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RECONNAISSANCE SAMPLING OF DECOMPOSED MONZONITE FOR GOLD NEAR ELAT, ALASKA

by A. L. Kimball

* open file report

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by

A. L. Kimball[1]

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)[2]

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[1]Mining engineer, Alaskan Mining Research Laboratory, Bureau of Mines, Juneau, Alaska.

[2]Underlined numbers in parentheses refer to items in the bibliography at the end of this report.

Work on manuscript completed May 1968.

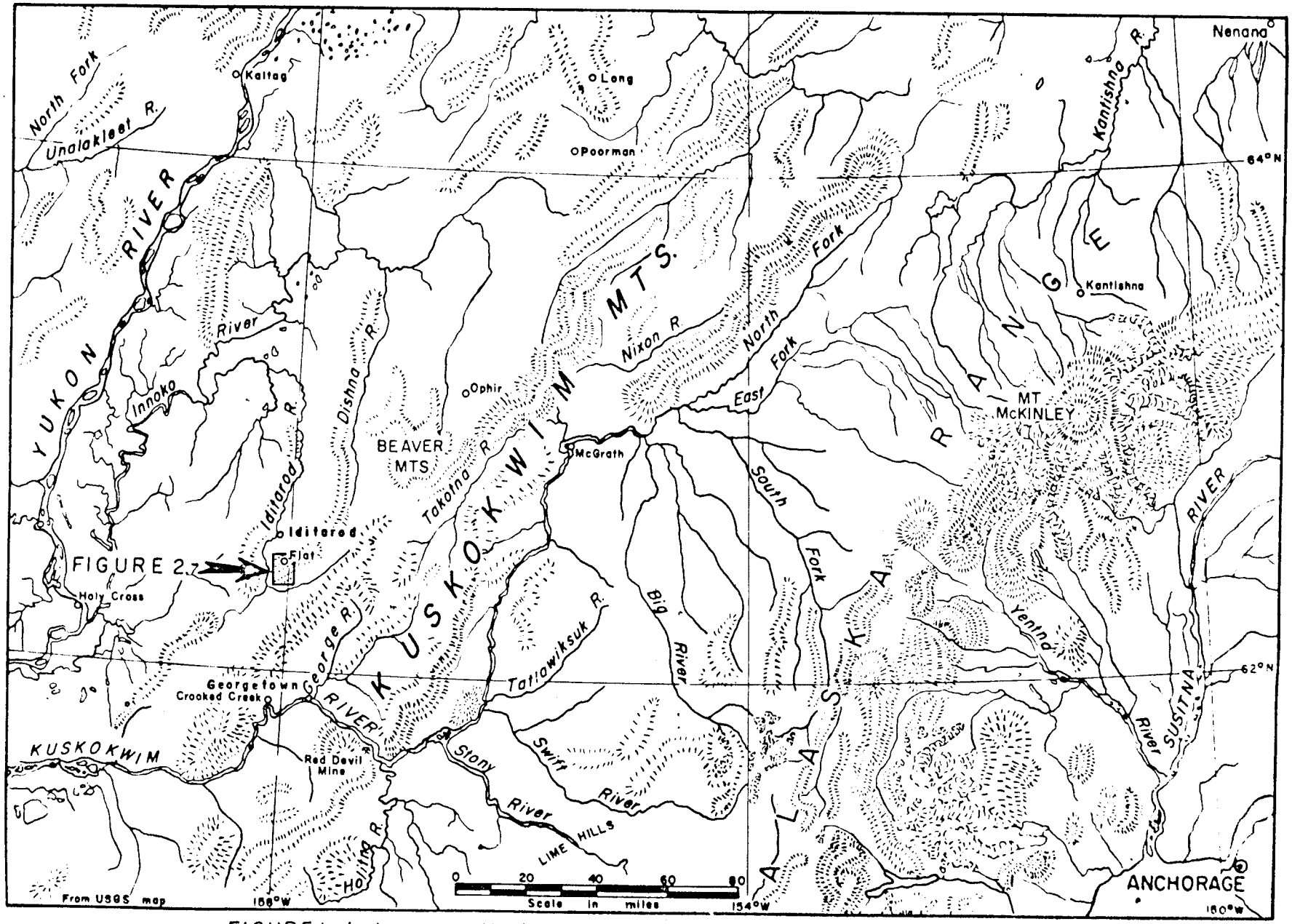

FIGURE 1.-Index map, Kuskokwim-Innoko Region, Southwestern Alaska.

