UNITED STATES DEPARTMENT OF THE INTERIOR

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# Geochemical signatures, analytical results, mineralogical data, and sample locality map of placer and lode gold, and heavy-mineral concentrates from the Fortymile mining district, Eagle quadrangle, Alaska

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## INTRODUCTION

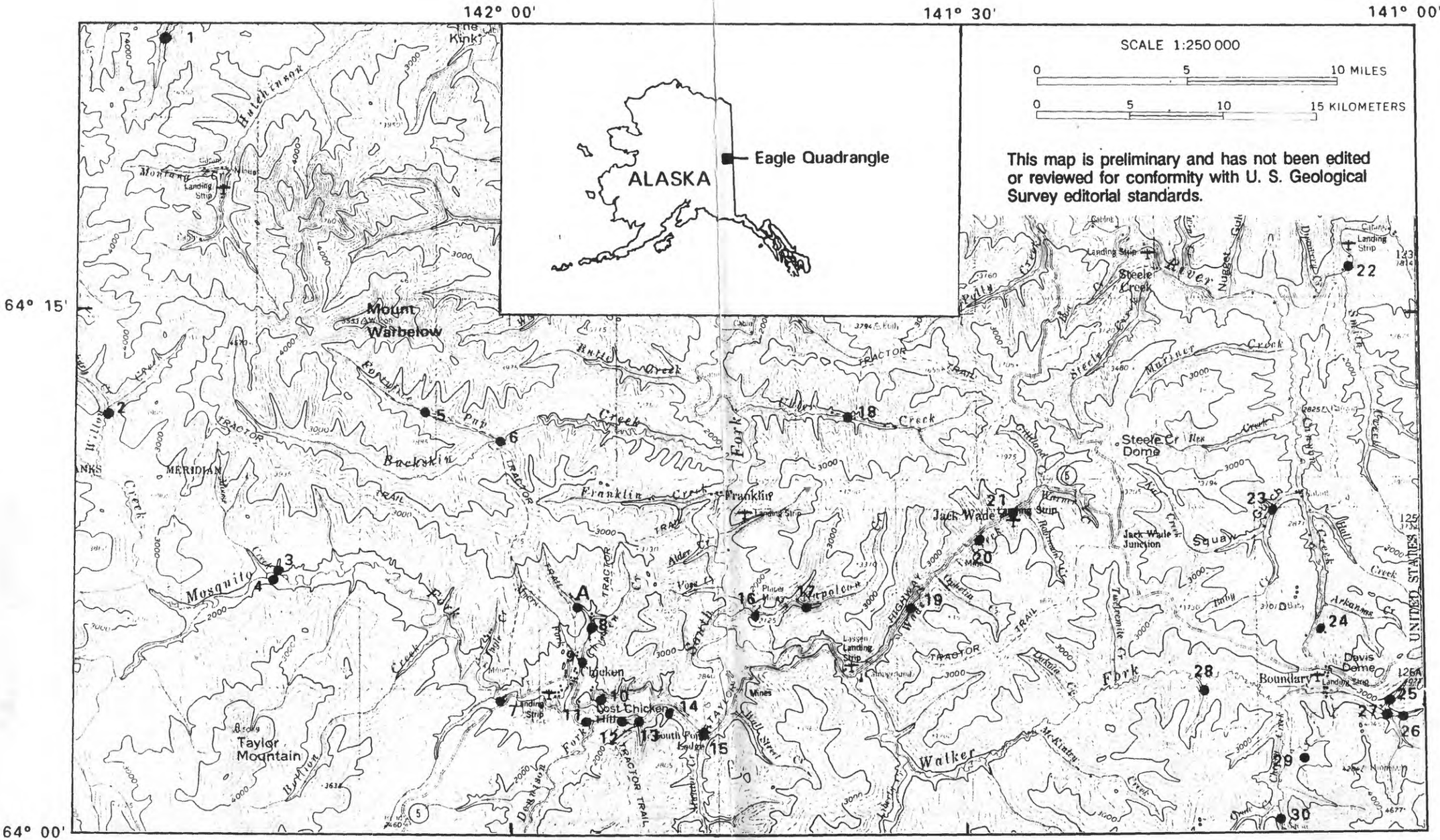
Geochemical studies of Alaskan gold deposits were begun in 1984 as a joint study by the U.S. Geological Survey and the State of Alaska Division of Geological and Geophysical Surveys (D.G.G.S.). The objectives of the study are (1) to characterize the deposits, (2) to determine relationships of gold in placer deposits to possible lode sources, (3) to identify possible sources of gold in placer deposits, (4) to study processes of placer formation, (5) to contribute to existing knowledge of the principles of prospecting for placer deposits, and (6) to determine if minerals associated with placer deposits might suggest economic deposits of other metals. The purpose of this report is to release both the analytical data and gold signatures for placer and lode gold samples and also the analytical data and mineralogy of heavy-mineral-concentrate samples from placer gold deposits of the Fortymile mining district in Alaska. Gold signatures comprise the alloy proportions and ratios of gold, silver, and copper, and the content of trace elements (Antweiler and Campbell, 1976).

## SAMPLING AND ANALYTICAL PROCEDURE

Placer and lode gold samples and associated heavy-mineral concentrates from stream-sediment samples were obtained from most of the active claims in the Fortymile mining district. At some localities, miners provided us with ample amounts of gold for analysis and at other localities the samples were collected by Mary Albanese and Larry Lueck of the D.G.G.S. To determine whether differences in composition could be correlated with physical attributes, these samples were handled in various ways. Some were sieved into two or more size ranges; others were separated by color; and some were separated on the basis of physical characteristics, e.g., rounded, angular, blocky, (3-D nuggety) delicate, etc. Self-explanatory, descriptive information is included in table 1. Where no descriptive information is provided, the samples were generally small, and no sorting of individual grains was attempted prior to analysis.

A total of 250 emission spectrographic analyses using a technique described by Mosier (1975) were made on gold samples from 31 mines and prospects. These are the numbered and lettered sites on the sample location map (fig. 1) and correspond to the locality index (table 1). The elements analyzed and their lower limits of determination are listed on table 2. Spectrographic results were obtained by visual comparison of spectra derived from the sample against spectra obtained from standards made from pure oxides, graphite, and 99.999 percent pure metallic gold. Pure $Al_2O_3$ was added to the standards and samples as a codistillation agent. Standard concentrations are geometrically spaced over any given order of magnitude of concentration as follows: 100, 50, 20, 10, and so forth. Samples whose concentrations are estimated to fall between those values are assigned values of 70, 30, 15, and so forth. Standard concentrations are based on a 5-mg gold sample weight. Because of the nature of native gold, it is often difficult to weigh exact 5-mg samples and in many instances there is less than 5-mg of gold available for analysis. Therefore, the reported concentration values (table 2) are corrected to reflect a 5-mg sample weight by the following formula:

$$\text{reported concentration value} = \text{determined value} \times \frac{5}{\text{sample weight}} .$$




Base from the Geological Survey; Eagle quadrangle

FIG.1 LOCALITIES OF GOLD SAMLPLES FROM THE FORTY-MILE MINING DISTRICT, EAGLE QUADRANGLE, ALASKA

## EXPLANATION

●3--Locality where placer gold sample collected.

●A--Locality where lode gold sample collected.

Locality Index

| | |
|---|---|
| A | Stonehouse Creek |
| 1 | Bullion Creek |
| 2 | Willow Creek; below Porphyry Creek |
| 3 | Unnamed Creek; 1/2 mile east of Moose Creek |
| 4 | Mosquito Fork, below Moose Creek |
| 5 | Fortyfive Pup |
| 6 | Buckskin Creek, below Fortyfive Pup |
| 7 | Mosquito Fork, 1/2 mile west of Taylor Highway |
| 8 | Chicken Creek, at Stonehouse Creek |
| 9 | Chicken Creek bench, above Myers Fork |
| 10 | Lost Chicken Creek |
| 11 | Mosquito Fork, above Dennison Fork |
| 12 | South Fork, I |
| 13 | South Fork, II |
| 14 | South Fork, III |
| 15 | South Fork, at Atwater Creek |
| 16 | Napoleon Creek, I |
| 17 | Napoleon Creek, II |
| 18 | Uhler Creek |
| 19 | Wade Creek, 1/2 mile below Ophelia Creek |
| 20 | Wade Creek, below Jefferson Creek |
| 21 | Wade Creek, at Robinson Creek |
| 22 | Fortymile River, above Smith Creek |
| 23 | Squaw Gulch, 1 mile above Canyon Creek |
| 24 | Canyon Creek, above Woods Creek |
| 25 | Davis Creek |
| 26 | Poker Creek, above Younger Creek |
| 27 | Poker Creek, below Younger, above Davis Creek |
| 28 | Walker Fork, at "Ruins" |
| 29 | Turk Creek |
| 30 | Cherry Creek, above Crow Creek |

The trace-element content of natural gold varies greatly from grain to grain as well as from deposit to deposit and this creates a problem in determining the precision of the analytical technique. However, studies using artificial melts show that the precision of the analytical method far exceeds the natural variance of trace elements in native gold (Mosier, 1975).

Heavy-mineral-concentrate samples were obtained at most sites by wet-sieving stream sediment through a stainless-steel screen with a mesh opening of 2 mm into a 14-in steel gold pan and by panning the minus-10-mesh material. In the laboratory, the panned concentrate was air dried and sieved through a 30-mesh (0.8-mm) sieve. This sieving procedure greatly reduces the amount of sample that has to be further processed because most rock-forming mineral grains found in stream sediment are larger than 30-mesh (0.8 mm) and most ore-mineral grains are smaller than 30-mesh (0.8 mm) size.

The minus-30-mesh fraction of the heavy-mineral concentrate was scanned visually using a binocular microscope and shortwave ultraviolet light to identify ore-related minerals. In most cases, the mineral grains could be identified from their physical properties, but x-ray diffraction was used to confirm some species. This visual examination is an important adjunct to the spectrographic analyses because the particulate nature of this sample medium pose problems for both the sample preparer and the analyst. A 5-mg split of finely pulverized sample is normally used for the spectrographic analysis; however, malleable metals such as gold, silver, and copper may be poorly represented in the sample because of smearing out on the pulverizer components. Another benefit of the visual examination is identification of artifacts such as bullet and solder fragments, wire, or other man-made contaminants. It is desirable to be aware of these contaminants as they can give inflated values of the ore-related elements in the spectrographic results.

The minus-30-mesh fractions of the heavy-mineral-concentrate samples were analyzed for 31 elements using a semiquantitative, direct-current arc emission spectrographic method (Grimes and Marranzino, 1968). The elements analyzed and their lower and upper limits of determination are listed in table 3. As with the analytical method for gold, spectrographic results were obtained by visual comparison of spectra derived from the samples against spectra obtained from standards made from pure oxides and carbonates with the same geometrical spacing of concentrations. The precision of the analytical method for the minus-30-mesh fractions is approximately plus or minus one reporting interval at the 83 percent confidence level and plus or minus two reporting intervals at the 96 percent confidence level (Motooka and Grimes, 1976).

## RELIABILITY OF GOLD ANALYSES

Differences in the composition of native gold from different geological settings can readily be distinguished using the analytical procedures mentioned above if enough analyses are made to ascertain the magnitude of natural variations in gold samples. In this study five or more spectrographic analyses were found desirable for a single sample site to obtain a signature in which one can place confidence. However, in the context of many other analyses from this district, a single analysis is of value.

The composition of native gold varies considerably (for example, see Gay, 1963; Jones and Fleischer, 1969). Variations in composition are present even from point to point within the same grain (Desborough, 1970). Native gold in oxidized zones and in associated placers generally contains lesser amounts of silver and other elements compared with the native gold in the corresponding

primary deposits; within some specific deposits, single particles of native gold are relatively homogeneous, but in other deposits the native gold is heterogeneous (Boyle, 1979). Because variations in gold composition are natural rather than analytical, they are worthy of study, particularly so their significance can be understood. In spite of the variations, gold compositional data are useful in that they help characterize conditions of ore deposition and are commonly locally distinctive for mines, districts, or regions. Moreover, they are useful in determining the relationships of gold in placer deposits to possible lode sources, and in meeting the other objectives stated in the introductory section of this report.

The natural variability of analyses for Ag and Cu in gold from a single locality was determined by repeatedly analyzing portions of single nuggets (Mosier, 1975; Antweiler and Campbell, 1987). They found silver content of one such nugget ranged from 4.7 to 8.1 percent in four analyses with a mean silver content of 5.7 percent, and a standard deviation (S.D.) of ±1.6 percent and the copper content of this nugget ranged from .048 to .08 percent with a mean copper content of .062 percent, and a standard deviation of ±.0144 percent. Replicate analyses of portions of another nugget from the same locality showed silver content of 18.9 to 19.8 percent with a mean silver content of 19.3 percent, a standard deviation of ±0.56 percent and copper content .038 to .055 percent with a mean of .047 percent, and a standard deviation of ±.012 percent. Such analytical results indicated considerable natural variability. Another nugget from the same locality was washed with hydrofluoric acid to remove surface coatings, then heated to 1300 °C for 30 minutes to homogenize silver and copper content. Analysis of ten 5-mg portions of that nugget each time showed excellent precision; 10 percent silver, (S.D.=0) and 0.05 percent copper (S.D.=0). Prior to acid washing and heat treating, ten 5-mg portions ranged in silver content from 1.5 to 15 percent and in copper content from .015 to .05 percent indicating their natural variation (Mosier, 1975). The concentration of other elements in nuggets from the locality ranged somewhat more widely than copper and silver, even after the homogenization treatment. Significantly, however, the mean values for most elements, including copper and silver, were almost the same on 10 analyses of the natural sample as the mean values for those elements on the homogenized sample, except for elements removed by the acid and heat treatment.

Accuracy is much more difficult to determine than precision because homogeneous gold samples with known amounts of impurities are not readily available. However, standards prepared with known amounts of copper and silver show the method to be accurate within a factor of two in determination of those elements (Mosier, 1975).

One test for reliability of the method is comparison of fineness on samples from localities where large lots of gold have been analyzed for the U.S. Mint or by banks or commercial refiners who have purchased gold. Compilations of gold fineness data have been made by Smith (1941) and by Metz and Hawkins (1981). Also, the First National Bank in Fairbanks made available to us records of gold purchases from 1903 to 1937 from many Alaskan placer deposits. These compilations show excellent agreement for some areas with each other, and poor agreement in other areas. The U.S. Geological Survey data, although acquired by analyses of relatively small samples, agree as well as the data from those sources and are therefore reliable to the extent permitted by natural variation of gold composition.

## DESCRIPTION OF DATA TABLES

The analytical results for placer and lode gold (table 4) are given in weight percent and are presented by site numbers and gold type which are keyed to table 1. The USGS-assigned sample number is given under sample. When sufficient gold was available from a particular site, multiple analyses were made and the results are listed. For this study, fineness is defined as:

$$\text{fineness} = \frac{\text{Au wt\%}}{\text{Au wt\% + Ag wt\%}} \times 1{,}000 .$$

The gold value was determined by difference, that is:

$$\text{Au\%} = 100-(\text{Ag\%} + \text{X\%}),$$

where X% is the sum of elements other than gold and silver. If an element was not detected at the lower limit of detection, a -- was entered. The actual weight in milligrams of the gold sample analyzed is given under wt. The values under r = Au/Ag, Au/Cu, Ag/Cu, and r/Cu are self-explanatory alloy ratios that are part of the gold signature (Antweiler and Campbell, 1976). Because the corrected values shown in table 4 are computer-generated data, these results often carry more digits than are significant. The analysts did not determine these values to the accuracy suggested by the extra numbers.

Table 5 lists the results of the analyses for the minus-30-mesh fraction of the heavy-mineral-concentrate samples and are presented by localities. No analytical data on heavy-mineral concentrates were obtained from sites A, 3, 4, 12, 16, 21, and 22. Values determined for the major elements (iron, magnesium, calcium, and titanium) are given in weight percent; all others are given in parts per million (micrograms/gram). The USGS-assigned sample number corresponds to the placer gold sample number.

Table 6 shows the mineralogical results of the heavy-mineral-concentrate samples. No mineralogical data were obtained from sites A, 3, 4, 12, 16, 21, and 22. The percentages determined for the pyrite and scheelite are visual estimates as seen in the microscope field under 20X magnification and do not reflect actual grain counts. If a mineral species was observed in the sample and determined to be less than 1% by volume of the total nonmagnetic sample, an "X" is used. This table indicates only those minerals that we believe may be ore-related and does not show extraneous minerals such as apatite, sphene, zircon, etc., most of which appeared in all samples.

## OTHER PUBLICATIONS

Other U.S. Geological Survey publications showing principally analytical results, geochemical signatures, mineralogical data, and sample locality maps of placer/lode gold and heavy-mineral concentrates from other gold mining districts in Alaska are:

1. Mosier, E.L., and Lewis, J.S., 1986, Analytical results, geochemical signatures, and sample locality map of lode gold, placer gold, and heavy-mineral concentrates from the Koyukuk-Chandalar mining district, Alaska: U.S. Geological Survey Open-File Report 86-345, 172 p., 1 pl.

2. Cathrall, J.B., Antweiler, J.C., and Mosier, E.L., 1987, Occurrence of platinum in gold samples from the Tolovana and Rampart mining districts, Livengood quadrangle, Alaska: U.S. Geological Survey Open-File Report 87-330, 12 pages, 1 pl.
3. McDanal, S.K., Cathrall, J.B., Mosier, E.L., Antweiler, J.C., and Tripp, R.B., 1988, Analytical results, geochemical signatures, mineralogical data, and sample locality map of placer gold and heavy-mineral concentrates from the Manley Hot Springs, Tofty, Eureka, and Rampart mining districts, Tanana and Livengood quadrangles, Alaska: U.S. Geological Survey Open-File Report 88-443, 54 p.
4. Cathrall, J.B., McDanal, S.K., Van Trump G., Mosier, E.L., and Tripp, R.B., 1988, Analytical results, geochemical signatures, mineralogical data, and sample locality map of lode gold, placer gold, and heavy-mineral concentrates from the Tolovana mining district, Livengood quadrangle, Alaska: U.S. Geological Survey Open-File Report 88-578, 32 p.
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6. Mosier, E.L., Cathrall, J.B., Antweiler, J.C., and Tripp, R.B., 1989, Geochemistry of placer gold, Koyukuk-Chandalar mining district, Alaska: Journal of Geochemical Exploration, v. 31, p. 97-115.

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Jones, R.S., and Fleischer, Michael, 1969, Gold in minerals and the composition of native gold: U.S. Geological Survey Circular 612, 17 p.

Metz, Paul A., and Hawkins, D.B., 1981, A summary of gold fineness values for Alaska Placer deposits: School of Mineral Industry, University of Alaska, Fairbanks, Alaska 99701, MIRL Report 45.

Mosier, E.L., 1975, Use of emission spectroscopy for the semiquantitative analysis of trace elements and silver in native gold, in F.N. Ward, ed., New and refined methods of trace analysis useful in geochemical exploration: U.S. Geological Survey Bulletin 1408, p. 97-105.

Motooka, J.M., and Grimes, D.J., 1976, Analytical precision of one-sixth order semiquantitative spectrographic analyses: U.S. Geological Survey Circular 738, 25 p.

Smith, P.S., 1941, Fineness of gold from Alaska placers: U.S. Geological Survey Bulletin 910-C, p. 147-272.

