nabesna B-5	08/09/94	sediment
9	NA020S1	D571186	62	23	34.722	142	59	57.817	62.39298	142.99939	AK	Nabesna 1X3	Nabesna B-4	08/09/94	sediment
10	NA021S1	D571187	62	24	6.628	142	59	54.079	62.40184	142.99836	AK	Nabesna 1X3	Nabesna B-4	08/09/94	sediment
11	KE001S1	D571190	61	32	17.685	142	54	10.551	61.53825	142.90293	AK	Nabesna 1X3	McCarthy C-6	08/11/94	sediment
12	KE002S1	D571191	61	31	55.889	142	53	42.449	61.53219	142.89512	AK	Nabesna 1X3	McCarthy C-6	08/11/94	sediment
13	KE003S1	D571192	61	30	45.423	142	53	51.267	61.51262	142.89757	AK	Nabesna 1X3	McCarthy C-6	08/12/94	sediment
14	KE004S1	D571193	61	30	12.916	142	53	37.466	61.50359	142.89374	AK	Nabesna 1X3	McCarthy C-6	08/12/94	sediment
15	KE005S1	D571194	61	29	32.310	142	53	19.066	61.49231	142.88863	AK	Nabesna 1X3	McCarthy B-6	08/12/94	sediment
16	KE006S1	D571195	61	29	6.677	142	52	54.436	61.48519	142.88179	AK	Nabesna 1X3	McCarthy B-6	08/12/94	sediment
17	KE008S1	D571196	61	30	42.720	142	49	47.817	61.51187	142.82995	AK	Nabesna 1X3	McCarthy C-5	08/13/94	sediment
18	KE009S1	D571197	61	29	9.165	142	53	22.336	61.48588	142.88954	AK	Nabesna 1X3	McCarthy B-6	08/14/94	sediment
19	KE010S1	D571198	61	29	6.363	142	53	21.574	61.48510	142.88933	AK	Nabesna 1X3	McCarthy B-6	08/14/94	sediment
20	KE011S1	D571199	61	29	2.834	142	53	19.612	61.48412	142.88878	AK	Nabesna 1X3	McCarthy B-6	08/14/94	sediment
21	KE012S1	D571200	61	28	36.991	142	53	23.645	61.47694	142.88990	AK	Nabesna 1X3	McCarthy B-6	08/14/94	sediment
22	NA018S1DS	D571188	62	23	13.815	143	0	45.233	62.38717	143.01256	AK	Nabesna 1X3	Nabesna B-5	08/09/94	sediment
23	NA021S1DS	D571189	62	24	6.628	142	59	54.079	62.40184	142.99836	AK	Nabesna 1X3	Nabesna B-4	08/09/94	sediment
24	KE004S1DS	D571201	61	30	12.916	142	53	37.466	61.50359	142.89374	AK	Nabesna 1X3	McCarthy C-6	08/12/94	sediment
25	KE010S1DS	D571202	61	29	6.363	142	53	21.574	61.48510	142.88933	AK	Nabesna 1X3	McCarthy B-6	08/14/94	sediment

Table 12.--Analytical results for minus-200 mesh stream-sediment samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Descriptn	SampSource	SampChar	NearMine
1	NA009S1	minus-200 mesh fraction, unconsolidated stream sediment	alluvium	composite	no
2	NA011S1	minus-200 mesh fraction, unconsolidated stream sediment, just below Nabesna mill tailings	alluvium	composite	yes
3	NA012S1	minus-200 mesh fraction, unconsolidated stream sediment	alluvium	composite	no
4	NA013S1	minus-200 mesh fraction, unconsolidated stream sediment	alluvium	composite	no
5	NA014S1	minus-200 mesh fraction, unconsolidated stream sediment	alluvium	composite	no
6	NA015S1	minus-200 mesh fraction, unconsolidated stream sediment	alluvium	composite	no
7	NA016S1	minus-200 mesh fraction, unconsolidated stream sediment, just below Ramber mine tailings	alluvium	composite	yes
8	NA018S1	minus-200 mesh fraction, unconsolidated stream sediment	alluvium	composite	no
9	NA020S1	minus-200 mesh fraction, unconsolidated stream sediment	alluvium	composite	no
10	NA021S1	minus-200 mesh fraction, unconsolidated stream sediment, Skookum Creek	alluvium	composite	no
11	KE001S1	minus-200 mesh fraction, unconsolidated stream sediment	alluvium	composite	no
12	KE002S1	minus-200 mesh fraction, unconsolidated stream sediment	alluvium	composite	no
13	KE003S1	minus-200 mesh fraction, unconsolidated stream sediment, Amazon Creek	alluvium	composite	no
14	KE004S1	minus-200 mesh fraction, unconsolidated stream sediment, Jumbo Creek	alluvium	composite	no
15	KE005S1	minus-200 mesh fraction, unconsolidated stream sediment, Bonanza Creek	alluvium	composite	no
16	KE006S1	minus-200 mesh fraction, unconsolidated stream sediment, National Creek, just above Kennecott mill	alluvium	composite	no
17	KE008S1	minus-200 mesh fraction, unconsolidated stream sediment, just below Bonanza mine tailings	alluvium	composite	yes
18	KE009S1	minus-200 mesh fraction, unconsolidated sediment from rainwater pool, just below Kennecott mill	alluvium	composite	yes
19	KE010S1	minus-200 mesh fraction, unconsolidated sediment from spring draining Kennecott mill tailings	alluvium	composite	yes
20	KE011S1	minus-200 mesh fraction, unconsolidated stream sediment, National Creek, below Kennecott mill	alluvium	composite	yes
21	KE012S1	minus-200 mesh fraction, unconsolidated stream sediment, National Creek, at Kennicott glacier	alluvium	composite	no
22	NA018S1DS	site duplicate of NA018S1, -200 mesh, unconsolidated stream sediment	alluvium	composite	no
23	NA021S1DS	site duplicate of NA021S1, -200 mesh, unconsolidated stream sediment, Skookum Creek	alluvium	composite	no
24	KE004S1DS	site duplicate of KE004S1, -200 mesh, unconsolidated stream sediment, Jumbo Creek	alluvium	composite	no
25	KE010S1DS	site duplicate of KE010S1, -200 mesh, unconsol. sediment from spring draining Kennecott mill tailings	alluvium	composite	yes

