

OFR 6-69

RECONNAISSANCE SAMPLING OF DECOMPOSED  
MONZONITE FOR GOLD NEAR FLAT, ALASKA

by A. L. Kimball

\*\*\*\*\* open file report

UNITED STATES DEPARTMENT OF THE INTERIOR

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RECONNAISSANCE SAMPLING OF DECOMPOSED MONZONITE  
FOR GOLD NEAR FLAT, ALASKA

by

A. L. Kimball<sup>1</sup>

ABSTRACT

The Bureau of Mines in 1967 started an experimental reconnaissance sampling program to find methods for delineating and evaluating lode-gold deposits known to be the sources of stream placer deposits near Flat in the Iditarod mining district, Alaska. Flat is midway between the Yukon and Kuskokwim Rivers on the northwest flank of the Kuskokwim Mountains. The Iditarod district yielded 1,329,404 fine ounces of placer gold from 1910 to 1966, more than 6 percent of the total placer gold produced in Alaska. The source of almost all the placer gold produced in the Iditarod district is lodes associated with two small bodies of decomposed monzonite, probably Tertiary in age, that have intruded Upper Cretaceous sedimentary rocks. Initial work included surface mapping and sampling the monzonites and adjacent rocks. Four hundred fifty samples, taken with a tractor-mounted 4-inch power auger, were supplemented by 149 channel and grab samples and 72 specimens selected for petrographic analyses. Results of the preliminary reconnaissance indicate that the gold is not generally disseminated through the monzonites, but occurs in limited zones. Therefore, current work is directed toward finding methods for delineating such zones and determining the approximate grade.

INTRODUCTION

The Iditarod mining district (fig. 1) is credited with having produced 1,329,404 fine ounces of placer gold (1910 through 1966) which is more than 6 percent of the total recorded Alaskan placer gold production. Most of the gold produced in the Iditarod district came from placer-bearing streams near Flat that rise in or cross two bodies of decomposed monzonite about 5-1/2 square miles in combined area. The location of the gold placers in these streams indicates that the placer gold was derived either from the monzonites or the adjacent contact zone. (1)<sup>2</sup>

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<sup>2</sup>Underlined numbers in parentheses refer to items in the bibliography at the end of this report.

Work on manuscript completed May 1968.

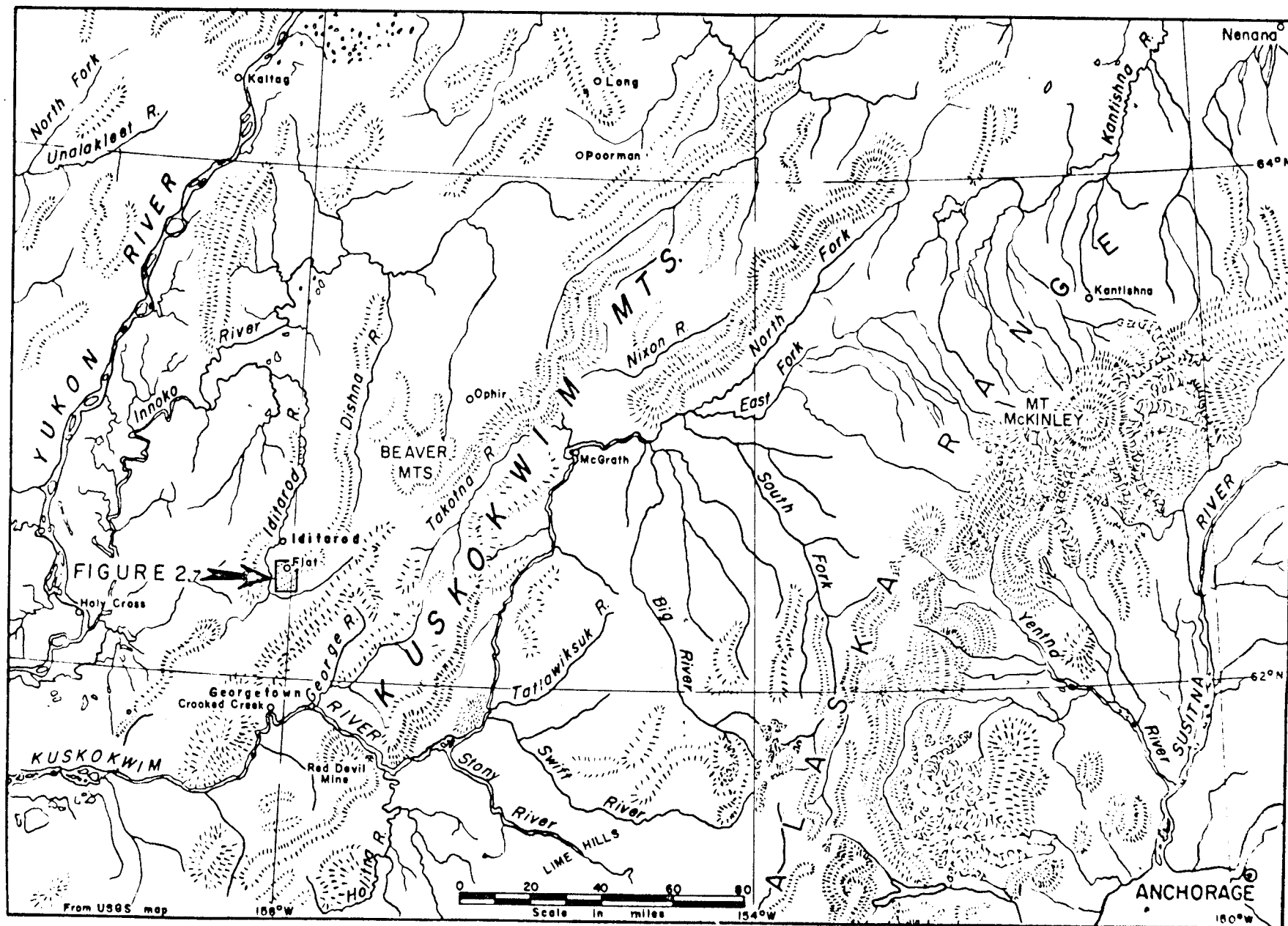


FIGURE 1.-Index map, Kuskokwim-Innoko Region, Southwestern Alaska.

The Bureau of Mines started an experimental program to find methods for delineating and evaluating these lode-gold deposits in 1967. The initial work included reconnaissance sampling to determine the nature of the deposits. Four hundred fifty power auger samples and 149 channel and grab samples were collected for gold determinations, and 72 specimens were selected for petrographic examination. Placer workings, contacts, and the monzonite outcroppings were mapped.

This report describes the reconnaissance sampling, presents sample analyses results obtained to date, and includes pertinent background information. Work is continuing.

#### ACKNOWLEDGMENTS

Historical and technical background information was drawn freely from Geological Survey and Bureau of Mines publications in addition to specific references cited.

Local residents were very helpful in furnishing information and support, particularly: John and Rich Fullerton, Sergay Agoff, John Miscovich, John Stevens, and Bill Burns.

#### LOCATION AND ACCESSIBILITY

The village of Flat is in the Iditarod mining district nearly midway between the Yukon and Kuskokwim Rivers, 85 miles west-southwest of McGrath, 290 miles northwest of Anchorage, and 360 miles southwest of Fairbanks (fig. 1). Most lode- and placer-gold deposits of the Iditarod district lie within a circle 12 miles in diameter centered at latitude  $62^{\circ}24' N$ , longitude  $158^{\circ}59' W$  (fig. 2). Within this circle are the Flat Creek and Otter Creek monzonite bodies, centered 5 miles south and 2-1/2 miles east of Flat, and having areas of approximately 3-1/2 and 2 square miles, respectively. Virtually all of the local placer production came from deposits within 3 miles of monzonite exposures, in drainages that rise in or cross monzonites.

Flat is situated at the mouth of Flat Creek on Otter Creek, which drains west into the Iditarod River, then via the Innoko River into the Yukon River. Equipment and supplies for early mining were taken by boat up the Yukon, Innoko, and Iditarod Rivers to Iditarod, thence overland by tram railroad (later by truck) to Flat. Dikeman, a storage and transfer point, was located at the head of low water navigation on the Iditarod River 70 river miles below Iditarod, the commercial center for the district. (2) Both towns are now abandoned, the tram route is nearly obliterated, but the 7-1/2-mile road between Iditarod and Flat is still in use. Winter routes also included overland trails from Dikeman and from Crooked Creek and Georgetown on the Kuskokwim River.

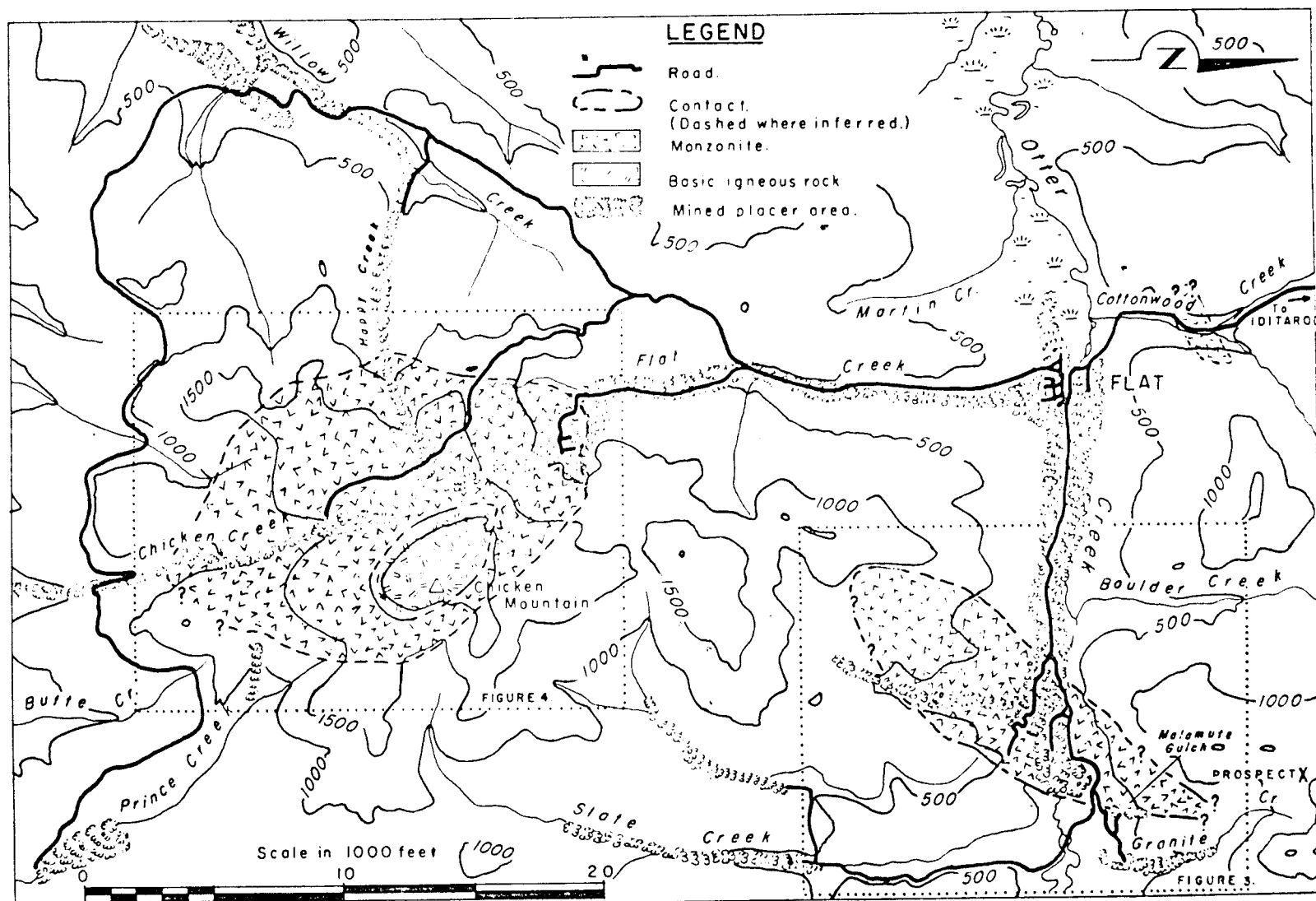


FIGURE 2.- Map of monzonite bodies and placer workings near Flat, Alaska.

Flat is the hub of a 40-mile network of gravel roads that connect the local mining operations with a 4,800-foot gravel landing field on dredge tailings adjacent to the village. Both the airfield and roads are in good condition and are easily maintained. Freight and supplies now come by air, though a dragline was moved to Flat via the Iditarod River route 2 years ago. Flat has regular airmail service throughout the year. Equipment too large for scheduled aircraft is flown in by nonscheduled cargo flights. A D-9 Caterpillar tractor was flown to Flat in 1967 by C-130 Hercules.

#### HISTORY AND PRODUCTION

Gold was discovered Christmas Day, 1908, (3) on the Iditarod River tributary, Otter Creek, near the present town of Flat, by two prospectors from the Ophir area. Little mining was done in 1909 as news of the discovery leaked out slowly and the Iditarod River remained low throughout the season, restricting river transport. (3) More than 2,000 people arrived in 1910 (2, 4) with equipment and supplies. The first dredge was installed in 1912 on Flat Creek and by 1915 there were 24 mining operations in the area, including two dredges. (3) Twenty-four thousand fine ounces gold production was recorded in 1910, and more than 130,000 fine ounces in 1912, (5) the most productive year for the district. The Flat area then had 1,600 residents. (6) Placer activity was waning by 1920, but production from the Iditarod district has been recorded each year since. An increased output, persisting until World War II, followed the rise in price of gold from \$20.67 to \$35.00 per ounce in 1934. Production recovered after a sharp drop in 1943 and 1944 when gold mines were almost closed by the War Production Board. Four operations were active near Flat in 1967. A 3-cubic-foot dredge operated by one man, and two hydraulic operations employing three men each were active throughout the season. A two-man hydraulic plant was operated for part of the season. The 1960 census recorded a population of 27 for Flat. The present winter population of 2 to 4 does not reflect mining activity as most miners now live elsewhere in the wintertime.

A lode mine within the Otter Creek monzonite body near Flat, the Golden Horn, recorded the following total production: (6) 2,706 ounces gold, 2,620 ounces silver, 9,336 pounds lead, and 653 pounds zinc. The last year of mine operation was 1935.

The recorded production from the area is listed in table 1. Insofar as possible, without violating the confidential nature of much production data, the production has been assigned to the creek from which it derived. However, discrepancies in the historical data have been noted and others are suspected. Production assigned to the individual creeks should be considered as only generally indicative of relative production, although the total production recorded for the area is believed to be reasonably correct.



TABLE 1. - Reported placer gold production

(immediate Flat area)

|                                                         |           | Troy ounces           |
|---------------------------------------------------------|-----------|-----------------------|
| 1910-14, inclusive                                      |           |                       |
| Iditarod mining district.....                           |           | 481,857 <sup>1/</sup> |
| 1915-66, inclusive                                      |           |                       |
| Otter Creek area:                                       |           | 286,136               |
| Otter Creek.....                                        | (265,125) |                       |
| Granite Creek.....                                      | (         |                       |
| Malamute Gulch.....                                     | (         |                       |
| Black Creek.....                                        | ( 21,011) |                       |
| Glen Gulch.....                                         | (         |                       |
| Slate Creek.....                                        | (         |                       |
| Flat Creek area:                                        |           | 254,882               |
| Flat Creek.....                                         | (240,572) |                       |
| Mohawk Assoc.....                                       | (         |                       |
| Idaho Assoc.....                                        | (         |                       |
| Upgrade Creek.....                                      | ( 14,310) |                       |
| Alpha Creek.....                                        | (         |                       |
| Chicken Creek.....                                      | -         | (                     |
| Prince Creek.....                                       | -         | (                     |
| Happy Creek.....                                        | -         | ( 106,486             |
| Willow Creek.....                                       | -         | (                     |
| Total as listed.....                                    |           | 1,129,361             |
| Total, Iditarod mining district,<br>1910-66, inclusive. |           | 1,329,404             |

<sup>1/</sup> Records 1910 through 1914 are not broken down. Figure includes some production from streams not at Flat, included in the Iditarod mining district at that time.

## PHYSICAL FEATURES AND CLIMATE

The village of Flat is in the broad, flat, alluvial valley of Otter Creek, a headwater tributary of the Iditarod River which drains part of the northwest side of the Kuskokwim Mountains. Topography is rolling, moderately rugged, and probably unglaciated. Flat has an altitude of 345 feet, while 2,380-foot Chicken Mountain, 5 miles south, is the highest nearby summit.

Large timber, never abundant, was cut off during early mining operations. Alder, willow, and blueberry brush, with sparse aspen, spruce, and tamarack are now scattered over slopes and valley bottoms. Most older placer workings are brushy except where tailings will not support growth. Tufted grass, thick moss, rock rubble, and talus cover the upper slopes, high saddles, and summits except where dwarfed willow and alder line the drainages.

Weather records were kept in Flat for approximately 30 years beginning in 1931. The mean annual temperature is 27.6° F, while extremes of approximately 90° F and minus 60° F have been recorded. The annual precipitation is 18 inches. Though the mean annual temperature is below freezing and miners report permafrost, most monzonite encountered during auger sampling was unfrozen and either remains so or thaws intermittently.