TABLE 1.--Index for site, type of gold, locality name, and gold description for placer gold and lode gold samples from the Fortymile mining district, Eagle quadrangle, Alaska

[A = lode gold site; 1-30 = placer gold site]

| Site type | Locality name | Gold description |
|---|---|---|
| A.01 | Stonehouse Creek | Unsorted gold. |
| 1.01 | Bullion Creek | Plus 20-mesh gold; 3-D grains. |
| 1.02 | --Do--------- | Minus 20-, plus 60-mesh gold; flat thin flakes. |
| 2.01 | Willow Creek, below Porphyry Creek. | Plus 20-mesh gold; secondary crystals present. |
| 2.02 | --Do---------- | Minus 20-mesh, plus 60-mesh gold. |
| 3.01 | Unnamed Creek, 1/2 mile east of Moose Creek | Unsorted gold; very shiny, light yellow. |
| 4.01 | Mosquito fork, below Moose Creek | Unsorted gold. |
| 5.01 | Forty-five Pup | Plus 20-mesh gold; 3-D grains. |
| 5.02 | --Do---------- | Plus 20-mesh gold; flat thin, ragged flakes. |
| 5.03 | --Do---------- | Minus 20-, plus 60-mesh gold. |
| 6.01 | Buckskin Creek, below Forty-five Pup | Plus 20-mesh gold; 3-D grains. |
| 6.02 | --Do---------- | Minus 20-, plus 60-mesh gold; 3-D grains with crystals. |
| 6.03 | --Do---------- | Minus 20-, plus 60-mesh gold; flat, thin, little wear, flakes. |
| 7.01 | Mosquito Fork, 1/2 mile west of Taylor Highway | Plus 20-mesh gold; flat flakes. |
| 7.02 | --Do---------- | Plus 20-mesh gold; nuggets with quartz. |
| 7.03 | --Do---------- | Minus 20-, plus 60-mesh gold; flat flakes. |
| 7.04 | --Do---------- | Minus 60-, plus 100-mesh gold. |
| 8.01 | Chicken Creek, at Stonehouse Creek | Plus 20-mesh gold; little worn. |
| 8.02 | --Do---------- | Minus 20-, plus 60-mesh gold; little worn. |
| 8.03 | --Do---------- | Minus 20-, plus 60-mesh gold; flat, thin, little worn |
| 8.04 | --Do---------- | Minus 60-, plus 100-mesh gold. |
| 8.05 | --Do---------- | Minus 100-mesh gold. |
| 9.01 | Chicken Creek bench, above Myers Fork | Plus 20-mesh gold; ragged, thin, delicate, little worn. |
| 9.02 | --Do---------- | Minus 20-, plus 60-mesh gold; flat, thin, delicate, white to light yellow. |
| 9.03 | --Do---------- | Unsorted gold. |
| 9.04 | --Do---------- | Flat, delicate, flakes of gold. |
| 9.05 | --Do---------- | Minus 60-, plus 100-mesh gold. |
| 9.06 | --Do---------- | Minus 60-, plus 100-mesh gold; dirty, specularite grains present. |
| 9.07 | --Do---------- | Minus 160-mesh gold; dirty, specularite grains present. |
| 10.01 | Lost Chicken Creek | Plus 20-mesh gold; flat grains. |
| 10.02 | --Do---------- | Minus 20-, plus 60-mesh gold; 3-D grains. |
| 10.03 | --Do---------- | Minus 20-, plus 60-mesh gold; flat grains. |

TABLE 1--Continued

| | | |
|---|---|---|
| 10.04 | --Do---------- | Minus 60-mesh gold. |
| 11.01 | Mosquito Fork, above Dennison Fork | Plus 20-mesh gold; flat. |
| 11.02 | --Do---------- | Plus 20-mesh gold; colloform. |
| 11.03 | --Do---------- | Minus 20-, plus 60-mesh gold. |
| 11.04 | --Do---------- | Minus 60-, plus 100-mesh gold. |
| 12.01 | South Fork, I | Flat, thin, worn, flakes of gold. |
| 13.01 | South Fork, II | Minus 20-, plus 60-mesh gold; flat, thin, worn grains. |
| 13.02 | --Do---------- | Minus 60-mesh gold. |
| 14.01 | --Do---------- | Plus 20-mesh gold; flat flakes. |
| 14.02 | --Do---------- | Plus 25-mesh gold; 3-D grains. |
| 14.03 | --Do---------- | Minus 25-mesh gold. |
| 15.01 | South Fork, at Atwater Creek | Flat, thin flakes of gold. |
| 16.01 | Napoleon Creek, I | Minus 20-mesh gold; flat, thin, well worn. |
| 16.02 | --Do---------- | Plus 20-mesh gold. |
| 17.01 | Napoleon Creek, II | Plus 20-mesh gold; flat flakes. |
| 17.02 | --Do---------- | Plus 20-mesh gold; nuggety grains. |
| 17.03 | --Do---------- | Minus 20-, plus 60-mesh gold; flat, thin, little wear. |
| 17.04 | --Do---------- | Minus 20-, plus 60-mesh gold; 3-D grains, little wear. |
| 17.05 | --Do---------- | Minus 60-mesh gold. |
| 18.01 | Uhler Creek | Unsorted gold. |
| 18.02 | --Do------- | Plus 20-mesh gold; whitish yellow. |
| 18.03 | --Do------- | Plus 20-mesh gold; quartz. |
| 18.04 | --Do------- | Plus 20-mesh gold; magnetite intergrowths, 3-D nuggets. |
| 18.05 | --Do------- | Plus 20-mesh gold; flattened wires. |
| 18.06 | --Do------- | Minus 20-, plus 60-mesh gold; vermillion tipped grains. |
| 18.07 | --Do------- | Minus 20-, plus 60-mesh gold. |
| 18.08 | --Do------- | Minus 60-, plus 100-mesh gold. |
| 18.09 | --Do------- | Minus 100-mesh gold. |
| 19.01 | Wade Creek, 1 1/2 mile below Ophelia Creek | Plus 20-mesh gold; discolored, 3-D grains. |
| 19.02 | --Do---------- | Plus 20-mesh gold; flat, worn grains. |
| 19.03 | --Do---------- | Minus 20-, plus 60-mesh gold; discolored, 3-D grains. |
| 19.04 | --Do---------- | Minus 20-, plus 60-mesh gold; flat, thin flakes. |
| 19.05 | --Do---------- | Minus 60-, plus 100-mesh gold. |
| 20.01 | Wade Creek, below Jefferson Creek | Unsorted gold. |
| 20.02 | --Do---------- | Crinkly, pitted wires, delicate gold. |
| 20.03 | --Do---------- | Plus 20-mesh gold; flat, rough. |
| 20.04 | --Do---------- | Plus 20-mesh gold; 3-D grains. |
| 20.05 | --Do---------- | Plus 20-mesh gold; flat grains. |
| 21.01 | Wade Creek at Robinson Creek | Unsorted gold. |
| 22.01 | Fortymile River; above Smith Creek | Plus 20-mesh gold; flat flakes |
| 22.02 | --Do---------- | Plus 20-mesh gold; rusty, flat flakes. |

TABLE 1.--Continued

| | | |
|---|---|---|
| 22.03 | --Do---------- | Minus 20-, plus 60-mesh gold; flat, thin grains. |
| 22.04 | --Do---------- | Minus 60-, plus 100-mesh gold. |
| 22.05 | --Do---------- | Minus 100-mesh gold. |
| 23.01 | Squaw Gulch, 1 mile above Canyon Creek | Unsorted gold. |
| 24.01 | Canyon Creek, above Woods Creek | Unsorted gold. |
| 25.01 | Davis Creek | Minus 20-, plus 60-mesh gold; bright yellow grains. |
| 25.02 | --Do---------- | Minus 20-, plus 60-mesh gold; dull yellow to whitish grains. |
| 25.03 | --Do---------- | Minus 20-, plus 60-mesh gold. |
| 25.04 | --Do---------- | Minus 60-mesh gold. |
| 26.01 | Poker Creek, above Younger Creek | Plus 20-mesh gold; flat, not worn. |
| 26.02 | --Do---------- | Minus 20-, plus 60-mesh gold. |
| 26.03 | --Do---------- | Minus 20-, plus 60-mesh gold; white to light yellow |
| 26.04 | --Do---------- | Minus 20-, plus 60-mesh gold; rusty yellow. |
| 27.01 | Poker Creek, below Younger, above Doves Creek | Minus 20-mesh gold. |
| 27.02 | --Do---------- | Plus 20-mesh gold. |
| 27.03 | --Do---------- | Unsorted gold. |
| 27.04 | --Do---------- | Gold with greyish white metal; lead. |
| 28.01 | Walker Fort at Ruins | Plus 20-mesh gold; flat grains. |
| 28.02 | --Do---------- | Minus 20-, plus 60-mesh gold; yellow flat grains. |
| 28.03 | --Do---------- | Minus 20-, plus 60-mesh gold; whitish yellow. |
| 28.04 | --Do---------- | Minus 60-, plus 100-mesh gold. |
| 29.01 | Turk Creek | Unsorted gold. |
| 30.01 | Cherry Creek, above Crow Creek | Plus 20-mesh gold; intricate slightly worn. |
| 30.02 | --Do---------- | Plus 20-mesh gold; bright, fresh crystals on surface of rounded grains. |
| 30.03 | --Do---------- | Unsorted gold. |

TABLE 2.--Lower limits of determination for the spectrographic analyses of gold, based on a 5-mg sample

| Elements | Lower determination limit |
|---|---|
| | Percent |
| Silver (Ag) | 0.001 |
| Copper (Cu) | .0005 |
| Zinc (Zn) | .005 |
| Gallium (Ga) | .0002 |
| Lead (Pb) | .0002 |
| Arsenic (As) | .005 |
| Antimony (Sb) | .002 |
| Cadmium (Cd) | .0002 |
| Bismuth (Bi) | .0002 |
| Indium (In) | .0005 |
| Mercury (Hg) | .002 |
| Tellurium (Te) | .005 |
| Nickel (Ni) | .0005 |
| Cobalt (Co) | .0005 |
| Tin (Sn) | .0005 |
| Molybdenum (Mo) | .0005 |
| Germanium (Ge) | .0005 |
| Platinum (Pt) | .001 |
| Palladium (Pd) | .0002 |
| Barium (Ba) | .0005 |
| Strontium (Sr) | .01 |
| Zirconium (Zr) | .0005 |
| Vanadium (V) | .001 |
| Chromium (Cr) | .001 |
| Yttrium (Y) | .0005 |
| Lanthanum (La) | .002 |
| Scandium (Sc) | .0005 |
| Niobium (Nb) | .001 |
| Boron (B) | .0005 |
| Tantalum (Ta) | .005 |
| Beryllium (Be) | .0001 |
| Tungsten (W) | .005 |
| Manganese (Mn) | .0001 |
| Iron (Fe) | .001 |
| Magnesium (Mg) | .0005 |
| Calcium (Ca) | .001 |
| Titanium (Ti) | .001 |
| Silicon (Si) | .0002 |

TABLE 3.--Limits of determination for the spectrographic analyses of heavy-mineral concentrates, based on a 5-mg sample

| Elements | Lower determination limit | Upper determination limit |
|---|---|---|
| | Percent | |
| Calcium (Ca) | 0.1 | 50 |
| Iron (Fe) | .1 | 50 |
| Magnesium (Mg) | .05 | 20 |
| Calcium (Ca) | .1 | 50 |
| Titanium (Ti) | .005 | 2 |
| Sodium (Na) | .5 | 10 |
| Phosphorus (P) | .5 | 20 |
| | Parts per million | |
| Manganese (Mn) | 20 | 10,000 |
| Silver (Ag) | 1 | 10,000 |
| Arsenic (As) | 500 | 20,000 |
| Gold (Au) | 20 | 1,000 |
| Boron (B) | 20 | 5,000 |
| Barium (Ba) | 50 | 10,000 |
| Beryllium (Be) | 2 | 2,000 |
| Bismuth (Bi) | 20 | 2,000 |
| Cadmium (Cd) | 50 | 1,000 |
| Cobalt (Co) | 20 | 5,000 |
| Chromium (Cr) | 20 | 10,000 |
| Copper (Cu) | 10 | 50,000 |
| Gallium (Ga) | 10 | 1,000 |
| Germanium (Ge) | 20 | 200 |
| Lanthanum (La) | 100 | 2,000 |
| Molybdenum (Mo) | 10 | 5,000 |
| Niobium (Nb) | 50 | 5,000 |
| Nickel (Ni) | 10 | 10,000 |
| Lead (Pb) | 20 | 50,000 |
| Antimony (Sb) | 200 | 20,000 |
| Scandium (Sc) | 10 | 200 |
| Tin (Sn) | 20 | 2,000 |
| Strontium (Sr) | 200 | 10,000 |
| Vanadium (V) | 20 | 20,000 |
| Tungsten (W) | 50 | 20,000 |
| Yttrium (Y) | 20 | 5,000 |
| Zinc (Zn) | 500 | 20,000 |
| Zirconium (Zr) | 20 | 2,000 |
| Thorium (Th) | 200 | 5,000 |
| Palladium (Pd) | 5 | 1,000 |
| Platinum (Pt) | 20 | 1,000 |

TABLE 4.--Signatures of placer and lode gold from the Fortymile mining district, Eagle quadrangle, Alaska

[Fine = fineness where fineness = $\frac{Au\%}{Au\% + Ag\%}$ x 1,000; x = sum of elements other than gold and silver; wt = sample weight in milligrams; all element and X values are given in percent; Ge, Sr, Sc, and Ta analyzed, but not detected; analyst: E.L. Mosier. See table 1 for locality name and gold description which corresponds with site locality and analysis.]

| Sample | SiteNo | % Au | Fineness | Ag | SUM of X | Cu | Zn | Ga | Pb | As | Sb | Cd | Bi | Hg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3405A | A.01 | 85.4 | 916 | 7.8 | 6.8030 | .0022 | -- | -- | .0011 | -- | -- | -- | -- | .3348 |
| 3405B | A.01 | 79.1 | 856 | 13.4 | 7.5458 | .0057 | -- | -- | .0057 | -- | -- | -- | -- | .3817 |
| 3411B | 1.01 | 85.8 | 882 | 11.5 | 2.6954 | .0057 | -- | -- | .0034 | -- | -- | -- | -- | .0172 |
| 3411NA | 1.02 | 89.7 | 900 | 10.0 | .2579 | .0100 | -- | -- | .0005 | -- | -- | -- | -- | .0100 |
| 3411NB | 1.02 | 87.4 | 897 | 10.0 | 2.5730 | .0050 | -- | -- | .0030 | -- | -- | -- | -- | .3000 |
| 3411NC | 1.02 | 84.4 | 849 | 15.0 | .5574 | .0050 | -- | -- | .0002 | -- | -- | -- | -- | .0100 |
| 3414A | 2.01 | 84.7 | 850 | 15.0 | .3318 | .0050 | -- | -- | .0003 | -- | -- | -- | -- | .1000 |
| 3414C | 2.01 | 95.2 | 956 | 4.3 | .4391 | .0174 | -- | -- | .0003 | -- | -- | -- | .0006 | .0609 |
| 3414NA | 2.02 | 88.8 | 899 | 10.0 | 1.2185 | .0150 | -- | -- | .0010 | -- | -- | -- | .0010 | .0700 |
| 3414NB | 2.02 | 88.4 | 898 | 10.0 | 1.5650 | .0150 | -- | -- | .0005 | -- | -- | -- | -- | .3000 |
| 3414NC | 2.02 | 92.6 | 930 | 7.0 | .3864 | .0200 | -- | -- | .0007 | -- | -- | -- | .0005 | .2000 |
| 3387A | 3.01 | 91.3 | 916 | 8.4 | .3745 | .0239 | .0239 | -- | .0084 | -- | -- | .0006 | .0012 | .1790 |
| 3387B | 3.01 | 90.1 | 912 | 8.7 | 1.1624 | .0435 | .0261 | -- | .0087 | -- | -- | .0013 | .0061 | .8696 |
| 3387C | 3.01 | 88.2 | 898 | 10.0 | 1.7942 | .0301 | .0502 | -- | .0100 | -- | -- | .0030 | .0010 | 1.5060 |
| 3408A | 4.01 | 89.6 | 927 | 7.1 | 3.3535 | .0071 | -- | .0002 | .0005 | -- | -- | -- | -- | 3.0242 |
| 3408B | 4.01 | 92.6 | 930 | 7.0 | .3794 | .0300 | -- | .0002 | .0005 | -- | -- | -- | -- | .2000 |
| 3408C | 4.01 | 86.4 | 885 | 11.3 | 2.3606 | .0023 | -- | -- | .0006 | -- | -- | -- | -- | 1.6892 |
| 3409A | 5.01 | 86.4 | 872 | 12.7 | .9025 | .0085 | -- | .0002 | .0004 | -- | -- | -- | -- | .8475 |
| 3409B | 5.01 | 88.8 | 895 | 10.4 | .8167 | .0073 | -- | -- | .0005 | -- | -- | -- | -- | .7292 |
| 3409C | 5.01 | 88.0 | 886 | 11.4 | .6147 | .0080 | -- | .0002 | .0006 | -- | -- | -- | -- | .5682 |
| 3409NB | 5.02 | 85.1 | 860 | 13.8 | 1.0766 | .0028 | -- | -- | .0277 | -- | -- | -- | -- | .4613 |
| 3409NC | 5.02 | 80.2 | 805 | 19.5 | .3418 | .0013 | -- | -- | .0003 | -- | -- | -- | -- | .1299 |
| 3409PA | 5.03 | 74.4 | 768 | 22.5 | 3.1022 | .0011 | -- | -- | .0056 | -- | .0022 | -- | -- | 2.2472 |
| 3409PB | 5.03 | 81.9 | 822 | 17.8 | .3441 | .0089 | -- | -- | .0004 | -- | .0027 | -- | -- | .0888 |
| 3409PC | 5.03 | 71.9 | 723 | 27.5 | .5476 | .0009 | -- | -- | .0002 | -- | .0092 | -- | -- | .2752 |
| 3410A | 6.01 | 75.8 | 777 | 21.7 | 2.4196 | .0016 | -- | -- | .0011 | -- | -- | -- | -- | .0217 |
| 3410B | 6.01 | 75.0 | 761 | 23.6 | 1.4039 | .0018 | -- | -- | -- | -- | -- | -- | -- | .0236 |
| 3410C | 6.01 | 82.2 | 824 | 17.5 | .2940 | .0018 | -- | -- | -- | -- | -- | -- | -- | .0877 |
| 3410NA | 6.02 | 80.1 | 806 | 19.2 | .7189 | .0019 | -- | -- | .0010 | -- | .0096 | -- | -- | .1442 |
| 3410NB | 6.02 | 79.6 | 799 | 20.0 | .3797 | .0015 | -- | -- | .0002 | -- | .0050 | -- | -- | .1500 |
| 3410NC | 6.02 | 79.4 | 799 | 20.0 | .6372 | .0070 | -- | -- | .0050 | -- | .0030 | -- | .0002 | .2000 |
| 3410PA | 6.03 | 79.7 | 799 | 20.0 | .3102 | .0070 | -- | -- | .0002 | -- | .0070 | -- | -- | .1500 |
| 3410PB | 6.03 | 79.8 | 800 | 20.0 | .2373 | .0020 | -- | -- | .0003 | -- | .0030 | -- | -- | .1000 |
| 3410PC | 6.03 | 80.8 | 811 | 18.9 | .3354 | .0047 | -- | -- | .0005 | -- | .0028 | -- | -- | .1415 |
| 3399A | 7.01 | 95.3 | 955 | 4.5 | .2169 | .0270 | -- | -- | .0013 | -- | -- | -- | -- | .0629 |
| 3399B | 7.01 | 94.9 | 956 | 4.3 | .7413 | .0130 | -- | -- | .0009 | -- | -- | -- | .0017 | .6066 |
| 3399C | 7.01 | 91.4 | 920 | 7.9 | .7344 | .0169 | -- | -- | .0011 | -- | .0023 | -- | -- | .5643 |
| 3399NA | 7.02 | 90.4 | 936 | 6.2 | 3.4116 | .0124 | -- | -- | .0025 | -- | -- | -- | .0002 | .6219 |
| 3399NB | 7.02 | 90.5 | 936 | 6.2 | 3.3251 | .0087 | -- | -- | .0012 | -- | -- | -- | -- | .6203 |
| 3399PA | 7.03 | 93.5 | 939 | 6.1 | .4047 | .0173 | -- | -- | .0009 | -- | -- | -- | .0130 | .1733 |
| 3399PB | 7.03 | 90.6 | 909 | 9.1 | .2908 | .0181 | -- | -- | .0045 | -- | -- | -- | .0181 | .0907 |
| 3399PC | 7.03 | 95.2 | 954 | 4.6 | .2053 | .0274 | -- | -- | .0005 | -- | -- | -- | -- | .0639 |
| 3399Q | 7.04 | 91.5 | 919 | 8.1 | .4326 | .0173 | -- | -- | .0017 | -- | -- | -- | .0035 | .2304 |
| 3389A | 8.01 | 92.1 | 929 | 7.0 | .8705 | .0050 | -- | -- | .0050 | -- | -- | -- | .0015 | .5000 |
| 3389B | 8.01 | 90.3 | 910 | 9.0 | .7424 | .0045 | -- | -- | .0018 | -- | -- | -- | -- | .4480 |
| 3389C | 8.01 | 94.3 | 946 | 5.4 | .3243 | .0016 | -- | -- | .0011 | -- | -- | -- | -- | .0542 |
| 3389NA | 8.02 | 93.3 | 949 | 5.0 | 1.6499 | .0030 | -- | -- | .0030 | -- | -- | -- | .0030 | 1.0060 |
| 3389NB | 8.02 | 92.8 | 932 | 6.8 | .4275 | .0049 | -- | -- | .0019 | -- | -- | -- | -- | .1946 |
| 3389NC | 8.02 | 90.3 | 915 | 8.4 | 1.2668 | .0060 | -- | -- | .0018 | -- | -- | -- | -- | .2398 |
| 3389PA | 8.03 | 92.9 | 946 | 5.3 | 1.8089 | .0106 | -- | -- | .0032 | -- | -- | -- | -- | .5308 |