Table 12.--Analytical results for minus-200 mesh stream-sediment samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Ag, ppm-AE	Ag, ppm-PA	Al, pct-AE	As, ppm-AE	As, ppm-PA	As, ppm-HY	Au, ppm-AE	Au, ppm-PA	Au, ppm-GF	Ba, ppm-AE
1	NA009S1	< 2	< 0.080	9.1	< 10	3.6	6.5	< 8	< 0.10	0.006	500
2	NA011S1	9	9.9	7.1	360	410	0.0B	< 8	1.4	1.3	210
3	NA012S1	< 2	0.18	7.9	16	10	0.0B	< 8	< 0.10	0.036	480
4	NA013S1	< 2	0.52	4.0	470	510	0.0B	< 8	0.13	0.20	200
5	NA014S1	< 2	0.23	4.0	23	9.8	0.0B	< 8	< 0.10	0.026	230
6	NA015S1	< 2	0.092	8.1	< 10	5.9	6.6	< 8	< 0.10	0.008	580
7	NA016S1	< 2	0.10	3.3	< 10	5.5	10	< 8	< 0.10	0.05	180
8	NA018S1	< 2	< 0.080	8.5	< 10	2.9	4.3	< 8	< 0.10	0.024	660
9	NA020S1	< 2	< 0.080	6.1	< 10	2.2	4	< 8	< 0.10	< 0.002	360
10	NA021S1	< 2	< 0.080	8.7	< 10	4.0	5.5	< 8	< 0.10	0.030	580
11	KE001S1	< 2	< 0.080	4.6	31	30	0.0B	< 8	< 0.10	0.004	86
12	KE002S1	< 2	< 0.080	6.6	17	15	0.0B	< 8	< 0.10	0.004	110
13	KE003S1	< 2	< 0.080	5.3	63	45	0.0B	< 8	< 0.10	0.004	170
14	KE004S1	< 2	< 0.080	5.6	78	53	0.0B	< 8	< 0.10	0.006	260
15	KE005S1	< 2	0.56	7.0	59	58	0.0B	< 8	< 0.10	0.006	460
16	KE006S1	< 2	0.10	7.5	24	23	0.0B	< 8	< 0.10	0.002	940
17	KE008S1	5	3.8	2.7	150	170	0.0B	< 8	< 1.0	0.012	120
18	KE009S1	< 2	0.17	7.7	18	17	0.0B	< 8	< 0.10	0.012	530
19	KE010S1	3	< 0.80	1.9	310	110	0.0B	< 8	< 1.0	0.008	210
20	KE011S1	< 2	0.83	7.0	62	63	0.0B	< 8	< 0.10	0.30	970
21	KE012S1	4	0.89	2.0	320	130	0.0B	< 8	< 1.0	< 0.002	210
22	NA018S1DS	< 2	0.12	8.5	< 10	5.1	4.2	< 8	0.11	0.004	660
23	NA021S1DS	< 2	< 0.080	8.6	< 10	3.6	4.2	< 8	< 0.10	0.004	570
24	KE004S1DS	< 2	< 0.080	5.5	77	51	0.0B	< 8	< 0.10	0.004	260
25	KE010S1DS	2	2.6	5.7	280	320	0.0B	< 8	< 1.0	0.016	600

Table 12.--Analytical results for minus-200 mesh stream-sediment samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Be, ppm-AE	Bi, ppm-AE	Bi, ppm-PA	Ca, pct-AE	Cd, ppm-AE	Cd, ppm-PA	Ce, ppm-AE	Co, ppm-AE	Cr, ppm-AE	Cu, ppm-AE
1	NA009S1	1	< 10	< 1.0	4.1	< 2	0.11	31	23	35	45
2	NA011S1	< 1	29	27	3.6	< 2	2.0	23	27	33	410
3	NA012S1	< 1	< 10	< 1.0	5.2	< 2	0.24	27	23	73	69
4	NA013S1	< 1	< 10	1.6	12	2	1.8	13	190	60	720
5	NA014S1	< 1	< 10	1.1	15	< 2	0.21	12	15	36	98
6	NA015S1	1	< 10	< 1.0	3.6	< 2	0.29	34	15	33	80
7	NA016S1	< 1	< 10	< 1.0	18	< 2	0.24	10	11	42	48
8	NA018S1	1	< 10	< 1.0	3.7	< 2	0.24	40	18	29	64
9	NA020S1	< 1	< 10	< 1.0	11	< 2	0.082	21	17	73	31
10	NA021S1	1	< 10	< 1.0	5.4	< 2	0.12	29	21	48	41
11	KE001S1	< 1	< 10	< 1.0	14	< 2	0.15	10	33	200	140
12	KE002S1	< 1	< 10	< 1.0	8.5	< 2	0.061	13	54	530	170
13	KE003S1	< 1	< 10	< 1.0	11	< 2	0.13	17	33	160	160
14	KE004S1	< 1	< 10	< 1.0	9.7	< 2	0.15	14	35	270	230
15	KE005S1	< 1	< 10	< 1.0	3.9	< 2	0.45	20	28	180	780
16	KE006S1	1	< 10	< 1.0	1.5	< 2	0.14	23	22	100	100
17	KE008S1	< 1	< 10	< 10	17	< 2	1.4	11	12	65	6100
18	KE009S1	1	< 10	< 1.0	3.7	< 2	0.37	50	20	74	160
19	KE010S1	< 1	< 10	< 10	28	16	5.2	9	5	21	4900
20	KE011S1	1	< 10	< 1.0	3.7	< 2	2.3	24	21	100	910
21	KE012S1	< 1	< 10	< 10	28	16	6.3	9	6	21	5000
22	NA018S1DS	1	< 10	< 1.0	3.6	< 2	0.27	38	17	25	62
23	NA021S1DS	1	< 10	< 1.0	5.5	< 2	0.14	28	20	47	38
24	KE004S1DS	< 1	< 10	< 1.0	10	< 2	0.27	13	36	270	220
25	KE010S1DS	< 1	< 10	< 10	11	13	12	25	16	87	4700

Table 12.--Analytical results for minus-200 mesh stream-sediment samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Cu, ppm-PA	Eu, ppm-AE	Fe, pct-AE	Ga, ppm-AE	Hg, ppm-CV	Ho, ppm-AE	K, pct-AE	La, ppm-AE	Li, ppm-AE	Mg, pct-AE
1	NA009S1	24	< 2	5.0	21	< 0.02	< 4	1.1	15	16	2.1
2	NA011S1	370	< 2	11	14	0.43	< 4	0.94	14	16	1.3
3	NA012S1	43	< 2	4.6	18	< 0.02	< 4	1.1	15	18	2.1
4	NA013S1	580	< 2	13	11	0.05	< 4	0.47	10	18	1.5
5	NA014S1	38	< 2	2.7	10	0.03	< 4	0.58	7	11	6.6
6	NA015S1	68	< 2	4.3	18	0.03	< 4	1.4	20	29	1.8
7	NA016S1	22	< 2	2.2	8	< 0.02	< 4	0.47	6	9	8.1
8	NA018S1	50	< 2	3.9	19	< 0.02	< 4	1.5	22	23	1.5
9	NA020S1	15	< 2	3.6	14	< 0.02	< 4	0.85	11	14	5.1
10	NA021S1	29	< 2	4.2	19	0.11	< 4	1.2	16	17	2.5
11	KE001S1	120	< 2	5.2	13	0.34	< 4	0.26	5	18	7.6
12	KE002S1	150	< 2	8.3	20	0.03	< 4	0.30	5	25	4.9
13	KE003S1	97	< 2	5.9	16	0.47	< 4	0.46	9	18	5.0
14	KE004S1	130	< 2	6.4	17	0.19	< 4	0.44	7	20	5.6
15	KE005S1	740	< 2	5.8	18	0.32	< 4	1.0	10	49	2.6
16	KE006S1	91	< 2	4.6	18	0.12	< 4	1.7	13	65	1.3
17	KE008S1	5000	< 2	2.3	9	0.70	< 4	0.38	4	11	9.4
18	KE009S1	150	< 2	4.2	18	0.10	< 4	1.3	27	19	1.8
19	KE010S1	1400	< 2	1.1	4	3.3	< 4	0.37	8	7	1.5
20	KE011S1	850	< 2	4.3	16	0.75	< 4	1.6	12	60	1.7
21	KE012S1	1700	< 2	1.2	5	3.2	< 4	0.40	7	7	1.6
22	NA018S1DS	51	< 2	3.9	19	< 0.02	< 4	1.5	22	23	1.5
23	NA021S1DS	36	< 2	4.1	18	< 0.02	< 4	1.2	15	16	2.5
24	KE004S1DS	130	< 2	6.5	15	0.16	< 4	0.42	7	21	5.9
25	KE010S1DS	4000	< 2	3.5	14	1.2	< 4	1.2	13	37	3.0