#### GENERAL GEOLOGY

Flat is on the northwestern flank of the Kuskokwim Mountains, the topographic expression of thousands of feet of sediments deposited in the Kuskokwim geosyncline during the later part of the Cretaceous period. (7) The axis of the mountain range closely coincides with the northeasterly trend of the geosynclinal axis through this region; the strike of many bedded rocks of the area also follows this trend. The Iditarod fault, another feature of the regional structure similarly oriented, passes a few miles south of Flat where it locally follows the valleys of Bonanza Creek and the upper Iditarod River. Flat is on the topographically more rugged, upthrown, northwest side of the fault.

The Cretaceous sediments were intruded by monzonite, of probable Tertiary age, that includes the two monzonite intrusives exposed on Flat and Otter Creeks. (8) Similar textural range, color, grain sizes, and iron staining of joints; similar susceptibility to weathering and decomposition; and the similar presence of thin quartz stringers all suggest that the two exposed bodies of monzonite may be cupolas of a common mass. (8) These monzonites are usually darker and more basic near their contacts than in the central portions. The darker phase contains a larger portion of mafic minerals, plagioclase feldspar more calcic in composition, and less free quartz, than the lighter monzonite more centrally located within the two bodies. These monzonite bodies are bordered for an estimated one-third of their contact length by older basic igneous rocks basaltic in part, while elsewhere they contact shale and sandstone locally metamorphosed to argillite, hornfels, and quartzite. Argillite appears to dominate, quartzite is scarce.

A smaller body of dark monzonite is exposed on lower Cottonwood Creek a mile northwest of Flat. Other dark monzonites can be inferred from float. Little decomposition and no quartz veins were seen in the Cottonwood Creek monzonites, and no associated placer-gold deposits are known.

Surface exposures of the Flat Creek and Otter Creek monzonites generally are highly decomposed, although some parts are sufficiently resistant to form an occasional prominent knob. The monzonite topography in most places is subdued and outcrops are limited. Some stream cuts and placer workings contain large monzonite boulders rounded by exfoliation. Advanced decomposition of monzonite has taken place to depths of 24 feet or more at some localities auger sampled.

Residual or semiresidual placer deposits on the Flat Creek monzonite body have been worked along the upper reaches of Happy, Flat, and Chicken Creeks nearly to the common head of these streams.

Samples show one source of gold to be thin iron-stained quartz veinlets. No gold was found in samples of other apparently similar veinlets, however. Gold values also were detected in a few channel samples of decomposed monzonite usually, but not always, in vaguely oriented zones discolored by iron staining and with no visible vein quartz.

#### WORK BY THE BUREAU OF MINES

##### Sampling Methods

The objective of the work is to find practical and generally applicable methods for delineating gold deposits associated with the monzonite intrusives common in Central Alaska. The initial phase was reconnaissance sampling to determine the distribution and nature of the gold deposits associated with the monzonites at Flat. A power-operated 4-inch continuous flight auger, mounted on the rear of a 40-horsepower tracked-type tractor was used to collect 450 auger samples from the decomposed portions of the two monzonite bodies. Vertical holes were drilled in lines at 100- (occasionally 50- or 200-) foot intervals from a random start to a maximum depth of 24 feet (length of auger string), and an average depth of about 9 feet. Most holes were 5 to 15 feet deep. Lines of auger holes skirt drainages from which placer gold has come, and generally reconnoiter the monzonite bodies where accessible and undisturbed.

Overburden ranged in thickness from 0 to an estimated 10 feet at various auger hole sites, and frequently contained boulders that hampered auger penetration. Boulders were more prevalent over the Flat Creek body than the Otter Creek body. Beneath overburden, monzonite usually augered easily for several feet or more. Some holes were bottomed out by tough drilling, presumably due to harder monzonite, but, in some deeper holes, monzonite was still augering well when the end of the auger string was reached (24 feet). Most holes were in unfrozen or slightly frozen material. Overburden was more frequently frozen than the monzonite beneath.

Efforts were made to auger each hole at least several feet into the decomposed monzonite beneath overburden. Total auger cuttings exceeded 300 pounds from some deeper holes. Five to 12 pounds collected from the auger flights as they were withdrawn from each hole constituted the sample. Most auger samples were from the upper part of the decomposed monzonite. However, the transition between the overburden of vegetable matter, humus, silt, rocks, and some sand, and the monzonite proper, was often obscure. Some decomposed monzonites augered so easily that it could not be determined whether the drilled material was monzonite in place or arkosic sand no longer in place.

One hundred forty-nine channel and grab samples of monzonite and vein material were collected and analyzed in attempts to isolate gold sources. These included quartz veins and stringers with and without iron staining, shear zones, fault gouge and associated wall rocks, and decomposed monzonite with and without obvious structural features in the sample section.

Seventy-two selected specimens were analyzed petrographically to determine rock type and associated minerals and elements.

At least part of the gold associated with the monzonites comes from quartz veinlets in the monzonite; however, gold was not found in all such veinlets sampled. If the apparently erratically distributed quartz veinlets are a major source of the local placer gold, lode sampling results can be expected to be erratic. Furthermore, the physical characteristics of gold make the selection of a representative sample from a larger mass of gold-bearing material difficult and uncertain. The portions from auger samples that were actually assayed in some instances may comprise as little as one part in 1,000 to 5,000 of the cuttings from the auger hole. Any given sample may, therefore, be questionable, but for reconnaissance purposes, the average of a large number of samples should be indicative of the grade range.

Results of the initial reconnaissance indicate that gold is not generally disseminated throughout the monzonites, but occurs in limited zones. Work on this project is continuing with current efforts directed towards finding an efficient means of delineating the gold-bearing zones and obtaining representative samples.

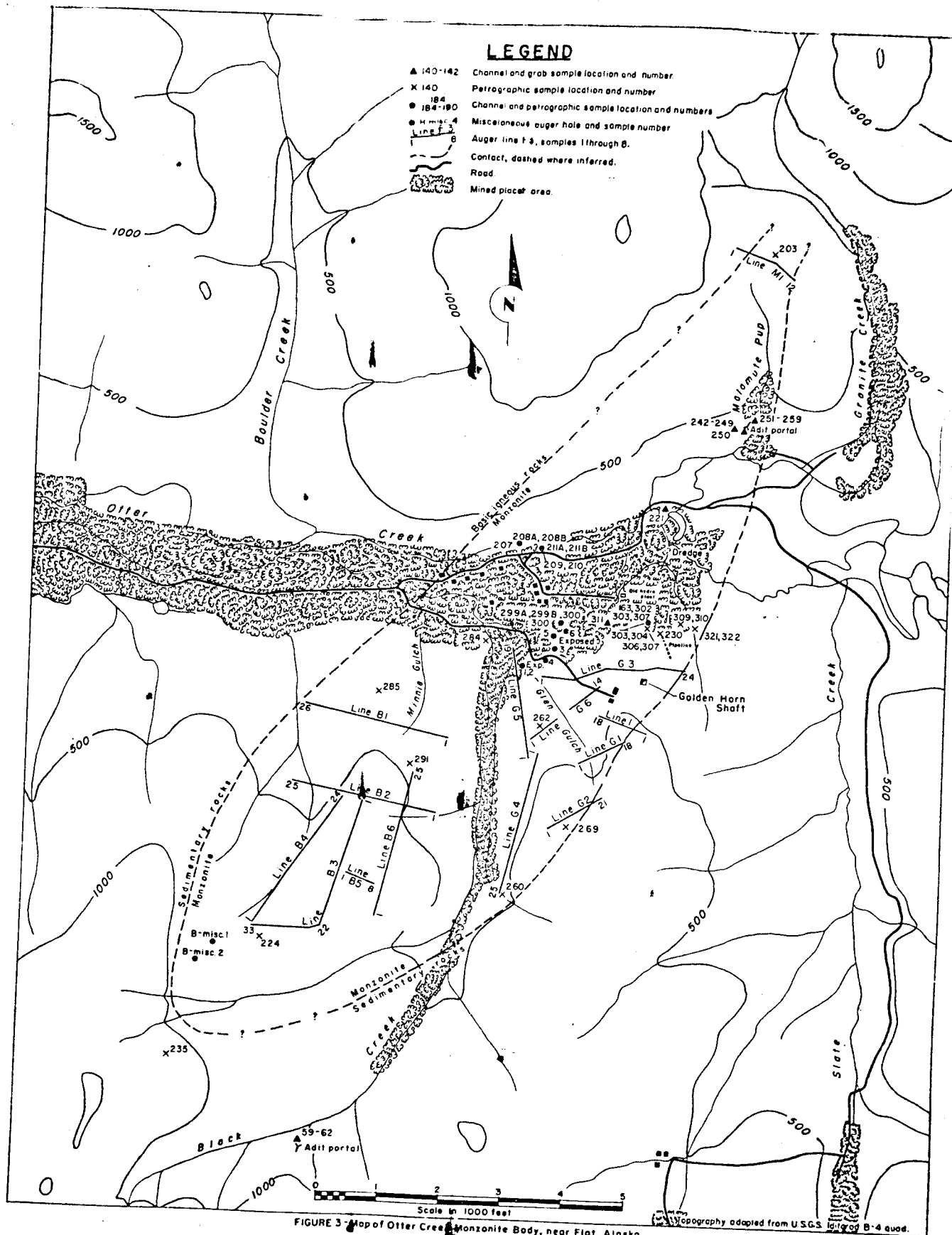
#### Preparation and Analyses of Samples

Determinations for gold and silver were made in the Juneau laboratory of the Bureau of Mines by fire assay. Each sample was dried, crushed to minus 4 mesh, split to about 200 grams, and pulverized to minus 100 mesh. Single assays were run on 1 assay-ton lots from each sample; check assays were run on many of the higher grade samples.

Preliminary experimental sample preparation indicated this procedure would give acceptable results consistent with the speed in preparation and the low cost necessary to make reconnaissance sampling practical. Duplicate assays of 66 samples checked within 0.01 ounce or less gold per ton except on one high grade vein sample. Similar results were obtained on samples crushed to minus 10 mesh before splitting. Several samples, each of decomposed monzonite, mineralized shear zones, and vein material, were each split into halves after crushing to minus 4 mesh and assay samples were prepared from each half. Gold values in the respective halves checked each other within the same limits.

#### SAMPLE DESCRIPTIONS AND DATA

Table 2 describes the auger samples; table 3 presents auger sample analyses. Table 4 describes channel and grab samples and includes analyses results. Table 5 describes petrographic specimens, and tables 6A through I present the results of petrographic analyses. Sample locations are shown on figures 3 and 4.



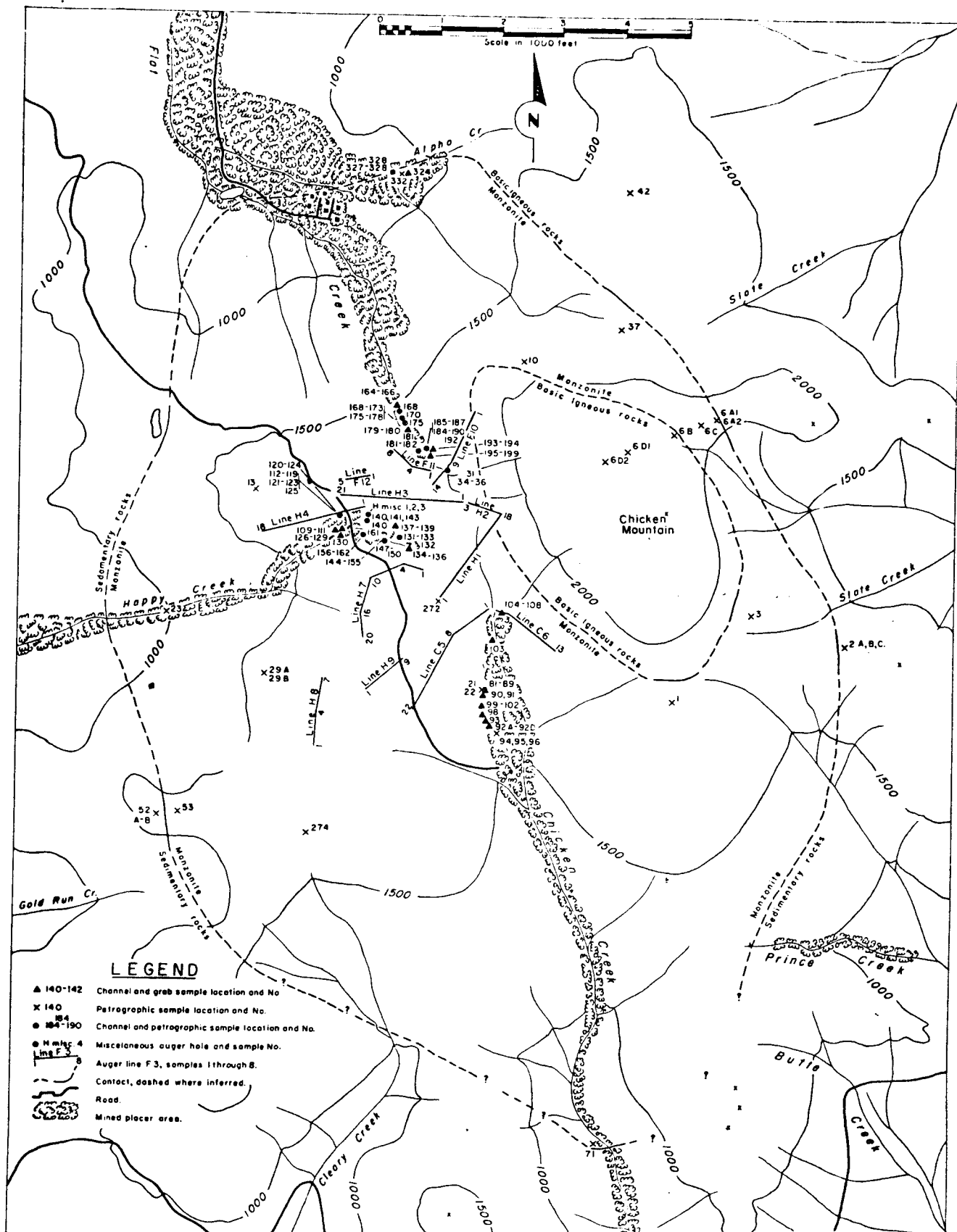


FIGURE 4.- Map of Flat Creek Monzonite Body, near Flat, Alaska. Topography adapted from U.S.G.S. 1:50,000 scale, B-4 and B-5 quadrangles.

TABLE 2. - Auger line data

| Line                          | Location                      | Figure | Bearing  | Auger hole spacing | Number of holes <sup>1/</sup> |
|-------------------------------|-------------------------------|--------|----------|--------------------|-------------------------------|
| 1                             | South of Golden Horn.....     | 3      | WNW      | 50                 | 18                            |
| G1                            | .....do.....                  | 3      | NE       | 50                 | 18 (-1)                       |
| G2                            | .....do.....                  | 3      | NE       | 50                 | 21                            |
| G3                            | North of Golden Horn.....     | 3      | E        | 100                | 24 (-1)                       |
| G4                            | Right limit Black Creek.....  | 3      | S        | 100                | 25                            |
| G5                            | Black Creek-Glen Gulch.....   | 3      | NNW      | 100                | 19                            |
| G6                            | Glen Gulch.....               | 3      | NE       | 100                | 14 (-1)                       |
| M1                            | Malamute Gulch, head.....     | 3      | ESE      | 100                | 12                            |
| B1                            | Left limit Black Creek.....   | 3      | W        | 100                | 26                            |
| B2                            | .....do.....                  | 3      | N of W   | 100                | 25                            |
| B3                            | .....do.....                  | 3      | S then W | 100                | 33                            |
| B4                            | .....do.....                  | 3      | E of N   | 100                | 24 (-1)                       |
| B5                            | .....do.....                  | 3      | E        | 100                | 6                             |
| B6                            | .....do.....                  | 3      | N        | 100                | 25 (-1)                       |
| H1                            | Happy Creek-Chicken Creek...  | 4      | SE       | 100                | 18                            |
| H2                            | .....do.....                  | 4      | WNW      | 200                | 3                             |
| H3                            | Happy Creek-Flat Creek.....   | 4      | W        | 100                | 21                            |
| H4                            | Right limit Happy Creek.....  | 4      | WSW      | 100                | 18                            |
| C5                            | Right limit Chicken Creek...  | 4      | SW       | 100                | 22 (-3)                       |
| C6                            | Left limit Chicken Creek..... | 4      | E        | 100                | 14                            |
| H7                            | Left limit Happy Creek.....   | 4      | W then S | 100                | 20                            |
| H8                            | .....do.....                  | 4      | N        | 200                | 7                             |
| H9                            | Happy Creek-Chicken Creek...  | 4      | NE       | 100                | 9                             |
| F10                           | Right limit Flat Creek.....   | 4      | SW       | 2/100              | 17                            |
| F11                           | Left limit Flat Creek.....    | 4      | WNW      | 100                | 8                             |
| F12                           | .....do.....                  | 4      | WSW      | 100                | 5                             |
| Miscellaneous auger hole data |                               |        |          |                    |                               |
| B-Misc-1                      | SW of line B4.....            | 3      | -        | -                  | -                             |
| B-Misc-2                      | SW of line B4.....            | 3      | -        | -                  | -                             |
| H-Misc-1                      | Left limit Happy Creek.....   | 4      | -        | -                  | -                             |
| H-Misc-2A                     | .....do.....                  | 4      | -        | -                  | -                             |
| H-Misc-2B                     | .....do.....                  | 4      | -        | -                  | -                             |
| H-Misc-3                      | .....do.....                  | 4      | -        | -                  | -                             |
| Exp. 1                        | Glen Gulch.....               | 3      | -        | -                  | -                             |
| Exp. 2                        | .....do.....                  | 3      | -        | -                  | -                             |
| Exp. 3A                       | Glen Gulch-Otter Creek.....   | 3      | -        | -                  | -                             |
| Exp. 3B                       | .....do.....                  | 3      | -        | -                  | -                             |
| Exp. 4A                       | .....do.....                  | 3      | -        | -                  | -                             |
| Exp. 4B                       | .....do.....                  | 3      | -        | -                  | -                             |
| Exp. 5A                       | Otter Creek.....              | 3      | -        | -                  | -                             |
| Exp. 5B                       | .....do.....                  | 3      | -        | -                  | -                             |
| Exp. 6A                       | .....do.....                  | 3      | -        | -                  | -                             |
| Exp. 6B                       | .....do.....                  | 3      | -        | -                  | -                             |

<sup>1/</sup> Numbers in parentheses indicate number of holes not drilled.<sup>2/</sup> Fifty-foot spacing, holes 9 through 12.