TABLE 4.--continued

| Sample | SiteNo | Te | Ni | Co | Sn | Mo | Pt | Pd | Ba | Zr | V | Cr | Y | La | Nb | B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3405A | A.01 | -- | -- | .0022 | -- | -- | -- | -- | .0056 | .0011 | .0558 | .0017 | -- | -- | -- | -- |
| 3405B | A.01 | -- | -- | .0029 | -- | -- | -- | -- | .0038 | .0010 | .0382 | .0019 | -- | -- | -- | -- |
| 3411B | 1.01 | -- | .0017 | -- | -- | -- | -- | -- | .0017 | .0011 | .0011 | -- | -- | -- | -- | -- |
| 3411NA | 1.02 | -- | -- | -- | -- | -- | -- | -- | .0007 | -- | -- | -- | -- | -- | -- | -- |
| 3411NB | 1.02 | -- | -- | -- | -- | -- | -- | -- | .0020 | -- | -- | -- | -- | -- | -- | -- |
| 3411NC | 1.02 | -- | -- | -- | -- | -- | -- | -- | .0030 | -- | -- | -- | -- | -- | -- | .0005 |
| 3414A | 2.01 | -- | -- | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3414C | 2.01 | -- | .0009 | -- | -- | -- | -- | -- | .0013 | -- | -- | -- | -- | -- | -- | -- |
| 3414NA | 2.02 | -- | .0010 | -- | -- | -- | -- | -- | .0015 | -- | -- | -- | .0020 | -- | -- | -- |
| 3414NB | 2.02 | -- | .0005 | -- | -- | -- | -- | .0020 | .0050 | -- | -- | -- | -- | -- | -- | -- |
| 3414NC | 2.02 | -- | -- | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3387A | 3.01 | -- | -- | -- | .0006 | -- | -- | -- | -- | -- | -- | -- | .0024 | -- | -- | -- |
| 3387B | 3.01 | -- | -- | -- | .0043 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3387C | 3.01 | -- | -- | -- | .0201 | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3408A | 4.01 | -- | -- | -- | -- | -- | -- | -- | .0010 | -- | -- | -- | -- | -- | -- | -- |
| 3408B | 4.01 | -- | -- | -- | -- | -- | -- | -- | .0030 | -- | -- | -- | -- | -- | -- | -- |
| 3408C | 4.01 | -- | -- | -- | -- | -- | -- | -- | .0034 | -- | -- | -- | -- | -- | -- | -- |
| 3409A | 5.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3409B | 5.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3409C | 5.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3409NB | 5.02 | -- | -- | -- | -- | -- | -- | -- | .0018 | -- | -- | -- | -- | -- | -- | -- |
| 3409NC | 5.02 | -- | -- | -- | -- | -- | -- | -- | .0006 | -- | -- | -- | -- | -- | -- | -- |
| 3409PA | 5.03 | -- | -- | .0011 | -- | -- | -- | -- | .0011 | -- | -- | -- | -- | -- | -- | -- |
| 3409PB | 5.03 | -- | -- | -- | -- | -- | -- | -- | .0013 | -- | -- | -- | -- | -- | -- | -- |
| 3409PC | 5.03 | -- | -- | -- | -- | -- | -- | -- | .0009 | -- | -- | -- | -- | -- | -- | -- |
| 3410A | 6.01 | -- | -- | -- | -- | -- | -- | -- | .0016 | -- | -- | -- | -- | -- | -- | -- |
| 3410B | 6.01 | -- | -- | -- | -- | -- | -- | -- | .0024 | -- | -- | -- | -- | -- | -- | -- |
| 3410C | 6.01 | -- | -- | -- | -- | -- | -- | -- | .0006 | -- | -- | -- | -- | -- | -- | -- |
| 3410NA | 6.02 | -- | .0010 | -- | -- | -- | -- | -- | .0014 | -- | .0048 | -- | -- | -- | -- | -- |
| 3410NB | 6.02 | -- | -- | -- | -- | -- | -- | -- | .0010 | -- | -- | -- | -- | -- | -- | -- |
| 3410NC | 6.02 | -- | -- | -- | -- | -- | -- | -- | .0010 | -- | -- | -- | -- | -- | -- | -- |
| 3410PA | 6.03 | -- | -- | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3410PB | 6.03 | -- | -- | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3410PC | 6.03 | -- | -- | .0005 | -- | -- | -- | -- | .0009 | -- | -- | -- | -- | -- | -- | -- |
| 3399A | 7.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3399B | 7.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3399C | 7.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3399NA | 7.02 | -- | -- | -- | -- | .0012 | -- | -- | .0009 | -- | -- | -- | -- | -- | -- | -- |
| 3399NB | 7.02 | -- | -- | -- | -- | .0012 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3399PA | 7.03 | .0043 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3399PB | 7.03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3399PC | 7.03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3399Q | 7.04 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3389A | 8.01 | -- | -- | .0020 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3389B | 8.01 | .0045 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3389C | 8.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | .0005 | -- | -- | -- |
| 3389NA | 8.02 | -- | -- | -- | -- | .0005 | -- | -- | .0020 | -- | .0015 | -- | -- | -- | -- | -- |
| 3389NB | 8.02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3389NC | 8.02 | -- | -- | -- | -- | -- | -- | -- | .0120 | -- | .0024 | -- | -- | -- | -- | -- |
| 3389PA | 8.03 | .0053 | -- | -- | -- | -- | -- | -- | .0032 | -- | .0011 | -- | -- | -- | -- | -- |

TABLE 4.--continued

| Sample | SiteNo | Be | W | Mn | Fe | Mg | Ca | Ti | Si | smpl wt | Au/Ag=r | Au/Cu | Ag/Cu | r/Cu |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3405A | A.01 | -- | -- | .0335 | 2.2321 | 2.2321 | .2232 | .0033 | 1.6741 | 4.48 | 10.9 | 38,252 | 3,500 | 4,896 |
| 3405B | A.01 | -- | -- | .0382 | 1.9084 | 1.9084 | .3817 | .0057 | 2.8626 | 2.62 | 5.9 | 13,815 | 2,333 | 1,034 |
| 3411B | 1.01 | -- | -- | .0023 | .2299 | .1149 | .0115 | .0057 | 2.2989 | 4.35 | 7.5 | 14,931 | 2,000 | 1,299 |
| 3411NA | 1.02 | -- | -- | .0007 | .0200 | .0100 | .0050 | .0010 | .2000 | 5.00 | 9.0 | 8,974 | 1,000 | 897 |
| 3411NB | 1.02 | -- | -- | .0010 | .1500 | .1000 | .0070 | .0050 | 2.0000 | 5.00 | 8.7 | 17,485 | 2,000 | 1,749 |
| 3411NC | 1.02 | -- | -- | .0007 | .0200 | .0100 | .0050 | .0030 | .5000 | 5.00 | 5.6 | 16,889 | 3,000 | 1,126 |
| 3414A | 2.01 | -- | -- | .0010 | .0500 | .0100 | .0100 | .0050 | .1500 | 5.00 | 5.6 | 16,934 | 3,000 | 1,129 |
| 3414C | 2.01 | -- | -- | .0013 | .0609 | .0087 | .0087 | .0174 | .2609 | 5.75 | 21.9 | 5,475 | 250 | 1,259 |
| 3414NA | 2.02 | -- | -- | .0020 | .1000 | .0100 | .0100 | .0050 | 1.0000 | 5.00 | 8.9 | 5,919 | 667 | 592 |
| 3414NB | 2.02 | -- | -- | .0070 | .5000 | .0200 | .0100 | .0050 | .7000 | 5.00 | 8.8 | 5,896 | 667 | 590 |
| 3414NC | 2.02 | -- | -- | .0007 | .0500 | .0070 | .0020 | .0050 | .1000 | 5.00 | 13.2 | 4,631 | 350 | 662 |
| 3387A | 3.01 | -- | -- | .0004 | .0239 | .0006 | .0024 | .0239 | .0835 | 4.19 | 10.9 | 3,824 | 350 | 458 |
| 3387B | 3.01 | -- | -- | .0003 | .0435 | .0009 | .0017 | .0261 | .1304 | 5.75 | 10.4 | 2,073 | 200 | 238 |
| 3387C | 3.01 | -- | -- | .0005 | .0502 | .0010 | .0010 | .0201 | .1004 | 4.98 | 8.8 | 2,927 | 333 | 292 |
| 3408A | 4.01 | -- | -- | .0010 | .1512 | .0071 | .0030 | .0071 | .1512 | 4.96 | 12.7 | 12,696 | 1,000 | 1,799 |
| 3408B | 4.01 | -- | -- | .0007 | .0300 | .0070 | .0030 | .0050 | .1000 | 5.00 | 13.2 | 3,087 | 233 | 441 |
| 3408C | 4.01 | -- | -- | .0008 | .0788 | .0113 | .0056 | .0056 | .5631 | 4.44 | 7.7 | 38,352 | 5,000 | 3,406 |
| 3409A | 5.01 | -- | -- | .0003 | .0169 | .0017 | .0017 | -- | .0254 | 5.90 | 6.8 | 10,194 | 1,500 | 802 |
| 3409B | 5.01 | -- | -- | .0005 | .0208 | .0031 | .0010 | .0021 | .0521 | 4.80 | 8.5 | 12,174 | 1,429 | 1,169 |
| 3409C | 5.01 | -- | -- | .0002 | .0114 | .0011 | .0011 | .0011 | .0227 | 4.40 | 7.7 | 11,066 | 1,429 | 974 |
| 3409NB | 5.02 | -- | -- | .0009 | .0923 | .0138 | .0138 | .0009 | .4613 | 5.42 | 6.1 | 30,744 | 5,000 | 2,222 |
| 3409NC | 5.02 | -- | -- | .0006 | .0649 | .0065 | .0065 | .0013 | .1299 | 3.85 | 4.1 | 61,737 | 15,000 | 3,169 |
| 3409PA | 5.03 | -- | -- | .0011 | .1685 | .0787 | .0169 | .0169 | .5618 | 4.45 | 3.3 | 66,239 | 20,000 | 2,948 |
| 3409PB | 5.03 | -- | -- | .0004 | .0444 | .0062 | .0089 | .0044 | .1776 | 5.63 | 4.6 | 9,221 | 2,000 | 519 |
| 3409PC | 5.03 | -- | -- | .0006 | .0642 | .0064 | .0046 | .0018 | .1835 | 5.45 | 2.6 | 78,403 | 30,000 | 2,849 |
| 3410A | 6.01 | -- | -- | .0022 | .1630 | .0326 | .0109 | .0109 | 2.1739 | 4.60 | 3.5 | 46,516 | 13,333 | 2,140 |
| 3410B | 6.01 | -- | -- | .0024 | .1179 | .0354 | .0236 | .0177 | 1.1792 | 4.24 | 3.2 | 42,406 | 13,333 | 1,798 |
| 3410C | 6.01 | -- | -- | .0004 | .0175 | .0044 | .0018 | .0044 | .1754 | 5.70 | 4.7 | 46,832 | 10,000 | 2,669 |
| 3410NA | 6.02 | -- | -- | .0007 | .0481 | .0192 | .0048 | .0014 | .4808 | 5.20 | 4.2 | 41,626 | 10,000 | 2,165 |
| 3410NB | 6.02 | -- | -- | .0003 | .0150 | .0050 | .0010 | .0007 | .2000 | 5.00 | 4.0 | 53,080 | 13,333 | 2,654 |
| 3410NC | 6.02 | -- | -- | .0010 | .1000 | .0150 | .0020 | .0030 | .3000 | 5.00 | 4.0 | 11,338 | 2,857 | 567 |
| 3410PA | 6.03 | -- | -- | .0005 | .0300 | .0050 | .0050 | .0050 | .1000 | 5.00 | 4.0 | 11,384 | 2,857 | 569 |
| 3410PB | 6.03 | -- | -- | .0005 | .0200 | .0070 | .0030 | .0010 | .1000 | 5.00 | 4.0 | 39,881 | 10,000 | 1,994 |
| 3410PC | 6.03 | -- | -- | .0005 | .0283 | .0047 | .0047 | .0047 | .1415 | 5.30 | 4.3 | 17,129 | 4,000 | 908 |
| 3399A | 7.01 | -- | -- | .0006 | .0180 | .0018 | .0063 | .0090 | .0899 | 5.56 | 21.2 | 3,532 | 167 | 786 |
| 3399B | 7.01 | -- | -- | .0004 | .0173 | .0017 | .0043 | .0087 | .0867 | 5.77 | 21.9 | 7,303 | 333 | 1,686 |
| 3399C | 7.01 | -- | -- | .0008 | .0226 | .0023 | .0056 | .0056 | .1129 | 4.43 | 11.6 | 5,397 | 467 | 683 |
| 3399NA | 7.02 | -- | -- | .0025 | .2488 | .0087 | .0124 | .0124 | 2.4876 | 4.02 | 14.5 | 7,266 | 500 | 1,168 |
| 3399NB | 7.02 | -- | -- | .0025 | .1861 | .0087 | .0087 | .0062 | 2.4814 | 4.03 | 14.6 | 10,417 | 714 | 1,679 |
| 3399PA | 7.03 | -- | -- | .0009 | .0433 | .0043 | .0087 | .0087 | .1300 | 5.77 | 15.4 | 5,397 | 350 | 890 |
| 3399PB | 7.03 | -- | -- | .0005 | .0136 | .0018 | .0027 | .0045 | .1361 | 5.51 | 10.0 | 4,994 | 500 | 550 |
| 3399PC | 7.03 | -- | -- | .0005 | .0091 | .0018 | .0046 | .0064 | .0912 | 5.48 | 20.9 | 3,479 | 167 | 763 |
| 3399Q | 7.04 | -- | -- | .0012 | .0346 | .0058 | .0115 | .0115 | .1152 | 4.34 | 11.3 | 5,295 | 467 | 657 |
| 3389A | 8.01 | -- | -- | .0020 | .1000 | .0200 | .0200 | .0150 | .2000 | 5.00 | 13.2 | 18,426 | 1,400 | 2,632 |
| 3389B | 8.01 | -- | -- | .0013 | .1344 | .0269 | .0134 | .0179 | .0896 | 5.58 | 10.1 | 20,154 | 2,000 | 2,249 |
| 3389C | 8.01 | -- | -- | .0011 | .0542 | .0217 | .0163 | .0108 | .1627 | 4.61 | 17.4 | 57,934 | 3,333 | 10,683 |
| 3389NA | 8.02 | -- | -- | .0020 | .2012 | .2012 | .0151 | .0101 | .2012 | 4.97 | 18.6 | 30,920 | 1,667 | 6,147 |
| 3389NB | 8.02 | -- | -- | .0015 | .0486 | .0195 | .0097 | .0010 | .1459 | 5.14 | 13.6 | 19,072 | 1,400 | 2,801 |
| 3389NC | 8.02 | -- | -- | .0036 | .2398 | .1199 | .0180 | .0240 | .5995 | 4.17 | 10.8 | 15,069 | 1,400 | 1,795 |
| 3389PA | 8.03 | -- | -- | .0021 | .1062 | .0531 | .0106 | .0212 | 1.0616 | 4.71 | 17.5 | 8,750 | 500 | 1,648 |

TABLE 4.--continued

| Sample | SiteNo | % Au | Fineness | Ag | SUM of X | Cu | Zn | Ga | Pb | As | Sb | Cd | Bi | Hg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3389PB | 8.03 | 93.0 | 940 | 6.0 | .9791 | .0026 | -- | -- | .0128 | -- | -- | -- | .0004 | .5973 |
| 3389PC | 8.03 | 87.6 | 890 | 10.8 | 1.5680 | .0022 | -- | -- | .0016 | -- | -- | -- | -- | 1.0799 |
| 3389QA | 8.04 | 93.0 | 941 | 5.8 | 1.2130 | .0058 | -- | -- | .0058 | -- | -- | -- | .0081 | .3472 |
| 3389QB | 8.04 | 90.4 | 919 | 8.0 | 1.5577 | .0048 | -- | -- | .0032 | -- | -- | -- | .0016 | .8013 |
| 3389RA | 8.05 | 93.5 | 953 | 4.6 | 1.8868 | .0028 | -- | -- | .0028 | -- | .0065 | -- | .0186 | .4638 |
| 3389RB | 8.05 | 90.4 | 919 | 8.0 | 1.5782 | .0057 | -- | -- | .0034 | -- | .0057 | -- | .0228 | .7991 |
| 3389RC | 8.05 | 91.3 | 930 | 6.9 | 1.7574 | .0049 | -- | -- | .0099 | -- | .0049 | -- | .0197 | .4931 |
| 3388A | 9.01 | 93.3 | 950 | 4.9 | 1.8823 | .0146 | -- | -- | .0015 | -- | -- | -- | .0097 | 1.4591 |
| 3388B | 9.01 | 92.1 | 931 | 6.8 | 1.1055 | .0068 | -- | -- | .0019 | -- | -- | -- | .0002 | .9747 |
| 3388C | 9.01 | 93.0 | 933 | 6.7 | .3715 | .0095 | -- | -- | .0010 | -- | -- | -- | -- | .2852 |
| 3388NA | 9.02 | 85.7 | 875 | 12.3 | 2.0723 | .0037 | -- | -- | .0012 | -- | .0184 | -- | -- | 1.8382 |
| 3388NB | 9.02 | 85.6 | 877 | 12.0 | 2.3574 | .0086 | -- | -- | .1718 | -- | .0034 | -- | .0026 | 1.7182 |
| 3388PA | 9.03 | 91.7 | 921 | 7.8 | .5075 | .0112 | -- | -- | .0022 | -- | -- | -- | .0034 | .3356 |
| 3388PB | 9.03 | 92.7 | 938 | 6.2 | 1.1681 | .0062 | -- | -- | .0018 | -- | -- | -- | .0013 | .8803 |
| 3388PC | 9.03 | 86.5 | 883 | 11.5 | 1.9805 | .0057 | -- | -- | .0034 | -- | -- | -- | .0023 | 1.7241 |
| 3388QA | 9.04 | 90.4 | 914 | 8.6 | 1.0040 | .0060 | -- | -- | .0009 | -- | -- | -- | .0004 | .8562 |
| 3388QB | 9.04 | 87.4 | 886 | 11.3 | 1.3760 | .0056 | -- | -- | .0056 | -- | .0023 | -- | .0002 | 1.1261 |
| 3388QC | 9.04 | 88.6 | 893 | 10.7 | .7545 | .0075 | -- | -- | .0021 | -- | -- | -- | .0213 | .5330 |
| 3388RA | 9.05 | 87.0 | 883 | 11.5 | 1.4724 | .0081 | -- | -- | .0023 | -- | .0023 | -- | .0058 | 1.1521 |
| 3388RB | 9.05 | 86.6 | 883 | 11.4 | 1.9908 | .0057 | -- | -- | .0023 | -- | .0023 | -- | .0023 | 1.7162 |
| 3388RC | 9.05 | 89.5 | 914 | 8.4 | 2.0732 | .0059 | -- | -- | .0017 | -- | -- | -- | .0017 | 1.6892 |
| 3388SA | 9.06 | 93.1 | 952 | 4.7 | 2.1262 | .0066 | -- | -- | .0664 | -- | -- | -- | .0019 | .4744 |
| 3388SB | 9.06 | 90.7 | 925 | 7.4 | 1.9137 | .0053 | -- | -- | .0053 | -- | .0074 | -- | .0316 | .3158 |
| 3388SC | 9.06 | 91.7 | 939 | 6.0 | 2.3532 | .0043 | -- | -- | .0853 | -- | .0043 | -- | .0427 | .5973 |
| 3388TA | 9.07 | 91.4 | 942 | 5.6 | 3.0011 | .0023 | -- | -- | .0563 | -- | .0113 | -- | .0017 | .2252 |
| 3388TB | 9.07 | 93.0 | 952 | 4.7 | 2.3120 | .0047 | -- | -- | .0658 | -- | .0047 | -- | .0019 | .4699 |
| 3388TC | 9.07 | 94.2 | 970 | 2.9 | 2.8889 | .0044 | -- | -- | .0292 | .0219 | -- | -- | .0015 | .1462 |
| 3395A | 10.01 | 97.5 | 979 | 2.1 | .4096 | .0320 | -- | -- | .0007 | -- | -- | -- | .0075 | .2132 |
| 3395B | 10.01 | 89.9 | 900 | 9.9 | .1849 | .0070 | -- | -- | .0005 | -- | .0050 | -- | -- | .0298 |
| 3395C | 10.01 | 89.2 | 896 | 10.3 | .4837 | .0103 | -- | -- | .0007 | -- | -- | -- | -- | .1033 |
| 3395NA | 10.02 | 95.0 | 953 | 4.6 | .4082 | .0186 | -- | -- | .0014 | -- | -- | -- | .0464 | .0928 |
| 3395NB | 10.02 | 93.6 | 941 | 5.9 | .5665 | .0176 | -- | -- | .0012 | -- | -- | -- | -- | .2353 |
| 3395NC | 10.02 | 91.4 | 922 | 7.8 | .7961 | .0111 | -- | -- | .0017 | -- | -- | -- | -- | .3333 |
| 3395PA | 10.03 | 92.4 | 928 | 7.2 | .3648 | .0072 | -- | -- | .0051 | -- | -- | -- | -- | .1540 |
| 3395PB | 10.03 | 91.1 | 915 | 8.5 | .4235 | .0121 | -- | -- | .0018 | -- | -- | -- | .0024 | .2427 |
| 3395PC | 10.03 | 92.6 | 929 | 7.1 | .2372 | .0071 | -- | -- | .0020 | -- | -- | -- | .0007 | .0711 |
| 3395Q | 10.04 | 87.2 | 893 | 10.5 | 2.2794 | .0053 | -- | -- | 1.0504 | -- | -- | -- | -- | .2101 |
| 3398A | 11.01 | 92.9 | 941 | 5.9 | 1.2139 | .0251 | -- | -- | .0013 | -- | -- | -- | .0003 | .5853 |
| 3398B | 11.01 | 94.9 | 953 | 4.6 | .4405 | .0186 | -- | -- | .0014 | -- | -- | -- | .0019 | .2788 |
| 3398C | 11.01 | 91.8 | 922 | 7.7 | .5304 | .0220 | -- | -- | .0008 | -- | -- | -- | .0002 | .1101 |
| 3398NA | 11.02 | 81.0 | 823 | 17.4 | 1.6070 | .0035 | -- | -- | .0008 | -- | -- | -- | -- | 1.1601 |
| 3398NB | 11.02 | 81.0 | 822 | 17.5 | 1.5216 | .0035 | -- | -- | .0012 | -- | -- | -- | -- | 1.1682 |
| 3398NC | 11.02 | 83.3 | 847 | 15.1 | 1.6496 | .0030 | -- | -- | .0010 | -- | -- | -- | -- | 1.0040 |
| 3398PA | 11.03 | 91.5 | 918 | 8.1 | .3726 | .0174 | -- | -- | .0006 | -- | -- | -- | -- | .1160 |
| 3398PB | 11.03 | 95.6 | 958 | 4.2 | .1937 | .0252 | -- | -- | .0013 | -- | -- | -- | .0003 | .0252 |
| 3398PC | 11.03 | 87.7 | 886 | 11.3 | .9587 | .0170 | -- | -- | .0226 | -- | -- | -- | .0057 | .5656 |
| 3398Q | 11.04 | 88.3 | 893 | 10.6 | 1.1242 | .0106 | -- | -- | .0032 | -- | -- | -- | .0074 | .7431 |
| 3385A | 12.01 | 92.6 | 930 | 7.0 | .4075 | .0100 | -- | -- | .0100 | -- | -- | -- | .0030 | .1000 |
| 3385B | 12.01 | 95.5 | 958 | 4.2 | .3135 | .0169 | -- | -- | .0169 | -- | -- | -- | .0042 | .0422 |
| 3385C | 12.01 | 95.0 | 951 | 4.9 | .1368 | .0147 | -- | -- | .0010 | -- | -- | -- | .0147 | .0295 |