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°24' N, longitude 158°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.

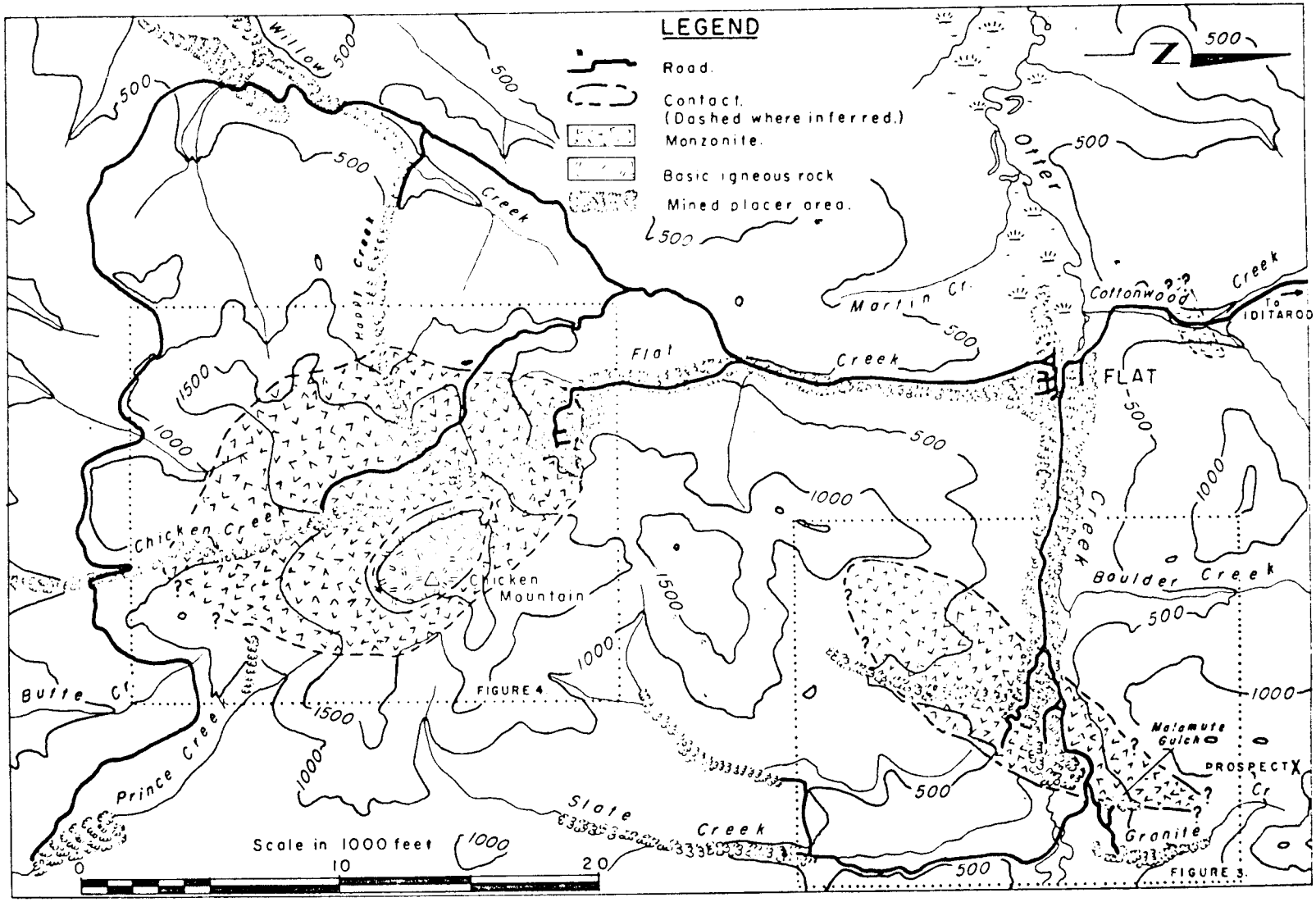

FIGURE 2.- Map of monzonite bodies and placer workings near Flat, Alaska.

