COPPER, GOLD, PLATINUM, AND PALLADIUM SAMPLE RESULTS FROM THE KLUKWAN MAFIC/ULTRAMAFIC COMPLEX, SOUTHEAST ALASKA

by Jan C. Still, Alaska Field Operations Center, Juneau, Alaska

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UNITED STATES DEPARTMENT OF THE INTERIOR

William P. Clark, Secretary

BUREAU OF MINES

Robert C. Horton, Director

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ILLUSTRATIONS

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By Jan C. Still[1/]

ABSTRACT

The Klukwan mafic/ultramafic complex located near Haines in southeast Alaska was examined by Bureau of Mines personnel in 1981 and 1982 to determine its potential for platinum group metals, gold, and copper. The ultramafic portion of the complex and the alluvial fan below have long been recognized as a significant iron deposit. During this examination of the complex, over 400 rock, panned concentrate, and stream sediment samples were collected from an area 9 mi long by about 3 mi wide. Analyses of these samples indicate interesting values in platinum, palladium, gold, and copper at a number of locations throughout the area studied. Some of these values are located on Bureau of Land Management land open to claim staking and the remainder are located on patented mining claims.

INTRODUCTION

The Bureau of Mines is responsible for assuring that mineral supplies are adequate to meet the nation's industrial needs. The investigation of the Klukwan mafic/ultramafic complex for platinum group metals (PGE) started in 1981 as part of the Bureau of Mines initiative to develop more authoritative information on Alaska's critical and strategic minerals,

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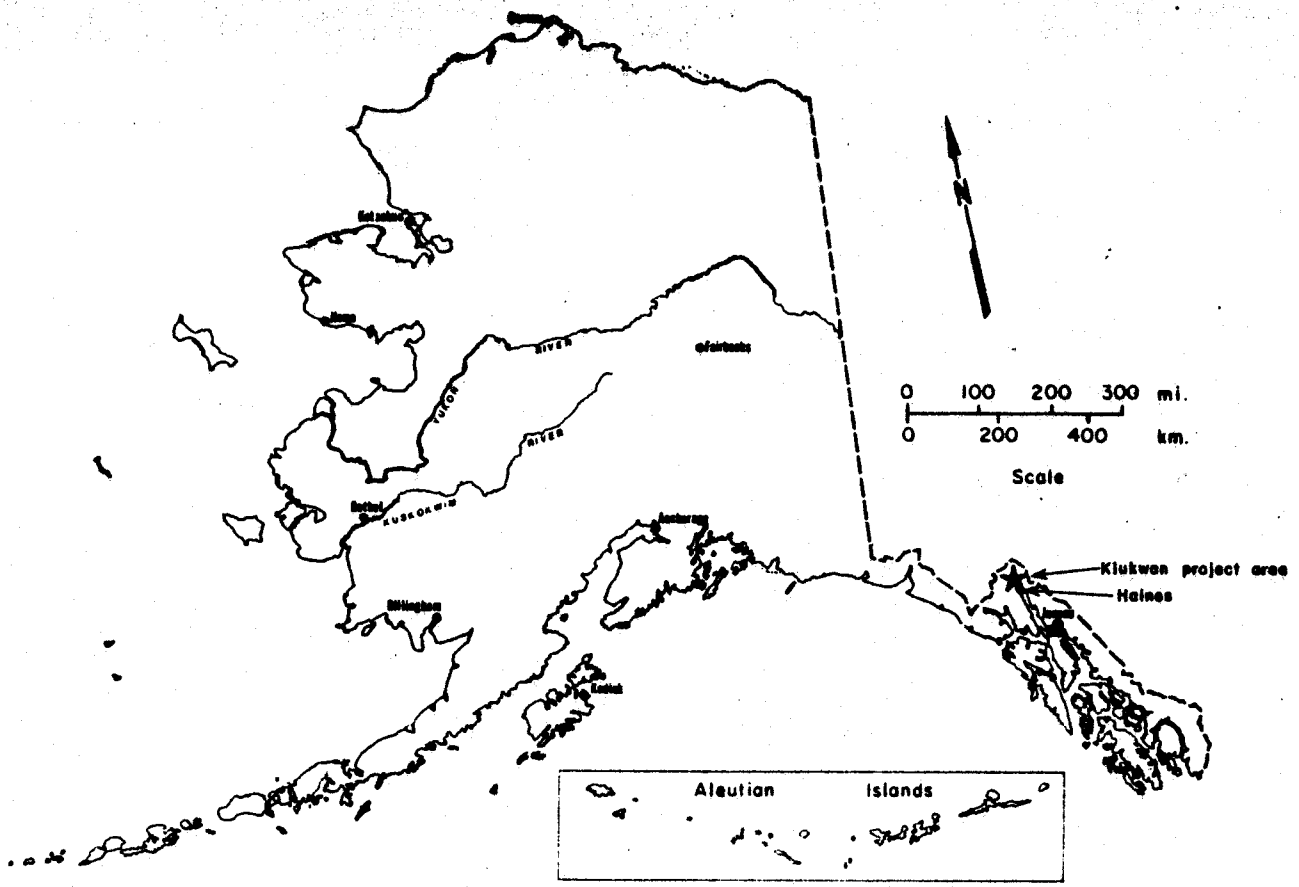


Figure 1.—Location of project area

Barker, Still, Mowatt, and Mulligan(1)[2/]. This report covers the sampling and analytical results portion of the investigation and gives some preliminary information on mineral potential. In the near future a more detailed report will be forthcoming.

The Klukwan mafic/ultramafic complex is located 24 mi northwest of the port city of Haines near the native village of Klukwan. The ultramafic portion of the complex has an exposed length and width of 3 mi. by 1 mi, along the 5000 ft high west side of the rugged Takshanuk Mountains. Below the ultramafic is an extensive alluvial fan partly made up of material from the ultramafic. The fan and ultramafic have long been recognized as a significant iron deposit. Figure 1 shows the general location of the area and figure 2 shows the ultramafic and the extent of the study area.

The complex is transected by a series of deep canyons that form steep cliffs thousands of feet high and provide excellent rock exposures. In the spring rock and snow avalanches sweep these canyons and thick slide alder with an adequate lacing of devils club makes travel in the less steep portions of the canyons difficult. Below the 3000 ft elevation, the area is covered by a forest of cottonwood, hemlock, spruce, willow, and alder. Wildlife in the area consists of bear, moose, goats, coyotes, wolves, and eagles. Springs from the alluvial fan are reported necessary to support a late run of salmon which are food for eagles gathering in the area in the fall.

The study area can be accessed by an all weather paved highway extending from Haines to Canada which crosses the fan.

[2/] Underlined numbers in parentheses refer to items in the list of references at the end of this report

LAND STATUS

The Klukwan fan deposit is mostly covered by 49 patented placer claims. However, a small portion at lower elevations is held by Klukwan village or by owners of homesteads. The lower one-third of the Klukwan ultramafic is covered by 26 patented lode claims while the surrounding area is administered by the Bureau of Land Management and open to mineral location.

ACKNOWLEDGMENTS

Petrographic work for this study was done by Earl Redman of C.C. Hawley and Associates and Jeffrey Y. Foley of the Bureau of Mines, Fairbanks office. Sample analyses were done by the Bureau of Mines Research Center in Reno, Nevada, TSL Laboratories in Spokane, Washington, and Bondar-Clegg, Inc. of Lakewood, Colorado. A special thanks goes to John Gammon of Falconbridge Mines Limited, British Columbia, Canada who allowed access to company claims and company reports on the Klukwan deposit. J. Foley, D. Southworth, and S. Will of the Fairbanks office of the Bureau of Mines and M. Affleck of Juneau participated in the field work on this project in 1982.

PREVIOUS STUDIES

Portions of the Klukwan mafic/ultramafic complex have been extensively investigated as an iron deposit. In 1946, claims covering both the ultramafic (pyroxenite) lode and alluvial fan were staked and Alaska Iron Mines was incorporated to develop the deposit. Development work proceeded from that date and by 1961 consisted of surface sampling and diamond drilling of

the lode, pit sampling and churn drilling of the placer, aeromagnetic and ground magnetic surveys, and surface mapping. In addition, a pilot mill was constructed and cobber concentrates were produced for metallurgical testing.

In 1948, the U.S. Bureau of Mines collected samples of the deposit for metallurgical testing, Thorne (11). In 1953 and 1954, the USGS examined and mapped the deposit, Robertson (8).

In 1961, Columbia Iron Mining Company (U.S. Steel) leased the claims for 75 years and in 1964 patented portions of the property. The lease by Columbia Iron Mining Company was not kept up and sometime after 1972 control of the property reverted back to Alaska Iron Mines.

According to a 1972 report prepared by the Henry J. Kaiser Company for the Iron Ore Company of Alaska, the fan portion of the deposit contains 989,761,000 tons of minable reserves with an overall average grade of 10.8% soluble iron. This same report estimates a reserve of 3 1/2 billion tons with a soluble iron content of 16.8% for the lode portion of the deposit(6).

While the work on the iron potential of the Klukwan deposit has been thorough, investigations concerning the potential for platinum group metals, gold, and copper have not. A 1972 U.S. Geological Survey report by Clark and Greenwood (5) contains results of ten samples collected at Klukwan that averaged 0.046 ppm platinum and 0.040 ppm palladium. A 1973 report by Brobst and Pratt (4) indicates 500 million tons of titaniferous magnetite that averages 0.0027 oz./ton platinum group metals.

GEOLOGY

The Klukwan mafic/ultramafic complex lies within Berg's (2) Taku Terrane which is bordered on the west by the Chatham Strait Fault and forms