Table 12.--Analytical results for minus-200 mesh stream-sediment samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Mn, ppm-AE	Mo, ppm-AE	Mo, ppm-PA	Na, pct-AE	Nb, ppm-AE	Nd, ppm-AE	Ni, ppm-AE	P, pct-AE	Pb, ppm-AE	Pb, ppm-PA
1	NA009S1	1000	< 2	0.46	3.0	15	14	25	0.10	9	4.2
2	NA011S1	700	< 2	5.2	2.2	12	12	18	0.10	440	480
3	NA012S1	850	< 2	0.91	2.4	14	13	35	0.09	33	28
4	NA013S1	980	4	6.9	0.91	5	8	46	0.08	28	28
5	NA014S1	560	< 2	0.48	1.2	9	5	20	0.05	10	4.9
6	NA015S1	730	< 2	1.3	2.3	15	15	22	0.10	13	9.5
7	NA016S1	460	< 2	0.45	0.96	8	< 4	19	0.04	5	2.8
8	NA018S1	1000	< 2	1.0	2.7	16	17	22	0.10	12	3.7
9	NA020S1	670	< 2	0.37	1.9	13	11	37	0.06	< 4	1.7
10	NA021S1	900	< 2	0.67	2.8	15	14	34	0.09	9	4.6
11	KE001S1	980	< 2	0.65	1.2	11	7	65	0.05	< 4	1.5
12	KE002S1	1800	< 2	0.50	1.8	15	7	120	0.04	< 4	1.2
13	KE003S1	1000	< 2	0.62	1.6	13	9	57	0.08	< 4	1.5
14	KE004S1	990	< 2	0.67	1.6	14	11	77	0.08	< 4	2.1
15	KE005S1	920	< 2	0.87	1.5	14	11	58	0.08	8	9.2
16	KE006S1	1100	< 2	0.83	1.6	15	12	48	0.08	16	14
17	KE008S1	480	< 2	1.4	0.61	8	4	27	0.10	9	16
18	KE009S1	690	< 2	1.5	2.4	16	24	35	0.12	29	27
19	KE010S1	160	< 2	< 1.0	0.58	5	4	10	0.06	25	11
20	KE011S1	980	< 2	1.1	1.6	13	12	45	0.07	54	60
21	KE012S1	170	< 2	< 1.0	0.60	5	7	10	0.07	37	16
22	NA018S1DS	1000	< 2	1.1	2.7	16	18	21	0.10	10	5.9
23	NA021S1DS	880	< 2	0.66	2.7	15	14	34	0.09	17	12
24	KE004S1DS	1000	< 2	0.64	1.6	13	9	77	0.07	< 4	2.3
25	KE010S1DS	730	< 2	1.6	1.6	14	11	32	0.08	41	41

Table 12.--Analytical results for minus-200 mesh stream-sediment samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Sb, ppm-PA	Sb, ppm-HY	Sc, ppm-AE	Se, ppm-HY	Sn, ppm-AE	Sr, ppm-AE	Ta, ppm-AE	Th, ppm-AE	Ti, pct-AE	Ti, ppm-AA
1	NA009S1	< 1.0	0.7	16	< 0.1	< 5	540	< 40	< 4	0.62	0.20
2	NA011S1	3.4	0.0B	12	0.0B	< 5	380	< 40	4	0.41	0.50
3	NA012S1	< 1.0	1.3	16	0.5	< 5	470	< 40	< 4	0.49	0.21
4	NA013S1	3.4	0.0B	10	0.0B	< 5	290	< 40	< 4	0.23	0.42
5	NA014S1	< 1.0	1.3	7	1	< 5	270	< 40	< 4	0.20	0.15
6	NA015S1	< 1.0	1	11	1.3	< 5	370	< 40	4	0.38	0.22
7	NA016S1	< 1.0	1.1	7	0.4	< 5	240	< 40	< 4	0.22	0.11
8	NA018S1	< 1.0	0.7	11	0.6	< 5	400	< 40	< 4	0.38	0.19
9	NA020S1	< 1.0	0.7	13	< 0.1	< 5	380	< 40	< 4	0.42	0.16
10	NA021S1	< 1.0	0.5	14	0.2	< 5	510	< 40	< 4	0.50	0.22
11	KE001S1	< 1.0	0.8	25	0.1	< 5	160	< 40	< 4	0.54	0.08
12	KE002S1	< 1.0	0.3	50	< 0.1	< 5	160	< 40	< 4	0.76	0.0B
13	KE003S1	< 1.0	2.6	26	0.2	< 5	230	< 40	< 4	0.70	0.10
14	KE004S1	< 1.0	1.4	33	0.9	< 5	170	< 40	< 4	0.81	0.0B
15	KE005S1	< 1.0	1.6	26	0.7	< 5	230	< 40	< 4	0.67	0.18
16	KE006S1	< 1.0	1.4	18	0.5	< 5	180	< 40	< 4	0.44	0.28
17	KE008S1	< 10	2.1	9	0.2	10	170	< 40	< 4	0.22	0.08
18	KE009S1	< 1.0	0.0B	17	0.0B	< 5	360	< 40	< 4	0.51	0.0B
19	KE010S1	< 10	2.7	5	0.3	< 5	380	< 40	< 4	0.11	0.05
20	KE011S1	< 1.0	0.0B	16	0.0B	13	180	< 40	4	0.43	0.0B
21	KE012S1	< 10	2.6	5	0.3	< 5	380	< 40	< 4	0.11	0.07
22	NA018S1DS	< 1.0	0.7	11	0.6	< 5	400	< 40	< 4	0.39	0.21
23	NA021S1DS	< 1.0	0.4	14	0.2	< 5	510	< 40	< 4	0.49	0.12
24	KE004S1DS	< 1.0	0.0B	33	0.0B	< 5	170	< 40	< 4	0.81	0.0B
25	KE010S1DS	< 10	0.0B	14	0.0B	< 5	220	< 40	< 4	0.41	0.0B

Table 12.--Analytical results for minus-200 mesh stream-sediment samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	U, ppm-AE	V, ppm-AE	W, ppm-IE	Y, ppm-AE	Yb, ppm-AE	Zn, ppm-AE	Zn, ppm-PA
1	NA009S1	< 100	150	< 1.0	16	1	82	25
2	NA011S1	< 100	93	1.4	12	< 1	330	190
3	NA012S1	< 100	130	< 1.0	15	1	97	41
4	NA013S1	< 100	110	1.6	10	< 1	380	200
5	NA014S1	< 100	65	< 1.0	7	1	70	21
6	NA015S1	< 100	86	< 1.0	16	2	130	75
7	NA016S1	< 100	64	< 1.0	6	1	50	17
8	NA018S1	< 100	76	< 1.0	17	1	100	53
9	NA020S1	< 100	120	< 1.0	10	< 1	53	17
10	NA021S1	< 100	120	< 1.0	14	2	70	30
11	KE001S1	< 100	190	< 1.0	12	< 1	58	42
12	KE002S1	< 100	310	< 1.0	16	1	89	62
13	KE003S1	< 100	230	< 1.0	16	1	77	39
14	KE004S1	< 100	270	< 1.0	16	2	78	38
15	KE005S1	< 100	240	< 1.0	14	1	99	65
16	KE006S1	< 100	160	< 1.0	12	< 1	110	39
17	KE008S1	< 100	73	< 1.0	7	< 1	59	36
18	KE009S1	< 100	130	0.0B	22	2	72	47
19	KE010S1	< 100	33	< 1.0	6	< 1	37	6.3
20	KE011S1	< 100	150	< 1.0	10	< 1	120	88
21	KE012S1	< 100	34	1.3	6	< 1	39	9.5
22	NA018S1DS	< 100	77	< 1.0	18	2	100	53
23	NA021S1DS	< 100	120	< 1.0	14	2	69	30
24	KE004S1DS	< 100	270	< 1.0	15	2	75	38
25	KE010S1DS	< 100	120	< 1.0	10	< 1	90	53