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[1/]
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, 1910-66, inclusive.			1,329,404

1/ 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.

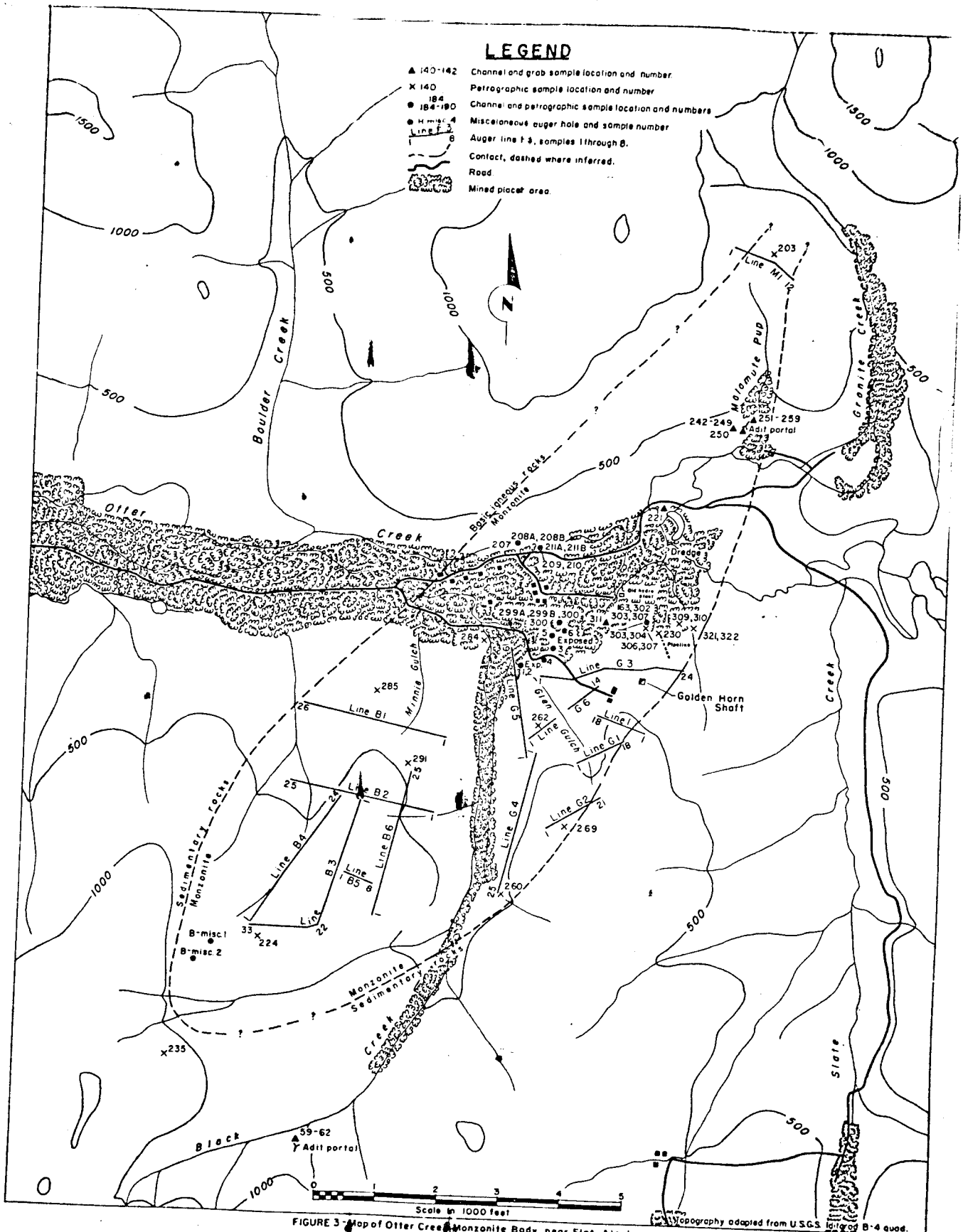

FIGURE 3 Map of Otter Creek Monzonite Body, near Flat, Alaska.