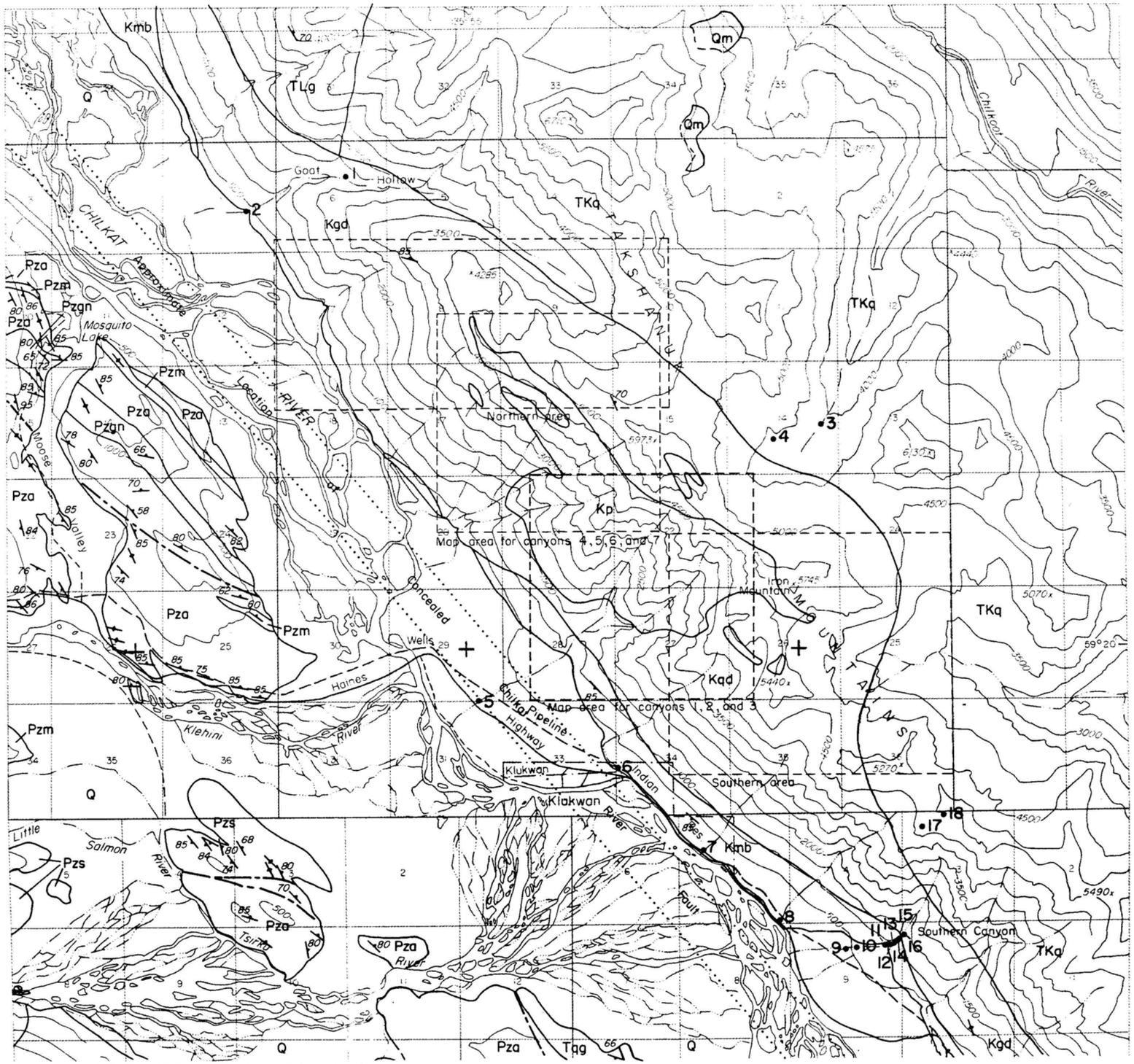
the north end of Brew's (3) Klukwan-Duke belt of concentrically zoned mafic/ultramafic complexes of estimated middle Cretaceous age. This belt extends the length of southeastern Alaska and includes numerous mafic/ultramafic intrusives.

Figure 2 shows the geologic setting for the Klukwan ultramafic (Kp unit). It is surrounded by hornblende diorite (Kgg unit) which is in contact with metabasalt (Kmb unit) to the west and quartz diorite (TKq unit) to the east. The TKq unit represents a facies change in the Coast Range batholith complex. The hornblende diorite shows epidote alteration in the vicinity of the ultramafic body. Nobel (10) considers the ultramafic (Kp unit) to be the end or near end result of successive intrusions of progressively more basic magmas.

The ultramafic consists of pyroxenite which is composed principally of augite and hornblende with lesser amounts of feldspar, epidote, chlorite, magnetite, ilmenite, and at some locations, sulfides. The sulfides are often chalcopyrite; but pyrrhotite, pyrite, and bornite occasionally occur. The largest concentration of titaniferous magnetite occurs in the lower portions of the ultramafic.

BUREAU OF MINES INVESTIGATIONS

The Klukwan mafic/ultramafic complex was investigated briefly in the fall of 1981 and in more detail in the spring and early summer of 1982. Access was mostly by foot from a camp located on the fan. A helicopter was utilized for access to some portions of the area. Over 400 rock, panned concentrate, and stream sediment samples were collected and analyzed for an array of elements.



LEGEND

Q	Undivided surficial deposits – Include old and modern alluvium, landslides, tufa, talus, colluvium, and diverse moraines
Qm	Moraines on ice
	East of Chilkat River
	Igneous Rocks
Tlg	Leucogranodiorite and minor granite
TKq	Quartz diorite and minor granodiorite
Kp	Pyroxenite. Dominantly hornblende pyroxenite
Kgd	Gabbro and diorite. Locally metamorphosed
Kmb	Metabasalt. Metamorphosed mafic lava
	West of Chilkat River
	Intrusive Rocks
Tqg	Quartz diorite and subordinate granodiorite
	Metamorphic Rocks
Pzgn	Dominantly gneiss rich in quartz and biotite and generally containing muscovite and plagioclase. Associated with minor schist, phyllite, and marble.
Pzm	Marble; chiefly banded, light gray or white, fine grained, locally dolomitic
Pzs	Dominantly chlorite-biotite schist and phyllite, in places carbonaceous. Subordinate slate, impure quartzite, and marble. Chiefly greenschist - facies rocks
Pza	Chiefly amphibolite and schist; some phyllite and minor gneiss, hornfels, and marble. Mainly amphibolite and greenschist – amphibolite transition facies rocks
50°	Contact, showing dip – approximately located. Dotted where concealed
80°	Fault, showing dip – approximately located. Dotted where concealed. U, upthrown side; D, downthrown side.
	Lineament from aerial photograph. Dotted where concealed. Most lineaments are probably faults
	Strike and dip of foliation
70	Inclined
	Vertical
• 7	Sample location, map numbers are keyed to appendix A analytical tables

0 .5 1 mile
0 .5 1 1.5 kilometer
Scale

N

Figure 2.— Klukwan area index map showing outlines of more detailed maps, geology, and sample locations not shown on other maps.

The rock samples consisted of channel, chip, representative, dip, or grab samples. Panned concentrate samples consisted of the concentrate remaining after panning from one to four 16 in. pans. The stream sediment samples were screened and the -80 mesh portion used for analysis.

Most of the samples were analyzed for Au, Pt, and Pd by fire assay-atomic absorption (FA-AA) or by inductively coupled argon plasma spectroscopy (ICP). Ag, Cu, Fe, V, Ti, Co, Cr, and Ni were analyzed by atomic absorption or X-ray fluorescence. The latter three elements (Co, Cr, and Ni) were not found in any significant quantity and are not included in the analytical results. The samples with the best Au, Pt, and Pd values were also run for Ir, Os, Rh, and Ru by fire assay-spectrography (FA-Spec). None of the latter four elements were detected. Appendix A contains analyses for the elements of interest: Au, Pt, Pd, Ag, Cu, Fe, V, and Ti.

By most laboratory standards, Au, Pt, and Pd analyses are difficult. Analysis of control standards and repeated analysis by fire assay or several labs indicate that there were inconsistencies in the values reported. For example, one lab may not have detected values of Pt, Pd, and Au, or may have reported lower values in samples that were found by another lab to have significantly higher values. Where multiple assays show a disparity in sample results, the result estimated to be the most correct is given in the tables in appendix A. However, the results given in these tables should be considered preliminary and may be modified in a later report.

RESULTS

Figures 2 through 6 are a series of maps showing sample locations from this study and iron and copper mineralized zones in the Klukwan area. Earlier workers have numbered the canyons that drain the Klukwan area from

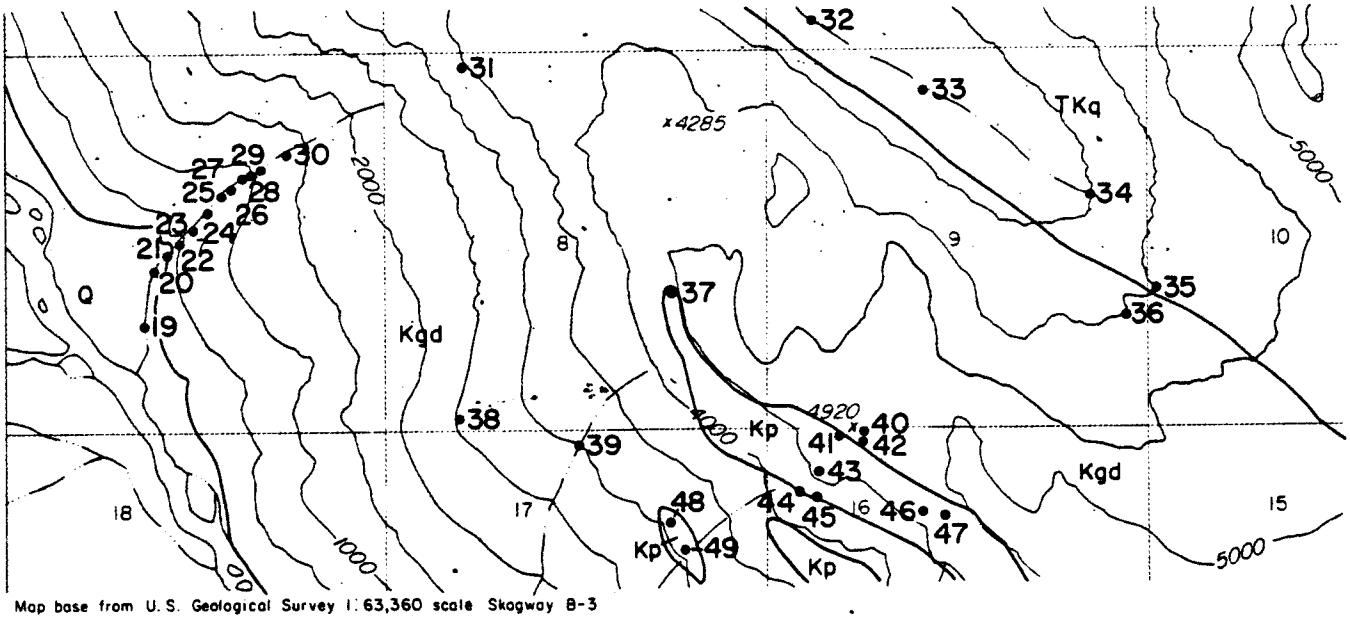
#1 through #8 from south to north and these numbers have been retained. Canyon #9 has been added to the sequence along with the "South Canyon" located at the extreme south end of the area studied. The area south of Canyon #1 has been termed the "Southern Area". Figure 2 shows the extent of the 9 mi by 3 mi area, area geology, outlines of more detailed maps, samples not shown on other maps, and the South Canyon. Figure 3 shows Canyon #9 and upper portions of canyons #8 and #7. Figure 4 shows Canyons #4, #5, #6, #7, and portions of #8 and iron rich areas in canyons #4 and #5. Figure 5 shows Canyons #1 to #3, and iron and copper rich areas delineated by this study and figure 6 shows the "Southern area" located south of Canyon #1.

Appendix A shows the analytical results presented in order by sample numbers given in appendix A.

Appendix B is a summary of the geological and analytical results from the various areas investigated. The order of discussion is from north to south.

Following are the most important results of the Bureau of Mines work in this area:

> In general, interesting values in precious metals and copper are found in a variety of environments (Kp, Kgd, and Tqg units) extending from the South Canyon to Canyon #9.



LEGEND

Q	Undivided surficial deposits – include old and modern alluvium, landslides, tufa, talus, colluvium, and diverse moraines

East of Chilkat River

Igneous Rocks

TKq	Quartz diorite and minor granodiorite
Kp	Pyroxenite. Dominantly hornblende pyroxenite
Kgd	Gabbro and diorite. Locally metamorphosed
•37	Sample location, map numbers are keyed to appendix A analytical tables

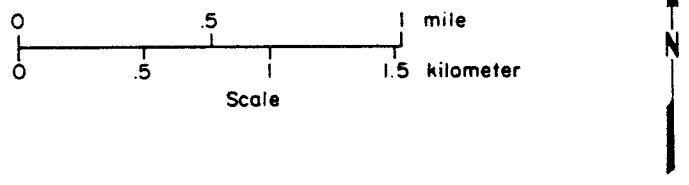


Figure 3.— Northern area map showing geology, sample locations, Canyon # 9, area east of Canyon # 9, and upper portions of Canyons # 8, # 7, and # 6.