Table 13.--Analytical results for nonmagnetic heavy-mineral-concentrate samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	LabNo	DLat	MLat	SLat	DLon	MLon	SLon	Latitude	Longitude	ST	Quad1X3	Quad15'	SampType
1	NA003C	D571309	62	22	21.043	143	0	27.679	62.37251	143.00769	AK	Nabesna 1X3	Nabesna B-5	concentrate
2	NA005C	D571310	62	22	20.217	143	0	22.305	62.37228	143.00620	AK	Nabesna 1X3	Nabesna B-5	concentrate
3	NA006C	D571311	62	22	25.289	143	0	4.550	62.37369	143.00126	AK	Nabesna 1X3	Nabesna B-5	concentrate
4	NA009C	D571312	62	22	11.868	143	1	54.079	62.36996	143.03169	AK	Nabesna 1X3	Nabesna B-5	concentrate
5	NA013C	D571313	62	22	52.797	143	0	32.459	62.38133	143.00902	AK	Nabesna 1X3	Nabesna B-5	concentrate
6	NA021C	D571314	62	24	6.628	142	59	54.079	62.40184	142.99836	AK	Nabesna 1X3	Nabesna B-4	concentrate
7	KE003C	D571315	61	30	45.423	142	53	51.267	61.51262	142.89757	AK	McCarthy 1X3	McCarthy C-6	concentrate
8	KE004C	D571316	61	30	12.916	142	53	37.466	61.50359	142.89374	AK	McCarthy 1X3	McCarthy C-6	concentrate
9	KE005C	D571317	61	29	32.310	142	53	19.066	61.49231	142.88863	AK	McCarthy 1X3	McCarthy B-6	concentrate
10	KE006C	D571318	61	29	6.677	142	52	54.436	61.48519	142.88179	AK	McCarthy 1X3	McCarthy B-6	concentrate
11	KE008C	D571319	61	30	42.720	142	49	47.817	61.51187	142.82995	AK	McCarthy 1X3	McCarthy C-5	concentrate
12	KE010C	D571320	61	29	6.363	142	53	21.574	61.48510	142.88933	AK	McCarthy 1X3	McCarthy B-6	concentrate
13	KE012C	D571321	61	28	36.991	142	53	23.645	61.47694	142.88990	AK	McCarthy 1X3	McCarthy B-6	concentrate

Table 13.--Analytical results for nonmagnetic heavy-mineral-concentrate samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Sample Name & Description	SampSource	SampChar	NearMine	M_D_YColl
1	NA003C	minus-20 mesh, nonmagnetic heavy-mineral concentrate from mill tailings	mill tailing	composite	yes	08/06/94
2	NA005C	minus-20 mesh, nonmagnetic heavy-mineral concentrate from mill tailings	mill tailing	composite	yes	08/06/94
3	NA006C	minus-20 mesh, nonmagnetic heavy-mineral concentrate from mill tailings	mill tailing	composite	yes	08/06/94
4	NA009C	minus-20 mesh, nonmagnetic heavy-mineral concentrate from stream sediment	alluvium	composite	no	08/07/94
5	NA013C	minus-20 mesh, nonmagnetic heavy-mineral concentrate from stream sediment	alluvium	composite	no	08/08/94
6	NA021C	minus-20 mesh, nonmagnetic heavy-mineral concentrate from stream sediment, Skookum Cr.	alluvium	composite	no	08/09/94
7	KE003C	minus-20 mesh, nonmagnetic heavy-mineral concentrate from stream sediment, Amazon Creek	alluvium	composite	no	08/12/94
8	KE004C	minus-20 mesh, nonmagnetic heavy-mineral concentrate from stream sediment, Jumbo Creek	alluvium	composite	no	08/12/94
9	KE005C	minus-20 mesh, nonmagnetic heavy-mineral concentrate from stream sediment, Bonanza Creek	alluvium	composite	no	08/12/94
10	KE006C	minus-20 mesh, nonmagnetic heavy-mineral concentrate from stream sediment, National Creek	alluvium	composite	no	08/12/94
11	KE008C	minus-20 mesh, nonmag. heavy-mineral conc. from stream sediment, just below Bonanza mine	alluvium	composite	yes	08/13/94
12	KE010C	minus-20 mesh, nonmag. heavy-mineral conc. from spring sediment draining Kennecott mill tailings	alluvium	composite	yes	08/14/94
13	KE012C	minus-20 mesh, nonmag. heavy-mineral conc. from str. sediment, National Cr. at Kennicott glacier	alluvium	composite	no	08/14/94

Table 13.--Analytical results for nonmagnetic heavy-mineral-concentrate samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Ag, ppm-ES	As, ppm-ES	Au, ppm-ES	B, ppm-ES	Ba, ppm-ES	Be, ppm-ES	Bi, ppm-ES	Ca, pct-ES	Cd, ppm-ES	Co, ppm-ES
1	NA003C	1000	500	> 1000	< 20	< 50	< 2	50	0.7	< 50	200
2	NA005C	100	1500	100	< 20	< 50	< 2	150	3	< 50	200
3	NA006C	700	< 500	500	20	70	< 2	20	15	< 50	20
4	NA009C	20	< 500	100	20	300	< 2	< 20	7	50	70
5	NA013C	1.5	< 500	< 20	20	50	< 2	< 20	15	< 50	1000
6	NA021C	2	1000	< 20	20	10000	< 2	< 20	15	< 50	200
7	KE003C	1	< 500	< 20	70	200	< 2	< 20	10	< 50	30
8	KE004C	5	< 500	< 20	70	7000	< 2	< 20	10	< 50	50
9	KE005C	70	500	< 20	150	> 10000	< 2	< 20	7	< 50	50
10	KE006C	10	< 500	< 20	70	> 10000	< 2	70	5	< 50	20
11	KE008C	70	2000	< 20	100	200	< 2	< 20	7	< 50	50
12	KE010C	300	10000	< 20	< 20	200	< 2	< 20	10	300	< 20
13	KE012C	150	5000	< 20	30	1000	< 2	< 20	7	50	50

Table 13.--Analytical results for nonmagnetic heavy-mineral-concentrate samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Cr, ppm-ES	Cu, ppm-ES	Fe, pct-ES	Ga, ppm-ES	Ge, ppm-ES	La, ppm-ES	Mg, pct-ES	Mn, ppm-ES	Mo, ppm-ES	Na, pct-ES
1	NA003C	< 20	7000	20	50	< 20	< 100	0.2	100	10	< 0.5
2	NA005C	< 20	5000	50	70	< 20	< 100	0.3	500	10	< 0.5
3	NA006C	30	15000	7	10	< 20	< 100	5	500	< 10	< 0.5
4	NA009C	300	1500	5	15	< 20	< 100	2	700	< 10	1.5
5	NA013C	20	5000	15	20	< 20	< 100	1.5	500	< 10	< 0.5
6	NA021C	300	150	10	15	< 20	< 100	3	700	< 10	< 0.5
7	KE003C	300	1500	5	50	< 20	< 100	1.5	700	< 10	1
8	KE004C	700	3000	7	70	< 20	< 100	2	700	< 10	1.5
9	KE005C	1000	50000	7	50	< 20	< 100	1.5	1000	< 10	1
10	KE006C	100	3000	3	20	< 20	100	0.7	700	< 10	0.7
11	KE008C	700	> 50000	7	30	< 20	< 100	2	700	< 10	1
12	KE010C	< 20	> 50000	1	< 10	50	< 100	1.5	150	< 10	< 0.5
13	KE012C	200	> 50000	7	50	< 20	< 100	1.5	1000	< 10	1