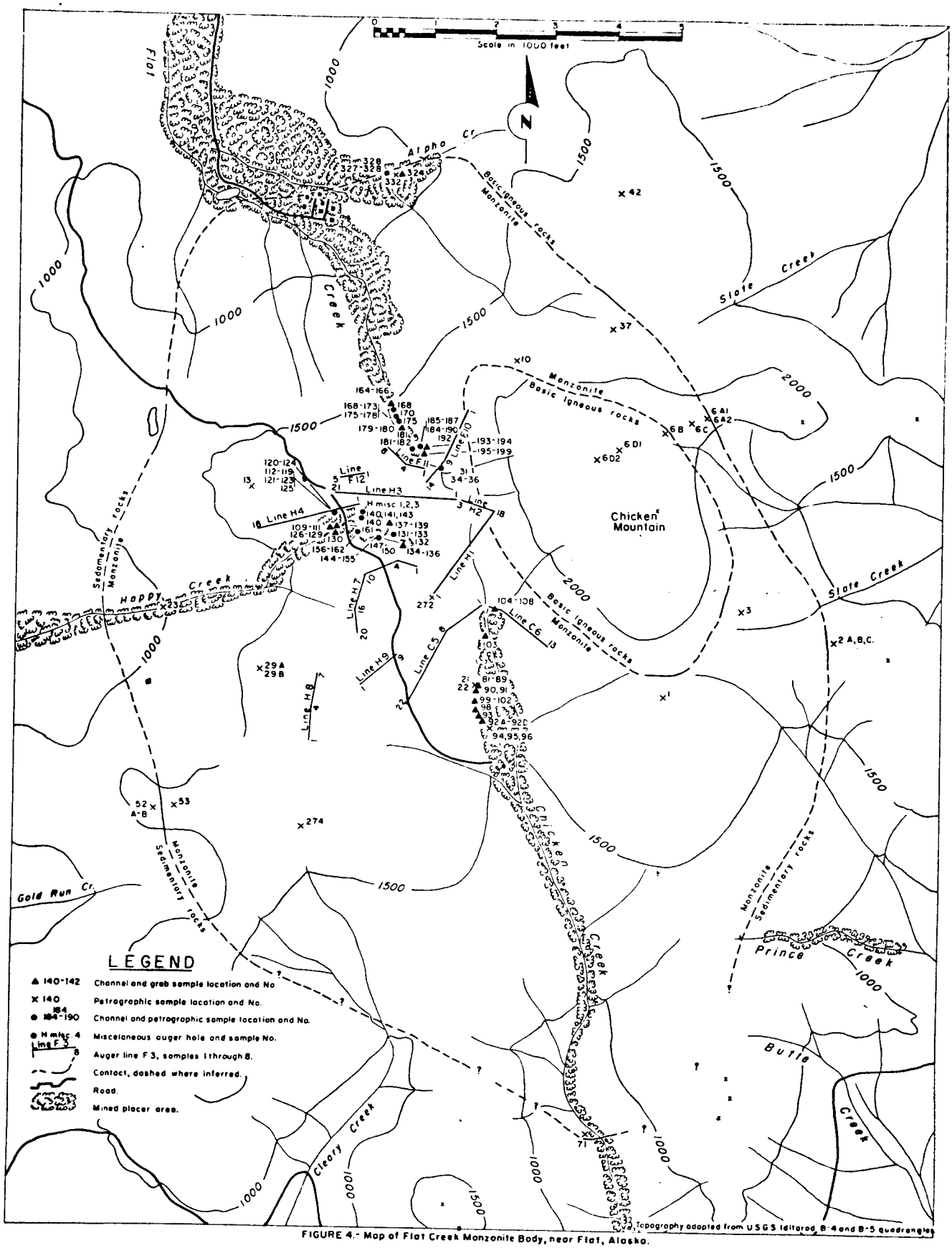

FIGURE 4.- Map of Flat Creek Monzonite Body, near Flat, Alaska.