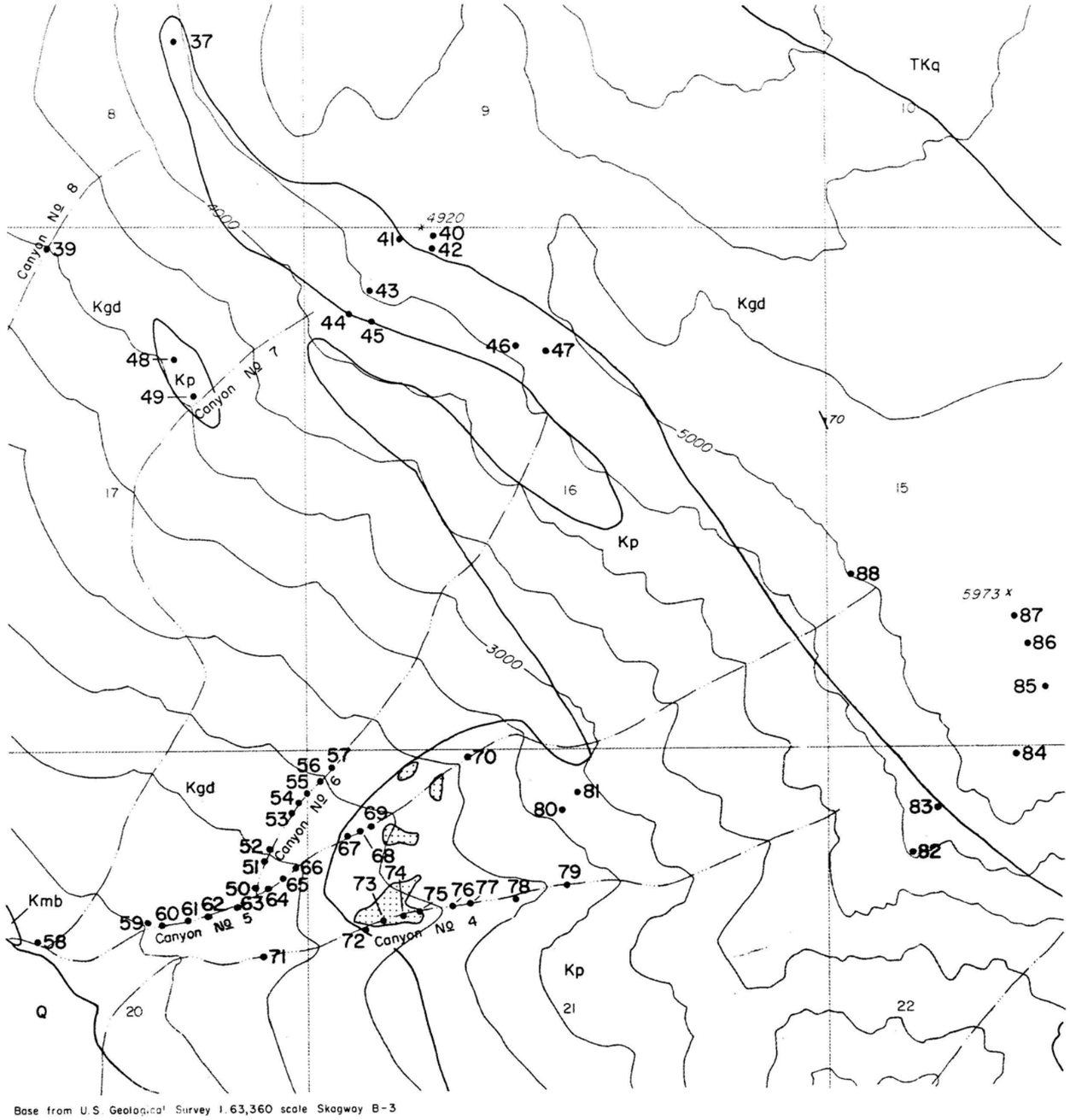


Figure 4.— Geology and sample locations for Canyons # 4, # 5, # 6, # 7, and # 8.

LEGEND

Q	Undivided surficial deposits – include old and modern alluvium, landslides, tufa, talus, colluvium, and diverse moraines

East of Chilkat River

Igneous Rocks

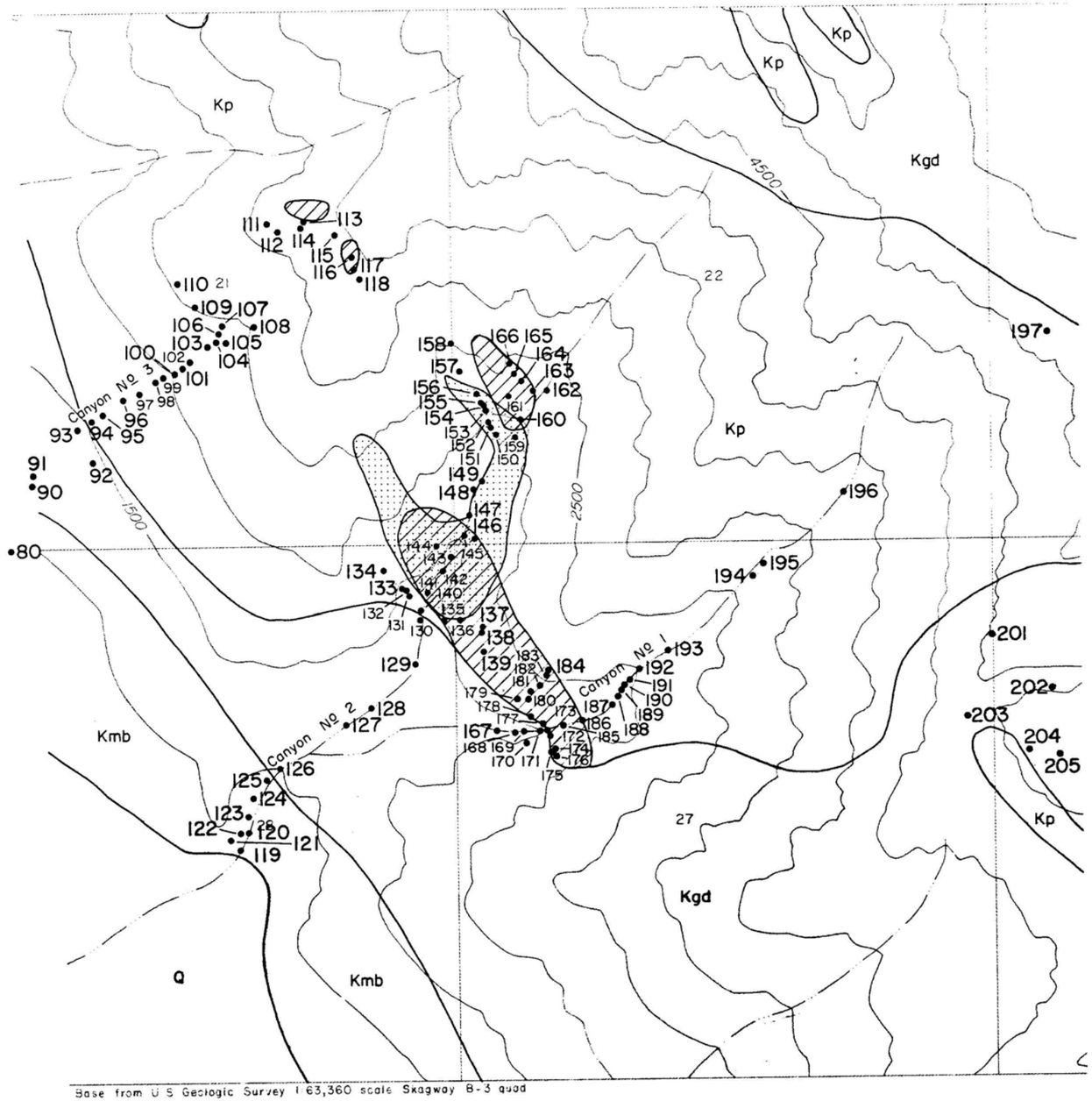
Tkq	Quartz diorite and minor granodiorite
Kp	Pyroxenite. Dominantly hornblende pyroxenite
Kgd	Gabbro and diorite. Locally metamorphosed
Kmb	Metabasalt. Metamorphosed mafic lavas
	Areas containing 13 – 40 % soluble iron. After Smith, (9)
• 70	Sample location, map numbers are keyed to appendix A analytical tables

0 .5 1 mile

0 .5 1 1.5 kilometer

Scale

N



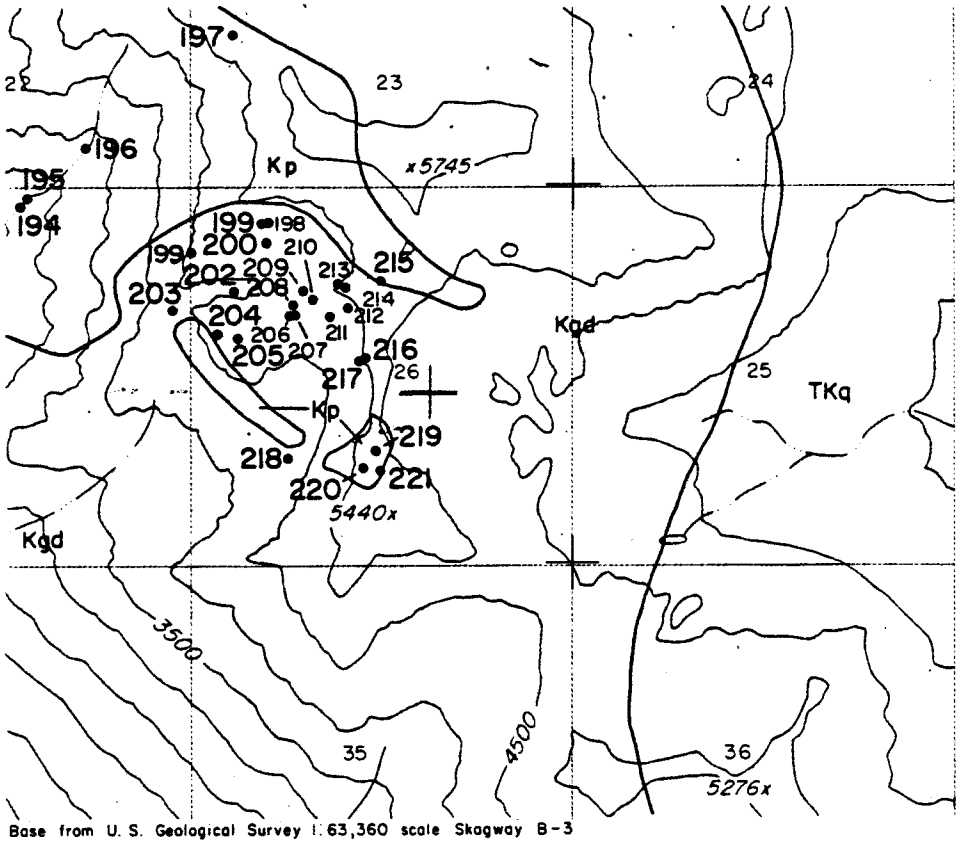
LEGEND

Q	Undivided surficial deposits – Include old and modern alluvium, landslides, tufa, talus, colluvium, and diverse moraines
	East of Chilkat River
Tkq	Quartz diorite and minor granodiorite
Kp	Pyroxenite. Dominantly hornblende pyroxenite
Kgd	Gabbro and diorite. Locally metamorphosed
Kmb	Metabasalt. Metamorphosed mafic lavas
	Areas containing 13–40% soluble iron. After Smith, (9)
	Areas containing intermittent copper mineralization as delineated by this study. Portions of these areas contain low values in Au, Pt, and Pd. The best Au, Pt, and Pd values usually occur with the best copper values.
• 157	Sample location, map numbers are keyed to appendix A analytical tables

0 .5 1 mile
0 .5 1 1.5 kilometers
Scale

N

Figure 5.— Geology and sample locations for Canyons # 1, # 2, and # 3.