TABLE 3. - Auger sample results

| Sample No.<br>Line Hole | Assay, ounce per ton |        | Notes from driller's log |            |        |                          | Figure |
|-------------------------|----------------------|--------|--------------------------|------------|--------|--------------------------|--------|
|                         | Gold                 | Silver | Depth, feet              | Material   | Frozen | Remarks                  |        |
| 1                       | 0.005                | Nil    | 14.5                     | Monzonite. | No     | -                        | 3      |
|                         | Nil <sup>1/</sup>    | Nil    | 13.5                     | Argillite. | No     | -                        | 3      |
|                         | Nil                  | Nil    | 7.6                      | do.        | No     | -                        | 3      |
|                         | .02                  | Nil    | 20.5                     | do.        | No     | -                        | 3      |
|                         | Nil                  | Nil    | 3.2                      | Unknown.   | No     | Contact(?)               | 3      |
|                         | Nil                  | Nil    | 3.6                      | Monzonite. | No     | -                        | 3      |
|                         | Nil                  | Nil    | 22.5                     | do.        | No     | -                        | 3      |
|                         | -                    | -      | 17.0                     | do.        | No     | No sample.               | 3      |
|                         | Nil                  | Nil    | 9.6                      | do.        | No     | -                        | 3      |
|                         | Nil                  | Nil    | 3.0                      | do.        | No     | -                        | 3      |
|                         | Nil                  | Nil    | 7.1                      | do.        | No     | -                        | 3      |
|                         | Nil                  | Nil    | 7.1                      | do.        | No     | -                        | 3      |
|                         | Nil                  | Nil    | 19.1                     | Argillite. | No     | -                        | 3      |
|                         | Nil                  | Nil    | 7.6                      | Monzonite. | No     | -                        | 3      |
|                         | Nil                  | Nil    | 11.1                     | do.        | No     | -                        | 3      |
|                         | .005                 | Nil    | 4.7                      | do.        | No     | -                        | 3      |
|                         | Nil                  | Nil    | 8.6                      | do.        | No     | -                        | 3      |
|                         | .002                 | Nil    | 5.5                      | do.        | No     | -                        | 3      |
| G1                      | Nil                  | Nil    | 5.6                      | No record. | Yes    | -                        | 3      |
|                         | -                    | -      | 6.0                      | do.        | Yes    | -                        | 3      |
|                         | Nil                  | Nil    | 4.8                      | do.        | Yes    | -                        | 3      |
|                         | Nil                  | Nil    | 5.6                      | do.        | Yes    | -                        | 3      |
|                         | Nil                  | Nil    | 22.9                     | do.        | Yes    | Top portion only frozen. | 3      |
|                         | Nil                  | Nil    | 4.6                      | do.        | Yes    | -                        | 3      |
|                         | Nil                  | Nil    | 10.9                     | Monzonite. | No     | -                        | 3      |
|                         | -                    | -      | -                        | -          | -      | No hole.                 | 3      |
|                         | Nil                  | Nil    | 2.6                      | Monzonite. | No     | -                        | 3      |
|                         | Nil                  | Nil    | 4.2                      | Argillite. | No     | -                        | 3      |
|                         | .015                 | Nil    | 4.7                      | Unknown.   | No     | -                        | 3      |
|                         | .030                 | Nil    | 12.5                     | Argillite. | No     | -                        | 3      |
|                         | Nil                  | Nil    | 14.6                     | do.        | No     | -                        | 3      |
|                         | Nil                  | Nil    | 20.5                     | Monzonite. | No     | -                        | 3      |
|                         | Nil                  | Nil    | 12.9                     | do.        | No     | -                        | 3      |
|                         | Nil                  | Nil    | 20.3                     | do.        | No     | -                        | 3      |
|                         | Nil                  | Nil    | 4.0                      | Argillite. | No     | -                        | 3      |
|                         | .010                 | Nil    | 9.4                      | do.        | No     | -                        | 3      |
| G2                      | .005                 | Nil    | 15.9                     | Monzonite. | No     | -                        | 3      |
|                         | Nil                  | Nil    | 11.6                     | do.        | No     | -                        | 3      |
|                         | Nil                  | Nil    | 6.0                      | Unknown.   | No     | -                        | 3      |
|                         | Nil                  | Nil    | 8.3                      | do.        | No     | -                        | 3      |
|                         | Nil                  | Nil    | 6.5                      | Monzonite. | No     | -                        | 3      |
|                         | Nil                  | Nil    | 9.6                      | do.        | No     | -                        | 3      |
|                         | .035                 | Nil    | 8.0                      | do.        | No     | -                        | 3      |
|                         | Nil                  | Nil    | 3.7                      | do.        | No     | -                        | 3      |
|                         | Nil                  | Nil    | 20.5                     | do.        | No     | -                        | 3      |
|                         | Nil                  | Nil    | 9.3                      | do.        | No     | -                        | 3      |

See footnotes at end of table.

TABLE 3. - Auger sample results--continued

| Sample No.<br>Line Hole        |     | Assay, ounce per ton |        | Depth, feet | Notes from driller's log |                                                 |                                             | Figure |
|--------------------------------|-----|----------------------|--------|-------------|--------------------------|-------------------------------------------------|---------------------------------------------|--------|
|                                |     | Gold                 | Silver |             | Material                 | Frozen                                          | Remarks                                     |        |
| G2                             | 11  | Nil                  | Nil    | 5.0         | Monzonite.               | No                                              | -                                           | 3      |
|                                | 12  | Nil                  | Nil    | 4.8         | do.                      | No                                              | -                                           | 3      |
|                                | 13  | Nil                  | Nil    | 5.3         | do.                      | No                                              | -                                           | 3      |
|                                | 14  | Nil                  | Nil    | 4.5         | do.                      | No                                              | -                                           | 3      |
|                                | 15  | Nil                  | Nil    | 17.5        | do.                      | No                                              | -                                           | 3      |
|                                | 16  | Nil                  | Nil    | 12.5        | do.                      | No                                              | -                                           | 3      |
|                                | 17  | Nil                  | Nil    | 4.5         | Mixed.                   | No                                              | -                                           | 3      |
|                                | 18  | Nil                  | Nil    | 24.1        | Monzonite.               | No                                              | -                                           | 3      |
|                                | 19  | Nil                  | Nil    | 4.3         | Argillite and quartzite. | No                                              | -                                           | 3      |
|                                | 20  | Nil                  | Nil    | 3.1         | do.                      | No                                              | -                                           | 3      |
| G3                             | 21  | 0.01                 | Nil    | 3.0         | do.                      | No                                              | -                                           | 3      |
|                                | 1   | Nil                  | Nil    | 12.8        | Monzonite.               | No                                              | -                                           | 3      |
|                                | 2   | .015                 | Nil    | 11.5        | do.                      | No                                              | -                                           | 3      |
|                                | 3   | Nil                  | Nil    | 11.0        | do.                      | No                                              | -                                           | 3      |
|                                | 4   | Nil                  | Nil    | 10.0        | do.                      | No                                              | -                                           | 3      |
|                                | 5   | Nil                  | Nil    | 11.0        | do.                      | No                                              | -                                           | 3      |
|                                | 6   | Nil                  | Nil    | 11?         | do.                      | No                                              | Depth estimated.                            | 3      |
|                                | 7   | Nil                  | Nil    | 11.0        | do.                      | No                                              | -                                           | 3      |
|                                | 8   | Nil                  | Nil    | 11.0        | do.                      | Yes                                             | Top portion only frozen.                    | 3      |
|                                | 9   | .005                 | Nil    | 8.0         | do.                      | No                                              | -                                           | 3      |
|                                | 10  | .002                 | Nil    | 11.0        | do.                      | No                                              | -                                           | 3      |
|                                | 11  | Nil                  | Nil    | 11.0        | do.                      | No                                              | -                                           | 3      |
|                                | 12  | Nil                  | Nil    | 11.0        | do.                      | No                                              | -                                           | 3      |
|                                | 13  | Nil                  | Nil    | 11.0        | do.                      | No                                              | -                                           | 3      |
|                                | 14  | Nil                  | Nil    | 11.5        | do.                      | No                                              | -                                           | 3      |
|                                | 15  | Nil                  | Nil    | 5.0         | do.                      | No                                              | -                                           | 3      |
|                                | 16  | .005                 | Nil    | 6.5         | do.                      | No                                              | -                                           | 3      |
|                                | 17  | -                    | -      | -           | -                        | -                                               | -                                           | 3      |
|                                | 18  | .005                 | Nil    | 11.5        | Monzonite.               | Yes                                             | No hole; at portal of old Golden Horn adit. | 3      |
|                                | 19  | Nil                  | Nil    | 11.0        | do.                      | Yes                                             | Overburden frozen.                          | 3      |
|                                | 20  | .012                 | 0.14   | 11.0        | do.                      | No                                              | do.                                         | 3      |
|                                | 21  | Nil                  | Nil    | 11.0        | do.                      | No                                              | -                                           | 3      |
|                                | 22  | Nil                  | Nil    | 11.5        | do.                      | No                                              | -                                           | 3      |
| 23                             | Nil | Nil                  | 11.5   | do.         | No                       | -                                               | 3                                           |        |
| 24                             | Nil | Nil                  | 7.5    | Argillite.  | No                       | G3, 23 and 24, monzonite and argillite contact. | 3                                           |        |
| G4                             | 1   | Nil                  | Nil    | 7.0         | Monzonite.               | No                                              | -                                           | 3      |
|                                | 2   | Nil                  | Nil    | 8.5         | do.                      | No                                              | -                                           | 3      |
|                                | 3   | Nil                  | Nil    | 8.5         | do.                      | No                                              | -                                           | 3      |
|                                | 4   | Nil                  | Nil    | 8.5         | do.                      | No                                              | -                                           | 3      |
|                                | 5   | .02                  | .33    | 8.5         | do.                      | No                                              | -                                           | 3      |
|                                | 6   | Nil                  | Nil    | 8.5         | do.                      | No                                              | -                                           | 3      |
| See footnotes at end of table. |     |                      |        |             |                          |                                                 |                                             |        |

See footnotes at end of table.

TABLE 3. - Auger sample results--continued

| Sample<br>No. | Line Hole | Assay, ounce<br>per ton |        | Notes from driller's log |            |        |                              | Figure |
|---------------|-----------|-------------------------|--------|--------------------------|------------|--------|------------------------------|--------|
|               |           | Gold                    | Silver | Depth,<br>feet           | Material   | Frozen | Remarks                      |        |
| G4            | 7         | Nil                     | Nil    | 6.4                      | Monzonite  | No     | -                            |        |
|               | 8         | Nil                     | Nil    | 5.0                      | do.        | No     | -                            | 3      |
|               | 9         | Nil                     | Nil    | 8.5                      | do.        | No     | -                            | 3      |
|               | 10        | Nil                     | 0.26   | 8.5                      | do.        | No     | -                            | 3      |
|               | 11        | Nil                     | Nil    | 8.5                      | do.        | No     | -                            | 3      |
|               | 12        | Nil                     | Nil    | 5.9                      | do.        | No     | -                            | 3      |
|               | 13        | Nil                     | Nil    | 8.5                      | do.        | No     | -                            | 3      |
|               | 14        | Nil                     | Nil    | 8.5                      | do.        | No     | -                            | 3      |
|               | 15        | 0.005                   | .25    | 8.5                      | do.        | No     | -                            | 3      |
|               | 16        | Nil                     | Nil    | 8.5                      | do.        | No     | -                            | 3      |
|               | 17        | Nil                     | Nil    | 8.5                      | do.        | No     | -                            | 3      |
|               | 18        | Nil                     | Nil    | 4.5                      | do.        | No     | -                            | 3      |
|               | 19        | Nil                     | Nil    | 8.5                      | do.        | No     | -                            | 3      |
|               | 20        | .008                    | Nil    | 4.5                      | do.        | No     | -                            | 3      |
|               | 21        | .005                    | Nil    | 8.0                      | Unknown.   | No     | -                            | 3      |
|               | 22        | Nil                     | Nil    | 5.4                      | do.        | No     | Overburden only<br>frozen(?) |        |
|               | 23        | Nil                     | Nil    | 8.5                      | do.        | No     | do.                          | 3      |
|               | 24        | Nil                     | Nil    | 8.0                      | Monzonite  | No     | do.                          | 3      |
|               | 25        | 2/Trace                 | .17    | 8.0                      | do.        | No     | -                            | 3      |
| G5            | 1         | .01                     | .02    | 8.5                      | do.        | No     | -                            | 3      |
|               | 2         | Nil                     | .07    | 8.5                      | do.        | No     | -                            | 3      |
|               | 3         | Nil                     | .03    | 8.0                      | do.        | No     | -                            | 3      |
|               | 4         | Nil                     | Nil    | 5.5                      | do.        | No     | -                            | 3      |
|               | 5         | Nil                     | .07    | 8.5                      | do.        | No     | -                            | 3      |
|               | 6         | Nil                     | .01    | 8.5                      | do.        | No     | -                            | 3      |
|               | 7         | Nil                     | .06    | 8.5                      | do.        | No     | -                            | 3      |
|               | 8         | .01                     | Nil    | 8.5                      | do.        | No     | -                            | 3      |
|               | 9         | Nil                     | Nil    | 8.5                      | do.        | No     | -                            | 3      |
|               | 10        | Nil                     | Nil    | 8.5                      | do.        | No     | -                            | 3      |
|               | 11        | .01                     | Trace  | 8.5                      | do.        | No     | -                            | 3      |
|               | 12        | .01                     | Trace  | 8.5                      | do.        | No     | -                            | 3      |
|               | 13        | Nil                     | Trace  | 8.5                      | do.        | No     | -                            | 3      |
|               | 14        | Nil                     | Trace  | 8.5                      | do.        | No     | -                            | 3      |
|               | 15        | Nil                     | Nil    | 7.0                      | do.        | No     | -                            | 3      |
|               | 16        | Nil                     | Nil    | 11.0                     | do.        | No     | -                            | 3      |
|               | 17        | .005                    | Trace  | 11.0                     | do.        | No     | -                            | 3      |
|               | 18        | Nil                     | Nil    | 11.0                     | do.        | No     | -                            | 3      |
|               | 19        | .01                     | Trace  | 10.0                     | do.        | No     | -                            | 3      |
| G6            | 1         | Trace                   | .17    | 11.5                     | do.        | No     | -                            | 3      |
|               | 2         | Nil                     | Nil    | 5.0                      | do.        | No     | -                            | 3      |
|               | 3         | Nil                     | Nil    | 11.0                     | do.        | No     | -                            | 3      |
|               | 4         | Nil                     | Nil    | 11.5                     | do.        | No     | -                            | 3      |
|               | 5         | Nil                     | .31    | 11.3                     | do.        | Yes    | -                            | 3      |
|               | 6         | -                       | -      | -                        | -          | -      | -                            | 3      |
|               | 7         | Nil                     | Nil    | 11.5                     | Monzonite. | No     | No hole.                     | 3      |

See footnotes at end of table.