Topography adopted from USGS Iditarod B-4 and B-5 quadrangles

TABLE 2. - Auger line data

Line	Location	Figure	Bearing	Auger hole spacing	Number of holes 1/
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	-	-	-

1/ Numbers in parentheses indicate number of holes not drilled.

2/ Fifty-foot spacing, holes 9 through 12.

TABLE 3. - Auger sample results

Sample No. Line	Hole	Assay, ounce per ton Gold	Silver	Notes from driller's log: Depth, feet	Material	Frozen	Remarks	Figure
1	1	0.005	Nil	14.5	Monzonite.	No	-	3
	2	Nil[1/]	Nil	13.5	Argillite.	No	-	3
	3	Nil	Nil	7.6	do.	No	-	3
	4	.02	Nil	20.5	do.	No	-	3
	5	Nil	Nil	3.2	Unknown.	No	Contact(?).	3
	6	Nil	Nil	3.6	Monzonite.	No	-	3
	7	Nil	Nil	22.5	do.	No	-	3
	8	-	-	17.0	do.	No	No sample.	3
	9	Nil	Nil	9.6	do.	No	-	3
	10	Nil	Nil	3.0	do.	No	-	3
	11	Nil	Nil	7.1	do.	No	-	3
	12	Nil	Nil	7.1	do.	No	-	3
	13	Nil	Nil	19.1	Argillite.	No	-	3
	14	Nil	Nil	7.6	Monzonite.	No	-	3
	15	Nil	Nil	11.1	do.	No	-	3
	16	.005	Nil	4.7	do.	No	-	3
	17	Nil	Nil	8.6	do.	No	-	3
	18	.002	Nil	5.5	do.	No	-	3
G1	1	Nil	Nil	5.6	No record.	Yes	-	3
	2	-	-	6.0	do.	Yes	-	3
	3	Nil	Nil	4.8	do.	Yes	-	3
	4	Nil	Nil	5.6	do.	Yes	-	3
	5	Nil	Nil	22.9	do.	Yes	Top portion only frozen.	3
	6	Nil	Nil	4.6	do.	Yes	-	3
	7	Nil	Nil	10.9	Monzonite.	No	-	3
	8	-	-	-	-	-	No hole.	3
	9	Nil	Nil	2.6	Monzonite.	No	-	3
	10	Nil	Nil	4.2	Argillite.	No	-	3
	11	.015	Nil	4.7	Unknown.	No	-	3
	12	.030	Nil	12.5	Argillite.	No	-	3
	13	Nil	Nil	14.6	do.	No	-	3
	14	Nil	Nil	20.5	Monzonite.	No	-	3
	15	Nil	Nil	12.9	do.	No	-	3
	16	Nil	Nil	20.3	do.	No	-	3
	17	Nil	Nil	4.0	Argillite.	No	-	3
	18	.010	Nil	9.4	do.	No	-	3
G2	1	.005	Nil	15.9	Monzonite.	No	-	3
	2	Nil	Nil	11.6	do.	No	-	3
	3	Nil	Nil	6.0	Unknown.	No	-	3
	4	Nil	Nil	8.3	do.	No	-	3
	5	Nil	Nil	6.5	Monzonite.	No	-	3
	6	Nil	Nil	9.6	do.	No	-	3
	7	.035	Nil	8.0	do.	No	-	3
	8	Nil	Nil	3.7	do.	No	-	3
	9	Nil	Nil	20.5	do.	No	-	3
	10	Nil	Nil	9.3	do.	No	-	3

See footnotes at end of table.

TABLE 3. - Auger sample results--continued

Sample No. Line	Hole	Assay, ounce per ton Gold	Silver	Notes from driller's log Depth, feet	Material	Frozen	Remarks	Figure
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
	21	0.01	Nil	3.0	do.	No	-	3
G3	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	-	-	-	-	-	No hole; at portal of old Golden Horn adit.	-
	18	.005	Nil	11.5	Monzonite.	Yes	Overburden frozen.	3
	19	Nil	Nil	11.0	do.	Yes	do.	3
	20	.012	0.14	11.0	do.	No	-	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.