LEGEND

East of Chilkat River

Igneous Rocks

TKq	Quartz diorite and minor granodiorite
Kp	Pyroxenite. Dominantly hornblende pyroxenite
Kgd	Gabbro and diorite. Locally metamorphosed
•203	Sample location, map numbers are keyed to appendix A analytical tables

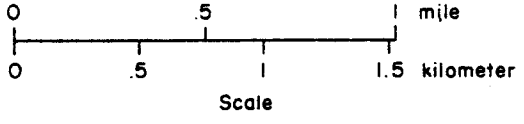


Figure 6.— Southern area showing geology and sample locations for the area south of Canyon # 1.

1. Areas of intermittent low grade mineralization (areas sampled are estimated to average from 750 to 1500 ppm Cu) were delineated, extending along the basal contact of the pyroxenite unit (Kp) from the south side of Canyon #1 to the north side of Canyon #2, in the upper portion of Canyon #2 and in Canyon #3. See figure 5 and appendix B.

2. Au, Pt, or Pd mineralization generally associated with sulfides, predominately chalcopyrite, and was not often found associated with magnetite. Portions of the copper areas delineated above contained low grade Au, Pt, Pd mineralization. Estimated combined Au, Pt, and Pd values for areas indicated in appendix B ranged from less than 0.001 oz/ton to 0.002 oz/ton. This does not support earlier claims of 0.00027 oz/ton combined platinum group elements contained in a half billion tons of titaniferous magnetite, Brobst and Pratt (4).

3. To the south of Canyon #1, a series of hydrothermal pinch and swell veins with irregular sulfide mineralization occupy northerly striking steeply dipping shear zones. These veins are composed of probable residual material from the ultramafic and contain chalcopyrite, bornite, and malachite. Assays ran up to 0.14 oz/ton Au, 0.003 oz/ton Pt, 0.008 oz/ton Pd, and up to 6.5% Cu. This area is worthy of examination for structural or contact zones that might have controlled deposition. See figure 6.

4. A panned concentrate and a stream sediment sample taken in Canyon #9 contained low Au, Pt, and Pd values (figure 3, sample locations #19 and #26). Since the ultramafic is the likely source of this mineralization and only diorite (Kgd unit) is mapped in this drainage, a potentially easy to find exploration target is presented.

5. Samples of diorite float collected in the South Canyon contained veins of bornite and chalcopyrite up to 0.1 ft thick, with up to 0.14 oz/ton Au and 2.95% Cu. A brief examination of the area revealed similar mineralization in place at an elevation of 4500 to 5000 ft on the mountain above the canyon. This area is worthy of detailed examination.

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APPENDIX A.
ASSAY DATA TABLES

See footnotes in appendix A for list of abbreviations

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)				Analyses[3] (units as shown)				Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
1	J82-289 2S078	PC	L0.0003	L0.002	L0.002	L0.003	115	19.00	1272	1.32	
	J82-290 2S079	SS	L0.0003	L0.002	L0.002	L0.003	58	6.20	320	0.84	
2	J81-1049 1S185	SS	L0.0002	L0.0009	L0.0009	L0.0009	77	7.00	300	0.60	
	J81-1050 1S186	PC	L0.0002	L0.0009	L0.0009	0.008	43	——	——	——	
3	J82-808 2S270	PC	L0.0001	L0.001	L0.001	——	——	——	——	——	
	J82-809 2S271	SS	L0.0002	L0.0003	L0.0003	0.006	57	2.75	397	2.16	
4	J82-806 2S268	PC	0.0002	L0.001	L0.001	——	——	——	——	——	
	J82-807 2S269	SS	L0.0002	L0.0003	L0.0003	0.006	79	2.60	332	1.63	
5	J81-180 1S033	SS	——	——	——	L0.003	79	L10.00	940	0.60	
	J81-181 1S034	Float	0.000*	L0.001	L0.001	L0.003	12	G10.00	2370	1.00	Mag pyroxenite boulder
	J81-182 1S035	Float	0.000*	0.001	0.001	L0.003	61	10.00	795	0.70	Pyroxenite
6	J82-868 20889	PC	L0.001	L0.001	L0.001	——	——	——	——	——	
	J81-1051 1S187	SS	L0.0003	L0.0009	L0.0009	0.017	83	——	——	——	
	J81-1052 1S189	PC	L0.0002	0.0009	L0.0009	L0.0009	42	——	——	——	
7	J82-869 20890	PC	0.0035	L0.001	L0.001	——	——	——	——	——	
	J82-870 20891	SS	L0.0004	L0.0006	L0.0006	——	——	——	——	——	
8	J82-871 20439	PC	0.0018	L0.001	L0.001	——	——	——	——	——	
	J82-872 20440	SS	L0.0002	L0.0003	L0.0003	——	——	——	——	——	

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)			Analyses[3] (units as shown)					Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Tl %	
						South Canyon					
9	J82-700 2S165	SS	L0.0002	L0.0003	L0.0003	0.006	99	1.60	287	0.90	
10	J82-699 2S164	Float Grab	0.077	L0.0003	L0.0003	0.408	10200	1.00	174	0.51	Diorite with 0.01 ft thick fracture filled with cp and bn
11	J82-698 2S163	Float Grab	0.012	L0.0003	L0.0003	0.111	7400	1.30	156	0.44	Diorite fracture coated with ml and cp
12	J82-697 2S162	SS	0.000*	L0.0003	L0.0003	0.006	106	1.20	190	1.16	
13	J82-696 2S161	Float Grab	L0.0002	L0.0003	L0.0003	0.029	2300	2.80	440	1.56	Hnbd diorite with ml stain and cp
14	J82-695 2S160	Float Grab	0.019	L0.0003	L0.0003	0.087	6000	2.70	400	1.28	Diorite with ml stain and cp
15	J82-689 2S154	Float Grab	0.156	L0.0003	L0.0003	0.437	24600	1.15	165	0.52	Granodiorite with bn and az coating fractures
	J82-692 2S157	Float Grab	0.035	L0.0003	L0.0003	0.102	29500	1.30	30	0.05	Qtz diorite with az and cp coating fractures
	J82-693 2S158	PC	L0.0001	L0.001	L0.001	———	———	———	———	———	
	J82-694 2S159	SS	L0.0002	L0.0003	L0.0003	———	———	———	———	———	
16	J82-690 2S155	PC	0.0015	L0.0003	L0.0003	———	———	———	———	———	
	J82-691 2S156	PC	L0.0001	L0.0003	L0.0003	———	———	———	———	———	
17	J82-902 20893	Float Grab	0.004	L0.001	L0.001	0.108	6050	2.55	362	1.14	Near in place, diorite with ml and bn in mafic segregations
18	J82-900 20768	Float Grab	L0.0002	L0.0003	L0.0003	0.006	16	1.75	134	0.13	Iron stained altered siltstone with calc and qz stringers and veinlets

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton) Au	Pt	Pd	Ag	Analyses[3] (units as shown) Cu ppm	Fe %	V ppm	Ti %	Comments
							Canyon #9				
19	J81-1047 1S183	SS	0.003	0.002	L0.0009	L0.0009	105	7.00	300	0.6	
	J81-1048 1S184	PC	L0.0002	L0.0009	L0.0009	0.003	71	7.00	300	0.4	
	J82-288 2S077	SS	L0.0002	L0.0009	L0.0009	L0.003	145	5.40	240	0.8338	
20	J82-287 2S076	Float Grab	L0.0002	L0.0009	L0.0009	L0.003	105	3.00	127	0.3856	Diorite with disseminated po
21	J82-286 2S075	Float Grab	L0.0002	L0.0009	L0.0009	0.006	1700	6.30	173	0.1871	Silicified diorite with disseminated po and cp
	J82-285 2S074	SS	L0.0002	L0.0009	L0.0009	0.003	100	5.30	226	0.7146	
22	J82-284 2S073	PC	L0.0002	L0.0009	L0.0009	L0.003	72	6.70	306	0.6693	
23	J82-283 2S072	Float Grab	L0.0002	L0.0009	L0.0009	L0.003	205	0.29	L 10	0.0120	Qz vein 0.3 ft thick with ml stain
24	J82-282 2S071	Float Grab	0.002	L0.0009	L0.0009	0.041	2200	5.90	480	0.2238	Iron stained diorite with disseminated po and cp
25	J82-281 2S070	SS	L0.0002	L0.0009	L0.0009	L0.003	165	6.50	313	0.9397	
26	J82-280 2S069	PC	L0.0002	0.0021*	0.0022*	L0.003	91	7.80	360	0.8072	
27	J82-279 2S068	Float Grab	0.002	L0.0009	L0.0009	0.012	4000	7.60	240	0.8258	Fine grained diorite rock with disseminated po and cp
28	J82-278 2S067	Chip 0.1 ft	L0.0002	L0.0009	L0.0009	L0.003	9	0.54	L 10	0.560	Qz vein in fault
	J82-277 2S066	Chip 0.1 ft	L0.0002	L0.0009	L0.0009	L0.003	27	4.15	100	0.4262	Fault gouge
29	J82-276 2S065	Chip 0.4 ft	L0.0002	L0.0009	L0.0009	L0.003	110	4.20	120	0.4509	Fault gouge and iron stained diorite

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)			Analyses[3] (units as shown)					Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
30	J82-275 2S064	PC	L0.0002	L0.0009	L0.0009	L0.003	88	6.00	220	0.4749	
31	J82-899 20767	Grab	L0.0002	L0.001	L0.001	0.006	28	0.55	20	0.050	Fine grained "aplitic" rock with less than 3% mafics
						Area east of Canyon #9					
32	J82-291 2S080	PC	L0.0003	L0.002	L0.002	L0.003	29	39.20	2271	1.0800	
	J82-292 2S081	SS	L0.0003	L0.002	L0.002	L0.003	49	14.00	793	0.9797	
33	J82-293 2S082	PC	L0.0004	L0.002	L0.002	L0.003	25	39.30	2284	1.2190	
	J82-294 2S083	SS	L0.0003	L0.002	L0.002	L0.003	37	7.40	386	0.9557	
	J82-799 2S261	PC	L0.0001	L0.001	L0.001	———	———	———	———	———	
	J82-800 2S262	SS	L0.0002	L0.0003	L0.0003	0.006	44	1.90	339	2.00	
34	J82-801 2S263	PC	L0.0002	L0.001	L0.001	———	———	———	———	———	
	J82-802 2S264	SS	———	———	———	0.006	31	1.35	376	2.09	
35	J82-803 2S265	SS	L0.0008	L0.001	L0.001	———	———	———	———	———	
36	J82-804 2S266	PC	0.0003	L0.001	L0.001	———	———	———	———	———	
	J82-805 2S267	SS	L0.0002	L0.0003	L0.0003	0.006	29	4.20	575	1.84	
						Upper portions of Canyons #8, #7, and #6					
37	J82-897 20765	Grab	L0.0002	L0.0003	L0.0003	0.015	1000	5.60	220	1.89	Porphyritic hnbd pyroxenite with trace cp
	J82-898 20766	Float Grab	L0.0002	L0.0003	L0.0003	0.006	960	4.55	276	1.86	Mag, pyx, hornblendite with ml and traces of cp, near in place
38	J82-295 2S084	Grab	L0.0003	L0.002	L0.002	L0.003	31	16.80	1379	1.5112	Hnbd pyroxenite and mag