TABLE 3. - Auger sample results--continued

| Sample No. | Line Hole | Assay, ounce per ton |        | Depth, feet | Notes from driller's log |        |                | Figure |
|------------|-----------|----------------------|--------|-------------|--------------------------|--------|----------------|--------|
|            |           | Gold                 | Silver |             | Material                 | Frozen | Remarks        |        |
| G6         | 8         | Nil                  | Nil    | 10.5        | Monzonite.               | No     | -              | 3      |
|            | 9         | Nil                  | Nil    | 11.5        | do.                      | No     | -              | 3      |
|            | 10        | 0.01                 | Nil    | 6.0         | do.                      | No     | -              | 3      |
|            | 11        | Nil                  | Nil    | 11.3        | do.                      | No     | -              | 3      |
|            | 12        | Nil                  | Nil    | 5.0         | do.                      | No     | -              | 3      |
|            | 13        | Nil                  | Nil    | 6.3         | do.                      | No     | -              | 3      |
|            | 14        | Nil                  | 0.40   | 4.0         | do.                      | No     | -              | 3      |
|            | Exp. 1    | Nil                  | Nil    | 7.7         | do.                      | No     | -              | 3      |
|            | 2         | Nil                  | Nil    | 11.0        | do.                      | No     | -              | 3      |
|            | 3A        | Nil                  | Nil    | 11.0        | do.                      | No     | -              | 3      |
|            | 3B        | Nil                  | Nil    | 10.5        | do.                      | No     | -              | 3      |
|            | 4A        | Nil                  | Nil    | 9.5         | do.                      | No     | -              | 3      |
|            | 4B        | Nil                  | Nil    | 8.5         | do.                      | No     | -              | 3      |
|            | 5A        | Nil                  | Nil    | 11.0        | do.                      | No     | -              | 3      |
| M1         | 5B        | Nil                  | Nil    | 10.0        | do.                      | No     | -              | 3      |
|            | 6A        | Nil                  | .28    | 6.4         | do.                      | No     | -              | 3      |
|            | 6B        | Nil                  | Nil    | 8.0         | do.                      | No     | -              | 3      |
|            | 1         | Nil                  | Nil    | 4.5         | Volcanics.               | No     | -              | 3      |
|            | 2         | Nil                  | Nil    | 3.4         | do.                      | No     | -              | 3      |
|            | 3         | Nil                  | Nil    | 4.5         | Monzonite.               | No     | -              | 3      |
|            | 4         | Nil                  | Nil    | 4.0         | do.                      | No     | -              | 3      |
|            | 5         | Nil                  | Nil    | 8.0         | do.                      | No     | -              | 3      |
|            | 6         | Nil                  | Nil    | 6.4         | do.                      | No     | -              | 3      |
|            | 7         | Nil                  | Nil    | 4.5         | do.                      | No     | -              | 3      |
|            | 8         | .01                  | Nil    | 4.5         | do.                      | No     | -              | 3      |
|            | 9         | .002                 | Nil    | 10.6        | do.                      | No     | -              | 3      |
|            | 10        | .005                 | Nil    | 12.0        | do.                      | No     | -              | 3      |
|            | 11        | Nil                  | Nil    | 8.5         | do.                      | No     | -              | 3      |
| B1         | 12        | Nil                  | Nil    | 4.5         | Unknown.                 | No     | Not monzonite. | 3      |
|            | 1         | Nil                  | Nil    | 6.0         | Monzonite.               | No     | -              | 3      |
|            | 2         | Nil                  | Nil    | 4.5         | do.                      | No     | -              | 3      |
|            | 3         | .005                 | Nil    | 14.7        | do.                      | No     | -              | 3      |
|            | 4         | Nil                  | Nil    | 12.3        | do.                      | No     | -              | 3      |
|            | 5         | Nil                  | Nil    | 9.5         | do.                      | No     | -              | 3      |
|            | 6         | Nil                  | Nil    | 11.1        | do.                      | No     | -              | 3      |
|            | 7         | Nil                  | Nil    | 12.6        | do.                      | No     | -              | 3      |
|            | 8         | Nil                  | Nil    | 14.2        | do.                      | No     | -              | 3      |
|            | 9         | Nil                  | Nil    | 10.9        | do.                      | No     | -              | 3      |
|            | 10        | Nil                  | Nil    | 15.0        | do.                      | No     | -              | 3      |
|            | 11        | Nil                  | Nil    | 6.1         | do.                      | No     | -              | 3      |
|            | 12        | Trace                | Nil    | 9.2         | do.                      | No     | -              | 3      |
|            | 13        | Nil                  | .14    | 12.4        | do.                      | No     | -              | 3      |
|            | 14        | Nil                  | Trace  | 13.7        | do.                      | No     | -              | 3      |
|            | 15        | Nil                  | .28    | 11.8        | do.                      | No     | -              | 3      |
|            | 16        | Nil                  | Nil    | 15.1        | do.                      | No     | -              | 3      |
|            | 17        | Nil                  | Nil    | 15.2        | do.                      | No     | -              | 3      |

See footnotes at end of table.

TABLE 3. - Auger sample results--continued

| Sample No. | Line Hole | Assay, ounce per ton |        | Depth, feet | Notes from driller's log |        |                   |        |
|------------|-----------|----------------------|--------|-------------|--------------------------|--------|-------------------|--------|
|            |           | Gold                 | Silver |             | Material                 | Frozen | Remarks           | Figure |
| B1         | 18        | Nil                  | 0.24   | 15.0        | Monzonite.               | No     | -                 |        |
|            | 19        | Nil                  | .12    | 14.7        | do.                      | No     | -                 | 3      |
|            | 20        | Nil                  | .58    | 11.5        | do.                      | No     | -                 | 3      |
|            | 21        | Nil                  | Nil    | 15.3        | do.                      | No     | -                 | 3      |
|            | 22        | Nil                  | .20    | 11.7        | do.                      | No     | -                 | 3      |
|            | 23        | Nil                  | Nil    | 6.3         | do.                      | No     | -                 | 3      |
|            | 24        | Nil                  | Trace  | 15.1        | do.                      | No     | -                 | 3      |
|            | 25        | 0.02                 | .19    | 14.5        | do.                      | Yes    | Top only frozen.  | 3      |
|            | 26        | Nil                  | Nil    | 15.5        | do.                      | No     | -                 | 3      |
| B2         | 1         | Nil                  | Nil    | 15.0        | do.                      | No     | -                 | 3      |
|            | 2         | .005                 | .27    | 15.2        | do.                      | No     | -                 | 3      |
|            | 3         | .005                 | Nil    | 8.1         | do.                      | No     | -                 | 3      |
|            | 4         | .005                 | Nil    | 15.3        | do.                      | No     | -                 | 3      |
|            | 5         | Trace                | Nil    | 14.7        | do.                      | No     | -                 | 3      |
|            | 6         | .015                 | Nil    | 15.1        | do.                      | No     | -                 | 3      |
|            | 7         | .015                 | Nil    | 15.0        | do.                      | No     | -                 | 3      |
|            | 8         | Nil                  | Nil    | 15.2        | do.                      | No     | -                 | 3      |
|            | 9         | Nil                  | Trace  | 6.6         | do.                      | No     | -                 | 3      |
|            | 10        | .005                 | .26    | 8.5         | do.                      | No     | -                 | 3      |
|            | 11        | .015                 | .16    | 15.0        | do.                      | No     | -                 | 3      |
|            | 12        | .01                  | .22    | 15.0        | do.                      | No     | -                 | 3      |
|            | 13        | Nil                  | .26    | 10.7        | do.                      | No     | -                 | 3      |
|            | 14        | Nil                  | .16    | 8.5         | do.                      | No     | -                 | 3      |
|            | 15        | Nil                  | .30    | 15.3        | do.                      | No     | -                 | 3      |
|            | 16        | Nil                  | .12    | 13.4        | do.                      | No     | -                 | 3      |
|            | 17        | Nil                  | Nil    | 15.5        | do.                      | No     | -                 | 3      |
|            | 18        | Nil                  | .08    | 14.9        | do.                      | No     | -                 | 3      |
|            | 19        | .01                  | .05    | 15.4        | do.                      | No     | -                 | 3      |
|            | 20        | Nil                  | Nil    | 15.3        | do.                      | No     | -                 | 3      |
|            | 21        | Nil                  | Trace  | 15.0        | do.                      | No     | -                 | 3      |
|            | 22        | Nil                  | .15    | 15.5        | do.                      | No     | -                 | 3      |
|            | 23        | Nil                  | .06    | 15.3        | do.                      | Yes    | Partially frozen. | 3      |
|            | 24        | Nil                  | Nil    | 15.0        | do.                      | Yes    | do.               | 3      |
|            | 25        | Nil                  | Nil    | 4.5         | do.                      | No     | -                 | 3      |
| B3         | 1         | Nil                  | Nil    | 8.0         | do.                      | No     | -                 | 3      |
|            | 2         | Nil                  | .02    | 9.2         | do.                      | No     | -                 | 3      |
|            | 3         | Trace                | Nil    | 7.6         | do.                      | No     | -                 | 3      |
|            | 4         | Nil                  | Nil    | 15.3        | do.                      | No     | -                 | 3      |
|            | 5         | Nil                  | Nil    | 15.0        | do.                      | No     | -                 | 3      |
|            | 6         | Nil                  | Nil    | 8.3         | do.                      | No     | -                 | 3      |
|            | 7         | Nil                  | Nil    | 15.1        | do.                      | No     | -                 | 3      |
|            | 8         | Nil                  | Nil    | 15.0        | do.                      | No     | -                 | 3      |
|            | 9         | Nil                  | Nil    | 15.4        | do.                      | No     | -                 | 3      |
|            | 10        | Nil                  | Nil    | 15.0        | do.                      | No     | -                 | 3      |
|            | 11        | Trace                | Nil    | 15.2        | do.                      | No     | -                 | 3      |
|            | 12        | Nil                  | Nil    | 7.8         | do.                      | No     | -                 | 3      |
|            | 13        | Trace                | Nil    | 8.3         | do.                      | No     | -                 | 3      |

See footnotes at end of table.

TABLE 3. - Auger sample results--continued

| Sample<br>No.<br>Line Hole | Assay, ounce<br>per ton |        | Depth,<br>feet | Notes from driller's log |            |         | Figure           |          |   |
|----------------------------|-------------------------|--------|----------------|--------------------------|------------|---------|------------------|----------|---|
|                            | Gold                    | Silver |                | Material                 | Frozen     | Remarks |                  |          |   |
| B3                         | 14                      | Nil    | Nil            | 8.5                      | Monzonite. | No      | -                | 3        |   |
|                            | 15                      | 0.002  | Nil            | 6.5                      | do.        | No      | -                | 3        |   |
|                            | 16                      | Nil    | Nil            | 15.7                     | do.        | Yes     | Top only frozen. | 3        |   |
|                            | 17                      | Nil    | Nil            | 7.5                      | do.        | No      | -                | 3        |   |
|                            | 18                      | Nil    | Nil            | 12.0                     | do.        | No      | -                | 3        |   |
|                            | 19                      | .005   | Nil            | 11.5                     | do.        | No      | -                | 3        |   |
|                            | 20                      | Nil    | Nil            | 15.5                     | do.        | No      | -                | 3        |   |
|                            | 21                      | Nil    | Nil            | 15.3                     | do.        | No      | -                | 3        |   |
|                            | 22                      | Nil    | Nil            | 7.6                      | do.        | No      | -                | 3        |   |
|                            | 23                      | Nil    | Nil            | 7.0                      | do.        | Yes     | -                | 3        |   |
|                            | 24                      | Nil    | Nil            | 11.5                     | do.        | Yes     | Mostly frozen.   | 3        |   |
|                            | 25                      | Nil    | Nil            | 15.0                     | do.        | No      | -                | 3        |   |
|                            | 26                      | Nil    | Nil            | 8.5                      | do.        | No      | -                | 3        |   |
|                            | 27                      | Nil    | Nil            | 15.2                     | do.        | No      | -                | 3        |   |
|                            | 28                      | Nil    | Nil            | 11.4                     | do.        | No      | -                | 3        |   |
|                            | 29                      | Nil    | Nil            | 7.5                      | do.        | No      | -                | 3        |   |
|                            | 30                      | -      | -              | 4.6                      | do.        | No      | No sample.       | 3        |   |
|                            | 31                      | Nil    | Nil            | 7.0                      | do.        | No      | -                | 3        |   |
|                            | 32                      | Nil    | Nil            | 11.3                     | do.        | No      | -                | 3        |   |
|                            | 33                      | Nil    | Nil            | 5.0                      | do.        | No      | -                | 3        |   |
|                            | B4                      | 1      | Nil            | Nil                      | 15.3       | do.     | No               | -        | 3 |
|                            |                         | 2      | Nil            | Nil                      | 4.5        | do.     | No               | -        | 3 |
|                            |                         | 3      | Nil            | Nil                      | 8.0        | do.     | No               | -        | 3 |
|                            |                         | 4      | Nil            | Nil                      | 7.8        | do.     | No               | -        | 3 |
|                            |                         | 5      | Nil            | Nil                      | 5.0        | do.     | No               | -        | 3 |
|                            |                         | 6      | Nil            | Nil                      | 5.7        | do.     | No               | -        | 3 |
|                            |                         | 7      | .005           | Nil                      | 7.5        | do.     | No               | -        | 3 |
|                            |                         | 8      | Nil            | Nil                      | 6.7        | do.     | No               | -        | 3 |
|                            |                         | 9      | Nil            | Nil                      | 9.3        | do.     | No               | -        | 3 |
|                            |                         | 10     | Nil            | Nil                      | 11.4       | do.     | No               | -        | 3 |
|                            |                         | 11     | Nil            | Nil                      | 15.3       | do.     | No               | -        | 3 |
|                            |                         | 12     | Nil            | Nil                      | 6.0        | do.     | No               | -        | 3 |
|                            |                         | 13     | -              | -                        | -          | -       | -                | No hole. | 3 |
| 14                         |                         | Nil    | Nil            | 8.3                      | Monzonite. | No      | -                | 3        |   |
| 15                         |                         | .005   | Nil            | 5.9                      | do.        | No      | -                | 3        |   |
| 16                         |                         | Nil    | Nil            | 9.2                      | do.        | No      | -                | 3        |   |
| 17                         |                         | Nil    | Nil            | 8.4                      | do.        | No      | -                | 3        |   |
| 18                         |                         | Nil    | Nil            | 16.0                     | do.        | No      | -                | 3        |   |
| 19                         |                         | Nil    | Nil            | 15.5                     | do.        | No      | -                | 3        |   |
| 20                         |                         | Nil    | Nil            | 10.7                     | do.        | No      | -                | 3        |   |
| 21                         |                         | Nil    | Nil            | 15.3                     | do.        | No      | -                | 3        |   |
| 22                         |                         | Nil    | Nil            | 5.5                      | do.        | No      | -                | 3        |   |
| 23                         |                         | .015   | Trace          | 15.2                     | do.        | No      | -                | 3        |   |
| 24                         |                         | Nil    | Nil            | 9.7                      | do.        | No      | -                | 3        |   |
| B5                         | 1                       | Nil    | Nil            | 5.0                      | do.        | No      | -                | 3        |   |
|                            | 2                       | Nil    | Nil            | 8.5                      | do.        | No      | -                | 3        |   |

See footnotes at end of table.