TABLE 3. - Auger sample results--continued

Sample No.		Assay, ounce per ton		Notes from driller's log				
Line	Hole	Gold	Silver	Depth, feet	Material	Frozen	Remarks	Figure
G4	7	Nil	Nil	6.4	Monzonite	No	-	3
	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	Overburden only frozen(?).	3
	22	Nil	Nil	5.4	do.	No	do.	3
	23	Nil	Nil	8.5	do.	No	do.	3
	24	Nil	Nil	8.0	Monzonite	No	-	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	-	-	-	-	-	No hole.	3
	7	Nil	Nil	11.5	Monzonite.	No	-	3

See footnotes at end of table.

TABLE 3. - Auger sample results--continued

Sample No. Line	Hole	Assay, ounce per ton Gold	Silver	Notes from driller's log Depth, feet	Material	Frozen	Remarks	Figure
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
	5B	Nil	Nil	10.0	do.	No	-	3
	6A	Nil	.28	6.4	do.	No	-	3
	6B	Nil	Nil	8.0	do.	No	-	3
M1	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
	12	Nil	Nil	4.5	Unknown.	No	Not monzonite.	3
B1	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 Gold	Silver	Depth, feet	Notes from driller's log: Material	Frozen	Remarks	Figure
B1	18	Nil	0.24	15.0	Monzonite.	No	-	3
	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.	No	-	3
	24	Nil	Nil	15.0	do.	Yes	Partially frozen.	3
	25	Nil	Nil	4.5	do.	Yes	do.	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 No.		Assay, ounce per ton		Notes from driller's log				
Line	Hole	Gold	Silver	Depth, feet	Material	Frozen	Remarks	Figure
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.		Assay, ounce per ton		Notes from driller's log				
Line	Hole	Gold	Silver	Depth, feet	Material	Frozen	Remarks	Figure
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,	3
	3	.045	Trace	11.7	do.	Yes	are partially frozen.	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-Misc	1	Nil	Nil	16.3	do.	No	-	3
	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	4
	8	Nil	Nil	5.0	Monzonite.	Yes	18 all partially	4
	9	Nil	Nil	4.3	do.	Yes	frozen.	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. Line	Hole	Assay, ounce per ton Gold	Silver	Depth, feet	Material	Frozen	Remarks	Figure
H1	16	Nil	Nil	4.4	Humus and silt.	Yes		4
	17	Nil	Nil	5.5	do.	Yes		4
	18	0.005	0.78	4.3	do.	Yes		4
H2	1	Nil	Nil	3.9	do.	Yes		4
	2	Nil	Nil	4.7	do.	Yes	-	4
	3	.005	1.12	4.2	Monzonite.	Yes	-	4
H3	1	Nil	Nil	4.3	Humus and silt.	Yes	H3, No. 1 through	4
	2	Nil	.30	4.5	do.	Yes	15 frozen in upper	4
	3	Nil	Nil	3.6	do.	Yes	parts, less so	4
	4	Nil	Nil	4.5	do.	Yes	downward.	4
	5	.005	Trace	4.0	do.	Yes		4
	6	Nil	Nil	3.7	do.	Yes		4
	7	.02	Nil	7.5	do.	Yes		4
	8	Nil	Nil	4.0	do.	Yes		4
	9	Nil	Nil	3.7	do.	Yes		4
	10	Nil	Nil	4.1	Monzonite.	Yes		4
	11	Nil	Nil	6.6	do.	Yes		4
	12	Nil	Nil	7.0	do.	Yes		4
	13	.005	Trace	5.3	do.	Yes		4
	14	Nil	Nil	8.0	do.	Yes		4
	15	Nil	Nil	11.5	do.	Yes		4
	16	Nil	Nil	4.7	do.	Yes	-	4
	17	Nil	Nil	4.2	do.	Yes	-	4