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)				Analyses[3] (units as shown)				Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
39	J82-296 2S085	PC	L0.0003	L0.002	L0.002	L0.003	135	18.00	1272	1.2308	
	J82-297 2S086	Float Grab	L0.0003	L0.002	L0.002	L0.003	170	11.60	1112	1.2967	Fragments of hnbd pyroxenite and mag
	J82-298 2S087	Float Grab	L0.0003	L0.002	L0.002	L0.003	145	20.30	2031	1.9167	Hnbd pyroxenite ml stained and mag
	J82-299 2S088	Float Grab	L0.0003	L0.002	L0.002	L0.003	150	21.00	2111	2.1072	Hnbd pyroxenite and mag
40	J82-889 20757	Float Grab	L0.0002	L0.0003	L0.0003	0.006	69	1.45	206	0.79	Near in place coarse grained diorite
41	J81-1194 1D095	Grab	L0.0002	L0.001	L0.001	L0.20	115	G10.00	800	0.6	
42	J82-890 20758	Float Grab	L0.0002	L0.0003	L0.0003	0.006	89	2.35	242	0.81	Near in place rock containing 20% qz,30% feldspar, 40% pyx
	J81-1195 1D097	Grab	L0.0002	L0.001	L0.001	L0.20	690	G10.00	800	0.70	Hnbd pyroxenite with ml staining
43	J82-891 20759	Grab	0.001	L0.0003	L0.0003	0.006	1650	4.15	330	2.20	Mag pyroxenite from contact with diorite/gabbro
44	J82-896 20764	Float Grab	L0.0002	L0.0003	L0.0003	0.058	440	3.65	410	0.85	Near in place rubble crop of iron stained zone showing carbonate alteration
45	J82-895 20763	Chip 20 ft	L0.0002	L0.0003	L0.0003	0.006	705	4.90	425	1.90	Hnbd pyroxenite with traces of ml and cp
46	J81-1041 1S177	Grab	0.003	L0.001	L0.001	L0.200	1550	8.00	500	0.60	Hnbd pyroxenite with mag, cp, and ml, forms iron stained band up to 20 ft across
	J81-1042 1S178	Grab	L0.0002	L0.001	L0.001	L0.200	175	8.00	500	0.50	Same band as above, hnbd pyroxenite and mag
47	J81-1035 1S171	Grab .04 ft	———	———	———	L0.200	62000	10.00	500	0.60	Same band as above, cp vein in hnbd pyroxenite

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton) Au	Pt	Pd	Ag	Analyses[3] (units as shown) Cu ppm	Fe %	V ppm	Ti %	Comments
47	J81-1036 1S172	Grab	0.003	L0.001	L0.001	L0.200	6500	8.00	500	0.80	Same band as above, higher grade
	J81-1037 1S173	Rep chip 10ft long	L0.0002	L0.001	L0.001	L0.200	3500	8.00	500	0.60	Same band as above, sample taken across band
	J81-1038 1S174	Grab	L0.0002	L0.001	0.003	L0.200	1850	8.00	500	0.70	Sample taken 50 ft below 1S173; po, cp, and ml in hnbd pyroxenite
	J81-1039 1S175	0.5 ft chip 5 ft long	L0.0002	L0.001	L0.001	L0.200	18000	7.00	400	0.60	Same band as above, higher grade portions, po,cp,ml in hnbd pyroxenite
	J81-1040 1S176	Soil Sample	0.002	L0.001	L0.001	0.020	530	7.00	500	0.4	Same band as above, iron stained soil
48	J82-828 20842	Float Grab	0.001*	L0.0003	L0.0003	0.012	880	5.15	397	1.93	Mag pyroxenite with ml and disseminated cp, near in place
49	J82-734 2S198B	Grab	L0.0002	L0.0003	L0.0003	0.006	32	5.85	1040	1.84	Hnbd pyroxenite
	J82-735 2S199	Grab	L0.0002	L0.0003	L0.0003	0.006	490	5.65	890	2.03	Hnbd pyroxenite with disseminated cp
	J82-736 2S200	Grab	L0.0002	L0.0003	L0.0003	0.006	358	6.35	950	2.04	Hnbd pyroxenite with disseminated cp, ml, and mag
	J82-827 20841	Grab	0.003	L0.0003	L0.0003	0.017	990	5.80	450	2.74	Mag pyroxenite with ml and cp
						Canyon #6					
50	J82-875 20451	SS	L0.0004	L0.0006	L0.0006	———	———	———	———	———	
51	J82-232 2S022	Float Grab	L0.0002	L0.0009	L0.0009	0.009	980	5.60	942	1.21	Hnbd pyroxenite with bleb of cp
52	J82-881 20457	SS	L0.0002	L0.0003	L0.0003	———	———	———	———	———	
	J82-882 20458	Float Grab	L0.0002	L0.0003	L0.0003	0.012	1010	4.90	605	1.51	Hnbd mag pyroxenite with traces of ml and cp, sample high graded

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)				Analyses[3] (units as shown)				Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
53	J82-876 20452	SS	L0.0004	L0.0006	L0.0006	———	———	———	———	———	
	J82-877 20453	Float Grab	0.001	L0.0003	L0.0003	0.41	2800	3.05	385	1.10	Gabbro with trace of cp, ep, and ml
	J82-884 20460	Float Grab	L0.0002	L0.0003	L0.0003	0.006	470	2.55	415	1.30	Pyx "segregations" bearing calc and cp in foliated gabbro, high graded
54	J82-883 20459	Float Grab	0.001*	L0.0003	L0.0003	0.020	1590	5.50	695	2.55	Mag hnbd pyroxenite with trace ml and cp. Sample high graded
55	J82-878 20454	SS	L0.0004	L0.0006	L0.0006	———	———	———	———	———	
56	J82-885 20461	Float Grab	0.001	L0.0003	L0.0003	0.012	1400	7.65	870	2.01	Mag hnbd pyroxenite with trace cp and ml. Sample high graded
57	J82-879 20455	SS	L0.0004	L0.0006	L0.0006	———	———	———	———	———	
	J82-880 20456	Grab	L0.0002	L0.0003	L0.0003	0.006	206	2.85	376	1.04	Gabbro
						Canyon #5					
58	J81-1045 1S181	PC	L0.0002	L0.001	L0.001	L0.0009	125	10.00	600	0.06	
	J81-1046 1S182	SS	L0.0002	L0.001	L0.001	0.003	225	8.00	400	0.04	
59	J82-244 2S034	Float Grab	L0.0003	L0.002	L0.002	0.015	500	15.40	1098	1.18	Hnbd mag pyroxenite and ml and cp
60	J82-242 2S032	SS	L0.0003	L0.002	L0.002	L0.003	210	11.20	743	0.99	
	J82-243 2S033	PC	L0.0003	L0.002	0.00072	0.003	130	23.50	1538	1.43	
61	J82-241 2S031	PC	L0.0003	L0.002	L0.002	0.003	160	24.50	1449	1.24	
62	J82-239 2S029	Float Grab	L0.0003	L0.0009	L0.0009	0.006	640	7.00	936	1.07	Hnbd pyroxenite with cp and ml stain

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)				Analyses[3] (units as shown)				Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
62	J82-240 2S030	SS	L0.0003	L0.0009	L0.0009	0.032	155	4.10	644	0.99	
63	J82-230 2S020	PC	L0.0003	L0.0009	L0.0009	L0.003	150	9.00	1573	1.38	
	J82-231 2S021	Float Grab	0.003	L0.0009	L0.0009	0.012	525	6.00	954	1.05	Hnbd pyroxenite with disseminated cp and ml
	J82-237 2S027	SS	L0.0003	L0.0009	L0.0009	0.003	215	4.20	656	0.98	
	J82-238 2S028	Float Grab	L0.0003	L0.0009	L0.0009	0.026	2500	4.60	432	0.79	Gabbro with cp and ml
64	J82-236 2S026	Float Grab	0.005	L0.0009	L0.0009	0.015	1750	6.60	930	1.08	Hnbd pyroxenite with cp and ml
65	J82-233 2S023	Float Grab	L0.0003	L0.0009	L0.0009	0.009	1850	4.60	819	1.17	Hnbd pyroxenite with bleb of cp
	J82-235 2S025	Float Grab	0.003	L0.0009	L0.0009	0.012	880	6.60	999	1.13	Hnbd pyroxenite with ml stain
66	J82-234 2S024	SS	L0.0003	L0.0009	L0.0009	0.003	245	4.20	729	0.97	
67	J82-262 2S051	Rep Grab	L0.0003	L0.002	L0.002	0.006	1250	10.30	533	0.74	Pyroxenite-diorite contact zone. Iron stained hnbd diorite with disseminated po, cp
68	J82-260 2S049	Float Grab	L0.0003	L0.002	L0.002	0.009	800	14.00	1192	1.13	Hnbd pyroxenite with po, cp
	J82-261 2S050	Grab	L0.0003	L0.002	L0.002	L0.003	20	11.70	979	1.29	Hornblendite with po
69	J82-259 2S048	SS	L0.0003	L0.002	L0.002	L0.003	115	10.80	1032	1.10	
70	J82-255 2S044	Float Grab	L0.0003	L0.002	L0.002	0.012	955	14.20	1005	1.17	Hnbd pyroxenite with cp alteration along fracture which contains ml stain and cp
	J82-256 2S045	Grab	L0.0003	L0.002	L0.002	0.003	730	12.70	1324	1.14	Hnbd pyroxenite with ml stain and cp
	J82-257 2S046	PC	L0.0003	L0.002	L0.002	0.003	135	23.60	2204	1.37	

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)				Analyses[3] (units as shown)				Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
70	J82-258	Float									
	2S047	Grab	L0.0003	L0.002	L0.002	L0.006	560	14.00	1305	1.24	Iron stained hnbd pyroxenite boulder with mag
							Canyon #4				
71	J82-716	Float									
	2S181	Grab	L0.0002	L0.003	L0.003	0.009	450	5.40	995	1.03	Hnbd pyroxenite with disseminated cp
72	J82-273	0.25 ft									
	2S062	Chip 6 ft long	L0.0002	L0.0009	L0.0009	L0.003	395	7.10	420	0.688	Banded hnbd diorite with po and cp
	J82-274	Grab	L0.0002	L0.0009	L0.0009	L0.003	425	9.40	460	0.708	Higher grade portion of above
	2S063										sample
	J82-715	Float									
	2S180	Grab	L0.0002	L0.0003	L0.0003	0.006	405	1.60	520	1.32	Hnbd diorite with ep and cp
73	J82-272	Float									
	2S061	Grab	L0.0002	L0.0009	L0.0009	L0.003	850	5.00	253	0.5475	Diorite with ml stain
	J82-712	Float									
	2S177	Grab	L0.0002	L0.0003	L0.0003	0.023	1130	1.25	212	0.57	Diorite with ml stain and cp
	J82-713	PC	L0.0001	L0.001	L0.001	———	———	———	———	———	
	2S178										
	J82-714	Grab	L0.0002	L0.0003	L0.0003	0.006	27	2.70	445	0.89	Hnbd gabbro with ep
	2S179										
74	J82-271	1 ft Chip									
	2S060	20 ft long	L0.0003	L0.002	L0.002	0.003	13	46.20	2837	2.89	Massive magnetite
	J82-857	Rep									
	20877	Grab	L0.0002	L0.0003	L0.0003	0.006	43	7.15	1300	5.65	Massive magnetite
75	J82-270	Float									
	2S059	Grab	L0.0003	L0.002	L0.002	L0.003	8	21.30	1598	1.55	Iron stained hnbd pyroxenite
76	J82-268	Float									
	2S057	Grab	L0.0003	L0.002	L0.002	0.012	410	12.40	946	0.87	Pyroxenite with ml stain and cp
	J82-269	Grab	L0.0003	L0.002	L0.002	0.003	230	10.40	852	1.01	Ep along fracture in pyroxenite
	2S058										with py and cp
	J82-858	Rep									
	20878	Grab	L0.0002	L0.003	L0.003	0.006	13	G10.00	620	2.23	Hnbd pyroxenite with 10-15% mag