TABLE 4.--continued

| Sample | SiteNo | Te | Ni | Co | Sn | Mo | Pt | Pd | Ba | Zr | V | Cr | Y | La | Nb | B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3389PB | 8.03 | .0085 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3389PC | 8.03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3389QA | 8.04 | -- | -- | -- | -- | -- | -- | -- | .0012 | .0579 | .0023 | -- | -- | -- | -- | -- |
| 3389QB | 8.04 | -- | -- | -- | .0080 | -- | -- | -- | -- | .0240 | .0016 | -- | -- | -- | -- | -- |
| 3389RA | 8.05 | .0464 | -- | .0019 | -- | -- | -- | -- | -- | .0186 | .0065 | -- | .0093 | .0186 | -- | -- |
| 3389RB | 8.05 | .0228 | -- | -- | -- | -- | -- | -- | -- | .0171 | .0023 | .0023 | .0006 | .0057 | -- | -- |
| 3389RC | 8.05 | .0296 | -- | .0010 | -- | -- | -- | -- | -- | .0197 | .0069 | .0010 | .0030 | .0099 | -- | -- |
| 3388A | 9.01 | -- | -- | -- | -- | -- | -- | -- | .0068 | -- | -- | -- | -- | -- | -- | -- |
| 3388B | 9.01 | -- | -- | -- | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- |
| 3388C | 9.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3388NA | 9.02 | -- | -- | -- | -- | -- | -- | -- | .0006 | -- | -- | -- | -- | -- | -- | -- |
| 3388NB | 9.02 | -- | -- | -- | .0859 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3388PA | 9.03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3388PB | 9.03 | -- | -- | -- | -- | -- | -- | -- | .0004 | -- | -- | -- | -- | -- | -- | -- |
| 3388PC | 9.03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3388QA | 9.04 | -- | -- | -- | -- | -- | -- | -- | .0004 | -- | -- | -- | -- | -- | -- | -- |
| 3388QB | 9.04 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3388QC | 9.04 | .0107 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3388RA | 9.05 | -- | -- | -- | -- | -- | -- | -- | .0012 | -- | -- | -- | -- | -- | -- | -- |
| 3388RB | 9.05 | .0114 | -- | -- | -- | -- | -- | -- | .0011 | -- | -- | -- | -- | -- | -- | -- |
| 3388RC | 9.05 | .0084 | -- | -- | -- | -- | -- | -- | .0006 | .0008 | -- | -- | -- | -- | -- | -- |
| 3388SA | 9.06 | -- | -- | -- | .0047 | -- | -- | -- | -- | .0190 | .0095 | .0019 | .0047 | .0190 | -- | -- |
| 3388SB | 9.06 | .0316 | -- | .0021 | .0526 | -- | -- | -- | -- | .0074 | .0021 | .0053 | .0053 | .0211 | -- | -- |
| 3388SC | 9.06 | .0853 | .0004 | .0004 | -- | -- | -- | -- | -- | .0085 | .0060 | .0043 | .0043 | .0128 | -- | -- |
| 3388TA | 9.07 | -- | -- | .0017 | .0023 | -- | -- | -- | -- | .0563 | .0169 | .0034 | .0113 | .0225 | -- | -- |
| 3388TB | 9.07 | -- | -- | .0019 | .0282 | -- | -- | -- | -- | .0470 | .0066 | .0019 | .0066 | .0188 | -- | -- |
| 3388TC | 9.07 | -- | -- | .0029 | .0102 | -- | -- | -- | -- | .0731 | .0146 | .0044 | .0146 | .0292 | -- | -- |
| 3395A | 10.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3395B | 10.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3395C | 10.01 | -- | -- | -- | -- | -- | -- | -- | .0010 | .0010 | -- | -- | -- | -- | -- | -- |
| 3395NA | 10.02 | .0278 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3395NB | 10.02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3395NC | 10.02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3395PA | 10.03 | .0513 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3395PB | 10.03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3395PC | 10.03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3395Q | 10.04 | -- | -- | .0011 | .1576 | -- | -- | -- | .0074 | .0525 | -- | -- | .0210 | .0210 | -- | -- |
| 3398A | 11.01 | -- | -- | -- | -- | -- | -- | -- | .0013 | -- | -- | -- | -- | -- | -- | -- |
| 3398B | 11.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3398C | 11.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3398NA | 11.02 | -- | -- | -- | -- | -- | -- | -- | .0006 | -- | -- | -- | -- | -- | -- | -- |
| 3398NB | 11.02 | -- | -- | -- | -- | -- | -- | -- | .0006 | -- | -- | -- | -- | -- | -- | -- |
| 3398NC | 11.02 | -- | -- | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3398PA | 11.03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3398PB | 11.03 | -- | -- | -- | -- | -- | -- | .0002 | -- | -- | -- | -- | -- | -- | -- | -- |
| 3398PC | 11.03 | -- | -- | -- | -- | -- | -- | -- | .0017 | -- | -- | -- | -- | -- | -- | -- |
| 3398Q | 11.04 | -- | -- | -- | -- | -- | -- | -- | .0011 | .0021 | -- | -- | -- | -- | -- | -- |
| 3385A | 12.01 | -- | -- | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3385B | 12.01 | -- | -- | -- | -- | -- | -- | -- | .0013 | -- | -- | -- | -- | -- | -- | -- |
| 3385C | 12.01 | .0049 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

TABLE 4.--continued

| Sample | SiteNo | Be | W | Mn | Fe | Mg | Ca | Ti | Si | smpl wt | Au/Ag=r | Au/Cu | Ag/Cu | r/Cu |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3389PB | 8.03 | -- | -- | .0017 | .0853 | .0853 | .0128 | .0017 | .1706 | 5.86 | 15.6 | 36,351 | 2,333 | 6,086 |
| 3389PC | 8.03 | -- | -- | .0016 | .1080 | .0216 | .0216 | .0076 | .3240 | 4.63 | 8.1 | 40,574 | 5,000 | 3,757 |
| 3389QA | 8.04 | -- | -- | .0035 | .3472 | .0231 | .0058 | .1736 | .2315 | 4.32 | 16.1 | 16,070 | 1,000 | 2,777 |
| 3389QB | 8.04 | -- | -- | .0080 | .3205 | .0321 | .0321 | .1603 | .1603 | 3.12 | 11.3 | 18,809 | 1,667 | 2,347 |
| 3389RA | 8.05 | -- | .0019 | .0093 | .9276 | .0464 | .0278 | .1855 | .0928 | 5.39 | 20.2 | 33,589 | 1,667 | 7,242 |
| 3389RB | 8.05 | -- | -- | .0057 | .3425 | .0342 | .0228 | .1142 | .1712 | 4.38 | 11.3 | 15,843 | 1,400 | 1,983 |
| 3389RC | 8.05 | -- | .0099 | .0099 | .6903 | .0493 | .0493 | .1972 | .1479 | 5.07 | 13.2 | 18,524 | 1,400 | 2,683 |
| 3388A | 9.01 | -- | -- | .0015 | .0973 | .0292 | .0486 | .0195 | .1946 | 5.14 | 19.2 | 6,391 | 333 | 1,314 |
| 3388B | 9.01 | -- | -- | .0005 | .0292 | .0097 | .0068 | .0068 | .0682 | 5.13 | 13.5 | 13,495 | 1,000 | 1,978 |
| 3388C | 9.01 | -- | -- | .0003 | .0190 | .0048 | .0029 | .0014 | .0475 | 5.26 | 14.0 | 9,781 | 700 | 1,470 |
| 3388NA | 9.02 | -- | -- | .0006 | .0613 | .0086 | .0086 | .0086 | .1225 | 4.08 | 7.0 | 23,303 | 3,333 | 1,902 |
| 3388NB | 9.02 | -- | -- | .0026 | .1203 | .0120 | .0086 | .0515 | .1718 | 2.91 | 7.1 | 9,966 | 1,400 | 829 |
| 3388PA | 9.03 | -- | -- | .0008 | .0336 | .0022 | .0056 | .0011 | .1119 | 4.47 | 11.7 | 8,195 | 700 | 1,047 |
| 3388PB | 9.03 | -- | -- | .0009 | .0880 | .0018 | .0088 | .0026 | .1761 | 5.68 | 15.0 | 15,039 | 1,000 | 2,441 |
| 3388PC | 9.03 | -- | -- | .0011 | .0575 | .0034 | .0080 | .0023 | .1724 | 4.35 | 7.5 | 15,055 | 2,000 | 1,310 |
| 3388QA | 9.04 | -- | -- | .0006 | .0428 | .0026 | .0026 | .0060 | .0856 | 5.84 | 10.6 | 15,090 | 1,429 | 1,762 |
| 3388QB | 9.04 | -- | -- | .0008 | .0563 | .0034 | .0034 | .0034 | .1689 | 4.44 | 7.8 | 15,516 | 2,000 | 1,378 |
| 3388QC | 9.04 | -- | -- | .0007 | .0533 | .0107 | .0053 | .0032 | .1066 | 4.69 | 8.3 | 11,870 | 1,429 | 1,113 |
| 3388RA | 9.05 | -- | -- | .0012 | .0806 | .0173 | .0173 | .0115 | .1728 | 4.34 | 7.6 | 10,789 | 1,429 | 936 |
| 3388RB | 9.05 | -- | -- | .0011 | .0801 | .0343 | .0114 | .0080 | .1144 | 4.37 | 7.6 | 15,132 | 2,000 | 1,323 |
| 3388RC | 9.05 | -- | -- | .0017 | .1267 | .0422 | .0253 | .0422 | .1267 | 5.92 | 10.6 | 15,135 | 1,429 | 1,792 |
| 3388SA | 9.06 | -- | .0949 | .0285 | .9488 | .0474 | .0664 | .1898 | .1423 | 5.27 | 19.6 | 14,023 | 714 | 2,956 |
| 3388SB | 9.06 | -- | -- | .0316 | 1.0526 | .0526 | .0737 | .1053 | .1053 | 4.75 | 12.3 | 17,236 | 1,400 | 2,339 |
| 3388SC | 9.06 | -- | .0043 | .0427 | .8532 | .0427 | .0427 | .4266 | .0853 | 5.86 | 15.3 | 21,488 | 1,400 | 3,598 |
| 3388TA | 9.07 | -- | .0563 | .0563 | 1.6892 | .0563 | .0563 | .5631 | .1126 | 4.44 | 16.2 | 40,567 | 2,500 | 7,205 |
| 3388TB | 9.07 | -- | .0094 | .0470 | .9398 | .0658 | .0282 | .4699 | .0940 | 5.32 | 19.8 | 19,788 | 1,000 | 4,211 |
| 3388TC | 9.07 | -- | .0219 | .0731 | 1.4620 | .0731 | .0731 | .7310 | .1023 | 3.42 | 32.2 | 21,475 | 667 | 7,344 |
| 3395A | 10.01 | -- | -- | .0011 | .0213 | .0005 | .0053 | .0213 | .1066 | 4.69 | 45.7 | 3,047 | 67 | 1,429 |
| 3395B | 10.01 | -- | -- | .0010 | .0298 | .0005 | .0020 | .0099 | .0994 | 5.03 | 9.0 | 12,916 | 1,429 | 1,299 |
| 3395C | 10.01 | -- | -- | .0015 | .0517 | .0010 | .0031 | .1033 | .2066 | 4.84 | 8.6 | 8,633 | 1,000 | 836 |
| 3395NA | 10.02 | -- | -- | .0014 | .0464 | .0019 | .0046 | .0278 | .1391 | 5.39 | 20.5 | 5,118 | 250 | 1,103 |
| 3395NB | 10.02 | -- | -- | .0012 | .0588 | .0018 | .0035 | .0118 | .2353 | 4.25 | 15.9 | 5,301 | 333 | 901 |
| 3395NC | 10.02 | -- | -- | .0017 | .0778 | .0017 | .0022 | .0333 | .3333 | 4.50 | 11.8 | 8,228 | 700 | 1,058 |
| 3395PA | 10.03 | -- | -- | .0003 | .0308 | .0010 | .0021 | .0103 | .1027 | 4.87 | 12.9 | 12,864 | 1,000 | 1,790 |
| 3395PB | 10.03 | -- | -- | .0012 | .0364 | .0012 | .0024 | .0018 | .1214 | 4.12 | 10.7 | 7,505 | 700 | 883 |
| 3395PC | 10.03 | -- | -- | .0007 | .0305 | .0010 | .0020 | .0203 | .1016 | 4.92 | 13.0 | 13,024 | 1,000 | 1,831 |
| 3395Q | 10.04 | -- | .1050 | .0074 | .3151 | .0105 | .0525 | .0525 | .2101 | 4.76 | 8.3 | 16,606 | 2,000 | 1,581 |
| 3398A | 11.01 | -- | -- | .0013 | .0836 | .0059 | .0084 | .0836 | .4181 | 5.98 | 15.9 | 3,705 | 233 | 633 |
| 3398B | 11.01 | -- | -- | .0005 | .0186 | .0028 | .0065 | .0186 | .0929 | 5.38 | 20.4 | 5,106 | 250 | 1,099 |
| 3398C | 11.01 | -- | -- | .0008 | .0330 | .0055 | .0055 | .0220 | .3304 | 4.54 | 11.9 | 4,166 | 350 | 540 |
| 3398NA | 11.02 | -- | -- | .0012 | .0580 | .0058 | .0116 | .0174 | .3480 | 4.31 | 4.7 | 23,272 | 5,000 | 1,337 |
| 3398NB | 11.02 | -- | -- | .0012 | .0584 | .0082 | .0117 | .0350 | .2336 | 4.28 | 4.6 | 23,099 | 5,000 | 1,318 |
| 3398NC | 11.02 | -- | -- | .0015 | .0703 | .0100 | .0070 | .0502 | .5020 | 4.98 | 5.5 | 27,652 | 5,000 | 1,836 |
| 3398PA | 11.03 | -- | -- | .0008 | .0348 | .0058 | .0116 | .0116 | .1740 | 4.31 | 11.3 | 5,259 | 467 | 648 |
| 3398PB | 11.03 | -- | -- | .0004 | .0252 | .0025 | .0042 | .0252 | .0840 | 5.95 | 22.8 | 3,792 | 167 | 903 |
| 3398PC | 11.03 | -- | -- | .0011 | .0792 | .0057 | .0113 | .0226 | .2262 | 4.42 | 7.8 | 5,170 | 667 | 457 |
| 3398Q | 11.04 | -- | -- | .0011 | .1062 | .0106 | .0159 | .0106 | .2123 | 4.71 | 8.3 | 8,314 | 1,000 | 783 |
| 3385A | 12.01 | -- | -- | .0010 | .0700 | .0030 | .0500 | .0100 | .1500 | 5.00 | 13.2 | 9,259 | 700 | 1,323 |
| 3385B | 12.01 | -- | -- | .0006 | .0845 | .0017 | .0127 | .0059 | .1267 | 5.92 | 22.6 | 5,651 | 250 | 1,338 |
| 3385C | 12.01 | -- | -- | .0003 | .0098 | .0010 | .0020 | .0098 | .0491 | 5.09 | 19.3 | 6,444 | 333 | 1,312 |