	18	Nil	Nil	5.8	do.	Yes	-	4
	19	Nil	Nil	4.8	do.	No	-	4
	20	Nil	Nil	10.8	do.	Yes	Minor ice.	4
	21	.005	Nil	6.7	do.	No	-	4
H4	1	.005	Nil	6.2	do.	Yes	Partially frozen.	4
	2	Nil	Nil	6.1	do.	Yes	do.	4
	3	Nil	Nil	7.5	do.	Yes	do.	4
	4	.01	Nil	6.5	do.	Yes	do.	4
	5	Nil	Nil	6.7	do.	Yes	do.	4
	6	Nil	Nil	8.1	do.	Yes	do.	4
	7	Nil	Nil	12.5	do.	No	-	4
	8	.01	Nil	10.6	do.	No	-	4
	9	Nil	Nil	11.9	do.	Yes	Partially frozen.	4
	10	Nil	Nil	9.9	do.	Yes	do.	4
	11	Nil	Nil	6.3	do.	Yes	do.	4
	12	.005	Nil	12.5	do.	No	-	4
	13	Nil	Nil	8.1	do.	No	-	4
	14	Nil	Nil	7.5	do.	Yes	Partially frozen.	4
	15	Nil	Nil	6.6	do.	No	-	4
	16	Trace	Nil	12.7	do.	No	-	4
	17	Nil	Nil	6.1	do.	No	-	4
	18	Nil	Nil	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 Gold	Silver	Depth, feet	Notes from driller's log Material	Frozen	Remarks	Figure
H-	1	Trace	0.09	15.5	Monzonite.	No	-	4
Misc	2A	Nil	Nil	2.0	do.	No	2A and 2B, top and	4
	2B	0.005	Nil	8.3	do.	No	bottom, same hole.	4
	3	Nil	Nil	22.8	do.	No	-	4
C5	1	Trace	Nil	24.0	do.	No	-	4
	2	.015	Nil	16.6	do.	No	-	4
	3	Nil	Nil	7.6	do.	Yes	Partially frozen.	4
	4	.03	Trace	4.9	do.	Yes	do.	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.	No	-	4
	9	.005	.15	10.8	do.	No	-	4
	10	.025	Nil	10.0	do.	Yes	Partially frozen.	4
	11	.005	.19	8.5	do.	Yes	do.	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.	No	-	4
	17	.005	Nil	9.2	do.	No	-	4
	18	-	-	-	-	-	No hole.	4
	19	-	-	-	-	-	do.	4
	20	Trace	Nil	2.7	Monzonite.	No	-	4
	21	-	-	-	-	-	No hole.	4
	22	Nil	Nil	2.1	Monzonite.	No	-	4
C6	1	Nil	Nil	7.0	do.	Yes	Top only frozen.	4
	2	.01	.04	11.2	do.	No	-	4
	3	Nil	Nil	6.1	do.	No	-	4
	4	Nil	Nil	6.8	do.	Yes	-	4
	5	Nil	Nil	6.0	do.	Yes	-	4
	6	Nil	Nil	7.3	do.	No	-	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	4
H7	1	Nil	Nil	7.9	do.	No	feet apart.	4
	2	Nil	Nil	8.7	do.	Yes	Partially frozen.	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. Line	Hole	Assay, ounce per ton Gold	Silver	Notes from driller's log Depth, feet	Material	Frozen	Remarks	Figure
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 Gold	Silver	Notes from driller's log Depth, feet	Material	Frozen	Remarks	Figure
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/ Nill = 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		(2.6	Mz and fault	do.	4
			N 10° E at V (ver-	(	gouge.		
85	.005	Trace	tical)	(2.8	Dec mz.	do.	4
86	.005	Trace		(2.5	Brown dec mz.	do.	4
87	.015	Nil		(2.7	Dec mz.	do.	4
88	.015	Nil	N 05° W at V	(.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 strs.	do.	4
171	.01	.05	-	1.8	Four 0.1' strs.	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 strs.	do.	4
190	Sample misplaced			.4	Two 3/4" rusty strs.	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 strs 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.2/	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