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)				Analyses[3] (units as shown)				Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
77	J82-726 2S191	SS	L0.0002	L0.003	L0.003						
78	J82-267 2S056	Float Grab	L0.0003	L0.002	L0.002	0.003	82	5.55	413	0.61	Diorite with ml stain
79	J82-263 2S052	PC	L0.0003	L0.002	L0.002	0.087	24	33.50	2611	1.89	
	J82-264 2S053	Float Grab	L0.0003	L0.002	L0.002	0.012	820	11.80	1332	1.35	Hnbd pyroxenite with ml stain and cp
	J82-265 2S054	0.25 ft chip 4 ft long	L0.0003	L0.002	L0.002	0.003	18	16.30	1585	1.26	Iron stained mag pyroxenite
	J82-266 2S055	Float Grab	L0.0003	L0.002	L0.002	0.017	1000	17.50	1865	1.49	Mag pyroxenite with ml stain and disseminated cp
80	J82-859 20879	Rep Grab	0.0003	L0.003	L0.003	0.006	63	4.65	1120	3.25	Mafic to ultramafic dike rock, orange weathering with mag and carbonate stringers
81	J82-727 2S192	Rep Grab	L0.0002	L0.0003	0.000*	0.017	1000	5.40	1030	1.81	Hnbd pyroxenite with cp
	J82-860 20880	Grab	L0.0002	L0.0003	L0.0003	0.052	3100	4.15	380	2.63	Higher grade hnbd pyroxenite with cp
			Ridge above Canyons #3, #4, #5								
82	J82-888 20756	Grab	L0.0002	L0.0003	L0.0003	0.006	6	6.60	605	2.05	Pyroxenite
83	J82-887 20754	Grab	L0.0002	L0.0003	L0.0003	0.006	8	7.25	590	1.26	Pyroxenite
84	J82-894 20762	Grab	0.009	L0.0003	L0.0003	0.076	4000	1.35	264	0.84	Diorite with ml stain
85	J82-886 20753	Grab	L0.0002	L0.0003	L0.0003	0.006	142	1.65	246	0.95	Diorite with ep
86	J82-892 20760	Grab	L0.0002	L0.0003	L0.0003	0.006	185	0.80	57	0.24	Anorthosite dike
87	J82-893 20761	Grab	L0.0002	L0.0003	L0.0003	0.006	78	1.65	144	0.61	Medium gray quartzite?

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)				Analyses[3] (units as shown)				Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
88	J82-787 2S249	Grab	0.001	L0.0003	L0.0003	0.006	71	1.70	320	0.81	Hnbd diorite with ep,chl alteration
							Canyon #3				
89	J82-861 20881	Grab	L0.0002	L0.0003	L0.0003	0.006	72	2.45	435	1.20	Hnbd gabbro with mag and po
	J82-862 20882	Grab	L0.0002	L0.0003	L0.0003	0.006	61	3.30	410	1.94	Basalt
90	J82-822 20835	Grab	0.003	L0.0003	L0.0003	0.006	90	3.25	318	1.19	3 ft wide mafic dike
91	J82-225 2S015	SS	L0.0003	L0.0002	L0.0002	L0.003	26	6.60	1184	1.04	
92	J82-832 20847	Grab	L0.0003	L0.0003	L0.0003	0.006	255	1.95	295	1.40	Iron stained gabbro with po
93	J82-224 2S014	SS	L0.0002	L0.0009	L0.0009	L0.003	27	10.60	1359	1.09	
94	J82-223 2S013	SS	L0.0002	L0.0009	L0.0009	L0.003	38	7.00	1047	0.95	
95	J81-1217 1S210	SS	L0.0002	L0.0009	0.0010*	L0.012	65	8.00	400	0.30	
	J81-1219 1S212	Float Grab	L0.0032	0.001	0 0.002	L0.20	450	8.00	500	0.60	Hnbd pyroxenite with ml stain and cp
96	J82-222 2S012	SS	L0.0002	L0.0009	L0.0009	0.055	36	6.00	894	0.96	
97	J82-221 2S011	SS	L0.0003	L0.002	L0.002	0.003	52	5.20	757	0.95	
98	J82-220 2S010	Float Grab	0.002	L0.0009	0.0024	0.085	495	7.20	1005	1.01	Hnbd pyroxenite with ml stain and cp
99	J82-218 2S008	Float Grab	0.013	L0.0009	L0.0009	0.029	1000	8.00	1128	1.15	do.
	J82-219 2S009	Float Grab	L0.0003	L0.002	L0.002	0.003	23	18.40	1986	1.79	Mag pyroxenite
100	J82-217 2S007	SS	L0.0002	L0.0009	0.0010	0.003	47	4.10	745	0.82	

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)				Analyses[3] (units as shown)				Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
101	J82-867	Float									
	20888	Grab	L0.0004	L0.0006	L0.0006	0.006	18 G	10.00	2730	2.88	Chips of mag from 3000 ft elevation to 1500 ft elevation Canyon #3
102	J82-216 2S006	SS	L0.0002	L0.0009	L0.0009	0.003	41	5.20	877	0.85	
103	J82-214 2S004	SS	L0.0003	L0.002	L0.002	0.003	34	6.40	855	0.83	
	J82-215	Float									
	2S005	Grab	L0.0002	L0.0009	L0.0009	0.012	820	8.10	1042	1.04	Mag & pyroxenite with ml stain and cp
104	J82-843	Float									
	20860	Grab	0.001	L0.0003	L0.0003	0.015	2500	8.00	268	1.10	Mag pyroxenite with ml stain and cp
105	J82-213 2S003	SS	L0.0003	L0.002	L0.002	0.003	55	4.00	844	0.89	
106	J82-211 2S001	Grab	L0.0002	L0.0009	0.0018	0.012	700	8.60	1160	1.18	Mag pyroxenite with ml and cp
107	J82-212 2S002	Grab	0.0008	L0.0009	L0.0009	0.041	2500	7.65	1065	1.36	Brecciated pyroxenite with cp
108	J82-821	Float									
	20834	Grab	0.000*	0.001	L0.0003	0.006	21	7.60	800	1.61	Red weathering pyroxenite
109	J82-844	Float									
	20861	Grab	L0.0002	L0.0003	L0.0003	0.006	31 G	10.00	306	6.29	Mag rubble
110	J82-845 20862	Grab	L0.0002	L0.0003	L0.0003	0.006	109	3.25	344	1.35	Hnbd gabbro
111	J82-846 20863	Grab	L0.0002	L0.0003	L0.0003	0.017	610	6.55	820	1.86	Hnbd pyroxenite with ml stain and cp
112	J82-869 20889	PC	———	———	———	———	———	———	———	———	
113	J82-866 20887	Grab	L0.0004	L0.0006	L0.0006	0.006	17	9.75	1386	1.61	Mag hnbd pyroxenite
114	J82-850 20867	Chip	L0.0002	L0.0003	L0.0003	0.006	435	7.45	675	2.00	Hnbd pyroxenite with ml stain
115	J82-849	Float									
	20866	Grab	0.001	0.001*	0.001	0.009	910	7.60	845	1.96	Hnbd, mag pyroxenite with cp,ml,ep, and iron stain

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)				Analyses[3] (units as shown)				Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
116	J82-848 20865	Grab	L0.0002	L0.0003	L0.0003	0.006	840	6.70	815	4.80	Plag hornblendite with sulfides, iron, and ml stain
117	J82-865 20886	Grab	L0.0002	L0.0003	L0.0003	0.006	358 G	10.00	655	1.70	Pyroxenite with ml stain and cp
118	J82-226 2S016	Soil Sample	L0.0002	L0.0009	L0.0009	L0.003	22	6.40	905	1.00	
	J82-227 2S017	1 ft chip 15ft long	L0.0002	L0.0009	L0.0009	0.003	11	6.40	938	0.99	Hnbd pyroxenite
						Basalt unit below Canyon #2					
119	J82-856 20876	Grab	L0.0002	L0.0003	L0.0003	0.006	86	2.50	465	1.64	Basalt with pyrrhotite
120	J82-830 20845	Float Grab	L0.0002	L0.0003	L0.0003	0.006	129	4.20	410	1.66	Hydrothermally altered basalt
121	J82-776 2S228	Rep Chip	L0.0002	L0.0003	L0.0003	0.006	295	3.80	286	0.99	Meta basalt
122	J81-179 1S032	Float Grab	L0.0002	L0.001	L0.001	L0.2	110	7.00	420	0.60	Near in place basalt with po
	J82-765 2S227	Rep Chip	L0.0002	L0.0002	L0.0003	0.006	78	3.05	565	2.76	Meta basalt
123	J82-764 2S226	Rep Chip	L0.0002	L0.0003	L0.0003	0.006	19	0.95	273	0.52	Meta basalt
124	J82-763 2S225	Rep Chip	L0.0002	L0.0003	L0.0003	0.006	65	1.35	317	1.65	Meta basalt
125	J82-762 2S224	Rep Chip	L0.0002	L0.0003	L0.0003	0.006	174	3.95	500	2.66	Meta basalt with sulfides
						Canyon #2					
126	J82-175 1S028	PC	0.000*	0.001*	L0.001	L0.200	82 G	10.00	760	0.60	
	J82-176 1S029	SS	0.000*	0.001*	L0.001	L0.200	66 G	10.00	900	0.80	
	J82-177 1S030	Float Grab	0.000*	L0.001	L0.001	L0.200	9	2.00	140	0.08	Qz boulder with py and po