TABLE 4.--continued

| Sample | SiteNo | % Au | Fineness | Ag | SUM of X | Cu | Zn | Ga | Pb | As | Sb | Cd | Bi | Hg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3390NA | 13.01 | 91.3 | 917 | 8.3 | .4374 | .0236 | -- | -- | .0035 | -- | .0024 | -- | .0012 | .2364 |
| 3390NB | 13.01 | 91.0 | 919 | 8.0 | .9103 | .0172 | -- | -- | .0023 | -- | -- | -- | .0023 | .5747 |
| 3390NC | 13.01 | 91.0 | 915 | 8.5 | .5121 | .0182 | -- | -- | .0024 | -- | -- | -- | .0036 | .1211 |
| 3390P | 13.02 | 86.9 | 879 | 12.0 | 1.1019 | .0240 | -- | -- | .0084 | -- | .0024 | -- | .0060 | .1799 |
| 3406A | 14.01 | 84.0 | 842 | 15.8 | .2036 | .0105 | -- | .0002 | .0011 | -- | -- | -- | .0002 | .0737 |
| 3406B | 14.01 | 80.7 | 809 | 19.0 | .3004 | .0048 | -- | .0002 | .0067 | -- | -- | -- | .0014 | .1905 |
| 3406C | 14.01 | 94.4 | 950 | 5.0 | .6385 | .0100 | -- | -- | .0150 | -- | -- | -- | .0005 | .1000 |
| 3406NA | 14.02 | 92.6 | 933 | 6.6 | .7693 | .0189 | -- | -- | .0005 | -- | -- | -- | -- | .0943 |
| 3406NB | 14.02 | 90.6 | 910 | 8.9 | .4478 | .0178 | -- | .0002 | .0002 | -- | -- | -- | -- | .0624 |
| 3406NC | 14.02 | 90.2 | 912 | 8.7 | 1.1368 | .0186 | -- | -- | .0004 | -- | -- | -- | -- | .1238 |
| 3406PA | 14.03 | 87.1 | 893 | 10.5 | 2.4652 | .0105 | -- | .0002 | .0003 | -- | -- | -- | .0052 | 2.0921 |
| 3406PB | 14.03 | 87.0 | 889 | 10.9 | 2.0883 | .0109 | -- | .0002 | .0076 | -- | -- | -- | .0033 | 1.6304 |
| 3406PC | 14.03 | 86.9 | 887 | 11.1 | 1.9922 | .0167 | -- | -- | .0111 | .2222 | -- | -- | .0033 | .7778 |
| 3386A | 15.01 | 91.2 | 915 | 8.4 | .3886 | .0120 | -- | -- | .0012 | -- | -- | -- | .0012 | .2410 |
| 3386B | 15.01 | 90.0 | 905 | 9.5 | .5226 | .0135 | -- | -- | .0007 | .0270 | -- | -- | -- | .2703 |
| 3171A | 16.01 | 82.4 | 850 | 14.6 | 3.0829 | .0194 | -- | -- | .0068 | -- | .0049 | -- | .0002 | 2.9126 |
| 3171B | 16.01 | 78.1 | 799 | 19.7 | 2.1978 | .0148 | -- | -- | .0015 | -- | .0049 | -- | .0010 | 1.9685 |
| 3171C | 16.01 | 78.0 | 834 | 15.5 | 6.4263 | .0104 | -- | -- | .0031 | -- | -- | -- | -- | 6.2112 |
| 3171D | 16.01 | 84.5 | 856 | 14.2 | 1.2253 | .0190 | -- | -- | .0047 | -- | -- | -- | .0285 | .9488 |
| 3171E | 16.01 | 79.5 | 839 | 15.3 | 5.2491 | .0102 | -- | -- | .0051 | -- | .0020 | -- | -- | 5.0916 |
| 3171X | 16.02 | 81.6 | 837 | 15.9 | 2.4779 | .0106 | -- | -- | .0032 | -- | -- | -- | -- | 2.1231 |
| 3415A | 17.01 | 78.5 | 790 | 20.8 | .6224 | .0016 | -- | -- | .0003 | -- | -- | -- | -- | .0729 |
| 3415B | 17.01 | 87.6 | 896 | 10.2 | 2.1548 | .0102 | -- | -- | .0002 | -- | -- | -- | -- | 2.0408 |
| 3415C | 17.01 | 81.1 | 827 | 17.0 | 1.9057 | .0057 | -- | -- | .0003 | -- | -- | -- | -- | 1.7007 |
| 3415NA | 17.02 | 87.1 | 881 | 11.8 | 1.0976 | .0082 | -- | -- | .0024 | -- | -- | -- | -- | .0824 |
| 3415NB | 17.02 | 89.7 | 920 | 7.8 | 2.5457 | .0023 | -- | -- | .0775 | .0054 | -- | -- | .0078 | .0543 |
| 3415NC | 17.02 | 84.0 | 906 | 8.8 | 7.2809 | .0062 | -- | -- | .0025 | -- | -- | -- | -- | .0875 |
| 3415PA | 17.03 | 88.7 | 899 | 10.0 | 1.2943 | .0200 | -- | -- | .0005 | -- | -- | -- | -- | 1.0000 |
| 3415PB | 17.03 | 88.9 | 899 | 10.0 | 1.1435 | .0100 | -- | -- | .0005 | -- | -- | -- | -- | .7000 |
| 3415QA | 17.04 | 78.7 | 797 | 20.0 | 1.3382 | .0010 | -- | -- | .0007 | .0200 | -- | -- | -- | .0700 |
| 3415QB | 17.04 | 82.6 | 846 | 15.0 | 2.4164 | .0070 | .0100 | -- | .0700 | -- | -- | .0020 | .0002 | .0700 |
| 3415QC | 17.04 | 88.1 | 898 | 10.0 | 1.8947 | .0100 | -- | -- | .0020 | -- | -- | -- | .0002 | .1000 |
| 3415R | 17.05 | 85.0 | 888 | 10.7 | 4.3263 | .0321 | -- | -- | .2137 | .2137 | -- | -- | .0015 | 1.0684 |
| 3412A | 18.01 | 89.4 | 899 | 10.0 | .6348 | .0070 | -- | -- | .0003 | -- | -- | -- | -- | .5000 |
| 3412B | 18.01 | 87.8 | 889 | 11.0 | 1.1781 | .0077 | -- | -- | .0003 | -- | -- | -- | -- | 1.0989 |
| 3412C | 18.01 | 89.1 | 903 | 9.6 | 1.3252 | .0067 | .0962 | -- | .0002 | -- | -- | -- | -- | .9615 |
| 3412NA | 18.02 | 88.2 | 920 | 7.7 | 4.1732 | .0077 | -- | -- | .0005 | -- | -- | -- | -- | 3.8285 |
| 3412NB | 18.02 | 84.7 | 894 | 10.0 | 5.2905 | .0100 | -- | -- | .0005 | -- | -- | -- | -- | 5.0000 |
| 3412NC | 18.02 | 87.4 | 916 | 8.1 | 4.5528 | .0081 | -- | -- | .0004 | -- | -- | -- | -- | 4.0323 |
| 3412PA | 18.03 | 83.8 | 879 | 11.5 | 4.6613 | .0077 | -- | -- | .0054 | -- | -- | -- | -- | 2.3077 |
| 3412PB | 18.03 | 83.7 | 870 | 12.5 | 3.8179 | .0087 | -- | -- | .0250 | -- | -- | -- | -- | 1.2500 |
| 3412PC | 18.03 | 88.2 | 898 | 10.0 | 1.7650 | .0100 | -- | -- | .0050 | -- | -- | -- | -- | 1.5000 |
| 3412QA | 18.04 | 87.0 | 899 | 9.8 | 3.1875 | .0020 | -- | -- | .0005 | -- | -- | -- | -- | .9804 |
| 3412QC | 18.04 | 87.6 | 913 | 8.4 | 4.0243 | .0042 | -- | -- | .0084 | -- | -- | -- | .0025 | 1.6779 |
| 3412RA | 18.05 | 87.4 | 882 | 11.7 | .8323 | .0117 | -- | -- | .0008 | -- | -- | -- | -- | .7813 |
| 3412RB | 18.05 | 85.9 | 888 | 10.8 | 3.2795 | .0076 | -- | -- | .0011 | -- | -- | -- | -- | 3.2397 |
| 3412RC | 18.05 | 83.6 | 853 | 14.4 | 2.0022 | .0096 | -- | -- | .0010 | -- | -- | -- | -- | 1.9231 |
| 3412T | 18.06 | 88.0 | 901 | 9.6 | 2.4274 | .0048 | -- | -- | .0010 | -- | -- | -- | -- | 1.4423 |
| 3412UA | 18.07 | 86.8 | 896 | 10.1 | 3.1321 | .0051 | -- | -- | .0003 | -- | -- | -- | -- | 2.0202 |
| 3412UB | 18.07 | 87.3 | 897 | 10.0 | 2.6695 | .0100 | -- | -- | .0005 | -- | -- | -- | -- | 2.0000 |

TABLE 4.--contined

| Sample | SiteNo | Te | Ni | Co | Sn | Mo | Pt | Pd | Ba | Zr | V | Cr | Y | La | Nb | B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3390NA | 13.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3390NB | 13.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3390NC | 13.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3390P | 13.02 | -- | -- | -- | .2398 | -- | -- | -- | -- | .0360 | -- | -- | .0120 | .0180 | -- | -- |
| 3406A | 14.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3406B | 14.01 | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3406C | 14.01 | -- | -- | -- | -- | -- | -- | -- | .0010 | -- | .0010 | -- | -- | -- | -- | -- |
| 3406NA | 14.02 | -- | -- | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3406NB | 14.02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3406NC | 14.02 | -- | -- | -- | -- | -- | -- | -- | .0006 | -- | -- | -- | -- | -- | -- | -- |
| 3406PA | 14.03 | -- | -- | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3406PB | 14.03 | -- | -- | -- | -- | -- | -- | -- | .0543 | .0054 | -- | -- | -- | -- | -- | -- |
| 3406PC | 14.03 | -- | -- | .0006 | -- | -- | -- | -- | -- | .0222 | .0017 | -- | -- | -- | -- | -- |
| 3386A | 15.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3386B | 15.01 | -- | -- | -- | -- | -- | -- | -- | -- | .0020 | -- | -- | -- | -- | -- | -- |
| 3171A | 16.01 | -- | .0015 | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3171B | 16.01 | -- | -- | -- | -- | -- | -- | -- | .0007 | -- | -- | -- | -- | -- | -- | -- |
| 3171C | 16.01 | -- | .0010 | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3171D | 16.01 | -- | -- | -- | -- | -- | -- | -- | .0005 | .0005 | -- | -- | -- | -- | -- | -- |
| 3171E | 16.01 | -- | -- | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3171X | 16.02 | -- | -- | -- | -- | -- | -- | -- | .0007 | -- | -- | -- | -- | -- | -- | -- |
| 3415A | 17.01 | -- | .0010 | -- | -- | -- | -- | -- | .0007 | -- | -- | -- | -- | -- | -- | -- |
| 3415B | 17.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3415C | 17.01 | -- | -- | -- | -- | -- | -- | -- | .0006 | -- | -- | -- | -- | -- | -- | -- |
| 3415NA | 17.02 | -- | -- | -- | -- | -- | -- | -- | .0024 | -- | -- | -- | -- | -- | -- | -- |
| 3415NB | 17.02 | .0388 | .0008 | .0005 | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3415NC | 17.02 | -- | .0009 | .0013 | -- | -- | -- | -- | .0013 | -- | -- | -- | -- | -- | -- | -- |
| 3415PA | 17.03 | -- | -- | -- | -- | -- | -- | .0003 | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3415PB | 17.03 | -- | -- | -- | -- | -- | -- | -- | .0010 | -- | -- | -- | -- | -- | -- | -- |
| 3415QA | 17.04 | -- | .0100 | .0020 | -- | .0005 | -- | -- | .0050 | -- | -- | -- | -- | -- | -- | -- |
| 3415QB | 17.04 | -- | .0005 | .0007 | -- | .0010 | -- | -- | .0030 | -- | -- | -- | -- | -- | -- | -- |
| 3415QC | 17.04 | -- | .0005 | -- | -- | .0010 | -- | -- | .0030 | -- | -- | -- | -- | -- | -- | -- |
| 3415R | 17.05 | -- | -- | -- | .0021 | -- | .2137 | .0150 | -- | .1068 | .0043 | .0021 | -- | -- | -- | -- |
| 3412A | 18.01 | -- | -- | -- | -- | -- | -- | -- | .0010 | -- | -- | -- | -- | -- | -- | -- |
| 3412B | 18.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3412C | 18.01 | -- | -- | -- | -- | -- | -- | -- | .0014 | .0019 | -- | -- | -- | -- | -- | -- |
| 3412NA | 18.02 | .0077 | -- | -- | -- | -- | -- | -- | .0015 | -- | -- | -- | -- | -- | -- | -- |
| 3412NB | 18.02 | -- | -- | -- | -- | -- | -- | -- | .0020 | .0010 | -- | -- | -- | -- | -- | -- |
| 3412NC | 18.02 | -- | -- | -- | -- | -- | -- | -- | .0016 | -- | -- | -- | -- | -- | -- | -- |
| 3412PA | 18.03 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3412PB | 18.03 | .0062 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3412PC | 18.03 | -- | -- | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3412QA | 18.04 | -- | -- | -- | -- | -- | -- | .0002 | .0015 | -- | -- | -- | -- | -- | -- | -- |
| 3412QC | 18.04 | -- | -- | -- | -- | .0042 | -- | -- | .0059 | .0042 | .0042 | .0008 | .0008 | -- | -- | -- |
| 3412RA | 18.05 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3412RB | 18.05 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3412RC | 18.05 | -- | -- | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3412T | 18.06 | -- | .0005 | -- | -- | -- | -- | -- | .0019 | -- | .0019 | .0010 | -- | -- | -- | -- |
| 3412UA | 18.07 | -- | .0005 | -- | -- | -- | -- | .0020 | .0010 | .0010 | .0015 | .0020 | .0005 | -- | -- | -- |
| 3412UB | 18.07 | -- | .0005 | .0005 | -- | -- | -- | -- | .0020 | -- | -- | -- | -- | -- | -- | -- |

TABLE 4.--continued

| Sample | SiteNo | Be | W | Mn | Fe | Mg | Ca | Ti | Si | smpl wt | Au/Ag=r | Au/Cu | Ag/Cu | r/Cu |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3390NA | 13.01 | -- | -- | .0006 | .0355 | .0018 | .0059 | .0083 | .1182 | 4.23 | 11.0 | 3,861 | 350 | 467 |
| 3390NB | 13.01 | -- | -- | .0011 | .0575 | .0057 | .0080 | .0115 | .2299 | 4.35 | 11.3 | 5,281 | 467 | 656 |
| 3390NC | 13.01 | -- | -- | .0012 | .0605 | .0024 | .0242 | .0363 | .2421 | 4.13 | 10.7 | 5,012 | 467 | 591 |
| 3390P | 13.02 | -- | -- | .0060 | .2398 | .0120 | .0180 | .0600 | .2398 | 4.17 | 7.2 | 3,624 | 500 | 302 |
| 3406A | 14.01 | -- | -- | .0005 | .0526 | .0016 | .0032 | .0074 | .0526 | 4.75 | 5.3 | 7,981 | 1,500 | 505 |
| 3406B | 14.01 | -- | -- | .0002 | .0190 | .0029 | .0029 | .0048 | .0667 | 5.25 | 4.2 | 16,937 | 4,000 | 889 |
| 3406C | 14.01 | -- | -- | .0010 | .2000 | .0050 | .0050 | .1000 | .2000 | 5.00 | 18.9 | 9,436 | 500 | 1,887 |
| 3406NA | 14.02 | -- | -- | .0014 | .1415 | .0283 | .0094 | .0028 | .4717 | 5.30 | 14.0 | 4,909 | 350 | 743 |
| 3406NB | 14.02 | -- | -- | .0018 | .0446 | .0045 | .0446 | .0045 | .2674 | 5.61 | 10.2 | 5,085 | 500 | 571 |
| 3406NC | 14.02 | -- | -- | .0009 | .0866 | .0186 | .0087 | .0124 | .8663 | 4.04 | 10.4 | 4,859 | 467 | 561 |
| 3406PA | 14.03 | -- | -- | .0007 | .1046 | .0209 | .0105 | .0105 | .2092 | 4.78 | 8.3 | 8,324 | 1,000 | 796 |
| 3406PB | 14.03 | -- | -- | .0011 | .2174 | .0109 | .0054 | .0326 | .1087 | 4.60 | 8.0 | 8,008 | 1,000 | 737 |
| 3406PC | 14.03 | -- | -- | .0033 | .3333 | .0222 | .0222 | .2222 | .3333 | 4.50 | 7.8 | 5,214 | 667 | 469 |
| 3386A | 15.01 | -- | -- | .0006 | .0361 | .0036 | .0060 | .0024 | .0843 | 4.15 | 10.8 | 7,568 | 700 | 897 |
| 3386B | 15.01 | -- | -- | .0009 | .0946 | .0027 | .0068 | .0095 | .0946 | 3.70 | 9.5 | 6,661 | 700 | 704 |
| 3171A | 16.01 | -- | -- | .0002 | .0291 | .0029 | .0049 | .0029 | .0971 | 5.15 | 5.7 | 4,241 | 750 | 291 |
| 3171B | 16.01 | -- | -- | .0003 | .0492 | .0030 | .0049 | .0015 | .1476 | 5.08 | 4.0 | 5,291 | 1,333 | 269 |
| 3171C | 16.01 | -- | -- | .0003 | .0311 | .0052 | .0031 | .0052 | .1553 | 4.83 | 5.0 | 7,539 | 1,500 | 486 |
| 3171D | 16.01 | -- | -- | .0005 | .0664 | .0028 | .0047 | .0066 | .1423 | 5.27 | 5.9 | 4,455 | 750 | 313 |
| 3171E | 16.01 | -- | -- | .0002 | .0305 | .0031 | .0031 | .0010 | .1018 | 4.91 | 5.2 | 7,805 | 1,500 | 511 |
| 3171X | 16.02 | -- | -- | .0016 | .1062 | .0074 | .0106 | .0021 | .2123 | 4.71 | 5.1 | 7,687 | 1,500 | 483 |
| 3415A | 17.01 | -- | -- | .0052 | .2083 | .0104 | .0073 | .0021 | .3125 | 4.80 | 3.8 | 50,268 | 13,333 | 2,413 |
| 3415B | 17.01 | -- | -- | .0005 | .0204 | .0051 | .0051 | .0010 | .0714 | 4.90 | 8.6 | 8,589 | 1,000 | 842 |
| 3415C | 17.01 | -- | -- | .0011 | .0567 | .0079 | .0079 | .0113 | .1134 | 4.41 | 4.8 | 14,304 | 3,000 | 841 |
| 3415NA | 17.02 | -- | -- | .0024 | .1176 | .0235 | .0235 | .0118 | .8235 | 4.25 | 7.4 | 10,581 | 1,429 | 899 |
| 3415NB | 17.02 | -- | -- | .0155 | .7752 | .0116 | .0039 | .0012 | 1.5504 | 6.45 | 11.6 | 38,572 | 3,333 | 4,976 |
| 3415NC | 17.02 | -- | -- | .0125 | .8750 | .0125 | .0188 | .0125 | 6.2500 | 4.00 | 9.6 | 13,435 | 1,400 | 1,535 |
| 3415PA | 17.03 | -- | -- | .0010 | .0500 | .0100 | .0100 | .0020 | .2000 | 5.00 | 8.9 | 4,435 | 500 | 444 |
| 3415PB | 17.03 | -- | -- | .0020 | .1000 | .0100 | .0100 | .0100 | .3000 | 5.00 | 8.9 | 8,886 | 1,000 | 889 |
| 3415QA | 17.04 | -- | -- | .0020 | .2000 | .0150 | .0100 | .0020 | 1.0000 | 5.00 | 3.9 | 78,662 | 20,000 | 3,933 |
| 3415QB | 17.04 | -- | -- | .0100 | .7000 | .0200 | .0150 | .0070 | 1.5000 | 5.00 | 5.5 | 11,798 | 2,143 | 787 |
| 3415QC | 17.04 | -- | -- | .0030 | .2000 | .0500 | .0150 | .0100 | 1.5000 | 5.00 | 8.8 | 8,811 | 1,000 | 881 |
| 3415R | 17.05 | -- | .1068 | .0064 | 1.0684 | .0321 | .0641 | .1068 | 1.0684 | 2.34 | 8.0 | 2,652 | 333 | 248 |
| 3412A | 18.01 | -- | -- | .0005 | .0200 | .0030 | .0020 | .0010 | .1000 | 5.00 | 8.9 | 12,766 | 1,429 | 1,277 |
| 3412B | 18.01 | -- | -- | .0003 | .0110 | .0022 | .0016 | .0011 | .0549 | 4.55 | 8.0 | 11,418 | 1,429 | 1,039 |
| 3412C | 18.01 | -- | -- | .0005 | .0481 | .0096 | .0019 | .0048 | .1923 | 5.20 | 9.3 | 13,232 | 1,429 | 1,376 |
| 3412NA | 18.02 | -- | -- | .0004 | .0766 | .0077 | .0115 | .0015 | .2297 | 6.53 | 11.5 | 11,515 | 1,000 | 1,504 |
| 3412NB | 18.02 | -- | -- | .0005 | .0500 | .0150 | .0100 | .0015 | .2000 | 5.00 | 8.5 | 8,471 | 1,000 | 847 |
| 3412NC | 18.02 | -- | -- | .0008 | .0806 | .0161 | .0081 | .0016 | .4032 | 6.20 | 10.8 | 10,835 | 1,000 | 1,344 |
| 3412PA | 18.03 | -- | -- | .0005 | .0154 | .0077 | .0077 | .0015 | 2.3077 | 6.50 | 7.3 | 10,894 | 1,500 | 944 |
| 3412PB | 18.03 | -- | -- | .0004 | .0188 | .0038 | .0025 | .0025 | 2.5000 | 4.00 | 6.7 | 9,564 | 1,429 | 765 |
| 3412PC | 18.03 | -- | -- | .0005 | .0300 | .0070 | .0100 | .0020 | .2000 | 5.00 | 8.8 | 8,824 | 1,000 | 882 |
| 3412QA | 18.04 | -- | -- | .0020 | .1961 | .0196 | .0147 | .0098 | 1.9608 | 5.10 | 8.9 | 44,374 | 5,000 | 4,526 |
| 3412QC | 18.04 | -- | -- | .0042 | .4195 | .0419 | .0419 | .1258 | 1.6779 | 5.96 | 10.4 | 20,881 | 2,000 | 2,489 |
| 3412RA | 18.05 | -- | -- | .0002 | .0117 | .0008 | .0016 | .0008 | .0234 | 6.40 | 7.5 | 7,462 | 1,000 | 637 |
| 3412RB | 18.05 | -- | -- | .0002 | .0054 | .0011 | .0022 | .0008 | .0216 | 4.63 | 8.0 | 11,366 | 1,429 | 1,053 |
| 3412RC | 18.05 | -- | -- | .0003 | .0144 | .0014 | .0019 | .0019 | .0481 | 5.20 | 5.8 | 8,692 | 1,500 | 603 |
| 3412T | 18.06 | -- | -- | .0010 | .1442 | .0048 | .0067 | .1442 | .6731 | 5.20 | 9.1 | 18,295 | 2,000 | 1,903 |
| 3412UA | 18.07 | -- | -- | .0020 | .5051 | .0505 | .0202 | .0152 | .5051 | 4.95 | 8.6 | 17,180 | 2,000 | 1,701 |
| 3412UB | 18.07 | -- | -- | .0010 | .1000 | .0150 | .0300 | .0100 | .5000 | 5.00 | 8.7 | 8,733 | 1,000 | 873 |