TABLE 3. - Auger sample results--continued

| Sample No. | Line Hole | Assay, ounce per ton |        | Depth, feet | Notes from driller's log |        |                                            | Figure |
|------------|-----------|----------------------|--------|-------------|--------------------------|--------|--------------------------------------------|--------|
|            |           | Gold                 | Silver |             | Material                 | Frozen | Remarks                                    |        |
| B5         | 3         | Nil                  | Nil    | 4.5         | Monzonite.               | No     | -                                          | 3      |
|            | 4         | 0.01                 | Nil    | 7.0         | do.                      | No     | -                                          | 3      |
|            | 5         | .13                  | Trace  | 5.3         | do.                      | No     | -                                          | 3      |
|            | 6         | Nil                  | Nil    | 4.5         | do.                      | No     | -                                          | 3      |
| B6         | 1         | Nil                  | Nil    | 16.0        | do.                      | Yes    | -                                          | 3      |
|            | 2         | .01                  | Nil    | 11.5        | do.                      | Yes    | B6, No. 2 and 3, are partially frozen.     | 3      |
|            | 3         | .045                 | Trace  | 11.7        | do.                      | Yes    |                                            | 3      |
|            | 4         | .01                  | Nil    | 7.5         | do.                      | No     | -                                          | 3      |
|            | 5         | .06                  | Nil    | 8.3         | do.                      | No     | -                                          | 3      |
|            | 6         | Nil                  | Nil    | 5.5         | do.                      | No     | -                                          | 3      |
|            | 7         | Nil                  | Nil    | 11.4        | do.                      | No     | -                                          | 3      |
|            | 8         | Nil                  | Nil    | 6.4         | do.                      | No     | -                                          | 3      |
|            | 9         | Nil                  | Nil    | 9.6         | do.                      | No     | -                                          | 3      |
|            | 10        | Nil                  | Nil    | 4.5         | do.                      | No     | -                                          | 3      |
|            | 11        | Nil                  | Nil    | 8.0         | do.                      | No     | -                                          | 3      |
|            | 12        | .01                  | Nil    | 8.0         | do.                      | No     | -                                          | 3      |
|            | 13        | Trace                | Trace  | 8.0         | do.                      | No     | -                                          | 3      |
|            | 14        | Nil                  | Nil    | 8.0         | do.                      | No     | -                                          | 3      |
|            | 15        | Nil                  | Nil    | 8.0         | do.                      | No     | -                                          | 3      |
|            | 16        | Nil                  | Nil    | 7.6         | do.                      | Yes    | Top frozen.                                | 3      |
|            | 17        | Nil                  | Nil    | 8.0         | do.                      | No     | -                                          | 3      |
|            | 18        | Nil                  | Nil    | 8.0         | do.                      | No     | -                                          | 3      |
|            | 19        | -                    | -      | -           | -                        | -      | No hole.                                   | 3      |
|            | 20        | .005                 | Nil    | 4.5         | Monzonite.               | No     | -                                          | 3      |
|            | 21        | Trace                | Nil    | 8.0         | do.                      | No     | -                                          | 3      |
|            | 22        | Nil                  | Nil    | 8.0         | do.                      | No     | -                                          | 3      |
|            | 23        | Nil                  | Nil    | 8.0         | do.                      | No     | -                                          | 3      |
|            | 24        | Nil                  | Nil    | 4.5         | do.                      | No     | -                                          | 3      |
|            | 25        | Nil                  | Nil    | 8.0         | do.                      | No     | -                                          | 3      |
| B-         | 1         | Nil                  | Nil    | 16.3        | do.                      | No     | -                                          | 3      |
| Misc       | 2         | Nil                  | Nil    | 15.5        | do.                      | No     | -                                          | 3      |
| H1         | 1         | .025                 | Nil    | 8.5         | do.                      | No     | -                                          | 4      |
|            | 2         | .015                 | Trace  | 8.3         | do.                      | No     | -                                          | 4      |
|            | 3         | .01                  | Trace  | 5.9         | do.                      | No     | -                                          | 4      |
|            | 4         | .01                  | .06    | 4.6         | do.                      | No     | -                                          | 4      |
|            | 5         | .01                  | Trace  | 5.6         | do.                      | No     | -                                          | 4      |
|            | 6         | Nil                  | Nil    | 5.6         | do.                      | No     | -                                          | 4      |
|            | 7         | .04                  | .50    | 3.9         | Humus.                   | Yes    | H1, No. 7 through 18 all partially frozen. | 4      |
|            | 8         | Nil                  | Nil    | 5.0         | Monzonite.               | Yes    |                                            | 4      |
|            | 9         | Nil                  | Nil    | 4.3         | do.                      | Yes    |                                            | 4      |
|            | 10        | .005                 | .07    | 5.3         | do.                      | Yes    |                                            | 4      |
|            | 11        | .015                 | Trace  | 8.7         | do.                      | Yes    |                                            | 4      |
|            | 12        | Nil                  | Nil    | 7.4         | Humus and silt.          | Yes    |                                            | 4      |
|            | 13        | Nil                  | Nil    | 4.6         | do.                      | Yes    |                                            | 4      |
|            | 14        | .02                  | .65    | 4.8         | do.                      | Yes    |                                            | 4      |
|            | 15        | Nil                  | Nil    | 4.2         | do.                      | Yes    |                                            | 4      |

See footnotes at end of table.

TABLE 3. - Auger sample results--continued

| Sample No. | Assay, ounce per ton |        | Depth, feet | Notes from driller's log |        |                    | Figure |
|------------|----------------------|--------|-------------|--------------------------|--------|--------------------|--------|
|            | Gold                 | Silver |             | Material                 | Frozen | Remarks            |        |
| H1 16      | N11                  | N11    | 4.4         | Humus and silt.          | Yes    |                    | 4      |
| 17         | N11                  | N11    | 5.5         | do.                      | Yes    |                    | 4      |
| 18         | 0.005                | 0.78   | 4.3         | do.                      | Yes    |                    | 4      |
| H2 1       | N11                  | N11    | 3.9         | do.                      | Yes    | -                  | 4      |
| 2          | N11                  | N11    | 4.7         | do.                      | Yes    | -                  | 4      |
| 3          | .005                 | 1.12   | 4.2         | Monzonite.               | Yes    | -                  | 4      |
| H3 1       | N11                  | N11    | 4.3         | Humus and silt.          | Yes    | H3, No. 1 through  | 4      |
| 2          | N11                  | .30    | 4.5         | do.                      | Yes    | 15 frozen in upper | 4      |
| 3          | N11                  | N11    | 3.6         | do.                      | Yes    | parts, less so     | 4      |
| 4          | N11                  | N11    | 4.5         | do.                      | Yes    | downward.          | 4      |
| 5          | .005                 | Trace  | 4.0         | do.                      | Yes    |                    | 4      |
| 6          | N11                  | N11    | 3.7         | do.                      | Yes    |                    | 4      |
| 7          | .02                  | N11    | 7.5         | do.                      | Yes    |                    | 4      |
| 8          | N11                  | N11    | 4.0         | do.                      | Yes    |                    | 4      |
| 9          | N11                  | N11    | 3.7         | do.                      | Yes    |                    | 4      |
| 10         | N11                  | N11    | 4.1         | Monzonite.               | Yes    |                    | 4      |
| 11         | N11                  | N11    | 6.6         | do.                      | Yes    |                    | 4      |
| 12         | N11                  | N11    | 7.0         | do.                      | Yes    |                    | 4      |
| 13         | .005                 | Trace  | 5.3         | do.                      | Yes    |                    | 4      |
| 14         | N11                  | N11    | 8.0         | do.                      | Yes    |                    | 4      |
| 15         | N11                  | N11    | 11.5        | do.                      | Yes    |                    | 4      |
| 16         | N11                  | N11    | 4.7         | do.                      | Yes    | -                  | 4      |
| 17         | N11                  | N11    | 4.2         | do.                      | Yes    | -                  | 4      |
| 18         | N11                  | N11    | 5.8         | do.                      | Yes    | -                  | 4      |
| 19         | N11                  | N11    | 4.8         | do.                      | No     | -                  | 4      |
| 20         | N11                  | N11    | 10.8        | do.                      | Yes    | Minor ice.         | 4      |
| 21         | .005                 | N11    | 6.7         | do.                      | No     | -                  | 4      |
| H4 1       | .005                 | N11    | 6.2         | do.                      | Yes    | Partially frozen.  | 4      |
| 2          | N11                  | N11    | 6.1         | do.                      | Yes    | do.                | 4      |
| 3          | N11                  | N11    | 7.5         | do.                      | Yes    | do.                | 4      |
| 4          | .01                  | N11    | 6.5         | do.                      | Yes    | do.                | 4      |
| 5          | N11                  | N11    | 6.7         | do.                      | Yes    | do.                | 4      |
| 6          | N11                  | N11    | 8.1         | do.                      | Yes    | do.                | 4      |
| 7          | N11                  | N11    | 12.5        | do.                      | No     | -                  | 4      |
| 8          | .01                  | N11    | 10.6        | do.                      | No     | -                  | 4      |
| 9          | N11                  | N11    | 11.9        | do.                      | Yes    | Partially frozen.  | 4      |
| 10         | N11                  | N11    | 9.9         | do.                      | Yes    | do.                | 4      |
| 11         | N11                  | N11    | 6.3         | do.                      | Yes    | do.                | 4      |
| 12         | .005                 | N11    | 12.5        | do.                      | No     | -                  | 4      |
| 13         | N11                  | N11    | 8.1         | do.                      | No     | -                  | 4      |
| 14         | N11                  | N11    | 7.5         | do.                      | Yes    | Partially frozen.  | 4      |
| 15         | N11                  | N11    | 6.6         | do.                      | No     | -                  | 4      |
| 16         | Trace                | N11    | 12.7        | do.                      | No     | -                  | 4      |
| 17         | N11                  | N11    | 6.1         | do.                      | No     | -                  | 4      |
| 18         | N11                  | N11    | 5.9         | do.                      | No     | -                  | 4      |

See footnotes at end of table.



TABLE 3. - Auger sample results--continued

| Sample No. | Line Hole | Assay, ounce per ton |        | Depth, feet | Notes from driller's log |        |                                       | Figure |
|------------|-----------|----------------------|--------|-------------|--------------------------|--------|---------------------------------------|--------|
|            |           | Gold                 | Silver |             | Material                 | Frozen | Remarks                               |        |
| H-         | 1         | Trace                | 0.09   | 15.5        | Monzonite.               | No     | -                                     | 4      |
| Misc       | 2A        | Nil                  | Nil    | 2.0         | do.                      | No     | -                                     | 4      |
|            | 2B        | 0.005                | Nil    | 8.3         | do.                      | No     | 2A and 2B, top and bottom, same hole. | 4      |
|            | 3         | Nil                  | Nil    | 22.8        | do.                      | No     | -                                     | 4      |
| C5         | 1         | Trace                | Nil    | 24.0        | do.                      | No     | -                                     | 4      |
|            | 2         | .015                 | Nil    | 6.6         | do.                      | No     | -                                     | 4      |
|            | 3         | Nil                  | Nil    | 7.6         | do.                      | No     | -                                     | 4      |
|            | 4         | .03                  | Trace  | 4.9         | do.                      | Yes    | Partially frozen.                     | 4      |
|            | 5         | .135                 | .06    | 10.3        | do.                      | Yes    | do.                                   | 4      |
|            | 6         | .01                  | .11    | 5.2         | do.                      | Yes    | do.                                   | 4      |
|            | 7         | .01                  | .07    | 6.4         | do.                      | Yes    | do.                                   | 4      |
|            | 8         | .02                  | Nil    | 9.7         | do.                      | Yes    | do.                                   | 4      |
|            | 9         | .005                 | .15    | 10.8        | do.                      | No     | -                                     | 4      |
|            | 10        | .025                 | Nil    | 10.0        | do.                      | No     | -                                     | 4      |
|            | 11        | .005                 | .19    | 8.5         | do.                      | Yes    | Partially frozen.                     | 4      |
|            | 12        | .012                 | .02    | 5.2         | do.                      | Yes    | do.                                   | 4      |
|            | 13        | Nil                  | Nil    | 5.0         | do.                      | Yes    | do.                                   | 4      |
|            | 14        | .01                  | Trace  | 4.8         | do.                      | Yes    | do.                                   | 4      |
|            | 15        | Nil                  | Nil    | 6.0         | do.                      | Yes    | do.                                   | 4      |
|            | 16        | Nil                  | Nil    | 11.0        | do.                      | Yes    | do.                                   | 4      |
|            | 17        | .005                 | Nil    | 9.2         | do.                      | No     | -                                     | 4      |
|            | 18        | -                    | -      | -           | -                        | No     | -                                     | 4      |
|            | 19        | -                    | -      | -           | -                        | -      | No hole.                              | 4      |
|            | 20        | Trace                | Nil    | 2.7         | Monzonite.               | -      | do.                                   | 4      |
|            | 21        | -                    | -      | -           | -                        | No     | -                                     | 4      |
|            | 22        | Nil                  | Nil    | 2.1         | Monzonite.               | -      | No hole.                              | 4      |
| C6         | 1         | Nil                  | Nil    | 7.0         | do.                      | No     | -                                     | 4      |
|            | 2         | .01                  | .04    | 11.2        | do.                      | Yes    | Top only frozen.                      | 4      |
|            | 3         | Nil                  | Nil    | 6.1         | do.                      | No     | -                                     | 4      |
|            | 4         | Nil                  | Nil    | 6.8         | do.                      | No     | -                                     | 4      |
|            | 5         | Nil                  | Nil    | 6.0         | do.                      | Yes    | -                                     | 4      |
|            | 6         | Nil                  | Nil    | 7.3         | do.                      | Yes    | -                                     | 4      |
|            | 7         | .01                  | Trace  | 4.9         | do.                      | No     | -                                     | 4      |
|            | 8         | Nil                  | Nil    | 6.6         | do.                      | No     | -                                     | 4      |
|            | 9         | Nil                  | Nil    | 6.0         | do.                      | No     | -                                     | 4      |
|            | 10        | Nil                  | Nil    | 5.5         | do.                      | No     | -                                     | 4      |
|            | 11        | Nil                  | Nil    | 4.7         | do.                      | No     | -                                     | 4      |
|            | 12        | Nil                  | Nil    | 5.0         | do.                      | No     | -                                     | 4      |
|            | 13A       | Nil                  | Nil    | 5.3         | do.                      | No     | -                                     | 4      |
|            | 13B       | Nil                  | Nil    | 5.0         | do.                      | No     | C6, 13A and 13B 2 feet apart.         | 4      |
| H7         | 1         | Nil                  | Nil    | 7.9         | do.                      | No     | Partially frozen.                     | 4      |
|            | 2         | Nil                  | Nil    | 8.7         | do.                      | Yes    | -                                     | 4      |
|            | 3         | Nil                  | Nil    | 7.0         | do.                      | Yes    | -                                     | 4      |
|            | 4         | Nil                  | Nil    | 7.1         | do.                      | Yes    | -                                     | 4      |
|            | 5         | .01                  | Nil    | 4.0         | do.                      | Yes    | -                                     | 4      |
|            | 6         | Nil                  | Nil    | 7.2         | do.                      | No     | -                                     | 4      |
|            | 7         | Nil                  | Nil    | 5.8         | do.                      | No     | -                                     | 4      |

See footnotes at end of table.

TABLE 3. - Auger sample results--continued

| Sample No.<br>Line Hole | Assay, ounce per ton |        | Depth, feet | Notes from driller's log |        |             | Figure |
|-------------------------|----------------------|--------|-------------|--------------------------|--------|-------------|--------|
|                         | Gold                 | Silver |             | Material                 | Frozen | Remarks     |        |
| H7 8                    | 0.02                 | Trace  | 4.5         | Monzonite.               | No     | -           | 4      |
| 9                       | .005                 | Trace  | 6.2         | do.                      | No     | -           | 4      |
| 10                      | Nil                  | Nil    | 9.3         | do.                      | Yes    | -           | 4      |
| 11                      | .120                 | Trace  | 6.2         | do.                      | No     | Frost boil. | 4      |
| 12                      | .005                 | Trace  | 5.9         | do.                      | No     | -           | 4      |
| 13                      | .01                  | Nil    | 11.0        | do.                      | No     | -           | 4      |
| 14                      | Trace                | Nil    | 5.5         | do.                      | No     | -           | 4      |
| 15                      | Nil                  | Nil    | 4.8         | do.                      | No     | -           | 4      |
| 16                      | Nil                  | Nil    | 11.2        | do.                      | No     | -           | 4      |
| 17                      | Nil                  | Nil    | 7.0         | do.                      | No     | -           | 4      |
| 18                      | .01                  | Nil    | 6.3         | do.                      | No     | -           | 4      |
| 19                      | Nil                  | Nil    | 5.6         | do.                      | No     | -           | 4      |
| 20                      | Nil                  | Nil    | 7.4         | do.                      | No     | -           | 4      |
| H8 1                    | Nil                  | 0.02   | 11.0        | do.                      | No     | -           | 4      |
| 2                       | Nil                  | Nil    | 5.5         | do.                      | No     | -           | 4      |
| 3                       | Nil                  | Nil    | 9.8         | do.                      | No     | -           | 4      |
| 4                       | Nil                  | Nil    | 11.1        | do.                      | No     | -           | 4      |
| 5                       | Nil                  | Nil    | 11.3        | do.                      | No     | -           | 4      |
| 6                       | Nil                  | Nil    | 10.6        | do.                      | No     | -           | 4      |
| 7                       | .005                 | Nil    | 9.3         | do.                      | No     | -           | 4      |
| H9 1                    | .01                  | Nil    | 11.0        | do.                      | No     | -           | 4      |
| 2                       | Nil                  | Nil    | 11.2        | do.                      | No     | -           | 4      |
| 3                       | Nil                  | Nil    | 10.9        | do.                      | No     | -           | 4      |
| 4                       | Nil                  | Nil    | 11.1        | do.                      | No     | -           | 4      |
| 5                       | .04                  | Nil    | 9.7         | do.                      | No     | -           | 4      |
| 6                       | Nil                  | Nil    | 9.4         | do.                      | No     | -           | 4      |
| 7                       | Nil                  | Nil    | 11.0        | do.                      | No     | -           | 4      |
| 8                       | Nil                  | Nil    | 10.8        | do.                      | No     | -           | 4      |
| 9                       | Nil                  | Nil    | 7.5         | do.                      | No     | -           | 4      |
| F10 1                   | .03                  | Trace  | 4.0         | Black rubble.            | No     | -           | 4      |
| 2                       | .005                 | Trace  | 4.0         | do.                      | No     | -           | 4      |
| 3                       | Nil                  | Nil    | 7.1         | do.                      | Yes    | -           | 4      |
| 4                       | .01                  | Trace  | 6.7         | Monzonite.               | Yes    | -           | 4      |
| 5                       | .01                  | Trace  | 6.3         | Humus.                   | Yes    | -           | 4      |
| 6                       | .005                 | Trace  | 5.2         | Black rubble.            | Yes    | -           | 4      |
| 7                       | Nil                  | -      | 6.0         | do.                      | Yes    | -           | 4      |
| 8                       | .005                 | Trace  | 8.5         | do.                      | Yes    | -           | 4      |
| 9A                      | Nil                  | Nil    | 9.9         | Monzonite.               | No     | -           | 4      |
| 9B                      | Nil                  | Nil    | 8.7         | do.                      | No     | -           | 4      |
| 10A                     | .005                 | Nil    | 14.7        | do.                      | No     | -           | 4      |
| 10B                     | Nil                  | Nil    | 15.3        | do.                      | No     | -           | 4      |
| 11A                     | Nil                  | Nil    | 11.0        | do.                      | No     | -           | 4      |
| 11B                     | Nil                  | .08    | 2.6         | do.                      | No     | -           | 4      |
| 12                      | Trace                | Nil    | 15.3        | do.                      | No     | -           | 4      |
| 13                      | Nil                  | Trace  | 5.5         | do.                      | Yes    | -           | 4      |
| 14                      | Nil                  | .02    | 5.2         | do.                      | Yes    | -           | 4      |

See footnotes at end of table.