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)				Analyses[3] (units as shown)				Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
126 thru 147	J81-178 1S031	Float Grab	0.000*	L0.002	L0.002	L0.200	21 G	10.00	2540	0.80	Composite of mag float from 825ft elevation to 1575ft elevation in Canyon #2
127	J81-173 1S026	PC	L0.0002	L0.001	L0.001	L0.200	82 G	10.00	1650	0.80	
	J81-174 1S027	SS	0.000*	L0.001	L0.001	L0.200	101 G	10.00	740	0.70	
128	J81-171 1S024	SS	L0.0002	L0.001	L0.001	L0.200	84 G	10.00	795	0.80	
	J81-172 1S025	Float Grab	0.000*	L0.001	L0.001	L0.200	7	3.00	93	0.02	Qz boulder with sulfides
129	J81-170 1S023	SS	0.000*	0.001*	L0.001	L0.200	71 G	10.00	801	0.70	
130	J82-670 2S135	Rep Chip	L0.0002	L0.0003	L0.0003	0.006	54	2.35	300	1.29	Ep diorite
							North Side Canyon #2				
131	J82-725 2S190	SS	L0.0002	L0.0003	0.001*	———	———	———	———	———	
132	J82-723 2S188	SS	L0.0002	L0.0003	0.001*	———	———	———	———	———	
	J82-724 2S189	Float Grab	0.002	0.001	0.001	0.015	900	5.40	726	1.65	Hnbd pyroxenite with cp
	J82-229 2S019	SS	L0.0002	L0.0009	L0.0009	0.003	330	55.00	741	0.99	
	J82-669 2S134	Float Grab	L0.0002	L0.0003	L0.0003	0.006	495	1.50	1020	1.82	Hnbd pyroxenite with cp
133	J82-228 2S018	SS	L0.0002	L0.0009	L0.0009	0.006	370	5.60	849	1.04	
	J82-722 2S187	Float Grab	0.019	L0.0003	L0.001*	0.015	1020	4.70	1025	1.27	Fine grained pyroxenite with hem and cp
	J82-668 2S133	Float Grab	L0.0002	L0.0003	L0.0003	0.006	410	6.80	1300	2.13	Pyroxenite with ml stain

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)				Analyses[3] (units as shown)				Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
134	J82-721 2S186	SS	L0.0002	L0.0003	L0.0003	———	———	———	———	———	
					South Side Canyon #2						
135	J82-823 20836	Random Chip	L0.0002	L0.0003	L0.0003	0.012	1170	6.45	565	1.01	Mag hornblendite with ml stain & cp
136	J82-824 20837	Grab	L0.0002	0.001*	L0.0003	———	———	———	———	———	Mag hnbd pyroxenite with ml and cp
137	J82-847 20864	SS	L0.0004	L0.0006	L0.0006	———	———	———	———	———	
138	J82-825 20838	Grab	L0.0002	0.001*	L0.0003	0.006	341	7.40	480	1.64	Mag pyroxenite
139	J82-826 20839	Random Chip	L0.0002	L0.0003	L0.0003	0.023	1230	7.45	685	2.03	Pyroxenite with ml stain
					Canyon #2						
140	J82-168 1S021	PC	0.000*	0.001*	0.002*	L0.200	66 G	10.00	1230	1.6	
	J82-169 1S022	SS	L0.0002	L0.001	L0.001	———	———	———	———		——— ———
	J82-671 2S136	Rep Chip	L0.0002	L0.0003	L0.0003	0.015	1250	3.40	625	2.02	Hnbd pyroxenite with ml and cp
141	J82-854 20874	Float Grab	0.001	0.001*	0.000*	0.020	1340	7.20	710	2.16	Hnbd pyroxenite with ml
	J82-855 20875	Float Grab	L0.0002	L0.0003	0.001*	0.015	1540	7.65	625	1.26	Hnbd pyroxenite with ml and cp
142	J81-166 1S019	High grade Grab	0.002	0.001*	0.001*	L0.200	11300	10.00	625	0.60	Pyroxenite with cp and ml
	J81-167 1S020	SS	L0.0002	0.001*	L0.001	L0.200	97 G	10.00	815	0.80	
143	J82-672 2S137	PC	0.0003	L0.001	L0.001	———	———	———	———	———	
	J82-254 2S043	PC	L0.0003	L0.002	L0.002	0.003	36	43.50	269	1.55	

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton) Au	Pt	Pd	Ag	Analyses[3] (units as shown) Cu ppm	Fe %	V ppm	Ti %	Comments
							Canyon #2 Lower Copper Area				
144	J82-245	Random									
	2S035	Chip 100ft long	L0.0003	L0.002	L0.002	0.006	540	18.50	1216	1.22	Mag hnbd pyroxenite with cp
	J82-246	Grab	L0.0003	L0.002	L0.002	0.012	850	13.70	1046	1.08	Mag hnbd pyroxenite with cp
	2S036										
	J82-247	Random									
	2S037	Grab 100ft long	L0.0003	L0.002	L0.002	0.017	585	19.70	1305	1.26	Mag hnbd pyroxenite with cp
	J82-248	Float									
	2S038	Grab	L0.0003	L0.002	L0.002	0.017	730	16.50	1081	1.12	Mag hnbd pyroxenite with cp near in place
	J82-249	Float									
	2S039A	Grab	L0.0003	L0.002	L0.002	0.017	1100	16.20	1056	1.07	Mag hnbd pyroxenite with cp near in place
	J82-250	Float									
	2S039B	Grab	L0.0003	L0.002	L0.002	0.009	495	17.30	1183	1.17	Mag hnbd pyroxenite with bleb of cp
	J82-251	Random									
	2S040	Chip 175ft high	L0.0003	L0.002	L0.002	0.009	950	14.80	1022	0.99	Mag pyroxenite with cp
	J82-810	Bulk									
	2S272	193 lb	0.0005	0.0010	———	0.018	850	25.50		1.54	Mag hnbd pyroxenite with cp
							Canyon #2				
145	J81-164	SS	L0.0002	0.002*	L0.001	0.300	130	10.00	695	0.60	
	1S017										
	J81-165	Float									
	1S018	Grab	0.010	0.031	0.001*	L0.200	2800	7.00	255	0.40	Hnbd gabbro with knot of cp
146	J82-252	Grab	L0.0003	L0.002	L0.002	0.023	1150	15.60	1092	0.98	Mag pyroxenite with ml stain & cp
	2S041										
	J82-253	Grab	L0.0003	L0.002	L0.002	0.023	870	15.90	995	1.0.	Mag pyroxenite with ml stain & cp
	2S042										
147	J81-161	Grab									
	1S014	0.3 ft	0.000*	L0.001	L0.001	L0.200	455	2.00	231	0.20	Shear zone pinch and swell with calc, qz, and cp

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton) Au	Pt	Pd	Ag	Analyses[3] (units as shown) Cu ppm	Fe %	V ppm	Ti %	Comments
147	J81-162 1S015	PC	L0.0002	0.001*	L0.001	L0.200	48 G	10.00	1330	0.04	
	J81-163 1S016	SS	L0.0002	L0.001	L0.001	———	———	———	———	———	
148	J82-675 2S140	Grab	L0.0002	L0.0003	L0.0003	0.006	154	1.25	265	0.54	Schistose mafic xenolith ± 50ft across
	J82-820 20833	Grab	L0.0002	L0.0003	L0.0003	0.006	305	0.50	37	0.14	Anorthosite cobble from within schistose mafic xenolith ± 50ft across. Some cp, hem, and mag
	J82-851 20869	Grab	L0.0002	0.001*	L0.0003	0.006	183	1.45	191	0.71	Schistose mafic xenolith from above
149	J82-310 2S099	Float Grab	L0.0002	L0.001	0.004	0.070	12500	3.50	333	0.49	Qz feldspar in pyroxenite with cp
							Canyon #2 upper copper area				
150	J81-160 1S013	Float Grab	0.001	L0.001	L0.001	L0.200	2150 G	10.00	750	0.80	Hnbd pyroxenite with ml stain po and cp
	J82-710 2S175	SS	L0.0002	L0.0003	L0.0003	0.006	102	4.15	695	1.26	
	J82-711 2S176	Rep Chip	L0.0002	L0.0003	L0.0003	0.006	22 G	10.00	1630	3.12	Mag pyroxenite with hem
	J82-841 20858	PC	L0.0001	0.001	L0.001	———	———	———	———	———	
151	J81-158 1S012A	Rep Chip	0.000*	L0.001	L0.001	L0.200	49	8.00	560	0.04	Iron stained mafic dike
	J81-159 1S012B	Grab	L0.0002	L0.001	L0.001	L0.200	21	10.00	705	0.50	Fault gouge
	J82-759 2S221	Float Grab	L0.0002	L0.0003	L0.0003	0.047	1530	9.50	2300	3.85	Mag pyroxenite with cp
	J82-760 2S222	Bulk high grade sample 189 lb	0.0017	L0.0003	———	0.017	1820	19.50		1.13	Bulk sample of hnbd pyroxenite with mag, cp, and ml, float and in place

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)				Analyses[3] (units as shown)				Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
152	J82-704	Float									
	2S169	Grab	L0.0002	L0.0003	L0.0003	0.006	331	5.70	100	1.43	Dunite
153	J82-709	Float									
	2S174	Grab	L0.0002	L0.0003	L0.0003	0.006	1500	4.75	875	2.63	Pyroxenite with cp
154	J82-708	Float									
	2S173	Grab	L0.0002	L0.0003	L0.0003	0.006	420	5.20	905	1.68	Coarse grained pyroxenite with mag and cp
155	J82-705	Chip 0.2ft									
	2S170	long	L0.0002	L0.0003	L0.0003	0.006	31	0.70	585	0.10	Anorthosite dike
	J82-706	Grab	L0.0002	L0.0003	L0.0003	0.006	14	8.50	1200	1.79	Mag pyroxenite
	2S171										
	J82-707	Float									
	2S172	Grab	L0.0002	L0.0003	L0.0003	0.006	730	4.35	855	1.80	Hnbd pyroxenite with cp
156	J82-853	Float									
	20873	Grab	0.001	L0.0003	L0.0003	0.006	840	2.80	116	2.40	Coarse grained hnbd pyroxenite with blebs of cp
157	J82-839	Float									
	20856	Grab	L0.0002	L0.0003	L0.0003	0.006	22 G	10.00	310	3.94	Segregation of massive mag in hnbd pyroxenite
	J82-840	Rep chip									
	20857	100 sq ft	L0.0002	0.001*	L0.0003	0.006	289	5.95	600	1.71	Hnbd pyroxenite with some ml and cp
158	J82-719	Float									
	2S184	Grab	L0.0002	L0.0003	L0.0003	0.009	690	4.90	815	1.59	Pyroxenite with ml and cp
	J82-720	Chip 1 ft									
	2S185	long	L0.0004	0.002	0.001*	0.026	2230	2.05	168	0.08	Qz feldspar vein with blebs of cp
159	J81-155	Grab	0.000*	L0.001	0.001*	L0.200	1770	10.00	560	0.30	Mag pyroxenite with po and cp at adit
	1S009										
	J81-156	Grab	0.000*	L0.001	L0.001	L0.200	16 G	10.00	1910	0.80	Mag pyroxenite at adit
	1S010										
	J81-157	Chip 2.2ft									
	1S011	long	L0.0002	L0.001	L0.001	L0.200	190	5.00	410	0.02	Pegmatite pyroxenite at adit
160	J82-703	Random									
	2S168	Grab	L0.0002	L0.0003	L0.0003	0.006	105	1.70	320	0.46	Hnbd gabbro