TABLE 4.--continued

| Sample | SiteNo | % Au | Fineness | Ag | SUM of X | Cu | Zn | Ga | Pb | As | Sb | Cd | Bi | Hg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3412UC | 18.07 | 81.9 | 845 | 15.0 | 3.1464 | .0020 | -- | -- | .0002 | -- | -- | -- | -- | 3.0000 |
| 3412VA | 18.08 | 88.1 | 918 | 7.8 | 4.0382 | .0056 | -- | -- | .0002 | -- | -- | -- | -- | 2.2422 |
| 3412VB | 18.08 | 88.8 | 921 | 7.6 | 3.6097 | .0076 | -- | -- | .0005 | -- | -- | -- | -- | 1.6234 |
| 3412W | 18.09 | 86.6 | 910 | 8.5 | 4.8786 | .0085 | -- | -- | .0061 | -- | -- | -- | .0002 | 2.4331 |
| 3392A | 19.01 | 85.0 | 861 | 13.8 | 1.2569 | .0018 | -- | -- | .0018 | -- | -- | -- | -- | .0642 |
| 3392B | 19.01 | 90.0 | 911 | 8.7 | 1.3029 | .0061 | -- | -- | .0013 | -- | -- | -- | -- | .2622 |
| 3392C | 19.01 | 91.0 | 927 | 7.2 | 1.7957 | .0051 | -- | -- | .0010 | -- | -- | -- | -- | .5133 |
| 3392NA | 19.02 | 89.3 | 903 | 9.6 | 1.1147 | .0048 | -- | -- | .0019 | -- | -- | -- | -- | .9560 |
| 3392NB | 19.02 | 90.8 | 913 | 8.7 | .5695 | .0173 | -- | -- | .0013 | -- | -- | -- | -- | .4333 |
| 3392NC | 19.02 | 95.4 | 958 | 4.2 | .3607 | .0419 | -- | -- | .0008 | -- | -- | -- | -- | .0839 |
| 3392PA | 19.03 | 86.7 | 877 | 12.2 | 1.1095 | .0061 | -- | -- | .0085 | -- | -- | -- | -- | .2433 |
| 3392PB | 19.03 | 90.5 | 919 | 8.0 | 1.5156 | .0114 | -- | -- | .0017 | -- | -- | -- | -- | .2273 |
| 3392PC | 19.03 | 88.4 | 901 | 9.7 | 1.8723 | .0049 | -- | -- | .0146 | -- | -- | -- | .0005 | .0485 |
| 3392QA | 19.04 | 89.7 | 904 | 9.5 | .7671 | .0067 | -- | -- | .0143 | -- | -- | -- | .0010 | .0952 |
| 3392QB | 19.04 | 90.8 | 920 | 7.9 | 1.2822 | .0226 | -- | -- | .0023 | -- | -- | -- | .0057 | .5656 |
| 3392QC | 19.04 | 90.7 | 912 | 8.8 | .5026 | .0088 | -- | -- | .0009 | -- | -- | -- | -- | .2632 |
| 3392R | 19.05 | 86.8 | 879 | 12.0 | 1.2309 | .0072 | -- | -- | .0036 | -- | -- | -- | -- | .7177 |
| 3172A | 20.01 | 82.0 | 848 | 14.7 | 3.3292 | .0069 | -- | -- | .0002 | -- | -- | -- | -- | 2.9412 |
| 3172B | 20.01 | 74.2 | 784 | 20.4 | 5.3908 | .0071 | -- | -- | .0020 | -- | -- | -- | -- | 5.1020 |
| 3172C | 20.01 | 82.7 | 853 | 14.3 | 3.0099 | .0190 | -- | -- | .0002 | -- | -- | -- | -- | 2.8571 |
| 3172SB | 20.02 | 77.3 | 794 | 20.0 | 2.7500 | .0200 | -- | -- | .0010 | -- | -- | -- | -- | 2.0000 |
| 3172SC | 20.02 | 83.2 | 859 | 13.7 | 3.0915 | .0182 | -- | -- | .0046 | -- | -- | -- | .0014 | 2.7322 |
| 3172XA | 20.03 | 80.0 | 817 | 17.9 | 2.0390 | .0090 | -- | -- | -- | -- | -- | -- | -- | 1.7921 |
| 3172XB | 20.03 | 73.1 | 773 | 21.4 | 5.4616 | .0075 | -- | -- | -- | -- | -- | -- | -- | 5.3533 |
| 3172XC | 20.03 | 78.5 | 810 | 18.5 | 3.0375 | .0092 | -- | -- | .0009 | -- | -- | -- | -- | 2.7675 |
| 3393A | 20.04 | 86.0 | 870 | 12.8 | 1.2141 | .0017 | -- | -- | .0013 | -- | -- | -- | -- | .8547 |
| 3393B | 20.04 | 88.1 | 891 | 10.7 | 1.1727 | .0032 | -- | -- | .0011 | -- | -- | -- | -- | 1.0730 |
| 3393C | 20.04 | 90.9 | 915 | 8.4 | .6890 | .0059 | -- | -- | .0017 | -- | -- | -- | -- | .5892 |
| 3393NA | 20.05 | 89.1 | 898 | 10.1 | .8458 | .0101 | -- | -- | .0015 | -- | -- | -- | -- | .7056 |
| 3393NB | 20.05 | 91.8 | 923 | 7.7 | .4917 | .0165 | -- | -- | .0011 | -- | -- | -- | -- | .3304 |
| 3393NC | 20.05 | 89.4 | 904 | 9.5 | 1.0535 | .0029 | -- | -- | .0010 | -- | -- | -- | -- | .9506 |
| 3407A | 21.01 | 87.4 | 895 | 10.3 | 2.3349 | .0154 | -- | -- | .0005 | -- | -- | -- | -- | .5133 |
| 3407B | 21.01 | 89.3 | 912 | 8.6 | 2.0588 | .0172 | -- | .0002 | .0003 | -- | -- | -- | -- | .0862 |
| 3407C | 21.01 | 84.2 | 874 | 12.2 | 3.6505 | .0122 | -- | -- | .0024 | -- | -- | -- | .0061 | .0608 |
| 3413A | 22.01 | 94.3 | 946 | 5.4 | .2636 | .0543 | -- | -- | .0005 | -- | -- | -- | -- | .1087 |
| 3413B | 22.01 | 93.9 | 942 | 5.7 | .3991 | .0246 | -- | -- | .0164 | -- | -- | -- | .0082 | .0410 |
| 3413C | 22.01 | 90.7 | 913 | 8.7 | .6497 | .0130 | -- | -- | .0003 | -- | -- | -- | -- | .4333 |
| 3413NA | 22.02 | 92.0 | 929 | 7.0 | 1.0401 | .0150 | -- | -- | .0003 | -- | -- | -- | -- | .2000 |
| 3413NB | 22.02 | 88.7 | 894 | 10.6 | .7278 | .0106 | -- | -- | .0004 | -- | -- | -- | -- | .4930 |
| 3413NC | 22.02 | 90.5 | 913 | 8.6 | .8905 | .0129 | -- | -- | .0009 | -- | -- | -- | -- | .4310 |
| 3413PA | 22.03 | 94.6 | 950 | 5.0 | .3744 | .0300 | -- | -- | .0005 | -- | -- | -- | .0002 | .0500 |
| 3413PB | 22.03 | 89.8 | 903 | 9.7 | .5091 | .0290 | -- | -- | .0005 | -- | -- | -- | -- | .2901 |
| 3413PC | 22.03 | 88.2 | 898 | 10.0 | 1.7910 | .0050 | -- | -- | .0003 | -- | .0100 | -- | -- | 1.5000 |
| 3413QA | 22.04 | 88.9 | 899 | 10.0 | 1.0802 | .0200 | -- | -- | .0020 | -- | -- | -- | .1000 | .2000 |
| 3413QB | 22.04 | 87.8 | 893 | 10.6 | 1.6358 | .0211 | -- | -- | .0011 | -- | -- | -- | .0011 | .7400 |
| 3413QC | 22.04 | 89.4 | 905 | 9.4 | 1.2087 | .0142 | -- | -- | .0028 | -- | -- | -- | .0009 | .4717 |
| 3413R | 22.05 | 83.3 | 867 | 12.8 | 3.9541 | .0255 | -- | -- | .0255 | -- | -- | -- | .0064 | .1276 |
| 3397A | 23.01 | 91.8 | 922 | 7.8 | .3666 | .0112 | -- | -- | .0022 | -- | -- | -- | -- | .1116 |
| 3397B | 23.01 | 87.6 | 889 | 11.0 | 1.3665 | .0165 | -- | -- | .0011 | -- | .0077 | -- | -- | .7692 |
| 3397C | 23.01 | 86.8 | 880 | 11.8 | 1.3442 | .0118 | -- | -- | .0018 | -- | -- | -- | -- | .8294 |

TABLE 4.--continued

40-Mile Data--Continued

| Sample | SiteNo | Te | Ni | Co | Sn | Mo | Pt | Pd | Ba | Zr | V | Cr | Y | La | Nb | B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3412UC | 18.07 | -- | .0005 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3412VA | 18.08 | -- | .0006 | -- | -- | -- | -- | -- | .0008 | .0112 | .0056 | .1121 | .0008 | -- | -- | -- |
| 3412VB | 18.08 | -- | .0005 | -- | -- | -- | -- | -- | .0008 | .0216 | .0054 | .0011 | .0008 | -- | -- | -- |
| 3412W | 18.09 | .0608 | .0006 | .0024 | -- | -- | -- | -- | .0006 | .0365 | .0061 | .6083 | .0061 | .0122 | -- | -- |
| 3392A | 19.01 | -- | -- | -- | -- | -- | -- | -- | .0018 | -- | .0009 | -- | .0046 | -- | -- | -- |
| 3392B | 19.01 | -- | -- | -- | -- | -- | -- | -- | .0026 | -- | -- | -- | -- | -- | -- | -- |
| 3392C | 19.01 | -- | .0010 | -- | -- | -- | -- | -- | .0021 | -- | .0021 | .0010 | -- | -- | -- | -- |
| 3392NA | 19.02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3392NB | 19.02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3392NC | 19.02 | -- | -- | -- | -- | -- | -- | -- | -- | .0017 | -- | -- | -- | -- | -- | -- |
| 3392PA | 19.03 | -- | -- | -- | -- | -- | -- | -- | .0122 | -- | -- | -- | -- | -- | -- | -- |
| 3392PB | 19.03 | -- | -- | -- | -- | .0008 | -- | -- | .0114 | -- | -- | -- | -- | -- | -- | -- |
| 3392PC | 19.03 | -- | -- | -- | -- | .0010 | -- | -- | .0097 | .0010 | .0029 | -- | .0097 | -- | -- | -- |
| 3392QA | 19.04 | -- | -- | -- | -- | -- | -- | -- | .0095 | -- | .0019 | -- | .0019 | .0067 | -- | -- |
| 3392QB | 19.04 | -- | -- | -- | -- | -- | -- | -- | .0113 | -- | -- | -- | -- | -- | -- | -- |
| 3392QC | 19.04 | -- | -- | -- | -- | -- | -- | -- | .0009 | -- | -- | -- | -- | -- | -- | -- |
| 3392R | 19.05 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3172A | 20.01 | -- | .0007 | -- | -- | -- | -- | -- | .0049 | -- | .0008 | -- | -- | -- | -- | -- |
| 3172B | 20.01 | -- | -- | -- | -- | -- | -- | -- | .0010 | -- | -- | -- | -- | -- | -- | -- |
| 3172C | 20.01 | -- | -- | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3172SB | 20.02 | -- | .0010 | -- | -- | -- | -- | -- | .0020 | -- | -- | -- | -- | -- | -- | -- |
| 3172SC | 20.02 | -- | .0005 | -- | -- | -- | -- | -- | .0064 | -- | -- | -- | -- | -- | -- | -- |
| 3172XA | 20.03 | -- | -- | -- | -- | -- | -- | -- | .0090 | -- | -- | -- | -- | -- | -- | -- |
| 3172XB | 20.03 | -- | -- | -- | -- | -- | -- | -- | .0011 | -- | -- | -- | -- | -- | -- | -- |
| 3172XC | 20.03 | -- | -- | -- | -- | -- | -- | -- | .0009 | -- | -- | -- | -- | -- | -- | -- |
| 3393A | 20.04 | -- | -- | -- | -- | -- | -- | -- | .0026 | -- | -- | -- | -- | -- | -- | -- |
| 3393B | 20.04 | -- | -- | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3393C | 20.04 | -- | -- | -- | -- | -- | -- | -- | .0008 | -- | -- | -- | -- | -- | -- | -- |
| 3393NA | 20.05 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3393NB | 20.05 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3393NC | 20.05 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3407A | 21.01 | -- | -- | .0007 | -- | -- | -- | -- | .0031 | -- | -- | -- | -- | -- | -- | -- |
| 3407B | 21.01 | -- | -- | .0006 | -- | -- | -- | -- | .0017 | -- | -- | -- | -- | -- | -- | -- |
| 3407C | 21.01 | -- | -- | -- | -- | -- | -- | -- | .0009 | -- | -- | -- | -- | -- | -- | -- |
| 3413A | 22.01 | -- | .0005 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3413R | 22.01 | -- | .0004 | -- | -- | -- | -- | .0002 | .0006 | -- | -- | -- | -- | -- | -- | -- |
| 3413C | 22.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3413NA | 22.02 | -- | -- | -- | -- | -- | -- | .0003 | .0015 | -- | -- | -- | -- | -- | -- | -- |
| 3413NB | 22.02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3413NC | 22.02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | .0009 | -- | -- | -- | -- |
| 3413PA | 22.03 | -- | -- | -- | -- | -- | -- | -- | .0007 | .0050 | -- | -- | -- | -- | -- | -- |
| 3413PB | 22.03 | -- | -- | -- | -- | -- | -- | .0005 | .0007 | .0019 | -- | -- | -- | -- | -- | -- |
| 3413PC | 22.03 | -- | -- | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3413QA | 22.04 | .0100 | -- | -- | -- | -- | -- | .0002 | .0005 | .0100 | .0020 | .0050 | .0005 | -- | -- | -- |
| 3413QB | 22.04 | -- | -- | -- | -- | -- | -- | -- | .0005 | .0211 | -- | -- | -- | -- | -- | -- |
| 3413QC | 22.04 | -- | -- | -- | -- | -- | -- | -- | .0007 | .0094 | .0014 | -- | -- | -- | -- | -- |
| 3413R | 22.05 | -- | -- | .0026 | .1276 | -- | -- | -- | -- | .6378 | .0038 | .0128 | .0255 | .0638 | -- | -- |
| 3397A | 23.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3397B | 23.01 | -- | -- | -- | -- | -- | -- | -- | .0011 | -- | -- | -- | -- | -- | -- | -- |
| 3397C | 23.01 | -- | -- | -- | -- | -- | -- | .0018 | .0006 | -- | -- | -- | -- | -- | -- | -- |

TABLE 4.--continued

| Sample | SiteNo | Be | W | Mn | Fe | Mg | Ca | Ti | Si | smpl wt | Au/Ag=r | Au/Cu | Ag/Cu | r/Cu |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3412UC | 18.07 | -- | -- | .0007 | .0300 | .0030 | .0050 | .0050 | .1000 | 5.00 | 5.5 | 40,927 | 7,500 | 2,728 |
| 3412VA | 18.08 | -- | -- | .0112 | 1.1211 | .0224 | .0561 | .1121 | .3363 | 4.46 | 11.2 | 15,720 | 1,400 | 2,003 |
| 3412VB | 18.08 | -- | -- | .0216 | 1.0823 | .0325 | .0541 | .2165 | .5411 | 4.62 | 11.7 | 11,724 | 1,000 | 1,548 |
| 3412W | 18.09 | -- | -- | .0182 | 1.2165 | .0365 | .0365 | .0243 | .3650 | 4.11 | 10.2 | 10,170 | 1,000 | 1,194 |
| 3392A | 19.01 | -- | -- | .0028 | .1835 | .0183 | .0138 | .0459 | .9174 | 5.45 | 6.2 | 46,315 | 7,500 | 3,366 |
| 3392B | 19.01 | -- | -- | .0017 | .1311 | .0087 | .0131 | .0017 | .8741 | 5.72 | 10.3 | 14,701 | 1,429 | 1,682 |
| 3392C | 19.01 | -- | -- | .0072 | 1.0267 | .0051 | .0103 | .0154 | .2053 | 4.87 | 12.7 | 17,730 | 1,400 | 2,467 |
| 3392NA | 19.02 | -- | -- | .0010 | .0478 | .0010 | .0019 | .0048 | .0956 | 5.23 | 9.3 | 18,687 | 2,000 | 1,955 |
| 3392NB | 19.02 | -- | -- | .0006 | .0260 | .0009 | .0026 | .0009 | .0867 | 5.77 | 10.5 | 5,237 | 500 | 604 |
| 3392NC | 19.02 | -- | -- | .0008 | .0587 | .0008 | .0025 | .0017 | .1678 | 5.96 | 22.8 | 2,275 | 100 | 542 |
| 3392PA | 19.03 | -- | -- | .0061 | .1825 | .0122 | .0061 | .0243 | .6083 | 4.11 | 7.1 | 14,258 | 2,000 | 1,172 |
| 3392PB | 19.03 | -- | -- | .0017 | .1136 | .0034 | .0023 | .0057 | 1.1364 | 4.40 | 11.4 | 7,967 | 700 | 1,002 |
| 3392PC | 19.03 | -- | -- | .0029 | .4854 | .0194 | .0097 | .2913 | .9709 | 5.15 | 9.1 | 18,214 | 2,000 | 1,876 |
| 3392QA | 19.04 | -- | -- | .0014 | .1429 | .0048 | .0048 | .1905 | .2857 | 5.25 | 9.4 | 13,456 | 1,429 | 1,413 |
| 3392QB | 19.04 | -- | -- | .0017 | .0792 | .0057 | .0113 | .0113 | .5656 | 4.42 | 11.5 | 4,013 | 350 | 507 |
| 3392QC | 19.04 | -- | -- | .0009 | .0439 | .0018 | .0044 | .0026 | .1754 | 5.70 | 10.3 | 10,343 | 1,000 | 1,179 |
| 3392R | 19.05 | -- | -- | .0024 | .2392 | .0048 | .0120 | .0048 | .2392 | 2.09 | 7.3 | 12,095 | 1,667 | 1,011 |
| 3172A | 20.01 | -- | -- | .0020 | .1471 | .0196 | .0049 | .0049 | .1961 | 5.10 | 5.6 | 11,943 | 2,143 | 812 |
| 3172B | 20.01 | -- | -- | .0010 | .0510 | .0102 | .0051 | .0071 | .2041 | 4.90 | 3.6 | 10,388 | 2,857 | 509 |
| 3172C | 20.01 | -- | -- | .0007 | .0286 | .0067 | .0019 | -- | .0952 | 5.25 | 5.8 | 4,342 | 750 | 304 |
| 3172SB | 20.02 | -- | -- | .0020 | .2000 | .0150 | .0070 | .0020 | .5000 | 5.00 | 3.9 | 3,863 | 1,000 | 193 |
| 3172SC | 20.02 | -- | -- | .0009 | .0455 | .0046 | .0027 | .0014 | .2732 | 5.49 | 6.1 | 4,570 | 750 | 335 |
| 3172XA | 20.03 | -- | -- | .0009 | .0448 | .0027 | .0013 | -- | .1792 | 5.58 | 4.5 | 8,932 | 2,000 | 498 |
| 3172XB | 20.03 | -- | -- | .0002 | .0214 | .0021 | .0011 | -- | .0749 | 4.67 | 3.4 | 9,757 | 2,857 | 456 |
| 3172XC | 20.03 | -- | -- | .0006 | .0646 | .0046 | .0046 | -- | .1845 | 5.42 | 4.3 | 8,511 | 2,000 | 461 |
| 3393A | 20.04 | -- | -- | .0009 | .0855 | .0043 | .0043 | .0026 | .2564 | 5.85 | 6.7 | 50,290 | 7,500 | 3,923 |
| 3393B | 20.04 | -- | -- | .0005 | .0322 | .0016 | .0054 | .0016 | .0536 | 4.66 | 8.2 | 27,369 | 3,333 | 2,551 |
| 3393C | 20.04 | -- | -- | .0004 | .0421 | .0008 | .0042 | .0017 | .0421 | 5.94 | 10.8 | 15,426 | 1,429 | 1,833 |
| 3393NA | 20.05 | -- | -- | .0005 | .0202 | .0020 | .0030 | .0020 | .1008 | 4.96 | 8.8 | 8,836 | 1,000 | 877 |
| 3393NB | 20.05 | -- | -- | .0006 | .0220 | .0022 | .0033 | .0055 | .1101 | 4.54 | 11.9 | 5,557 | 467 | 721 |
| 3393NC | 20.05 | -- | -- | .0003 | .0190 | .0019 | .0019 | .0095 | .0665 | 5.26 | 9.4 | 31,364 | 3,333 | 3,299 |
| 3407A | 21.01 | -- | -- | .0051 | .2053 | .0205 | .0205 | .0103 | 1.5400 | 4.87 | 8.5 | 5,675 | 667 | 553 |
| 3407B | 21.01 | -- | -- | .0026 | .1724 | .0431 | .0060 | .0043 | 1.7241 | 5.80 | 10.4 | 5,181 | 500 | 601 |
| 3407C | 21.01 | -- | -- | .0122 | .2433 | .0243 | .8516 | .0036 | 2.4331 | 4.11 | 6.9 | 6,920 | 1,000 | 569 |
| 3413A | 22.01 | -- | -- | .0016 | .0326 | .0022 | .0033 | .0054 | .0543 | 4.60 | 17.4 | 1,735 | 100 | 319 |
| 3413B | 22.01 | -- | -- | .0012 | .1230 | .0082 | .0057 | .0057 | .1639 | 6.10 | 16.4 | 3,817 | 233 | 665 |
| 3413C | 22.01 | -- | -- | .0026 | .0607 | .0043 | .0043 | .0013 | .1300 | 5.77 | 10.5 | 6,977 | 667 | 805 |
| 3413NA | 22.02 | -- | -- | .0030 | .5000 | .0070 | .0100 | .0030 | .3000 | 5.00 | 13.1 | 6,131 | 467 | 876 |
| 3413NB | 22.02 | -- | -- | .0007 | .1408 | .0035 | .0035 | .0049 | .0704 | 7.10 | 8.4 | 8,398 | 1,000 | 795 |
| 3413NC | 22.02 | -- | -- | .0009 | .2586 | .0060 | .0060 | .0009 | .1724 | 5.80 | 10.5 | 6,998 | 667 | 812 |
| 3413PA | 22.03 | -- | -- | .0010 | .1500 | .0070 | .0100 | .0200 | .1000 | 5.00 | 18.9 | 3,154 | 167 | 631 |
| 3413PB | 22.03 | -- | -- | .0007 | .0967 | .0068 | .0097 | .0048 | .0677 | 5.17 | 9.3 | 3,096 | 333 | 320 |
| 3413PC | 22.03 | .0002 | -- | .0050 | .1500 | .0070 | .0100 | .0030 | .1000 | 5.00 | 8.8 | 17,642 | 2,000 | 1,764 |
| 3413QA | 22.04 | -- | -- | .0100 | .5000 | .0100 | .0100 | .1000 | .1000 | 5.00 | 8.9 | 4,446 | 500 | 445 |
| 3413QB | 22.04 | -- | -- | .0106 | .5285 | .0106 | .0159 | .0740 | .2114 | 4.73 | 8.3 | 4,153 | 500 | 393 |
| 3413QC | 22.04 | -- | -- | .0094 | .4717 | .0094 | .0094 | .0189 | .1887 | 5.30 | 9.5 | 6,315 | 667 | 669 |
| 3413R | 22.05 | -- | .2551 | .0383 | 1.2755 | .0128 | .0383 | .6378 | .6378 | 3.92 | 6.5 | 3,265 | 500 | 256 |
| 3397A | 23.01 | -- | -- | .0011 | .1116 | .0017 | .0078 | .0078 | .1116 | 4.48 | 11.8 | 8,227 | 700 | 1,053 |
| 3397B | 23.01 | -- | -- | .0016 | .2198 | .0033 | .0055 | .0110 | .3297 | 4.55 | 8.0 | 5,317 | 667 | 484 |
| 3397C | 23.01 | -- | -- | .0012 | .2370 | .0059 | .0059 | .0118 | .2370 | 4.22 | 7.3 | 7,327 | 1,000 | 618 |