Table 13.--Analytical results for nonmagnetic heavy-mineral-concentrate samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Nb, ppm-ES	Ni, ppm-ES	P, pct-ES	Pb, ppm-ES	Pd, ppm-ES	Pt, ppm-ES	Sb, ppm-ES	Sc, ppm-ES	Sn, ppm-ES	Sr, ppm-ES
1	NA003C	< 50	30	< 0.5	500	< 100	< 100	< 200	< 10	< 20	< 200
2	NA005C	< 50	30	< 0.5	700	< 100	< 100	< 200	< 10	< 20	< 200
3	NA006C	< 50	15	< 0.5	100	< 100	< 100	< 200	10	< 20	< 200
4	NA009C	< 50	70	0.5	500	< 100	< 100	< 200	20	< 20	500
5	NA013C	< 50	100	< 0.5	20	< 100	< 100	< 200	10	< 20	< 200
6	NA021C	< 50	100	< 0.5	300	< 100	< 100	< 200	20	< 20	< 200
7	KE003C	< 50	70	< 0.5	< 20	< 100	< 100	< 200	20	< 20	< 200
8	KE004C	< 50	100	< 0.5	< 20	< 100	< 100	< 200	30	< 20	200
9	KE005C	< 50	100	< 0.5	500	< 100	< 100	< 200	30	150	< 200
10	KE006C	< 50	30	0.7	10000	< 100	< 100	< 200	15	70	500
11	KE008C	< 50	100	< 0.5	300	< 100	< 100	< 200	30	70	< 200
12	KE010C	< 50	10	< 0.5	1500	< 100	< 100	< 200	< 10	< 20	< 200
13	KE012C	< 50	70	< 0.5	700	< 100	< 100	< 200	30	< 20	< 200

Table 13.--Analytical results for nonmagnetic heavy-mineral-concentrate samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Th, ppm-ES	Ti, pct-ES	V, ppm-ES	W, ppm-ES	Y, ppm-ES	Zn, ppm-ES	Zr, ppm-ES
1	NA003C	< 200	0.07	< 20	< 50	< 20	< 500	100
2	NA005C	< 200	0.07	30	< 50	< 20	< 500	100
3	NA006C	< 200	0.7	100	< 50	30	< 500	300
4	NA009C	< 200	0.5	150	< 50	30	1500	1500
5	NA013C	< 200	0.1	70	< 50	20	< 500	30
6	NA021C	< 200	0.3	150	< 50	20	< 500	150
7	KE003C	< 200	0.5	300	< 50	20	< 500	100
8	KE004C	< 200	0.7	500	< 50	20	< 500	70
9	KE005C	< 200	0.7	300	< 50	20	< 500	300
10	KE006C	< 200	0.7	150	< 50	70	< 500	1000
11	KE008C	< 200	0.5	200	< 50	20	< 500	50
12	KE010C	< 200	0.07	30	< 50	< 20	< 500	30
13	KE012C	< 200	0.7	300	< 50	30	< 500	300

Table 14.--Analytical results for rock samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	LabNo	DLat	MLat	SLat	DLon	MLon	SLon	Latitude	Longitude	ST	Quad1X3	Quad15'	M_D_YColl
1	NA001R1	D571149	62	22	20.205	143	0	31.812	62.37228	143.00884	AK	Nabesna 1X3	Nabesna B-5	08/06/94
2	NA001R2	D571150	62	22	20.205	143	0	31.812	62.37228	143.00884	AK	Nabesna 1X3	Nabesna B-5	08/06/94
3	NA001R3	D571151	62	22	20.205	143	0	31.812	62.37228	143.00884	AK	Nabesna 1X3	Nabesna B-5	08/06/94
4	NA001R4	D571152	62	22	20.205	143	0	31.812	62.37228	143.00884	AK	Nabesna 1X3	Nabesna B-5	08/06/94
5	NA002R1	D571153	62	22	18.906	143	0	29.120	62.37192	143.00809	AK	Nabesna 1X3	Nabesna B-5	08/06/94
6	NA003R1	D571154	62	22	21.043	143	0	27.679	62.37251	143.00769	AK	Nabesna 1X3	Nabesna B-5	08/06/94
7	NA004R1	D571155	62	22	20.889	143	0	26.000	62.37247	143.00722	AK	Nabesna 1X3	Nabesna B-5	08/06/94
8	NA004R2	D571156	62	22	20.889	143	0	26.000	62.37247	143.00722	AK	Nabesna 1X3	Nabesna B-5	08/06/94
9	NA005R1	D571157	62	22	20.217	143	0	22.305	62.37228	143.00620	AK	Nabesna 1X3	Nabesna B-5	08/06/94
10	NA006R1	D571158	62	22	25.289	143	0	4.550	62.37369	143.00126	AK	Nabesna 1X3	Nabesna B-5	08/06/94
11	NA006R2	D571159	62	22	25.289	143	0	4.550	62.37369	143.00126	AK	Nabesna 1X3	Nabesna B-5	08/06/94
12	NA007R1	D571160	62	22	32.592	143	1	15.068	62.37572	143.02085	AK	Nabesna 1X3	Nabesna B-5	08/07/94
13	NA007R2	D571161	62	22	32.592	143	1	15.068	62.37572	143.02085	AK	Nabesna 1X3	Nabesna B-5	08/07/94
14	NA008R	D571162	62	22	21.060	143	1	34.120	62.37252	143.02614	AK	Nabesna 1X3	Nabesna B-5	08/07/94
15	NA010R	D571163	62	22	22.386	143	0	35.853	62.37289	143.00996	AK	Nabesna 1X3	Nabesna B-5	08/07/94
16	NA013R1	D571164	62	22	52.797	143	0	32.459	62.38133	143.00902	AK	Nabesna 1X3	Nabesna B-5	08/08/94
17	NA013R2	D571165	62	22	52.797	143	0	32.459	62.38133	143.00902	AK	Nabesna 1X3	Nabesna B-5	08/08/94
18	NA017R1	D571166	62	23	5.455	143	0	27.613	62.38485	143.00767	AK	Nabesna 1X3	Nabesna B-5	08/09/94
19	NA017R2	D571167	62	23	5.455	143	0	27.613	62.38485	143.00767	AK	Nabesna 1X3	Nabesna B-5	08/09/94
20	NA017R3	D571168	62	23	5.455	143	0	27.613	62.38485	143.00767	AK	Nabesna 1X3	Nabesna B-5	08/09/94
21	KE013R	D571169	61	30	48.232	142	49	52.864	61.51340	142.83135	AK	McCarthy 1X3	McCarthy C-5	08/13/94
22	KE014R	D571170	61	32	31.472	142	54	16.723	61.54208	142.90465	AK	McCarthy 1X3	McCarthy C-6	08/11/94
23	NA013R3	D571171	62	22	52.797	143	0	32.459	62.38133	143.00902	AK	Nabesna 1X3	Nabesna B-5	08/08/94
24	KE007R	D571172	61	30	21.099	142	49	54.633	61.50586	142.83184	AK	McCarthy 1X3	McCarthy C-5	08/13/94
25	KE009R1	D571173	61	29	9.165	142	53	22.336	61.48588	142.88954	AK	McCarthy 1X3	McCarthy B-6	08/14/94
26	KE009R2	D571174	61	29	9.165	142	53	22.336	61.48588	142.88954	AK	McCarthy 1X3	McCarthy B-6	08/14/94
27	KE010R1	D571175	61	29	6.363	142	53	21.574	61.48510	142.88933	AK	McCarthy 1X3	McCarthy B-6	08/14/94
28	KE011R1	D571176	61	29	2.834	142	53	19.612	61.48412	142.88878	AK	McCarthy 1X3	McCarthy B-6	08/14/94
29	KE011R2	D571177	61	29	2.834	142	53	19.612	61.48412	142.88878	AK	McCarthy 1X3	McCarthy B-6	08/14/94