TABLE 3. - Auger sample results--continued

| Sample No. | Line Hole | Assay, ounce per ton |        | Depth, feet | Notes from driller's log |        |         | Figure |
|------------|-----------|----------------------|--------|-------------|--------------------------|--------|---------|--------|
|            |           | Gold                 | Silver |             | Material                 | Frozen | Remarks |        |
| F11        | 1         | Nil                  | 0.38   | 4.8         | Monzonite.               | No     | -       | 4      |
|            | 2         | Nil                  | Trace  | 4.0         | do.                      | Yes    | -       | 4      |
|            | 3         | Nil                  | .05    | 4.5         | do.                      | Yes    | -       | 4      |
|            | 4         | 0.01                 | Nil    | 5.1         | do.                      | Yes    | -       | 4      |
|            | 5         | Nil                  | Nil    | 4.0         | do.                      | Yes    | -       | 4      |
|            | 6         | .02                  | Trace  | 4.4         | do.                      | No     | -       | 4      |
|            | 7         | .01                  | Trace  | 6.3         | do.                      | No     | -       | 4      |
|            | 8         | .01                  | Nil    | 6.1         | do.                      | No     | -       | 4      |
| F 2        | 1         | Nil                  | Nil    | 7.3         | do.                      | No     | -       | 4      |
|            | 2         | Nil                  | Nil    | 8.5         | do.                      | No     | -       | 4      |
|            | 3         | .005                 | Nil    | 9.8         | do.                      | No     | -       | 4      |
|            | 4         | Nil                  | Nil    | 12.2        | do.                      | No     | -       | 4      |
|            | 5         | Nil                  | Nil    | 5.3         | do.                      | No     | -       | 4      |

1/ Nil = less than 0.001 ounce per ton.

2/ Trace = 0.001 to 0.005 ounce per ton.

TABLE 4. - Channel and grab sample assays

Abbreviations (table 4 only):

dec - decomposed

mz - monzonite

qz - quartz

seg - segregation

str - stringer

| Sample No. | Assay, ounce per ton |        | Dip and strike          | Sample width, feet | Material              | Drainage      | Figure |
|------------|----------------------|--------|-------------------------|--------------------|-----------------------|---------------|--------|
|            | Gold                 | Silver |                         |                    |                       |               |        |
| 34         | Nil                  | Nil    | -                       | Grab               | Fresh mz.             | Flat Creek    | 4      |
| 35         | Nil                  | Nil    | -                       | Grab               | Dec mz.               | do.           | 4      |
| 36         | Nil                  | Nil    | -                       | 2.5                | do.                   | do.           | 4      |
| 59         | 0.04                 | 0.30   | -                       | Grab               | Vein qz (adit dump).  | Black Creek   | 3      |
| 60         | .045                 | .25    | -                       | Grab               | Sulfides (adit dump). | do.           | 3      |
| 61         | .01                  | Trace  | -                       | Grab               | Vein qz (adit dump).  | do.           | 3      |
| 62         | Nil                  | Nil    | -                       | Grab               | Gossan (adit dump).   | do.           | 3      |
| 69         | .005                 | Trace  | -                       | Grab               | Dark dec mz.          | Chicken Creek | 4      |
| 70         | Nil                  | Nil    | -                       | Grab               | Dark fresh mz.        | do.           | 4      |
| 81         | Nil                  | Nil    | -                       | 12.7               | Dec mz.               | do.           | 4      |
| 82         | .120                 | Nil    | Fault                   | (12.7              | Brown dec mz.         | do.           | 4      |
| 83         | .01                  | Trace  | zone.                   | ( 4.0              | Gray dec mz.          | do.           | 4      |
| 84         | .01                  | Trace  | N 10° E at V (vertical) | ( 2.6              | Mz and fault gouge.   | do.           | 4      |
| 85         | .005                 | Trace  |                         | ( 2.8              | Dec mz.               | do.           | 4      |
| 86         | .005                 | Trace  | N 05° W at V            | ( 2.5              | Brown dec mz.         | do.           | 4      |
| 87         | .015                 | Nil    |                         | ( 2.7              | Dec mz.               | do.           | 4      |
| 88         | .015                 | Nil    |                         | ( .8               | Fault gouge.          | do.           | 4      |
| 89         | Nil                  | Nil    |                         | ( 3.0              | Brown dec mz.         | do.           | 4      |
| 90         | .05                  | Nil    |                         | 12.8               | Yellow dec mz.        | do.           | 4      |
| 91         | .005                 | Trace  |                         | Grab               | Dark dec mz.          | do.           | 4      |
| 92A        | Nil                  | Nil    |                         | Grab               | Tan dec mz.           | do.           | 4      |
| 92B        | Nil                  | .04    |                         | Grab               | Rusty dec mz.         | do.           | 4      |
| 92C        | .005                 | Trace  | -                       | Grab               | do.                   | do.           | 4      |
| 92D        | .01                  | .12    | -                       | Grab               | do.                   | do.           | 4      |
| 93         | .01                  | .05    | -                       | Grab               | do.                   | do.           | 4      |
| 98         | .01                  | Nil    | -                       | 10.0               | Reddish dec mz.       | do.           | 4      |
| 99         | Nil                  | .04    | -                       | 3.0                | Gray dec mz.          | do.           | 4      |
| 100        | .005                 | Trace  | -                       | .5                 | Green-white gouge.    | do.           | 4      |
| 101        | Trace                | .04    | -                       | 4.0                | Gray brown dec mz.    | do.           | 4      |
| 102        | Nil                  | .20    | -                       | Grab               | Mafic seg in mz.      | do.           | 4      |
| 103        | Nil                  | Nil    | -                       | 4.5                | Yellow dec mz.        | do.           | 4      |

See footnotes at end of table.

TABLE 4. - Channel and grab sample assays--continued

| Sample No. | Assay, ounce per ton |        | Dip and strike    | Sample width, feet | Material                  | Drainage      | Figure |
|------------|----------------------|--------|-------------------|--------------------|---------------------------|---------------|--------|
|            | Gold                 | Silver |                   |                    |                           |               |        |
| 104        | 0.01                 | 0.21   | -                 | <0.1               | Qz veinlet.               | Chicken Creek | 4      |
| 105        | .168                 | Nil    | N 60° E at 60° SE | .3                 | Rusty qz vein.            | do.           | 4      |
| 106        | .922                 | .30    | N 45° E at V      | <.1                | do.                       | do.           | 4      |
| 107        | .16                  | .17    | N 40° E at V      | <.1                | do.                       | do.           | 4      |
| 108        | .05                  | .19    | N 65° E at 60° SE | .2                 | Two veins, qz in mz.      | do.           | 4      |
| 109        | Nil                  | .14    | -                 | 4.8                | Red brown zone.           | Happy Creek   | 4      |
| 110        | Nil                  | .14    | -                 | Grab               | Brown dec mz.             | do.           | 4      |
| 111        | Nil                  | .14    | -                 | Grab               | Mafic seg in mz.          | do.           | 4      |
| 112        | .01                  | .15    | -                 | 10.0               | No. 112, 114,             | do.           | 4      |
| 113        | Trace                | .05    | -                 | 2.0                | 115, 116 con-             | do.           | 4      |
| 114        | Nil                  | .12    | -                 | 8.0                | tinuous sec-              | do.           | 4      |
| 115        | .005                 | .12    | -                 | 4.0                | tion across               | do.           | 4      |
| 116        | Nil                  | .04    | -                 | 3.0                | rusty shear zone.         | do.           | 4      |
| 117        | Nil                  | .07    | -                 | .2                 | Rusty zone                | do.           | 4      |
| 118        | .005                 | .02    | N 30° E at V      | 5.7                | Rusty zone with sulfides. | do.           | 4      |
| 119        | Nil                  | .08    | -                 | 4.7                | Rusty zone in mz.         | do.           | 4      |
| 121        | Nil                  | Nil    | -                 | 10.0               | Rusty mz.                 | do.           | 4      |
| 122        | Nil                  | Nil    | -                 | 6.0                | do.                       | do.           | 4      |
| 123        | Nil                  | .08    | -                 | 1.8                | Rusty zone in mz.         | do.           | 4      |
| 125        | Nil                  | Trace  | -                 | .7                 | do.                       | do.           | 4      |
| 126        | Nil                  | Nil    | -                 | (.5                | Continuous sec-           | do.           | 4      |
| 127        | .01                  | Nil    | N 30° E at V      | (1.7               | tion across               | do.           | 4      |
| 128        | Nil                  | Trace  | -                 | (1.2               | intensely rusty zone.     | do.           | 4      |
| 129        | Nil                  | Trace  | -                 | 3.0                | Gray brown dec mz.        | do.           | 4      |
| 130        | Nil                  | Trace  | -                 | Grab               | Seg in mz.                | do.           | 4      |
| 131        | .04                  | Nil    | N 45° E at 70° SE | .6                 | Vein with arsenopyrite.   | do.           | 4      |
| 133        | .03                  | .08    | N 20° E at 70° NW | <.1                | Qz vein.                  | do.           | 4      |
| 134        | .005                 | Nil    | -                 | <.1                | Dec white str.            | do.           | 4      |
| 135        | Nil                  | .05    | -                 | Grab               | Dec mz.                   | do.           | 4      |
| 136        | Nil                  | Nil    | -                 | .1                 | Qz str.                   | do.           | 4      |
| 137        | Nil                  | .11    | -                 | Grab               | Dec mz.                   | do.           | 4      |
| 138        | Nil                  | .05    | -                 | Grab               | Dec white str.            | do.           | 4      |
| 139        | .01                  | Nil    | N 30° E at 70° NW | 4.5                | Dec mz.                   | do.           | 4      |
| 140        | Nil                  | Nil    | -                 | 1.2                | Rusty zone in mz.         | do.           | 4      |
| 141        | Nil                  | .12    | -                 | .4                 | do.                       | do.           | 4      |

See footnotes at end of table.

TABLE 4. - Channel and grab sample assays--continued

| Sample No. | Assay, ounce per ton |        | Dip and strike    | Sample width, feet | Material             | Drainage    | Figure |
|------------|----------------------|--------|-------------------|--------------------|----------------------|-------------|--------|
|            | Gold                 | Silver |                   |                    |                      |             |        |
| 143        | Nil                  | 0.03   | -                 | 0.1                | Rusty vein or joint. | Happy Creek | 4      |
| 144        | 0.055                | Trace  | N 80° E at 35° S  | <.1                | Qz vein.             | do.         | 4      |
| 145        | .01                  | Trace  | -                 | <.1                | do.                  | do.         | 4      |
| 146        | Nil                  | .09    | -                 | 3.5                | Dark dec mz.         | do.         | 4      |
| 147        | .01                  | .08    | -                 | <.1                | Gouge in mz.         | do.         | 4      |
| 148        | Nil                  | Nil    | -                 | .1                 | Rusty str.           | do.         | 4      |
| 149        | Nil                  | .03    | -                 | .1                 | Qz str.              | do.         | 4      |
| 150        | Nil                  | .03    | -                 | Grab               | Mafic seg in mz.     | do.         | 4      |
| 151        | .010                 | Trace  | -                 | ( 2.0              | Red brown dec mz.    | do.         | 4      |
| 152        | .035                 | Nil    | N 35° E at V      | ( 6.0              | Rusty zone with qz.  | do.         | 4      |
| 153        | Nil                  | Nil    | -                 | ( 7.0              | do.                  | do.         | 4      |
| 154        | .02                  | Nil    | N at V            | .4                 | Rusty zone in mz.    | do.         | 4      |
| 155        | Nil                  | Nil    | -                 | .1                 | Gouge.               | do.         | 4      |
| 156        | Nil                  | .02    | -                 | Grab               | Mz with gouge.       | do.         | 4      |
| 157        | Nil                  | Nil    | -                 | .2                 | Rusty zone.          | do.         | 4      |
| 158        | Nil                  | Nil    | -                 | .2                 | do.                  | do.         | 4      |
| 159        | .010                 | Trace  | N 25° W at 70° NE | 2.2                | Gray zone in mz.     | do.         | 4      |
| 160        | Nil                  | Nil    | -                 | 6.0                | Dec mz.              | do.         | 4      |
| 161        | .01                  | .14    | -                 | .2                 | Rusty qz str.        | do.         | 4      |
| 162        | Nil                  | Nil    | -                 | Grab               | Dec mz.              | do.         | 4      |
| 163        | .315                 | 2.46   | -                 | Grab               | Massive qz vein. 1/  | Otter Creek | 3      |
| 164        | .01                  | .14    | -                 | .2                 | Rusty joint in mz.   | Flat Creek  | 4      |
| 165        | .01                  | .17    | -                 | .1                 | do.                  | do.         | 4      |
| 166        | Nil                  | Nil    | -                 | 5.0                | Dec mz.              | do.         | 4      |
| 168        | Nil                  | Nil    | -                 | .4                 | Rusty vein.          | do.         | 4      |
| 169        | .03                  | .18    | N 30° E at 80° NW | .3                 | Rusty qz vein.       | do.         | 4      |
| 170        | .03                  | .08    | N 35° W at 50° SW | Grab               | Qz from str.         | do.         | 4      |
| 171        | .01                  | .05    | -                 | 1.8                | Four 0.1' str.       | do.         | 4      |
| 172        | .02                  | Nil    | N 45° E at V      | .2                 | Dec white str.       | do.         | 4      |
| 173        | Nil                  | Trace  | -                 | 5.0                | Dec mz.              | do.         | 4      |
| 175        | Nil                  | Nil    | -                 | .2                 | Gouge zone.          | do.         | 4      |
| 176        | .01                  | .05    | N at V            | 5.9                | Rusty qz zone.       | do.         | 4      |
| 177        | .005                 | Trace  | -                 | 4.5                | do.                  | do.         | 4      |
| 178        | .01                  | .06    | -                 | .3                 | Rusty joint.         | do.         | 4      |
| 179        | .005                 | Nil    | -                 | 2.0                | Rusty zone.          | do.         | 4      |
| 180        | .01                  | Nil    | -                 | 5.0                | Dec mz.              | do.         | 4      |
| 181        | .395                 | .04    | E at 30° S        | .1                 | Rusty qz vein.       | do.         | 4      |
| 182        | Nil                  | .09    | -                 | .2                 | Dioritic rib.        | do.         | 4      |

See footnotes at end of table.

TABLE 4. - Channel and grab sample assays--continued

| Sample No. | Assay, ounce per ton |        | Dip and strike    | Sample width, feet | Material                  | Drainage       | Figure |
|------------|----------------------|--------|-------------------|--------------------|---------------------------|----------------|--------|
|            | Gold                 | Silver |                   |                    |                           |                |        |
| 184        | Nil                  | Nil    | -                 | 6.0                | Dec mz.                   | Flat Creek     | 4      |
| 185        | Nil                  | 0.06   | -                 | Grab               | Rusty qz in mz.           | do.            | 4      |
| 186        | 0.03                 | .07    | N 30° E at 80° SE | .3                 | Rusty zone.               | do.            | 4      |
| 187        | Nil                  | .05    | -                 | .1                 | do.                       | do.            | 4      |
| 188        | Nil                  | .12    | -                 | .1                 | do.                       | do.            | 4      |
| 189        | .015                 | Nil    | N 30° E at 80° SE | 2.0                | Eight 1/4" rusty str.     | do.            | 4      |
| 190        | Sample misplaced     |        |                   | .4                 | Two 3/4" rusty str.       | do.            | 4      |
| 192        | Nil                  | .03    | -                 | .1                 | Rusty joint.              | do.            | 4      |
| 193        | Nil                  | .03    | -                 | .2                 | do.                       | do.            | 4      |
| 194        | .005                 | Nil    | -                 | .1                 | Rusty qz vein.            | do.            | 4      |
| 195        | .02                  | .05    | N 65° E at 70° NW | .1                 | do.                       | do.            | 4      |
| 196        | .03                  | .02    | N 50° E at 80° NW | .1                 | do.                       | do.            | 4      |
| 197        | .005                 | Nil    | -                 | .1                 | do.                       | do.            | 4      |
| 198        | .05                  | Trace  | N 45° E at 70° NW | .1                 | Qz vein.                  | do.            | 4      |
| 199        | .03                  | Nil    | -                 | 5.0                | Dec mz.                   | do.            | 4      |
| 207        | Nil                  | Nil    | -                 | Grab               | do.                       | Otter Creek    | 3      |
| 209        | Nil                  | Nil    | -                 | Grab               | Dec mz (tailings).        | do.            | 3      |
| 210        | Nil                  | Nil    | -                 | Grab               | Dec qz vein.              | do.            | 3      |
| 221        | .010                 | Trace  | -                 | Grab               | Dec igneous (tailings).   | do.            | 3      |
| 242        | Nil                  | Nil    | -                 | 10.0               | Brown dec mz.             | Malamute Gulch | 3      |
| 243        | Nil                  | Nil    | -                 | 10.0               | do.                       | do.            | 3      |
| 244        | .05                  | Trace  | -                 | 10.0               | do.                       | do.            | 3      |
| 245        | Nil                  | .03    | -                 | 10.0               | do.                       | do.            | 3      |
| 246        | Nil                  | .08    | -                 | 10.0               | do.                       | do.            | 3      |
| 247        | .02                  | Nil    | N 70° E at 35° NW | .1                 | Red brown qz vein.        | do.            | 3      |
| 248        | .02                  | Nil    | N 70° E at 35° NW | 2.0                | Six 1/4" rusty str in mz. | do.            | 3      |
| 249        | Nil                  | Trace  | -                 | Grab               | Dec mz.                   | do.            | 3      |
| 250        | .18                  | Nil    | -                 | Grab               | Breccia (adit dump).      | do.            | 3      |
| 251        | .06                  | .12    | N 40° E at 80° NW | 13.0               | Brown dec mz zone.        | do.            | 3      |
| 252        | Nil                  | Trace  | -                 | 10.0               | Red brown dec mz.         | do.            | 3      |
| 253        | .03                  | Nil    | -                 | 10.0               | do.                       | do.            | 3      |
| 254        | Nil                  | .24    | -                 | 3.4                | Shear zone.               | do.            | 3      |
| 255        | Trace                | .32    | -                 | 15.0               | Coarse dec mz.            | do.            | 3      |
| 256        | Nil                  | Nil    | -                 | 15.0               | do.                       | do.            | 3      |
| 257        | .035                 | Nil    | N 25° W at 45° NE | 10.0               | Rusty zone in mz.         | do.            | 3      |
| 258        | .065                 | Trace  | -                 | 8.0                | Rusty dec mz.             | do.            | 3      |

See footnotes at end of table.