TABLE 4.--continued

| Sample | SiteNo | % Au | Fineness | Ag | SUM of X | Cu | Zn | Ga | Pb | As | Sb | Cd | Bi | Hg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3396 | 24.01 | 82.3 | 843 | 15.3 | 2.4486 | .0071 | -- | -- | .0031 | -- | -- | -- | -- | .0713 |
| 3402NA | 25.01 | 94.4 | 947 | 5.3 | .3446 | .0211 | -- | -- | .0021 | -- | .0106 | -- | -- | .1057 |
| 3402NB | 25.01 | 93.7 | 942 | 5.7 | .5621 | .0172 | -- | -- | .0017 | -- | -- | -- | -- | .3448 |
| 3402NC | 25.01 | 90.8 | 920 | 7.9 | 1.3372 | .0158 | -- | -- | .0047 | -- | -- | -- | -- | .1104 |
| 3402PA | 25.02 | 92.7 | 937 | 6.2 | 1.0763 | .0125 | -- | .0002 | .0037 | -- | .0025 | -- | -- | .8728 |
| 3402PB | 25.02 | 91.2 | 917 | 8.3 | .5421 | .0177 | -- | .0002 | .0083 | -- | .0024 | -- | -- | .3538 |
| 3402PC | 25.02 | 88.8 | 909 | 8.9 | 2.3434 | .0178 | -- | -- | .0356 | .0089 | -- | -- | -- | .8897 |
| 3402QA | 25.03 | 92.7 | 936 | 6.3 | .9493 | .0135 | -- | -- | .0090 | -- | .0090 | -- | -- | .6318 |
| 3402QB | 25.03 | 93.5 | 941 | 5.9 | .6277 | .0126 | -- | .0002 | .0059 | -- | .0059 | -- | -- | .4216 |
| 3402QC | 25.03 | 91.8 | 926 | 7.3 | .8841 | .0105 | -- | .0002 | .0523 | .0073 | .0052 | -- | -- | .5230 |
| 3402RA | 25.04 | 88.9 | 906 | 9.3 | 1.7861 | .0928 | .0093 | .0002 | .0464 | .0278 | .0046 | -- | -- | .9276 |
| 3402RB | 25.04 | 88.6 | 900 | 9.8 | 1.5733 | .0098 | .0492 | -- | .0689 | -- | .0197 | -- | -- | .4921 |
| 3402RC | 25.04 | 87.1 | 880 | 11.9 | .9524 | .0119 | -- | .0002 | .0060 | -- | -- | -- | .0002 | .5967 |
| 3400A | 26.01 | 91.9 | 937 | 6.2 | 1.8744 | .0249 | -- | -- | .0871 | -- | -- | -- | .0019 | .0622 |
| 3400B | 26.01 | 93.2 | 938 | 6.1 | .7048 | .0122 | -- | -- | .0244 | -- | -- | -- | -- | .0367 |
| 3400C | 26.01 | 91.7 | 922 | 7.7 | .5077 | .0111 | -- | -- | .0221 | -- | -- | -- | -- | .1106 |
| 3400NA | 26.02 | 91.8 | 932 | 6.7 | 1.4923 | .0193 | -- | -- | .9634 | -- | .0145 | -- | .0005 | .0482 |
| 3400NB | 26.02 | 91.0 | 919 | 8.0 | .9588 | .0172 | -- | -- | .0343 | -- | .0080 | -- | -- | .0343 |
| 3400NC | 26.02 | 86.7 | 877 | 12.2 | 1.0810 | .0052 | -- | -- | .0871 | -- | .0035 | -- | -- | .1742 |
| 3400PA | 26.03 | 93.9 | 943 | 5.7 | .4163 | .0171 | -- | -- | .0228 | -- | -- | -- | -- | .0797 |
| 3400PB | 26.03 | 92.7 | 934 | 6.6 | .6781 | .0094 | -- | -- | .0940 | -- | -- | -- | -- | .2820 |
| 3400PC | 26.03 | 93.0 | 934 | 6.5 | .4263 | .0093 | -- | -- | .0466 | -- | .0019 | -- | -- | .1866 |
| 3400Q | 26.04 | 93.5 | 939 | 6.0 | .4601 | .0121 | -- | -- | .0121 | -- | -- | -- | -- | .1208 |
| 3400QB | 26.04 | 94.5 | 949 | 5.0 | .4637 | .0151 | -- | -- | .0202 | .0050 | -- | -- | -- | .2016 |
| 3400QC | 26.04 | 94.0 | 943 | 5.7 | .3126 | .0114 | -- | -- | .0171 | -- | -- | -- | -- | .1139 |
| 3232B | 27.01 | 94.5 | 952 | 4.7 | .7974 | .0190 | -- | -- | .0014 | -- | -- | -- | -- | .4744 |
| 3232C | 27.01 | 80.2 | 846 | 14.6 | 5.2130 | .0292 | -- | -- | .0029 | -- | -- | -- | -- | 4.8638 |
| 3232XA | 27.02 | 85.3 | 854 | 14.5 | .2005 | .0484 | -- | -- | .0010 | -- | -- | -- | -- | .0484 |
| 3232XC | 27.02 | 89.7 | 907 | 9.1 | 1.2025 | .0183 | -- | -- | .0005 | -- | -- | -- | -- | .0457 |
| 3232ZA | 27.03 | 80.5 | 854 | 13.7 | 5.7319 | .0137 | -- | -- | .0092 | -- | .0027 | -- | -- | 5.4945 |
| 3232ZB | 27.03 | 78.5 | 863 | 12.4 | 9.1114 | .0177 | -- | -- | .0009 | -- | .0031 | -- | -- | 8.8653 |
| 3401A | 27.03 | 95.1 | 953 | 4.7 | .2439 | .0187 | -- | -- | .0047 | -- | .0047 | -- | -- | .0466 |
| 3401B | 27.03 | 90.4 | 905 | 9.4 | .2007 | .0094 | -- | -- | .0066 | -- | .0189 | -- | -- | .0943 |
| 3394A | 28.01 | 89.5 | 898 | 10.2 | .2995 | .0071 | -- | -- | .0015 | -- | -- | -- | -- | .0305 |
| 3394B | 28.01 | 93.2 | 934 | 6.6 | .2711 | .0094 | -- | -- | .0009 | -- | -- | -- | -- | .0655 |
| 3394C | 28.01 | 92.7 | 929 | 7.1 | .2111 | .0505 | -- | -- | .0010 | -- | -- | -- | -- | .0202 |
| 3394NA | 28.02 | 91.5 | 917 | 8.3 | .2090 | .0178 | -- | -- | .0012 | -- | -- | -- | -- | .0238 |
| 3394NB | 28.02 | 93.1 | 932 | 6.8 | .1529 | .0194 | -- | -- | .0015 | -- | -- | .0010 | -- | .0291 |
| 3394NC | 28.02 | 94.3 | 945 | 5.4 | .2345 | .0109 | -- | -- | .0011 | -- | -- | -- | -- | .0763 |
| 3394P | 28.03 | 88.8 | 899 | 10.0 | 1.1872 | .0100 | -- | -- | .0007 | -- | -- | -- | -- | .7163 |
| 3394Q | 28.04 | 87.0 | 877 | 12.2 | .8537 | .0174 | -- | -- | .0017 | -- | -- | -- | -- | .1742 |
| 3403A | 29.01 | 86.4 | 874 | 12.5 | 1.1218 | .0083 | .0167 | .0002 | .0013 | -- | -- | -- | -- | .1667 |
| 3403B | 29.01 | 88.7 | 890 | 11.0 | .3043 | .0055 | -- | -- | .0022 | -- | -- | -- | -- | .0768 |
| 3403C | 29.01 | 88.3 | 893 | 10.6 | 1.1125 | .0053 | .0053 | -- | .0021 | -- | -- | -- | -- | .1592 |
| 3404A | 30.01 | 90.1 | 912 | 8.7 | 1.1652 | .0087 | .0061 | .0002 | .0009 | -- | -- | -- | -- | .0261 |
| 3404B | 30.01 | 90.0 | 911 | 8.8 | 1.2078 | .0125 | .0062 | .0003 | .0013 | -- | -- | -- | -- | .0625 |
| 3404C | 30.01 | 89.3 | 908 | 9.0 | 1.6560 | .0090 | .0090 | -- | .0018 | -- | -- | -- | -- | .1808 |
| 3404NA | 30.02 | 89.8 | 905 | 9.5 | .7497 | .0066 | -- | .0002 | .0047 | -- | -- | -- | .0014 | .0947 |
| 3404NB | 30.02 | 88.3 | 887 | 11.2 | .4652 | .0112 | -- | -- | .0011 | -- | -- | -- | -- | .0561 |
| 3404P | 30.03 | 91.2 | 916 | 8.4 | .4207 | .0125 | -- | .0002 | .0013 | -- | -- | -- | -- | .0585 |

TABLE 4.--continued

| Sample | SiteNo | Te | Ni | Co | Sn | Mo | Pt | Pd | Ba | Zr | V | Cr | Y | La | Nb | B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3396 | 24.01 | -- | -- | -- | -- | -- | -- | -- | 2.0367 | -- | -- | -- | -- | -- | -- | -- |
| 3402NA | 25.01 | -- | -- | -- | -- | -- | -- | -- | .0021 | -- | -- | -- | -- | -- | -- | -- |
| 3402NB | 25.01 | -- | -- | -- | -- | -- | -- | .0011 | .0017 | -- | -- | -- | -- | -- | -- | .0011 |
| 3402NC | 25.01 | -- | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- | -- |
| 3402PA | 25.02 | -- | -- | -- | -- | -- | -- | -- | .0062 | -- | -- | -- | -- | -- | -- | -- |
| 3402PB | 25.02 | -- | -- | -- | -- | -- | -- | -- | .0024 | -- | -- | -- | -- | -- | -- | -- |
| 3402PC | 25.02 | -- | -- | -- | -- | -- | -- | -- | .8897 | -- | -- | -- | -- | -- | -- | -- |
| 3402QA | 25.03 | -- | -- | -- | -- | -- | -- | .0003 | .0135 | .0014 | -- | -- | -- | -- | -- | .0027 |
| 3402QB | 25.03 | -- | -- | .0013 | -- | -- | -- | .0002 | .0008 | -- | -- | -- | -- | -- | -- | -- |
| 3402QC | 25.03 | -- | -- | -- | -- | -- | -- | -- | .0052 | -- | -- | -- | -- | -- | -- | .0021 |
| 3402RA | 25.04 | -- | -- | -- | .0093 | -- | -- | .0002 | .1855 | .0046 | -- | -- | -- | .0093 | -- | .0046 |
| 3402RB | 25.04 | -- | -- | -- | .0010 | -- | -- | .0005 | .4921 | .0020 | -- | .0492 | -- | .0148 | -- | -- |
| 3402RC | 25.04 | -- | -- | -- | -- | -- | -- | .0002 | .0018 | .0012 | -- | -- | -- | -- | -- | .0012 |
| 3400A | 26.01 | -- | -- | -- | 1.2438 | -- | -- | -- | .0019 | -- | -- | -- | -- | -- | -- | -- |
| 3400B | 26.01 | -- | -- | -- | .0061 | -- | -- | -- | .0006 | -- | -- | -- | -- | -- | -- | -- |
| 3400C | 26.01 | -- | -- | -- | .0055 | -- | -- | -- | .0033 | -- | -- | -- | -- | -- | -- | .0022 |
| 3400NA | 26.02 | -- | -- | -- | .2890 | -- | -- | -- | .0019 | -- | -- | -- | -- | -- | -- | -- |
| 3400NB | 26.02 | -- | .0011 | -- | .0343 | -- | -- | -- | .0034 | -- | -- | -- | -- | -- | -- | -- |
| 3400NC | 26.02 | -- | -- | -- | .0017 | -- | -- | -- | .0026 | -- | -- | -- | -- | -- | -- | -- |
| 3400PA | 26.03 | -- | -- | -- | -- | -- | -- | -- | .0023 | -- | -- | -- | -- | -- | -- | -- |
| 3400PB | 26.03 | -- | .0005 | -- | -- | -- | -- | -- | .0009 | -- | -- | -- | -- | -- | -- | -- |
| 3400PC | 26.03 | -- | -- | -- | .0093 | -- | -- | -- | .0028 | -- | -- | -- | -- | -- | -- | -- |
| 3400Q | 26.04 | -- | -- | -- | -- | -- | -- | -- | .0018 | -- | -- | -- | -- | -- | -- | .0006 |
| 3400QB | 26.04 | -- | -- | -- | .0050 | -- | -- | -- | .0015 | -- | -- | -- | -- | -- | -- | .0005 |
| 3400QC | 26.04 | -- | -- | -- | .0034 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3232B | 27.01 | -- | .0005 | -- | -- | -- | -- | -- | .0009 | -- | -- | -- | -- | -- | -- | .0005 |
| 3232C | 27.01 | -- | .0005 | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3232XA | 27.02 | -- | -- | -- | -- | -- | -- | -- | .0004 | -- | -- | -- | -- | -- | -- | -- |
| 3232XC | 27.02 | -- | .0046 | -- | -- | -- | -- | -- | .0009 | -- | -- | -- | -- | -- | -- | -- |
| 3232ZA | 27.03 | -- | -- | -- | -- | -- | -- | -- | .0006 | -- | -- | -- | -- | -- | -- | -- |
| 3232ZB | 27.03 | -- | -- | -- | -- | -- | -- | -- | .0007 | -- | -- | -- | -- | -- | -- | -- |
| 3401A | 27.03 | -- | -- | -- | -- | -- | -- | .0009 | .0009 | -- | -- | -- | -- | -- | -- | -- |
| 3401B | 27.03 | -- | -- | -- | -- | -- | -- | -- | .0005 | -- | -- | -- | -- | -- | -- | -- |
| 3394A | 28.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3394B | 28.01 | -- | -- | -- | -- | -- | -- | -- | .0009 | -- | -- | -- | -- | -- | -- | -- |
| 3394C | 28.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3394NA | 28.02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3394NB | 28.02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3394NC | 28.02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 3394P | 28.03 | -- | -- | -- | -- | -- | -- | .0003 | .0014 | -- | -- | -- | -- | -- | -- | -- |
| 3394Q | 28.04 | -- | -- | -- | -- | -- | -- | -- | .0087 | -- | -- | -- | -- | -- | -- | -- |
| 3403A | 29.01 | -- | .0025 | .0008 | -- | -- | -- | -- | .0025 | .0004 | .0017 | -- | -- | -- | -- | -- |
| 3403B | 29.01 | -- | -- | -- | -- | -- | -- | -- | .0022 | -- | -- | -- | -- | -- | -- | -- |
| 3403C | 29.01 | -- | .0021 | -- | -- | -- | -- | -- | .0053 | -- | -- | -- | -- | -- | -- | -- |
| 3404A | 30.01 | -- | .0026 | -- | -- | -- | -- | -- | .0087 | -- | -- | -- | -- | -- | -- | -- |
| 3404B | 30.01 | -- | .0013 | -- | -- | -- | -- | -- | .0025 | -- | -- | -- | -- | -- | -- | -- |
| 3404C | 30.01 | -- | .0018 | .0014 | -- | -- | -- | -- | .0063 | .0009 | .0045 | .0009 | .0018 | -- | -- | -- |
| 3404NA | 30.02 | -- | -- | -- | -- | -- | -- | -- | .0014 | -- | -- | -- | -- | -- | -- | -- |
| 3404NB | 30.02 | -- | .0011 | -- | -- | -- | -- | -- | .0017 | -- | -- | -- | -- | -- | -- | -- |
| 3404P | 30.03 | -- | -- | -- | -- | -- | -- | -- | .0025 | -- | -- | -- | -- | -- | -- | -- |