Table 14.--Analytical results for rock samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	SampType	Descriptn	SampSource	SampChar	NearMine
1	NA001R1	rock	MINERALIZED, pyrite, possible As, Au, Cu, Pb, Hg, from Nabesna mine	mill tailing	composite	yes
2	NA001R2	rock	MINERALIZED, sulphur, poss. As, Au, Cu, Pb, Hg, from Nabesna mine	mill tailing	composite	yes
3	NA001R3	rock	MINERALIZED, red to orange Fe oxide, possible As, Au, Cu, Pb, Hg, from Nabesna mine	mill tailing	composite	yes
4	NA001R4	rock	MINERALIZED, whitish encrustations on pyrite, possible As, Au, Cu, Pb, Hg, from Nabesna mine	mill tailing	composite	yes
5	NA002R1	rock	MINERALIZED, bright orange Fe oxide, possible As, Au, Cu, Pb, from Nabesna mine	mill tailing	composite	yes
6	NA003R1	rock	MINERALIZED, dk brown to maroon Fe oxide (?) As, Au, Cu, Pb, from Nabesna mine	mill tailing	composite	yes
7	NA004R1	rock	MINERALIZED, malachite/azurite, Fe oxide, possible As, Au, Cu, Pb, from Nabesna mine	mill tailing	composite	yes
8	NA004R2	rock	MINERALIZED, malachite/azurite, Fe oxide, possible As, Au, Cu, Pb, from Nabesna mine	mill tailing	composite	yes
9	NA005R1	rock	MINERALIZED, bright orange-red Fe oxide, possible As, Au, Cu, Pb, from Nabesna mine	mill tailing	composite	yes
10	NA006R1	rock	MINERALIZED, white salt & bright orange-red Fe oxide, poss. As, Au, Cu, Pb, from Nabesna mine	mill tailing	composite	yes
11	NA006R2	rock	MINERALIZED, white salt (?) crust, possible As, Au, Cu, Pb, from Nabesna mine	mill tailing	composite	yes
12	NA007R1	rock	MINERALIZED, spongy, pyrite-quartz-Fe oxide, possible As, Au, Cu, Pb	outcrop	composite	yes
13	NA007R2	rock	MINERALIZED, malachite-garnet-magnetite-Fe oxide skarn	outcrop	composite	yes
14	NA008R	rock	MINERALIZED, malachite-pyrite-magnetite-epidote-Fe ox skarn in shear zone	outcrop	composite	yes
15	NA010R	rock	MINERALIZED, pyrite, malachite, azurite, Fe oxide, magnetite from stockpile, from Nabesna mine	mine dump	composite	yes
16	NA013R1	rock	MINERALIZED, dark maroon-orange Fe oxide, possible As, Au, Cu, Pb	alluvium	composite	no
17	NA013R2	rock	MINERALIZED, pyrite-magnetite-Fe oxide skarn, possible As, Au, Cu, Pb	alluvium	composite	no
18	NA017R1	rock	MINERALIZED, pyhrrotite + pyrite (?), possible As, Au, Cu, Pb, from Rambler mine	outcrop	composite	yes
19	NA017R2	rock	PROBABLY MINERALIZED, white weathering rind on sulfide boulder, from Rambler mine	mine	grab	yes
20	NA017R3	rock	MINERALIZED, heavy Fe oxide/strong sulfur smell in shear, poss. As,Au,Cu,Pb, from Rambler mine	outcrop	composite	yes
21	KE013R	rock	MINERALIZED, chalcosite, malachite, & azurite on Chitistone Limestone, from Bonanza mine	mine dump	composite	yes
22	KE014R	rock	MINERALIZED, malachite & azurite on Chit. Ls, likely lower grade disgards, from Erie mine	mine dump	composite	yes
23	NA013R3	rock	MAY BE MINERALIZED, white to gray vuggy silica, possible As, Au, Cu, Pb	alluvium	composite	no
24	KE007R	rock	Nikoli Basalt below Bonanza mine for background values	outcrop	composite	no
25	KE009R1	rock	Nikoli Basalt w/ calcite crusts from rain water pool below Kennecott mill	outcrop	composite	yes
26	KE009R2	rock	Nikoli Basalt for background values	outcrop	composite	yes
27	KE010R1	rock	Nikoli Basalt w/ maroon crust, spring below ammonia leach plant, Kennecott mill	outcrop	composite	yes
28	KE011R1	rock	Tertiary (?) quartz porphyry for background values	alluvium	composite	yes
29	KE011R2	rock	siltstone for background values	alluvium	composite	yes

Table 14.--Analytical results for rock samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Ag, ppm-AE	Ag, ppm-PA	Al, pct-AE	As, ppm-AE	As, ppm-PA	As, ppm-HY	Au, ppm-AE	Au, ppm-PA	Au, ppm-GF	Ba, ppm-AE
1	NA001R1	45	60	0.46	960	900	0.0B	< 20	6.3	6.7	13
2	NA001R2	< 4	< 1.2	0.74	1000	860	0.0B	< 20	< 1.5	0.15	< 2
3	NA001R3	15	15	0.38	2000	1800	0.0B	< 20	3.2	1.5	5
4	NA001R4	35	35	0.35	970	470	0.0B	< 20	3.0	3.0	15
5	NA002R1	26	27	0.84	1100	930	0.0B	< 20	4.8	3.6	39
6	NA003R1	110	100	1.7	960	850	0.0B	< 20	8.9	7.4	110
7	NA004R1	54	42	0.36	440	260	0.0B	< 20	12	13	19
8	NA004R2	43	39	0.34	430	220	0.0B	< 20	12	11	17
9	NA005R1	27	25	1.0	870	680	0.0B	< 20	16	14	15
10	NA006R1	14	16	1.4	1500	1500	0.0B	< 20	< 1.5	0.60	23
11	NA006R2	12	12	1.1	760	670	0.0B	< 20	< 1.5	0.45	26
12	NA007R1	25	27	0.97	500	450	0.0B	< 20	3.3	13	9
13	NA007R2	< 4	4.4	2.1	50	< 15	0.0B	< 20	< 1.5	0.20	5
14	NA008R	7	9.2	4.5	< 20	< 15	0.0B	< 20	< 1.5	0.35	97
15	NA010R	16	17	1.6	1200	1100	0.0B	< 20	< 1.5	1.5	6
16	NA013R1	< 4	< 1.2	0.09	3100	3200	0.0B	< 20	< 1.5	0.10	7
17	NA013R2	< 4	< 1.2	0.14	59	50	0.0B	< 20	< 1.5	0.006	5
18	NA017R1	11	14	0.03	31	82	0.0B	< 20	< 1.5	8.0	< 2
19	NA017R2	35	12	0.02	< 20	< 15	6.5	< 20	< 1.5	3.6	4
20	NA017R3	41	42	0.13	98	67	0.0B	< 20	< 1.5	32	5
21	KE013R	640	0.0B	0.24	7900	0.0B	0.0B	< 20	0.0B	0.10	91
22	KE014R	9	9.0	0.10	640	600	0.0B	< 20	< 1.5	< 0.002	7
23	NA013R3	< 4	< 1.2	0.07	23	< 15	0.0B	< 20	< 1.5	0.008	20
24	KE007R	< 4	< 1.2	7.8	< 20	< 15	0.0B	< 20	< 1.5	0.004	55
25	KE009R1	< 4	< 1.2	7.8	< 20	< 15	4.2	< 20	< 1.5	0.002	600
26	KE009R2	< 4	< 0.080	7.5	< 20	< 1.0	3.4	< 20	< 0.10	0.004	270
27	KE010R1	< 4	< 0.080	7.1	< 20	< 1.0	5.3	< 20	< 0.10	0.004	160
28	KE011R1	< 4	< 0.080	7.3	< 20	< 1.0	2.3	< 20	< 0.10	< 0.002	790
29	KE011R2	< 4	0.18	3.8	24	17	18	< 20	< 0.10	< 0.002	530