TABLE 4. - Channel and grab sample assays--continued

| Sample No. | Assay, ounce per ton |        | Dip and strike     | Sample width, feet | Material               | Drainage       | Figure |
|------------|----------------------|--------|--------------------|--------------------|------------------------|----------------|--------|
|            | Gold                 | Silver |                    |                    |                        |                |        |
| 259        | Nil                  | Nil    | -                  | Grab               | Green gray dec mz.     | Malamute Gulch | 3      |
| 300        | 0.01                 | Nil    | -                  | Grab               | Qz str in mz.          | Otter Creek    | 3      |
| 302        | Nil                  | Nil    |                    | ( 0.8              | Qz vein.               | do.            | 3      |
| 303        | .015                 | Trace  | N 35° SE at 60° SE | (Grab              | Mz, hanging wall.      | do.            | 3      |
| 307        | .005                 | 6.16   | N 35° E at ?       | .4                 | Qz vein. <sup>2/</sup> | do.            | 3      |
| 311        | .005                 | Trace  | N 20° W at V       | .6                 | Gray gouge.            | do.            | 3      |
| 324        | Nil                  | .18    | -                  | Grab               | Dark dec mz.           | Alpha Creek    | 4      |
| 327        | Nil                  | Nil    | -                  | Grab               | Gouge and breccia.     | do.            | 4      |
| 328        | Nil                  | Nil    | -                  | Grab               | do.                    | do.            | 4      |

<sup>1/</sup> Same location as sample 302.

<sup>2/</sup> Contains scheelite.



TABLE 5. - Petrographic sample notes

| Sample No. | Material                   | Remarks                  | Drainage       | Figure |
|------------|----------------------------|--------------------------|----------------|--------|
| 1          | Monzonite.                 | Bedrock.                 | Chicken-Prince | 4      |
| 2A         | Quartzite.                 | Rubble.                  | Prince-Slate   | 4      |
| 2B         | Tactite.                   | do.                      | do.            | 4      |
| 2C         | Hornfels.                  | do.                      | do.            | 4      |
| 3          | Monzonite.                 | Bedrock.                 | Slate Creek    | 4      |
| 6A-1       | Tactite.                   | do.                      | do.            | 4      |
| 6A-2       | do.                        | do.                      | do.            | 4      |
| 6B         | do.                        | do.                      | do.            | 4      |
| 6C         | Monzonite.                 | do.                      | do.            | 4      |
| 6D-1       | Basalt.                    | do.                      | do.            | 4      |
| 6D-2       | do.                        | do.                      | do.            | 4      |
| 10         | Monzonite.                 | do.                      | Flat Creek     | 4      |
| 13         | do.                        | do.                      | Flat-Happy     | 4      |
| 21         | do.                        | do.                      | Chicken Creek  | 4      |
| 22         | do.                        | do.                      | do.            | 4      |
| 23         | do.                        | do.                      | Happy Creek    | 4      |
| 29A        | do.                        | do.                      | do.            | 4      |
| 29B        | do.                        | do.                      | do.            | 4      |
| 31         | do.                        | do.                      | Flat Creek     | 4      |
| 37         | do.                        | Boulder patch.           | do.            | 4      |
| 42         | Andesite.                  | Float near bedrock.      | do.            | 4      |
| 52A        | Quartzite.                 | Bedrock.                 | Happy-Gold     | 4      |
| 52B        | Andesite.                  | do.                      | do.            | 4      |
| 53         | Monzonite.                 | Large boulders.          | do.            | 4      |
| 71         | do.                        | Bedrock.                 | Chicken Creek  | 4      |
| 94         | Quartz monzonite.          | ) Bedrock, assay 93.     | do.            | 4      |
| 95         | Quartz diorite.            |                          | do.            | 4      |
| 96         | do.                        |                          | do.            | 4      |
| 120        | Hydrothermal rocks.        | Vein, assay 119 and 121. | Happy Creek    | 4      |
| 124        | do.                        | Vein, assay 123 and 125. | do.            | 4      |
| 132        | do.                        | Vein, assay 131.         | do.            | 4      |
| 140        | Monzonite composition.     | Vein, assay 140          | do.            | 4      |
| 147        | Monzonite.                 | Assay 147.               | do.            | 4      |
| 150        | Mafic segregation.         | Assay 150.               | do.            | 4      |
| 161        | Monzonite and vein quartz. | Vein, assay 161.         | do.            | 4      |
| 168        | Hydrothermal rock.         | Vein, assay 168.         | Flat Creek     | 4      |
| 170        | Vein quartz.               | Vein, assay 170          | do.            | 4      |
| 175        | Hydrothermal rock.         | Gouge, assay 175.        | do.            | 4      |
| 181        | Vein quartz.               | Vein, assay 181.         | do.            | 4      |
| 185        | Monzonite and vein quartz. | Vein, assay 185          | do.            | 4      |
| 187        | do.                        | Vein, assay 187          | do.            | 4      |
| 203        | Monzonite                  | Boulders.                | Malamute Gulch | 3      |

TABLE 5. - Petrographic sample notes--continued

| Sample No. | Material                   | Remarks                      | Drainage       | Figure |
|------------|----------------------------|------------------------------|----------------|--------|
| 208A       | Monzonite.                 | Bedrock, assay 207.          | Otter Creek    | 3      |
| 208B       | do.                        |                              | do.            | 3      |
| 211A       | Quartz monzonite.          | Dredge tailings, assay 209.  | do.            | 3      |
| 211B       | Granodiorite               |                              | do.            | 3      |
| 224        | Monzonite.                 | Bedrock.                     | do.            | 3      |
| 230        | Andesite.                  | do.                          | Black Creek    | 3      |
| 235A       | Hornfels.                  | Talus.                       | Otter Creek    | 3      |
| 235B       | do.                        | do.                          | Black Creek    | 3      |
| 260A       | Monzonite.                 | Bedrock.                     | do.            | 3      |
| 260B       | do.                        | do.                          | do.            | 3      |
| 262        | Diorite.                   | do.                          | do.            | 3      |
| 269        | do.                        | do.                          | Glen Gulch     | 3      |
| 272        | Quartz monzonite.          | do.                          | Black Creek.   | 3      |
| 274        | Monzonite.                 | Boulders and rubble.         | Happy Creek    | 4      |
| 284        | do.                        | do.                          | Cleary Creek   | 4      |
| 285        | do.                        | Bedrock.                     | Black Creek    | 3      |
| 291        | do.                        | do.                          | Minnie Gulch   | 3      |
| 299A       | do.                        | do.                          | Black Creek    | 3      |
| 299B       | do.                        | do.                          | Otter Creek    | 3      |
| 300        | Monzonite and vein quartz. | Vein, assay 300.             | do.            | 3      |
| 303        | Quartz monzonite.          | Bedrock near 302, assay 303. | do.            | 3      |
| 304        | Syenite.                   | Bedrock, near 302.           | do.            | 3      |
| 306        | Hydrothermal rock.         | Bedrock, near 302.           | do.            | 3      |
| 307        | Scheelite-quartz vein.     | Vein, assay 307.             | do.            | 3      |
| 309        | Monzonite.                 | Bedrock.                     | Hardluck Gulch | 3      |
| 310        | do.                        | do.                          | do.            | 3      |
| 321        | do.                        | do.                          | do.            | 3      |
| 322        | Greenstone and diorite.    | Fault zone near contact.     | do.            | 3      |
| 328        | Greenstone composition.    | Bedrock near contact.        | Alpha Creek    | 4      |
| 332        | Gabbro(?).                 | Bedrock.                     | do.            | 4      |

TABLE 6A. - Petrographic sample results

|                       | Sample number |    |    |    |   |     |     |     |    |
|-----------------------|---------------|----|----|----|---|-----|-----|-----|----|
|                       | 1             | 2A | 2B | 2C | 3 | 6A1 | 6A2 | 6B  | 6C |
| <b>Rocks:</b>         |               |    |    |    |   |     |     |     |    |
| Hornfels.....         | -             | -  | -  | C  | - | -   | -   | -   | -  |
| Monzonite.....        | C             | -  | -  | -  | C | -   | -   | -   | C  |
| Quartzite.....        | -             | C  | -  | -  | - | -   | -   | -   | -  |
| Tactite.....          | -             | -  | C  | -  | - | C   | C   | cl/ | -  |
| <b>Minerals:</b>      |               |    |    |    |   |     |     |     |    |
| Albite-oligoclase.... | F             | -  | -  | A  | - | -   | -   | -   | -  |
| Andesine.....         | A             | -  | A  | -  | A | -   | A   | A   | A  |
| Apatite.....          | M             | -  | -  | -  | - | -   | -   | -   | T  |
| Augite-hypersthine... | A             | -  | -  | -  | A | -   | -   | -   | -  |
| Biotite.....          | A             | A  | A  | A  | A | S   | A   | S   | A  |
| Chlorite.....         | -             | S  | -  | S  | - | -   | -   | -   | -  |
| Diopside.....         | -             | -  | P  | -  | - | P   | A   | A   | A  |
| Graphite-ilmenite.... | -             | T  | -  | -  | M | -   | -   | -   | -  |
| Hornblend-amphibole.. | A             | -  | -  | S  | - | -   | -   | -   | S  |
| K-feldspar.....       | A             | -  | S  | S  | A | A   | S   | A   | A  |
| Magnetite.....        | T             | N  | -  | -  | - | -   | -   | -   | -  |
| Quartz.....           | N             | P  | N  | A  | - | A   | A   | S   | N  |

**Legend:**

P - Predominant.....Over 50 percent.

A - Abundant.....10 - 50 percent.

S - Subordinate.....2 - 10 percent.

M - Minor.....0.5 - 2 percent.

F - Few.....0.1 - 0.5 percent.

T - Trace.....Less than 0.1 percent.

C - Rock classification.

N - Sought but not detected.

1/ Probably extreme border faces on boundary of monzonite body with composition of a monzonite.

TABLE 6B. - Petrographic sample results

|                                 | Sample number |     |    |    |    |     |     |    |    |
|---------------------------------|---------------|-----|----|----|----|-----|-----|----|----|
|                                 | 6D1           | 6D2 | 10 | 13 | 23 | 29A | 29B | 31 | 37 |
| Rocks: .                        |               |     |    |    |    |     |     |    |    |
| Altered basalt.....             | C             | C   | -  | -  | -  | -   | -   | -  | -  |
| Monzonite.....                  | -             | -   | C  | C  | C  | C   | C   | C  | C  |
| Minerals:                       |               |     |    |    |    |     |     |    |    |
| Andesine.....                   | -             | -   | A  | -  | A  | A   | A   | -  | -  |
| Andesine-oligoclase..           | -             | -   | A  | A  | -  | -   | -   | A  | -  |
| Apatite.....                    | -             | -   | M  | S  | F  | M   | S   | S  | A  |
| Augite.....                     | -             | M   | -  | -  | -  | -   | -   | -  | F  |
| Augite-hypersthine...           | S             | -   | -  | -  | -  | -   | -   | -  | -  |
| Biotite.....                    | -             | -   | A  | A  | S  | A   | A   | A  | A  |
| Chlorite.....                   | A             | -   | S  | -  | S  | -   | M   | M  | A  |
| Diopside.....                   | -             | -   | -  | -  | P  | S   | A   | N  | -  |
| Hornblend-amphibole..           | -             | -   | A  | A  | -  | A   | A   | A  | S  |
| K-feldspar.....                 | -             | -   | A  | A  | A  | A   | A   | A  | A  |
| Quartz.....                     | -             | N   | N  | N  | -  | -   | -   | -  | -  |
| Groundmass <sup>1/</sup> .....  | X             | P   | -  | -  | -  | -   | -   | -  | -  |
| Fine feldspar.....              | X(?)          | -   | -  | -  | -  | -   | -   | -  | -  |
| Ca-andesine <sup>2/</sup> ..... | -             | -   | -  | -  | -  | -   | -   | T  | -  |
| Legend:                         |               |     |    |    |    |     |     |    |    |

## Legend:

P - Predominant.....Over 50 percent.

A - Abundant.....10 - 50 percent.

S - Subordinate.....2 - 10 percent.

M - Minor.....0.5 - 2 percent.

F - Few.....0.1 - 0.5 percent.

T - Trace.....Less than 0.1 percent.

N - Sought but not detected.

C - Rock classification.

X - Detected.

<sup>1/</sup> Tentatively mixed biotite-chlorite.<sup>2/</sup> Ca-andesine (An 48-49).

TABLE 6C. - Petrographic sample results

|                                 | Sample number |     |     |    |    |
|---------------------------------|---------------|-----|-----|----|----|
|                                 | 42            | 52A | 52B | 53 | 71 |
| Rocks:                          |               |     |     |    |    |
| Altered andesite.....           | C             | -   | -   | -  | -  |
| Andesite.....                   | -             | -   | C   | -  | -  |
| Monzonite.....                  | -             | -   | -   | C  | C  |
| Quartzite.....                  | -             | C   | -   | -  | -  |
| Minerals:                       |               |     |     |    |    |
| Andesine.....                   | -             | -   | P   | A  | A  |
| Andesine-oligoclase..           | A             | -   | -   | -  | -  |
| Apatite.....                    | -             | -   | -   | S  | S  |
| Biotite.....                    | -             | -   | S   | A  | A  |
| Chlorite.....                   | A             | S   | S   | S  | -  |
| Diopside.....                   | -             | -   | A   | A  | A  |
| Goethite.....                   | -             | S   | -   | -  | -  |
| Hornblend-amphibole..           | A             | -   | -   | -  | S  |
| K-feldspar.....                 | S             | -   | -   | A  | A  |
| Muscovite-sericite...           | -             | S   | -   | -  | -  |
| Quartz.....                     | -             | P   | -   | -  | -  |
| Groundmass <sup>1/</sup> .....  | P             | -   | -   | -  | -  |
| Ca-andesine <sup>2/</sup> ..... | -             | -   | -   | T  | S  |

## Legend:

P - Predominant.....Over 50 percent.

A - Abundant.....10 - 50 percent.

S - Subordinate.....2 - 10 percent.

M - Minor.....0.5 - 2 percent.

F - Few.....0.1 - 0.5 percent.

T - Trace.....Less than 0.1 percent.

C - Rock classification.

<sup>1/</sup> Tentatively mixed biotite-chlorite.<sup>2/</sup> Ca-andesine (AN 48-49).