TABLE 4.--continued

| Sample | SiteNo | Be | W | Mn | Fe | Mg | Ca | Ti | Si | smpl wt | Au/Ag=r | Au/Cu | Ag/Cu | r/Cu |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3396 | 24.01 | -- | -- | .0015 | .1018 | .0102 | .0102 | .0031 | .2037 | 4.91 | 5.4 | 11,542 | 2,143 | 756 |
| 3402NA | 25.01 | -- | -- | .0011 | .0317 | .0032 | .0032 | .0053 | .1586 | 4.73 | 17.9 | 4,464 | 250 | 845 |
| 3402NB | 25.01 | -- | -- | .0011 | .0575 | .0057 | .0034 | .0115 | .1149 | 4.35 | 16.3 | 5,434 | 333 | 946 |
| 3402NC | 25.01 | -- | -- | .0024 | .0789 | .0079 | .0047 | .0079 | 1.1041 | 3.17 | 11.5 | 5,755 | 500 | 730 |
| 3402PA | 25.02 | -- | -- | .0012 | .0249 | .0062 | .0025 | .0187 | .1247 | 4.01 | 14.9 | 7,434 | 500 | 1,192 |
| 3402PB | 25.02 | -- | -- | .0018 | .0236 | .0024 | .0035 | .0083 | .1179 | 4.24 | 11.0 | 5,156 | 467 | 625 |
| 3402PC | 25.02 | -- | -- | .0036 | .2669 | .0267 | .0089 | .0178 | .1779 | 2.81 | 10.0 | 4,988 | 500 | 561 |
| 3402QA | 25.03 | -- | -- | .0018 | .0903 | .0090 | .0045 | .0271 | .1354 | 5.54 | 14.7 | 6,850 | 467 | 1,084 |
| 3402QB | 25.03 | -- | -- | .0013 | .0843 | .0025 | .0025 | .0042 | .0843 | 5.93 | 15.8 | 7,390 | 467 | 1,252 |
| 3402QC | 25.03 | -- | -- | .0021 | .1569 | .0052 | .0021 | .0073 | .1046 | 4.78 | 12.5 | 8,775 | 700 | 1,198 |
| 3402RA | 25.04 | -- | -- | .0028 | .2783 | .0186 | .0065 | .0186 | .1391 | 5.39 | 9.6 | 959 | 100 | 103 |
| 3402RB | 25.04 | -- | -- | .0049 | .1969 | .0148 | .0098 | .0492 | .0984 | 5.08 | 9.0 | 9,000 | 1,000 | 914 |
| 3402RC | 25.04 | -- | -- | .0024 | .1790 | .0060 | .0024 | .0239 | .1193 | 4.19 | 7.3 | 7,300 | 1,000 | 612 |
| 3400A | 26.01 | -- | -- | .0025 | .2488 | .0062 | .0025 | .0062 | .1866 | 4.02 | 14.8 | 3,695 | 250 | 594 |
| 3400B | 26.01 | -- | -- | .0037 | .2445 | .0037 | .0024 | .0037 | .3667 | 4.09 | 15.2 | 7,622 | 500 | 1,247 |
| 3400C | 26.01 | -- | -- | .0022 | .2212 | .0077 | .0077 | .0033 | .1106 | 4.52 | 11.8 | 8,294 | 700 | 1,071 |
| 3400NA | 26.02 | -- | -- | .0010 | .0482 | .0014 | .0019 | .0067 | .0963 | 5.19 | 13.6 | 4,763 | 350 | 706 |
| 3400NB | 26.02 | -- | -- | .0057 | .2288 | .0057 | .0057 | .0080 | .5721 | 4.37 | 11.4 | 5,304 | 467 | 662 |
| 3400NC | 26.02 | -- | -- | .0052 | .2613 | .0052 | .0035 | .0087 | .5226 | 2.87 | 7.1 | 16,593 | 2,333 | 1,361 |
| 3400PA | 26.03 | -- | -- | .0011 | .1708 | .0034 | .0034 | .0017 | .1139 | 4.39 | 16.5 | 5,496 | 333 | 965 |
| 3400PB | 26.03 | -- | -- | .0014 | .1880 | .0019 | .0047 | .0014 | .0940 | 5.32 | 14.1 | 9,868 | 700 | 1,500 |
| 3400PC | 26.03 | -- | -- | .0009 | .0653 | .0019 | .0019 | .0065 | .0933 | 5.36 | 14.2 | 9,974 | 700 | 1,527 |
| 3400Q | 26.04 | -- | -- | .0024 | .1812 | .0024 | .0036 | .0024 | .1208 | 4.14 | 15.5 | 7,742 | 500 | 1,282 |
| 3400QB | 26.04 | -- | -- | .0010 | .1008 | .0020 | .0050 | .0050 | .1008 | 4.96 | 18.7 | 6,249 | 333 | 1,240 |
| 3400QC | 26.04 | -- | -- | .0011 | .0797 | .0017 | .0034 | .0011 | .0797 | 4.39 | 16.5 | 8,253 | 500 | 1,449 |
| 3232B | 27.01 | -- | -- | .0019 | .0949 | .0095 | .0047 | -- | .1898 | 5.27 | 19.9 | 4,978 | 250 | 1,049 |
| 3232C | 27.01 | -- | -- | .0068 | .2918 | .0097 | .0019 | .0010 | .0049 | 5.14 | 5.5 | 2,748 | 500 | 188 |
| 3232XA | 27.02 | -- | -- | .0005 | .0291 | .0029 | .0010 | .0010 | .0678 | 5.16 | 5.9 | 1,760 | 300 | 121 |
| 3232XC | 27.02 | -- | -- | .0183 | .6399 | .0137 | .0018 | .0018 | .4570 | 5.47 | 9.8 | 4,904 | 500 | 537 |
| 3232ZA | 27.03 | -- | -- | .0009 | .0641 | .0046 | .0014 | .0027 | .1374 | 5.46 | 5.9 | 5,863 | 1,000 | 427 |
| 3232ZB | 27.03 | -- | -- | .0012 | .0887 | .0035 | .0027 | .0035 | .1241 | 2.82 | 6.3 | 4,426 | 700 | 357 |
| 3401A | 27.03 | -- | -- | .0009 | .0653 | .0014 | .0019 | .0047 | .0933 | 5.36 | 20.4 | 5,097 | 250 | 1,093 |
| 3401B | 27.03 | -- | -- | .0009 | .0189 | .0014 | .0019 | .0007 | .0472 | 5.30 | 9.6 | 9,579 | 1,000 | 1,015 |
| 3394A | 28.01 | -- | -- | .0007 | .1524 | .0015 | .0020 | .0020 | .1016 | 4.92 | 8.8 | 12,586 | 1,429 | 1,239 |
| 3394B | 28.01 | -- | -- | .0005 | .0936 | .0019 | .0028 | .0019 | .0936 | 5.34 | 14.2 | 9,951 | 700 | 1,518 |
| 3394C | 28.01 | -- | -- | .0005 | .0303 | .0010 | .0015 | .0051 | .1010 | 4.95 | 13.1 | 1,836 | 140 | 260 |
| 3394NA | 28.02 | -- | -- | .0012 | .0356 | .0024 | .0024 | .0059 | .1188 | 4.21 | 11.0 | 5,135 | 467 | 618 |
| 3394NB | 28.02 | -- | -- | .0005 | .0291 | .0015 | .0019 | .0010 | .0680 | 5.15 | 13.7 | 4,792 | 350 | 705 |
| 3394NC | 28.02 | -- | -- | .0003 | .0327 | .0011 | .0022 | .0011 | .1089 | 4.59 | 17.3 | 8,658 | 500 | 1,590 |
| 3394P | 28.03 | -- | -- | .0014 | .2149 | .0100 | .0029 | .0143 | .2149 | 3.49 | 8.9 | 8,853 | 1,000 | 883 |
| 3394Q | 28.04 | -- | -- | .0122 | .2613 | .0087 | .0035 | .0174 | .3484 | 2.87 | 7.1 | 4,991 | 700 | 409 |
| 3403A | 29.01 | -- | -- | .0042 | .4167 | .0583 | .0083 | .0167 | .4167 | 6.00 | 6.9 | 10,365 | 1,500 | 829 |
| 3403B | 29.01 | -- | -- | .0016 | .0768 | .0110 | .0077 | .0110 | .1096 | 4.56 | 8.1 | 16,185 | 2,000 | 1,476 |
| 3403C | 29.01 | -- | -- | .0021 | .1592 | .0106 | .0106 | .0074 | .7431 | 4.71 | 8.3 | 16,630 | 2,000 | 1,567 |
| 3404A | 30.01 | -- | -- | .0013 | .1742 | .0436 | .0087 | .0131 | .8711 | 5.74 | 10.3 | 10,346 | 1,000 | 1,188 |
| 3404B | 30.01 | -- | -- | .0025 | .1875 | .0375 | .0125 | .0062 | .8750 | 4.00 | 10.3 | 7,203 | 700 | 823 |
| 3404C | 30.01 | -- | -- | .0045 | .6329 | .0633 | .0136 | .0904 | .6329 | 5.53 | 9.9 | 9,877 | 1,000 | 1,092 |
| 3404NA | 30.02 | -- | -- | .0014 | .0947 | .0473 | .0142 | .0095 | .4735 | 5.28 | 9.5 | 13,544 | 1,429 | 1,430 |
| 3404NB | 30.02 | -- | -- | .0017 | .1121 | .0336 | .0112 | .0112 | .2242 | 4.46 | 7.9 | 7,878 | 1,000 | 703 |
| 3404P | 30.03 | -- | -- | .0013 | .1672 | .0042 | .0042 | .0017 | .1672 | 5.98 | 10.9 | 7,273 | 667 | 870 |

TABLE 5.--Spectrographic analyses for the minus-30-mesh fraction of the heavy-mineral-concentrate sample from placer gold samples from the Fortymile mining district, Eagle quadrangle, Alaska

[N, not detected; <, detected but below limit of determination shown; >, determined to be greater than value shown; values in parts per million except where noted; %, percent; Be, Cd, Th, Ge, Pd, Pt, and P analyzed, but not detected; analyst: J.H. Bullock, Jr. No concentrate samples collected at sites 3, 4, 12, 16, 21, and 22. See table 1 for locality name.]

| Sample | SiteNo | S-FE% | S-MG% | S-CA% | S-TI% | S-MN | S-AG | S-AS | S-AU | S-B | S-BA | S-BI | S-CO | S-CR | S-CU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3411 | 1 | >50 | 2.00 | .70 | .7 | 5,000 | 10 | N | N | N | 300 | N | 50 | 3,000 | 50 |
| 3414 | 2 | >50 | .20 | .15 | .7 | 5,000 | <1 | N | N | N | 2,000 | N | <20 | 20 | 20 |
| 3409 | 5 | >50 | 2.00 | .70 | .2 | 7,000 | <1 | N | N | N | 2,000 | N | 50 | 100 | 20 |
| 3410 | 6 | >50 | 2.00 | 1.00 | .7 | 10,000 | N | N | >1,000 | <20 | 200 | N | 20 | 50 | 30 |
| 3399 | 7 | >50 | 1.50 | .70 | .7 | 700 | 2 | N | N | N | 300 | N | 30 | 300 | 15 |
| 3389 | 8 | >50 | 2.00 | .50 | >2.0 | 1,500 | 1 | N | N | N | 200 | N | 70 | 100 | N |
| 3388 | 9 | >50 | 3.00 | .70 | >2.0 | 1,500 | 3 | N | 30 | N | 200 | N | 100 | 500 | 70 |
| 3395 | 10 | >50 | .50 | .15 | 2.0 | 1,500 | 5 | N | 100 | N | 500 | N | 50 | 500 | N |
| 3398 | 11 | >50 | 1.00 | .50 | .7 | 1,000 | <1 | N | N | N | <50 | N | 50 | 300 | 20 |
| 3390 | 13 | >50 | .15 | .10 | .7 | 1,500 | 7 | N | 20 | N | N | N | <20 | 100 | 10 |
| 3406 | 14 | >50 | 2.00 | .50 | 2.0 | 2,000 | 10 | N | N | N | 1,000 | N | 70 | 1,500 | 50 |
| 3386 | 15 | >50 | 1.50 | 1.00 | 1.0 | 3,000 | 50 | N | 500 | N | 100 | N | 70 | 500 | 30 |
| 3415 | 17 | >50 | .50 | <.10 | 1.5 | 700 | 5 | N | N | N | 300 | N | 70 | 3,000 | N |
| 3412 | 18 | >50 | 2.00 | .50 | 1.0 | 3,000 | 10,000 | N | N | N | 700 | 300 | 70 | >10,000 | 15 |
| 3392 | 19 | >50 | .20 | .20 | .5 | 1,000 | 30 | N | 50 | N | 2,000 | N | 50 | 30 | 50 |
| 3393 | 20 | >50 | .50 | .50 | 1.0 | 2,000 | 5 | N | N | N | >10,000 | N | 100 | 70 | 50 |
| 3413 | 22 | >50 | 2.00 | 1.00 | 2.0 | 10,000 | 2 | N | N | N | 500 | N | 50 | 1,000 | 70 |
| 3397 | 23 | >50 | .50 | .30 | .7 | 1,500 | N | N | N | N | 1,500 | N | 30 | 100 | <10 |
| 3396 | 24 | >50 | 2.00 | .70 | .5 | 3,000 | 3 | N | N | N | 10,000 | N | 20 | 200 | 50 |
| 3402 | 25 | 50 | .15 | <.10 | .5 | 2,000 | 70 | <500 | >1,000 | 20 | 2,000 | N | 70 | 1,500 | 150 |
| 3400 | 26 | >50 | .10 | .30 | .5 | 2,000 | >10,000 | >20,000 | >1,000 | N | 10,000 | 300 | 1,500 | 5,000 | 700 |
| 3232 | 27 | 10 | .20 | .50 | 1.0 | 700 | 30 | 5,000 | 100 | 300 | >10,000 | <20 | 100 | 200 | 100 |
| 3394 | 28 | >50 | 1.50 | .50 | .7 | 2,000 | N | N | N | N | 1,000 | N | 50 | 10,000 | 20 |
| 3403 | 29 | >50 | 3.00 | <.10 | .5 | 2,000 | 2 | N | N | N | 50 | N | 100 | >10,000 | 50 |
| 3404 | 30 | >50 | 1.50 | .50 | 1.0 | 3,000 | N | N | N | N | 10,000 | N | 50 | 10,000 | 30 |

TABLE 5.--continued

| Sample | SiteNo | S-LA | S-MO | S-NB | S-NI | S-PB | S-SB | S-SC | S-SN | S-SR | S-V | S-W | S-Y | S-ZN | S-ZR | S-GA | S-NA% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3411 | 1 | N | N | N | 50 | 30 | N | 20 | 1,000 | N | 500 | 500 | 50 | N | 30 | N | N |
| 3414 | 2 | N | N | N | 10 | N | N | N | <20 | N | 500 | N | <20 | 1,500 | <20 | N | N |
| 3409 | 5 | N | N | 100 | 30 | N | N | <10 | N | N | 500 | 15,000 | 70 | N | 20 | 200 | .5 |
| 3410 | 6 | N | N | 50 | 20 | N | N | 15 | N | N | 200 | N | 100 | N | 30 | 50 | <.5 |
| 3399 | 7 | N | N | N | 30 | <20 | N | N | N | N | 500 | 100 | N | N | 150 | 200 | 2.0 |
| 3389 | 8 | N | N | <50 | 50 | N | N | <10 | N | N | 200 | 500 | <20 | <500 | 200 | <10 | N |
| 3388 | 9 | N | <10 | <50 | 100 | N | N | 15 | N | N | 150 | 150 | 20 | N | 500 | N | <.5 |
| 3395 | 10 | <100 | N | N | 50 | <20 | N | <10 | N | N | 200 | <50 | 20 | <500 | 300 | N | N |
| 3398 | 11 | N | N | N | 20 | 70 | N | N | N | N | 300 | N | N | N | 50 | 50 | .5 |
| 3390 | 13 | N | N | N | 10 | N | N | N | 30 | N | 500 | <50 | N | <500 | 300 | <10 | N |
| 3406 | 14 | N | N | <50 | 70 | N | N | <10 | N | N | 300 | N | 50 | N | 100 | 100 | N |
| 3386 | 15 | N | N | <50 | 70 | N | N | <10 | <20 | N | 500 | N | 50 | N | 200 | 50 | N |
| 3415 | 17 | N | 50 | N | 100 | 500 | N | <10 | N | N | 200 | 1,000 | <20 | N | 150 | N | N |
| 3412 | 18 | N | N | N | 70 | <20 | N | <10 | N | N | 300 | N | 50 | 500 | 70 | 70 | 1.0 |
| 3392 | 19 | N | N | N | 30 | 70 | N | N | <20 | N | 500 | 500 | N | N | 70 | 150 | N |
| 3393 | 20 | N | 10 | 50 | 70 | <20 | N | <10 | 20 | <200 | 700 | 2,000 | 20 | N | 70 | 10 | N |
| 3413 | 22 | <100 | N | <50 | 70 | N | N | 20 | N | N | 300 | N | 100 | N | 300 | 50 | N |
| 3397 | 23 | N | N | <50 | 30 | N | N | N | N | N | 500 | N | <20 | 500 | 70 | N | N |
| 3396 | 24 | N | N | N | 20 | 50 | N | N | N | N | 300 | N | <20 | N | 70 | <10 | <.5 |
| 3402 | 25 | 100 | <10 | N | 200 | 1,000 | N | N | 50 | N | 100 | N | <20 | 1,500 | 30 | N | N |
| 3400 | 26 | 100 | 50 | 50 | 1,000 | >50,000 | 1,000 | N | >2,000 | N | 70 | 7,000 | 50 | 700 | 200 | N | N |
| 3232 | 27 | 150 | 20 | <50 | 500 | 1,500 | N | 15 | 50 | 200 | 100 | 300 | 100 | 500 | 200 | -- | -- |
| 3394 | 28 | N | N | <50 | 200 | N | N | <10 | N | N | 200 | 500 | 30 | N | 300 | <10 | .5 |
| 3403 | 29 | N | N | N | 1,500 | N | N | N | 700 | N | 300 | N | N | N | N | N | N |
| 3404 | 30 | N | N | <50 | 100 | N | N | 10 | N | N | 150 | 150 | 50 | 1,000 | 500 | N | <.5 |

TABLE 6.--Ore-related minerals of the heavy-mineral-concentrate samples from placer gold samples from the Fortymile mining district, Eagle quadrangle, Alaska

[Arsenopyrite FeAsS; barite, $BaSO_4$; cassiterite, $SnO_2$; cerussite, $PbCO_3$; cinnabar, HgS; galena, PbS; gold, Au; kyanite, $AlSiO_5$; pyrite, $FeS_2$; rutile, $Ti(Fe)O_2$; scheelite, $CaWO_4$; sphalerite; Zn(Fe)S; and stibnite, $Sb_2S_3$. No mineralogy for sites 3, 4, 12, 16, 21, and 22; Mineralogist: R.B. Tripp. See table 1 for locality name.]

| Site number | Gold | Arsenopyrite | Cinnabar | Galena | Pyrite | Sphalerite | Stibnite | Cassiterite | Barite | Scheelite | Rutile | Kyanite | Cerussite | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | X | | | | 50 | | | X | X | X | X | | | large rutile crystals |
| 2 | X | | | | 10 | X | | | 80 | | X | | | |
| 5 | X | | | | X | | | | 80 | X | X | | | |
| 6 | X | | | | | | | | | | X | X | | large rutile crystals with mostly kyanite |
| 7 | X | | | | X | | | | | X | | | | |
| 8 | X | | X | X | X | | X | | X | X | | | | |
| 9 | X | | X | | 20 | | | | X | X | | | | |
| 10 | X | | | | 10 | | | | 20 | X | | | | |
| 11 | X | | | | 90 | | | | | | | | X | |
| 13 | X | | | | X | | | X | | X | | | | |
| 14 | X | | | | 10 | | | | X | | X | | | large rutile crystals |
| 15 | X | X | | | 50 | | | | X | | | | | |
| 17 | X | | 10 | 10 | | | | | 60 | X | | | | |
| 18 | X | | 40 | | | X | | | | | | | | |
| 19 | X | | X | | 90 | | | | X | X | | | | |

TABLE 6--Continued

| Site number | Gold | Arsenopyrite | Cinnabar | Galena | Pyrite | Sphalerite | Stibnite | Cassiterite | Barite | Scheelite | Rutile | Kyanite | Cerussite |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | X | | | | 60 | | | | 30 | 5 | | | |
| 23 | | | X | | X | X | | | X | | | | |
| 24 | X | | X | | 10 | | | | 70 | | | | |
| 25 | X | | | X | 10 | X | | | 20 | | 40 | | |
| 26 | X | 40 | | X | 30 | X | | | X | X | | | |
| 27 | X | | X | | 90 | | | | X | X | | | |
| 28 | X | | | | 50 | | | | 40 | X | | | |
| 29 | X | | | X | | | | | X | | | | |
| 30 | X | | | | 80 | X | | | X | X | 10 | | |