Table 14.--Analytical results for rock samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Be, ppm-AE	Bi, ppm-AE	Bi, ppm-PA	Ca, pct-AE	Cd, ppm-AE	Cd, ppm-PA	Ce, ppm-AE	Co, ppm-AE	Cr, ppm-AE	Cu, ppm-AE
1	NA001R1	< 2	140	180	8.9	6	4.7	< 8	77	8	1700
2	NA001R2	< 2	< 20	< 15	0.27	58	49	< 8	110	10	4800
3	NA001R3	< 2	57	47	3.0	50	50	< 8	69	6	2800
4	NA001R4	< 2	82	69	5.4	4	2.0	< 8	130	< 2	1200
5	NA002R1	< 2	88	82	11	11	8.9	< 8	33	16	1700
6	NA003R1	< 2	310	280	4.0	< 4	1.2	< 8	36	21	1300
7	NA004R1	< 2	120	100	8.7	< 4	1.6	< 8	12	5	880
8	NA004R2	< 2	92	86	9.3	< 4	1.2	< 8	12	5	710
9	NA005R1	< 2	88	58	13	10	8.7	< 8	41	13	3400
10	NA006R1	< 2	46	49	12	9	7.9	10	20	9	300
11	NA006R2	< 2	33	31	15	7	7.2	< 8	6	6	180
12	NA007R1	< 2	60	48	0.25	< 4	< 0.75	23	< 2	87	300
13	NA007R2	< 2	< 20	< 15	15	7	3.2	31	59	76	5800
14	NA008R	< 2	< 20	< 15	7.7	6	2.4	46	59	90	12000
15	NA010R	< 2	< 20	< 15	6.3	95	94	< 8	33	12	4100
16	NA013R1	< 2	53	38	3.3	4	< 0.75	< 8	20	9	560
17	NA013R2	< 2	< 20	< 15	2.9	5	< 0.75	< 8	31	5	160
18	NA017R1	< 2	36	44	0.04	< 4	1.4	< 8	130	< 2	4400
19	NA017R2	< 2	83	19	0.13	< 4	< 0.75	< 8	24	< 2	1700
20	NA017R3	< 2	220	210	0.48	< 4	< 0.75	< 8	24	< 2	3000
21	KE013R	< 2	< 20	0.0B	10	73	0.0B	< 8	< 2	5	377000
22	KE014R	< 2	< 20	< 15	29	5	4.5	< 8	2	5	10000
23	NA013R3	< 2	< 20	< 15	0.12	< 4	< 0.75	< 8	2	< 2	97
24	KE007R	< 2	< 20	< 15	6.9	< 4	< 0.75	20	50	230	120
25	KE009R1	< 2	< 20	< 15	4.1	< 4	< 0.75	39	28	81	62
26	KE009R2	< 2	< 20	< 1.0	5.5	< 4	< 0.050	24	51	130	92
27	KE010R1	< 2	< 20	< 1.0	5.3	< 4	0.41	33	43	100	170
28	KE011R1	2	< 20	< 1.0	0.23	< 4	< 0.050	10	< 2	< 2	4
29	KE011R2	< 2	< 20	< 1.0	4.1	< 4	< 0.050	11	9	41	56

Table 14.--Analytical results for rock samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Cu, ppm-PA	Eu, ppm-AE	Fe, pct-AE	Ga, ppm-AE	Hg, ppm-CV	Ho, ppm-AE	K, pct-AE	La, ppm-AE	Li, ppm-AE	Mg, pct-AE
1	NA001R1	2000	< 4	21	< 8	0.70	< 8	0.07	< 4	< 4	0.44
2	NA001R2	4500	< 4	19	< 8	0.02	< 8	< 0.02	< 4	4	0.79
3	NA001R3	2800	< 4	23	< 8	0.38	< 8	0.03	< 4	< 4	0.36
4	NA001R4	1100	< 4	29	< 8	1.2	< 8	0.06	< 4	< 4	0.23
5	NA002R1	1700	< 4	13	< 8	0.27	< 8	0.13	< 4	5	0.42
6	NA003R1	1400	< 4	14	< 8	1.5	< 8	0.29	< 4	6	0.56
7	NA004R1	690	< 4	9.6	< 8	0.53	< 8	0.07	< 4	10	0.20
8	NA004R2	750	< 4	10	< 8	0.48	< 8	0.06	< 4	9	0.20
9	NA005R1	3200	< 4	15	< 8	0.15	< 8	0.08	< 4	< 4	0.45
10	NA006R1	330	< 4	13	< 8	1.1	< 8	0.15	5	6	0.56
11	NA006R2	170	< 4	5.7	< 8	0.56	< 8	0.16	5	5	0.44
12	NA007R1	350	< 4	14	< 8	0.03	< 8	0.32	16	6	0.09
13	NA007R2	6200	< 4	26	17	< 0.02	< 8	0.07	14	6	1.0
14	NA008R	13000	< 4	26	21	< 0.02	< 8	0.25	27	13	3.0
15	NA010R	4500	< 4	29	10	0.12	< 8	0.08	< 4	8	0.68
16	NA013R1	660	< 4	45	< 8	< 0.02	< 8	0.14	< 4	< 4	0.30
17	NA013R2	240	< 4	49	13	< 0.02	< 8	0.05	< 4	8	3.9
18	NA017R1	4700	< 4	47	< 8	< 0.02	< 8	< 0.02	< 4	< 4	0.09
19	NA017R2	2100	< 4	43	< 8	< 0.02	< 8	< 0.02	< 4	< 4	0.03
20	NA017R3	2700	< 4	21	< 8	0.03	< 8	0.04	< 4	5	0.09
21	KE013R	0.0B	< 4	3.7	< 8	520	< 8	0.04	< 4	< 4	1.9
22	KE014R	10000	< 4	0.18	< 8	7.0	< 8	< 0.02	< 4	< 4	8.1
23	NA013R3	150	< 4	1.1	< 8	0.03	< 8	0.03	< 4	4	0.11
24	KE007R	150	< 4	7.8	20	0.17	< 8	0.11	8	20	4.1
25	KE009R1	69	< 4	5.6	16	0.11	< 8	1.8	20	14	2.3
26	KE009R2	69	< 4	9.3	17	0.13	< 8	1.0	10	15	3.8
27	KE010R1	160	< 4	8.9	17	0.08	< 8	0.88	12	15	3.2
28	KE011R1	4.8	< 4	0.39	16	< 0.02	< 8	3.1	5	25	0.04
29	KE011R2	53	< 4	2.3	< 8	0.15	< 8	0.77	8	56	0.58