TABLE 6D. - Petrographic sample results

|                             | Sample number |    |    |      |      |     |     |     |     |
|-----------------------------|---------------|----|----|------|------|-----|-----|-----|-----|
|                             | 94            | 95 | 96 | 211A | 211B | 230 | 309 | 310 | 321 |
| <b>Spectroscopic:</b>       |               |    |    |      |      |     |     |     |     |
| Al, Fe, Mg, Na, K.....      | X             | X  | X  | X    | X    | -   | -   | -   | X   |
| Ca.....                     | -             | -  | -  | -    | X    | -   | -   | -   | X   |
| Ti.....                     | X             | X  | X  | X    | X    | -   | -   | -   | -   |
| Ba, Cr, Li, Sr.....         | T             | T  | T  | T    | T    | -   | -   | -   | T   |
| Ga.....                     | T             | T  | N  | N    | N    | -   | -   | -   | X   |
| V.....                      | T             | T  | T  | N    | N    | -   | -   | -   | -   |
| Ag, Bi, In, Mo, Ni.....     | N             | N  | N  | N    | N    | -   | -   | -   | -   |
| Pb, Sn, Y, Zn, Zr.....      | N             | N  | N  | N    | N    | -   | -   | -   | -   |
| <b>Rocks:</b>               |               |    |    |      |      |     |     |     |     |
| Altered granodiorite.....   | -             | -  | -  | -    | C    | -   | -   | -   | -   |
| Altered quartz diorite..... | -             | C  | C  | -    | -    | -   | -   | -   | -   |
| Altered quartz monzonite... | C             | -  | -  | C    | -    | -   | -   | -   | -   |
| Andesite.....               | -             | -  | -  | -    | -    | C   | -   | -   | -   |
| Monzonite.....              | -             | -  | -  | -    | -    | -   | C   | C   | C   |
| <b>Minerals:</b>            |               |    |    |      |      |     |     |     |     |
| Albite-oligoclase.....      | A             | A  | A  | A    | P    | A   | N   | A   | -   |
| Amphibole-hornblend.....    | -             | -  | -  | -    | -    | -   | A   | N   | A   |
| Andesine.....               | -             | -  | -  | A    | -    | -   | A   | T   | A   |
| Apatite.....                | -             | -  | -  | -    | -    | -   | F   | N   | T   |
| Augite.....                 | -             | -  | -  | -    | -    | -   | A   | N   | A   |
| Biotite.....                | -             | -  | -  | -    | -    | -   | A   | M   | A   |
| Chlorite.....               | A             | S  | A  | A    | A    | A   | S   | S   | S   |
| Goethite.....               | M             | M  | M  | M    | F    | M   | -   | -   | -   |
| Hydromuscovite.....         | -             | -  | -  | -    | -    | A   | -   | -   | -   |
| K-feldspar.....             | A             | M  | S  | A    | A    | S   | A   | A   | A   |
| Muscovite.....              | -             | A  | F  | -    | S    | -   | -   | -   | -   |
| Nepheline.....              | -             | -  | -  | -    | -    | N   | ?   | N   | ?   |
| Olivine.....                | -             | -  | -  | -    | -    | -   | -   | -   | F   |
| Pyrrhotite.....             | -             | -  | -  | -    | -    | -   | -   | -   | -   |
| Quartz.....                 | A             | A  | A  | A    | A    | -   | -   | F   | -   |
| Sericite.....               | S             | A  | M  | -    | S    | -   | -   | S   | -   |

**Legend:**

- P - Predominant.....Over 50 percent.  
 A - Abundant.....10 - 50 percent.  
 S - Subordinate.....2 - 10 percent.  
 M - Minor.....0.5 - 2 percent.  
 F - Few.....0.1 - 0.5 percent.  
 T - Trace.....Less than 0.1 percent.  
 C - Rock classification.  
 N - Sought but not detected.  
 X - Detected.

TABLE 6E. - Petrographic sample results

|                       | Sample number |      |      |     |      |      |      |      |     |
|-----------------------|---------------|------|------|-----|------|------|------|------|-----|
|                       | 203           | 208A | 208B | 224 | 235A | 235B | 260A | 260B | 262 |
| <b>Rocks:</b>         |               |      |      |     |      |      |      |      |     |
| Diorite.....          | -             | -    | -    | -   | -    | -    | -    | -    | C   |
| Hornfels.....         | -             | -    | -    | -   | C    | C    | -    | -    | -   |
| Monzonite.....        | C             | C    | C    | C   | -    | -    | C    | C    | -   |
| <b>Minerals:</b>      |               |      |      |     |      |      |      |      |     |
| Albite-oligoclase.... | A             | T    | T    | S   | T    | N    | T    | S    | S   |
| Andesine.....         | A             | A    | A    | A   | Al/  | Al/  | A    | A    | P   |
| Apatite.....          | S             | T    | T    | M   | T    | N    | S    | M    | N   |
| Augite-diopside.....  | S             | N    | T    | M   | N    | N    | A    | N    | -   |
| Biotite.....          | A             | S    | A    | A   | A    | A    | A    | A    | A   |
| Chlorite.....         | S             | M    | -    | M   | M    | S    | F    | T    | S   |
| Hornblend-amphibole.. | M             | A    | A    | S   | N    | N    | N    | A    | M   |
| K-feldspar.....       | A             | A    | A    | A   | A    | T    | A    | A    | A   |
| Nepheline.....        | N             | N    | N    | N   | N    | N    | N    | N    | N   |

**Legend:**

- P - Predominant.....Over 50 percent.  
 A - Abundant.....10 - 50 percent.  
 S - Subordinate.....2 - 10 percent.  
 M - Minor.....0.5 - 2 percent.  
 F - Few.....0.1 - 0.5 percent.  
 T - Trace.....Less than 0.1 percent.  
 C - Rock classification.  
 N - Sought but not detected.  
1/ May include some quartz.

TABLE 6F. - Petrographic sample results

|                       | Sample number |     |     |     |     |     |      |      |                 |
|-----------------------|---------------|-----|-----|-----|-----|-----|------|------|-----------------|
|                       | 269           | 272 | 274 | 284 | 285 | 291 | 299A | 299B | 332             |
| Rocks: .              |               |     |     |     |     |     |      |      |                 |
| Diorite.....          | C             | -   | -   | -   | -   | -   | -    | -    | -               |
| Gabbro.....           | -             | -   | -   | -   | -   | -   | -    | -    | -               |
| Monzonite.....        | -             | -   | C   | C   | C   | C   | C    | C    | C?              |
| Quartz monzonite..... | -             | C   | -   | -   | -   | -   | -    | -    | -               |
| Minerals:             |               |     |     |     |     |     |      |      |                 |
| Albite-oligoclase.... | -             | -   | -   | -   | A   | S   | A    | A    | -               |
| Andesine.....         | A             | -   | -   | A   | A   | A   | S    | -    | A <sup>1/</sup> |
| Andesine-oligoclase.. | -             | A   | A   | -   | -   | -   | -    | -    | -               |
| Apatite.....          | N             | N   | T   | N   | T   | T   | N    | -    | M               |
| Augite.....           | P             | -   | -   | N   | S   | N   | N    | -    | -               |
| Biotite.....          | A             | S   | A   | A   | A   | S   | S    | S    | A               |
| Chlorite.....         | M             | S   | S   | A   | F   | A   | A    | A    | A               |
| Diopside.....         | -             | -   | M   | -   | -   | -   | -    | -    | A               |
| Hornblend-amphibole.. | -             | S   | A   | A   | A   | M   | N    | F    | -               |
| K-feldspar.....       | T             | A   | A   | A   | A   | A   | A    | A    | S               |
| Nepheline.....        | N             | -   | -   | N   | N   | N   | N    | N    | N               |
| Quartz.....           | -             | A   | S?  | -   | -   | -   | S    | S    | -               |

## Legend:

- P - Predominant.....Over 50 percent.  
 A - Abundant.....10 - 50 percent.  
 S - Subordinate.....2 - 10 percent.  
 M - Minor.....0.5 - 2 percent.  
 F - Few.....0.1 - 0.5 percent.  
 T - Trace.....Less than 0.1 percent.  
 C - Rock classification.  
 N - Sought but not detected.  
<sup>1/</sup> Ca-andesine (An 49-50).



TABLE 6G. - Petrographic sample results

|                                     | Sample number |     |     |     |     |     |     |                 |     |
|-------------------------------------|---------------|-----|-----|-----|-----|-----|-----|-----------------|-----|
|                                     | 120           | 124 | 132 | 300 | 303 | 304 | 307 | 322             | 328 |
| <b>Spectroscopic:</b>               |               |     |     |     |     |     |     |                 |     |
| Fe, Mg.....                         | -             | -   | X   | -   | -   | -   | -   | -               | -   |
| Al, Ca, Fe, K, Mg, Na, Ti..         | X             | X   | -   | X   | X   | X   | -   | X <sup>1/</sup> | X   |
| Ba, Cr, Ga, Li, Sr, V.....          | T             | T   | -   | T   | T   | T   | -   | T <sup>1/</sup> | T   |
| W.....                              | -             | -   | -   | -   | -   | -   | X   | -               | -   |
| K, Ga.....                          | -             | -   | N   | -   | -   | -   | -   | -               | -   |
| Ag, Bi, Cu, In, Mo, Ni, Pb.         | N             | N   | N   | N   | N   | N   | -   | N <sup>2/</sup> | N   |
| Sn, Y, Zn, Zr.....                  | N             | N   | N   | N   | N   | N   | -   | N               | N   |
| Ba, Cr, Li, Na, V.....              | -             | -   | T   | -   | -   | -   | -   | -               | -   |
| <b>Rocks:</b>                       |               |     |     |     |     |     |     |                 |     |
| Altered greenstone and diorite..... | -             | -   | -   | -   | -   | -   | -   | C               | -   |
| Greenstone.....                     | -             | -   | -   | -   | -   | -   | -   | -               | C   |
| Hydrothermal rocks.....             | C             | C   | C   | -   | -   | -   | -   | -               | -   |
| Monzonite and vein quartz..         | -             | -   | -   | C   | -   | -   | -   | -               | -   |
| Quartz monzonite.....               | -             | -   | -   | -   | C   | -   | -   | -               | -   |
| Scheelite-quartz vein.....          | -             | -   | -   | -   | -   | -   | C   | -               | -   |
| Syenite.....                        | -             | -   | -   | -   | -   | C   | -   | -               | -   |
| <b>Minerals:</b>                    |               |     |     |     |     |     |     |                 |     |
| Albite-oligoclase.....              | A             | -   | -   | A   | A   | A   | -   | A               | P   |
| Amphibole.....                      | -             | -   | -   | -   | -   | -   | -   | S               | -   |
| Apatite.....                        | -             | -   | -   | -   | -   | -   | -   | F               | -   |
| Augite-diopside.....                | -             | -   | -   | -   | -   | -   | -   | A               | M   |
| Biotite.....                        | -             | -   | -   | S   | S   | A   | -   | A               | S   |
| Calcite.....                        | -             | -   | -   | -   | -   | T   | -   | -               | -   |
| Chlorite.....                       | A             | S   | S   | A   | A   | S   | S   | A               | A   |
| Cryptocrystalline quartz...         | -             | P   | P   | -   | -   | -   | -   | -               | -   |
| Dolomite.....                       | -             | -   | -   | -   | M   | M   | -   | -               | -   |
| Goethite.....                       | M             | F   | F   | F   | -   | -   | -   | -               | -   |
| K-feldspar.....                     | A             | A   | N   | A   | A   | P   | -   | S               | A   |
| Quartz.....                         | A             | A   | A   | A   | A   | A   | P   | A               | -   |
| Scheelite f.....                    | N             | N   | N   | N   | N   | T   | A   | N               | N   |
| Tourmaline.....                     | S             | -   | -   | -   | -   | -   | -   | -               | -   |

**Legend:**

- P - Predominant.....Over 50 percent.  
 A - Abundant.....10 - 50 percent.  
 S - Subordinate.....2 - 10 percent.  
 M - Minor.....0.5 - 2 percent.  
 F - Few.....0.1 - 0.5 percent.  
 T - Trace.....Less than 0.1 percent.  
 C - Rock classification.  
 f - fluorescent.  
 N - Sought but not detected.  
 X - Detected.  
<sup>1/</sup> No Ga.  
<sup>2/</sup> Traces of Cu and Zn.

TABLE 6H. - Petrographic sample results

|                            | Sample number |     |     |     |     |                 |                 |     |     |                 |
|----------------------------|---------------|-----|-----|-----|-----|-----------------|-----------------|-----|-----|-----------------|
|                            | 140           | 147 | 150 | 161 | 168 | 170             | 175             | 181 | 185 | 187             |
| <b>Spectroscopic:</b>      |               |     |     |     |     |                 |                 |     |     |                 |
| BO.....                    | -             | -   | X   | -   | -   | -               | -               | -   | -   | -               |
| Al, Ca, Fe, K, Mg, Na, Ti. | X             | X   | X   | X   | -   | X <sup>1/</sup> | -               | X   | X   | X               |
| Al, Fe, Mg.....            | -             | -   | -   | -   | X   | -               | X               | -   | -   | -               |
| Ba, Cr, Li, Mn, Sr, V..... | T             | T   | T   | T   | T   | T <sup>2/</sup> | T <sup>3/</sup> | T   | T   | T <sup>2/</sup> |
| Ga.....                    | N             | T   | T   | T   | T   | T               | T?              | T   | T   | T               |
| Ag, Bi, In, Mo, Ni.....    | N             | N   | N   | N   | N   | N               | N               | N   | N   | N               |
| Pb, Sn, Y, Zr.....         | N             | N   | N   | N   | N   | N               | N               | N   | N   | N               |
| Cu.....                    | N             | N   | N   | N   | N   | N               | T               | T   | T   | T               |
| Zn.....                    | N             | N   | N   | N   | N   | N               | N               | T   | N   | T               |
| <b>Rocks:</b>              |               |     |     |     |     |                 |                 |     |     |                 |
| Hydrothermal rock.....     | -             | -   | -   | -   | C   | -               | C               | -   | -   | -               |
| Mafic segregation.....     | -             | -   | C   | -   | -   | -               | -               | -   | -   | -               |
| Monzonite.....             | C             | C   | -   | -   | -   | -               | -               | -   | -   | -               |
| Monzonite and vein quartz. | -             | -   | -   | C   | -   | -               | -               | -   | C   | C               |
| Vein quartz.....           | -             | -   | -   | -   | -   | -               | -               | C   | -   | -               |
| Vein quartz and K-feldspar | -             | -   | -   | -   | -   | C               | -               | -   | -   | -               |
| <b>Minerals:</b>           |               |     |     |     |     |                 |                 |     |     |                 |
| Albite-oligoclase.....     | A             | A   | A   | A   | A   | A               | -               | S   | A   | A               |
| Apatite.....               | -             | T   | -   | T   | T   | T               | -               | T   | T   | T               |
| Biotite.....               | -             | -   | A   | S   | S   | M               | -               | S   | A   | S               |
| Chlorite.....              | A             | A   | M   | A   | S   | S               | S               | S   | A   | A               |
| Goethite.....              | M             | M   | F   | F   | S   | M               | S               | S   | M   | S               |
| Hornblend.....             | -             | M   | A   | N   | N   | -               | -               | -   | -   | -               |
| Ilmenite.....              | -             | -   | T   | -   | -   | -               | -               | -   | -   | -               |
| K-feldspar.....            | A             | A   | A   | A   | S   | A               | -               | M   | S   | A               |
| Kaolin.....                | -             | -   | -   | -   | A   | -               | P               | -   | -   | -               |
| Magnetite.....             | -             | -   | T   | -   | -   | -               | -               | -   | -   | -               |
| Quartz.....                | S             | S   | A   | A   | S   | A               | A               | P   | A   | A               |
| Scheelite f.....           | N             | N   | N   | N   | N   | N               | N               | N   | N   | N               |
| Tourmaline.....            | -             | N   | A   | A   | M   | -               | -               | -   | -   | -               |
| Zircon.....                | T             | -   | T   | T   | T   | T               | T               | -   | T   | T               |

**Legend:**

- P - Predominant.....Over 50 percent.  
 A - Abundant.....10 - 50 percent.  
 S - Subordinate.....2 - 10 percent.  
 M - Minor.....0.5 - 2 percent.  
 F - Few.....0.1 - 0.5 percent.  
 T - Trace..... Less than 0.1 percent.  
 C - Rock classification.  
 f - Fluorescent.  
 N - Sought but not detected.  
 X - Detected.  
1/ Low amounts of Na.  
2/ No Mn.  
3/ No V.

TABLE 6I. - Petrographic sample results

|                                     | Sample number |    |     |
|-------------------------------------|---------------|----|-----|
|                                     | 21            | 22 | 306 |
| Spectroscopic:                      |               |    |     |
| Al, Ca, Fe, K, Na, Mg.....          | X             | X  | X   |
| Ba, Ga, Li, Sr.....                 | T             | T  | T   |
| Cr, V.....                          | -             | -  | T   |
| Ti.....                             | T             | T  | -   |
| Ag, Bi, Mo, Ni, Y, Zn, Zr..         | N             | N  | N   |
| Mn, Cu.....                         | N             | N  | T   |
| Pb, Sn, In, Be.....                 | -             | -  | N   |
| Rocks:                              |               |    |     |
| Fault gouge.....                    | C             | C  | -   |
| Hydrothermal (breccia texture)..... | -             | -  | C   |
| Minerals:                           |               |    |     |
| Albite-oligoclase.....              | P             | P  | -   |
| Ankerite.....                       | -             | -  | M   |
| Arsenopyrite.....                   | -             | -  | T   |
| Calcite.....                        | -             | -  | T   |
| Chlorite.....                       | A             | -  | A   |
| Dolomite.....                       | -             | -  | S   |
| Hydromuscovite.....                 | A             | A  | P   |
| Kaolin.....                         | -             | S  | -   |
| K-feldspar.....                     | S             | A  | S   |
| Quartz.....                         | A             | M  | S   |

## Legend:

- P - Predominant.....Over 50 percent.  
 A - Abundant.....10 - 50 percent.  
 S - Subordinate.....2 - 10 percent.  
 M - Minor.....0.5 - 2 percent.  
 F - Few.....0.1 - 0.5 percent.  
 T - Trace.....Less than 0.1 percent.  
 C - Rock classification.  
 N - Sought but not detected.  
 X - Detected.

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