1/ Same location as sample 302.
2/ 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.	Black Creek	3
230	Andesite.	do.	Otter Creek	3
235A	Hornfels.	Talus.	Black Creek	3
235B	do.	do.	do.	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.	Boulders and rubble.	Black Creek.	3
274	Monzonite.	do.	Happy Creek	4
284	do.	Bedrock.	Cleary Creek	4
285	do.	do.	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
Rocks:									
Hornfels	-	-	-	C	-	-	-	-	-
Monzonite	C	-	-	-	C	-	-	-	C
Quartzite	-	C	-	-	-	-	-	-	-
Tactite	-	-	C	-	-	C	C	C[1/]	-
Minerals:									
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	A
Apatite.....	-	-	M	S	F	M	S	S	F
Augite.....	-	M	-	-	-	-	-	-	-
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[1]/.....	X	P	-	-	-	-	-	-	-
Fine feldspar.....	X(?)	-	-	-	-	-	-	-	-
Ca-andesine[2]/.....	-	-	-	-	-	-	-	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.
N - Sought but not detected.
C - Rock classification.
X - Detected.
1/ Tentatively mixed biotite-chlorite.
2/ 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[1/]	P	-	-	-	-
Ca-andesine[2/]	-	-	-	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.
1/ Tentatively mixed biotite-chlorite.
2/ Ca-andesine (AN 48-49).

TABLE 6D. - Petrographic sample results

	Sample number								
	94	95	96	211A	211B	230	309	310	321
Spectroscopic:									
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	–	–	–	–
Rocks:									
Altered granodiorite	–	–	–	–	C	–	–	–	–
Altered quartz diorite	–	C	C	–	–	–	–	–	–
Altered quartz monzonite	C	–	–	C	–	–	–	–	–
Andesite	–	–	–	–	–	C	–	–	–
Monzonite	–	–	–	–	–	–	C	C	C
Minerals:									
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	–	–	–	–	–	–	–	F	–
Quartz	A	A	A	A	A	–	–	S	–
Sericite	S	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.

TABLE 6E. - Petrographic sample results

	Sample number								
	203	208A	208B	224	235A	235B	260A	260B	262
Rocks:									
Diorite	-	-	-	-	-	-	-	-	C
Hornfels	-	-	-	-	C	C	-	-	-
Monzonite	C	C	C	C	-	-	C	C	-
Minerals:									
Albite-oligoclase	A	T	T	S	T	N	T	S	S
Andesine	A	A	A	A	A[1/]	A[1/]	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	-	-	-	-	-	-	-	-	C?
Monzonite	-	-	C	C	C	C	C	C	-
Quartz monzonite	-	C	-	-	-	-	-	-	-
Minerals:									
Albite-oligoclase	-	-	-	-	A	S	A	A	-
Andesine	A	-	-	A	A	A	S	-	A[1/]
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.
1/ Ca-andesine (An 49-50).

TABLE 6G. - Petrographic sample results

	Sample number								
	120	124	132	300	303	304	307	322	328
Spectroscopic:									
Fe, Mg	-	-	X	-	-	-	-	-	-
Al, Ca, Fe, K, Mg, Na, Ti	X	X	-	X	X	X	-	X	X
Ba, Cr, Ga, Li, Sr, V	T	T	-	T	T	T	-	T[1/]	T
W	-	-	-	-	-	-	X	-	-
K, Ga	-	-	N	-	-	-	-	-	-
Ag, Bi, Cu, In, Mo, Ni, Pb	N	N	N	N	N	N	-	N[2/]	N
Sn, Y, Zn, Zr	N	N	N	N	N	N	-	N	N
Ba, Cr, Li, Na, V	-	-	T	-	-	-	-	-	-
Rocks:									
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	-	-	-
Minerals:									
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.
1/ No Ga.
2/ Traces of Cu and Zn.

TABLE 6H. - Petrographic sample results

	Sample number									
	140	147	150	161	168	170	175	181	185	187
Spectroscopic:										
BO	-	-	X	-	-	-	-	-	-	-
Al, Ca, Fe, K, Mg, Na, Ti	X	X	X	X	-	X1/	-	X	X	X
Al, Fe, Mg	-	-	-	-	X	-	X	-	-	-
Ba, Cr, Li, Mn, Sr, V	T	T	T	T	T	T2/	T3/	T	T	T2/
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
Rocks:										
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	-	-	-	-
Minerals:										
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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