Table 14.--Analytical results for rock samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Mn, ppm-AE	Mo, ppm-AE	Mo, ppm-PA	Na, pct-AE	Nb, ppm-AE	Nd, ppm-AE	Ni, ppm-AE	P, pct-AE	Pb, ppm-AE	Pb, ppm-PA
1	NA001R1	400	< 4	7.3	0.04	< 8	< 8	10	< 0.01	1300	1800
2	NA001R2	2100	< 4	< 1.5	< 0.01	< 8	< 8	16	0.02	40	53
3	NA001R3	1100	< 4	4.4	0.01	< 8	< 8	9	0.01	570	550
4	NA001R4	150	< 4	1.8	0.05	< 8	< 8	12	< 0.01	1500	1500
5	NA002R1	1100	5	9.7	0.14	< 8	< 8	7	0.01	910	910
6	NA003R1	240	25	29	0.48	< 8	< 8	6	0.02	5000	4900
7	NA004R1	170	41	39	0.07	< 8	< 8	< 4	< 0.01	6500	6100
8	NA004R2	130	41	40	0.05	< 8	< 8	< 4	< 0.01	5700	5800
9	NA005R1	1400	< 4	7.2	0.05	< 8	< 8	8	0.02	890	980
10	NA006R1	400	< 4	3.0	0.09	< 8	< 8	< 4	0.01	880	970
11	NA006R2	190	< 4	2.0	0.12	< 8	< 8	< 4	0.01	710	730
12	NA007R1	110	19	24	< 0.01	< 8	11	6	0.06	1600	1600
13	NA007R2	5200	< 4	4.2	< 0.01	< 8	18	9	0.03	11	< 15
14	NA008R	6100	52	48	0.02	< 8	19	12	0.06	< 8	< 15
15	NA010R	2900	50	70	0.10	< 8	< 8	12	0.03	2900	3700
16	NA013R1	230	< 4	6.9	0.02	< 8	< 8	< 4	0.03	12	< 15
17	NA013R2	470	< 4	4.7	0.02	< 8	< 8	4	0.02	< 8	< 15
18	NA017R1	140	< 4	< 1.5	< 0.01	< 8	< 8	< 4	< 0.01	77	83
19	NA017R2	100	< 4	7.6	< 0.01	< 8	< 8	< 4	< 0.01	51	52
20	NA017R3	37	< 4	3.2	0.01	< 8	< 8	< 4	0.02	450	460
21	KE013R	72	13	0.0B	< 0.01	< 8	< 8	< 4	0.90	< 8	0.0B
22	KE014R	92	< 4	1.7	< 0.01	< 8	< 8	< 4	0.02	< 8	< 15
23	NA013R3	38	< 4	< 1.5	< 0.01	< 8	< 8	< 4	< 0.01	< 8	< 15
24	KE007R	1200	< 4	< 1.5	2.5	21	14	91	0.07	< 8	< 15
25	KE009R1	850	< 4	< 1.5	2.7	17	23	45	0.08	8	< 15
26	KE009R2	1400	< 4	0.31	3.0	20	16	69	0.08	< 8	< 1.0
27	KE010R1	1200	< 4	0.26	3.0	19	20	54	0.10	< 8	< 1.0
28	KE011R1	160	< 4	0.14	3.2	11	11	< 4	0.03	19	1.7
29	KE011R2	700	< 4	0.37	0.19	< 8	< 8	26	0.05	< 8	4.5

Table 14.--Analytical results for rock samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	Sb, ppm-PA	Sb, ppm-HY	Sc, ppm-AE	Se, ppm-HY	Sn, ppm-AE	Sr, ppm-AE	Ta, ppm-AE	Th, ppm-AE	Ti, pct-AE	Tl, ppm-AA
1	NA001R1	< 15	11	< 4	3.5	< 10	49	< 80	< 8	0.03	0.40
2	NA001R2	< 15	1.5	< 4	0.9	< 10	5	< 80	< 8	< 0.01	0.90
3	NA001R3	< 15	5.9	< 4	1.9	< 10	21	< 80	< 8	< 0.01	0.60
4	NA001R4	< 15	10	< 4	4.1	< 10	45	< 80	< 8	0.02	0.60
5	NA002R1	< 15	9.5	< 4	1.3	< 10	85	< 80	< 8	0.04	0.45
6	NA003R1	< 15	0.0B	4	3.4	< 10	120	< 80	< 8	0.12	2.2
7	NA004R1	< 15	0.0B	< 4	1.9	< 10	48	< 80	< 8	0.03	0.35
8	NA004R2	< 15	0.0B	< 4	2.0	< 10	48	< 80	< 8	0.03	0.30
9	NA005R1	< 15	8.4	< 4	0.9	< 10	70	< 80	< 8	0.03	0.30
10	NA006R1	17	15	< 4	3.3	< 10	110	< 80	< 8	0.05	1.7
11	NA006R2	< 15	14	< 4	2.0	< 10	170	< 80	< 8	0.05	1.6
12	NA007R1	< 15	11	7	0.7	< 10	6	< 80	< 8	0.10	0.20
13	NA007R2	< 15	3.8	11	1.1	49	45	< 80	< 8	0.11	0.50
14	NA008R	< 15	6.8	9	H	37	72	< 80	< 8	0.14	0.70
15	NA010R	< 15	0.0B	4	1.4	< 10	41	< 80	< 8	0.06	0.50
16	NA013R1	< 15	2.1	< 4	H	< 10	41	< 80	< 8	0.01	2.3
17	NA013R2	< 15	2.3	< 4	2.4	< 10	10	< 80	< 8	0.03	2.2
18	NA017R1	< 15	3.6	< 4	0.6	< 10	< 4	< 80	< 8	< 0.01	0.95
19	NA017R2	< 15	6.8	< 4	0.7	< 10	< 4	< 80	< 8	< 0.01	2.4
20	NA017R3	< 15	14	< 4	1.8	< 10	6	< 80	< 8	< 0.01	0.45
21	KE013R	0.0B	0.0B	< 4	H	< 10	68	< 80	< 8	0.02	0.75
22	KE014R	< 15	1.6	< 4	H	< 10	94	< 80	< 8	< 0.01	< 0.10
23	NA013R3	< 15	0.7	< 4	0.1	< 10	< 4	< 80	< 8	< 0.01	< 0.10
24	KE007R	< 15	0.6	39	0.1	< 10	120	< 80	< 8	1.1	< 0.10
25	KE009R1	< 15	0.8	23	0.3	< 10	240	< 80	< 8	0.71	0.25
26	KE009R2	< 1.0	0.5	41	0.3	< 10	230	< 80	< 8	1.2	0.10
27	KE010R1	< 1.0	0.5	36	0.2	< 10	210	< 80	< 8	1.1	0.10
28	KE011R1	< 1.0	0.6	< 4	0.1	< 10	49	< 80	< 8	0.02	0.45
29	KE011R2	< 1.0	2.4	9	0.5	< 10	130	< 80	< 8	0.20	0.20

Table 14.--Analytical results for rock samples from the Nabesna and Kennecott areas, Alaska.

Index	FieldNo	U, ppm-AE	V, ppm-AE	W, ppm-IE	Y, ppm-AE	Yb, ppm-AE	Zn, ppm-AE	Zn, ppm-PA
1	NA001R1	< 200	9	2.2	< 4	< 2	390	520
2	NA001R2	< 200	< 4	6.8	< 4	< 2	2900	2700
3	NA001R3	< 200	5	6.7	< 4	< 2	2400	2700
4	NA001R4	< 200	< 4	1.4	< 4	< 2	200	190
5	NA002R1	< 200	20	3.6	< 4	< 2	810	810
6	NA003R1	< 200	28	4.8	< 4	< 2	300	300
7	NA004R1	< 200	10	5.7	< 4	< 2	180	170
8	NA004R2	< 200	8	6.6	< 4	< 2	120	100
9	NA005R1	< 200	18	4.7	< 4	< 2	720	810
10	NA006R1	< 200	26	3.9	< 4	< 2	980	1100
11	NA006R2	< 200	22	2.3	< 4	< 2	420	450
12	NA007R1	< 200	72	16	< 4	< 2	130	160
13	NA007R2	< 200	43	15	17	< 2	820	880
14	NA008R	< 200	95	16	8	< 2	900	930
15	NA010R	< 200	52	H	< 4	< 2	7300	8400
16	NA013R1	< 200	21	22	< 4	< 2	25	21
17	NA013R2	< 200	7	< 1.0	< 4	< 2	20	22
18	NA017R1	< 200	< 4	1.4	< 4	< 2	140	160
19	NA017R2	< 200	< 4	< 1.0	< 4	< 2	40	53
20	NA017R3	< 200	4	< 1.0	< 4	< 2	57	61
21	KE013R	< 200	< 4	< 1.0	< 4	< 2	260	0.0B
22	KE014R	< 200	< 4	1.2	< 4	< 2	< 4	12
23	NA013R3	< 200	5	< 1.0	< 4	< 2	53	43
24	KE007R	< 200	340	< 1.0	20	3	140	150
25	KE009R1	< 200	210	< 1.0	19	< 2	61	46
26	KE009R2	< 200	390	< 1.0	23	2	87	64
27	KE010R1	< 200	360	< 1.0	25	3	83	65
28	KE011R1	< 200	< 4	< 1.0	4	< 2	14	9.5
29	KE011R2	< 200	85	< 1.0	9	< 2	73	74