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)				Analyses[3] (units as shown)				Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
161	J82-308	High grade									
	2S097	Grab	L0.0004	0.014	0.011	0.143	41000	12.90	766	1.08	Pyroxenite with ep and cp
	J82-309	Grab									
	2S098		L0.000*	L0.001*	0.0003	0.015	950	11.70	1078	2.15	Pyroxenite with cp
162	J82-852	Grab	L0.0002	L0.0003	L0.0003	0.006	17	5.45	127	1.34	Coarse grained hnbd pyroxenite
	20871										with mag
163	J82-701	Chip 1.0ft									
	2S166	long	L0.0002	L0.0003	L0.0003	0.006	5	0.25	70	0.05	Anorthosite dike
	J82-702	Rep chip									
	2S167	5 ft long	L0.0004	L0.0006	L0.0006	0.006	15 G	10.00	2000	4.07	Mag pyroxenite
164	J82-306	Float									
	2S095	Grab	L0.0002	L0.001	L0.001	0.012	1400	13.20	1193	1.32	Mag pyroxenite with cp
	J82-307	Float									
	2S096	Grab	0.001*	L0.002	L0.002	0.017	1000	21.50	2458	2.13	Mag pyroxenite with cp
165	J82-303	Grab	L0.0003	L0.002	L0.002	0.023	1500	14.10	1112	1.15	Mag pyroxenite with cp
	2S092										
	J82-304	Grab	L0.0002	0.001*	0.002*	0.003	490	12.90	1059	1.10	Mag pyroxenite with cp
	2S093										
	J82-305	Float									
	2S094	Grab	0.003	0.001*	0.001*	0.017	730	19.50	1885	1.67	Mag pyroxenite with cp
166	J82-302	Float									
	2S091	Grab	0.001*	L0.002	L0.002	0.012	430	26.30	2258	2.36	Mag hnbd pyroxenite with cp
							Canyon #1				
167	J82-322	SS	L0.0002	0.001*	0.002*	L0.003	155	10.90	1096	1.23	
	2S111										
168	J82-321	SS	L0.0002	0.001*	0.002*	L0.003	150	16.30	1422	1.24	
	2S110										
169	J82-656	PC	L0.0001	L0.001	L0.001	———	———	———	———	———	
	2S121										
170	J82-337	SS	0.002	L0.0003	L0.0003	0.009	350	7.50	613	0.94	
	2S120										
171	J82-320	SS	L0.0002	L0.001	0.001	0.003	120	10.00	1015	1.12	
	2S109										

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton) Au	Pt	Pd	Analyses[3] (units as shown) Ag	Cu ppm	Fe %	V ppm	Ti %	Comments
172	J82-717	High grade bulk sample	0.0005	0.0003	———	0.018	1300	19.40	———	1.26	Near in place float, hnbd pyroxenite with cp
	2S182										
	J82-718	Float									
	2S183	Grab	L0.0004	0.001*	0.002	0.006	9	1.60	95	0.05	Gabbro with pyrite
	J82-657	PC	L0.0001	L0.001	L0.001	———	———	———	———	———	
	2S122										
173	J82-316	Float									
	2S105	Grab	0.001	0.0003	0.0003	0.035	3200	5.70	224	0.616	Gabbro with ml and cp in mafic band
						South side Canyon #1					
174	J81-1224	High									
	1S217	grade grab	0.0022	0.0015	0.0014	L0.20	3000	10.00	500	0.05	Pyroxenite with cp, bn, and mag
	J82-300	Rep chip									
	2S089	1ft long	0.0002	0.0016	0.0004	0.015	1100	13.20	1119	1.094	Pyroxenite with cp, bn, and mag
	J82-313	0.5ft chip									
	2S102	20ft long	0.0006	0.002	0.003	0.012	1000	12.60	1119	1.04	Pyroxenite with cp, bn, and mag
	J82-314	Chip 1ft									
	2S103	long	0.0009	0.0016	0.002	0.032	2200	13.20	745	1.186	Pocket of cp and bn mineralization
	J82-315	Rep grab									
	2S104	36 sq ft area	L0.0004	L0.0006	L0.0006	0.017	1450	13.60	1159	0.982	Pyroxenite with cp, bn, and mag
	J82-728	Bulk									
	2S193s	sample	0.0009	0.0005	———	0.022	1300	19.70	———	1.16	55 lb bulk sample, same as 2S089
	J82-729	Bulk									
	2S194s	sample	0.0006	L0.0003	———	0.018	1400	19.10	———	1.13	18 lb higher grade portion of 2S193
	J81-1228	.25 ft									
	1S221A	chip 12ft long	L0.0002	L0.0009	L0.0009	L0.200	450	10.00	600	0.60	Hnbd pyroxenite with cp
	J81-1229	Chip 8ft									
	1S221B	long	0.0003*	L0.0009	L0.0009	0.30	900	8.00	600	0.40	Hnbd pyroxenite with cp

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)				Analyses[3] (units as shown)				Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
175	J82-676	.5ft chip									
	2S141	12ft long	0.0003	0.0015	0.001	0.012	1115	4.90	910	1.82	Pyroxenite with cp
	J82-677	.5ft chip									
	2S142	4ft long	L0.0002	L0.0003	L0.0003	0.006	68	2.10	230	0.91	Gabbro/diorite
	J82-678	.25ft chip									
	2S143	2.5ft long	L0.0002	L0.0003	L0.0003	0.006	345	2.90	360	1.36	Fault zone sheared diorite, fault gouge with ep
	J82-679	.5ft chip									
	2S144	10ft long	0.0004	0.0015	0.0004	0.012	1120	5.15	850	1.86	Pyroxenite with cp
	J82-680	1ft chip									
	2S145	15ft long	0.0006	0.0016	0.0016	0.006	785	5.30	1000	2.60	Pyroxenite with cp
	J82-681	1ft chip									
	2S146	11ft long	0.0003	0.0019	0.0016	0.006	950	5.40	1000	1.87	Pyroxenite with cp
	J82-682	1ft chip									
	2S147	9ft long	0.001	L0.0003	L0.0003	0.006	555	4.90	700	1.16	Pyroxenite with cp
176	J81-1225	Chip 5ft									
	1S218	long	0.0010	0.0021	0.0038	L0.200	8000	7.00	500	0.06	Pyroxenite with cp, bn, and mag
	J81-1226	High grade									
	1S219	grab	0.0016	0.0071	0.0055	L0.200	5600	7.00	400	0.30	Pyroxenite with cp, bn, and mag
	J82-311	High grade									
	2S100	grab	0.0012	0.0073	0.0067	0.105	6700	8.50	793	0.70	Pyroxenite with cp and bn (replicate 1S219)
	J82-312	Chip 5ft									
	2S101	long	0.0008	0.0006	0.0003	0.055	4000	8.40	912	1.106	Approx. replicate 1S218
	J82-730	High grade									
	2S195	grab 16 lb	0.0014	0.0085	0.0085	0.099	8300	3.10	600	0.93	Sample approx. replicate 1S219
	J82-761	High									
	2S223	grade grab 16 lb	0.0004	0.0015	0.0004	0.012	1430	6.10	805	1.51	Sample approx. replicate 1S219
	J81-1227	3ft chip									
	1S220	70ft long	L0.0002	L0.0009	L0.0009	L0.200	430	8.00	500	0.40	Pyroxenite with sparse cp

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton) Au	Pt	Pd	Ag	Analyses[3] (units as shown) Cu ppm	Fe %	V ppm	Ti %	Comments
							North side Canyon #1				
177 thru 178	J82-317 2S106	Random grab 12 sq ft area	L0.0002	0.001*	0.002*	0.015	1500	11.90	1108	1.18	Hnbd pyroxenite with ml stain, cp, and mag
	J82-318 2S107	Chip .5ft long	L0.0002	0.001*	L0.001	0.017	1300	13.00	1116	1.25	Hnbd pyroxenite with cp,ml stain, and mag
	J82-319 2S108	Grab	L0.0002	L0.001	L0.001	0.012	740	12.95	1062	1.13	Hnbd pyroxenite with cp, ml stain, and mag
	J82-323 2S112A	.5ft chip 6ft long	L0.0002	0.001*	L0.001	L0.003	300	8.40	611	1.00	Hnbd pyroxenite with cp and ep
	J82-324 2S112B	Chip 1.1ft long	L0.0002	0.001*	0.001*	L0.003	610	6.50	963	1.02	Iron stained fine grained rock with cp
	J82-325 2S112C	.5ft chip 9ft long	L0.0002	0.001*	0.001*	0.009	840	11.80	1214	1.27	Hnbd pyroxenite with mag and cp
	J82-326 2S113A	.5ft chip 11ft long	L0.0002	0.001*	0.001*	0.006	570	7.50	768	1.06	Hornblendite with cp and po
	J82-327 2S113B	.5ft chip 7ft long	0.001	L0.002	L0.002	0.012	1200	12.50	1091	1.28	Hornblendite with cp and po
	J82-328 2S114A	.5ft chip 5ft long	L0.0002	0.001*	0.001*	0.006	800	9.80	844	1.01	Hornblendite with cp and po
	J82-329 2S114B	.5ft chip 4.6ft long	L0.0002	0.001*	L0.001	0.009	1150	11.10	1062	1.19	Hnbd pyroxenite with cp
	J82-330 2S115A	.5ft chip 10ft long	L0.0002	L0.001	0.001*	0.012	1150	12.60	1107	1.13	Hnbd pyroxenite with cp
	J82-331 2S115B	.5ft chip 10ft long	L0.0002	L0.001	0.001*	0.015	1600	13.30	1019	0.89	Hnbd pyroxenite with cp
	J82-332 2S116	.5ft chip 6ft long	L0.0002	0.001*	0.002*	0.015	1550	12.90	992	0.87	Hnbd pyroxenite with cp

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)			Analyses[3] (units as shown)					Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
177	J82-333	.5ft chip									
thru	2S117	4ft long	L0.0002	0.002*	0.002*	0.008	840	11.50	986	0.89	Hnbd pyroxenite with cp.
178	J82-334	1ft chip									
	2S118A	18ft long	L0.0002	0.002*	0.002*	0.003	430	8.80	673	0.82	Hnbd diorite with ep and cp
	J82-335	1ft chip									
	2S118B	16ft long	L0.0002	0.002*	0.002*	0.003	195	6.50	506	0.56	Hnbd diorite with ep
	J82-336	Grab	L0.0002	L0.0003	L0.0003	0.006	1250	13.90	872	1.23	Hnbd pyroxenite with ep and cp
	2S119										
	J82-741	1ft chip									
	2S205	17ft long	L0.0002	L0.0003	L0.0003	0.006	1150	5.50	1000	1.81	Hnbd pyroxenite with cp
	J82-742	1ft chip									
	2S206	20ft long	L0.0002	L0.0003	L0.0003	0.012	1050	5.40	940	1.50	Hnbd pyroxenite with cp
178	J82-684	1ft chip									
	2S149	9ft long	L0.0002	L0.0003	L0.0003	0.006	890	4.70	960	1.42	Pyroxenite with po and cp
	J82-685	1ft chip									
	2S150	15ft long	———	———	———	———	———	———	———	———	Pyroxenite with po and cp
	J82-686	1ft chip									
	2S151	15ft long	0.003	L0.0003	L0.0003	0.023	1670	6.30	1110	1.57	Pyroxenite with cp
	J82-687	Rep chip									
	2S152	8ft long	0.001	L0.0003	L0.0003	0.017	1440	5.10	825	1.66	Pyroxenite with cp
	J82-688	Grab	0.001	L0.0003	L0.0003	0.009	1470	5.60	880	1.98	Hnbd pyroxenite with cp
	2S153										
179	J82-683	Grab	L0.0002	L0.0003	L0.0003	0.006	1200	4.40	655	2.86	Hnbd pyroxenite with cp
	2S148										
180	J82-743	1ft chip									
	2S207	11ft long	L0.0002	L0.0003	L0.0003	0.012	1130	5.15	900	1.27	Hnbd pyroxenite with ml, cp, and ep
	J82-746	1ft chip									
	2S208	7ft long	L0.0002	L0.0003	L0.0003	0.015	880	6.80	1140	1.35	Hnbd pyroxenite with ml and cp
	J82-744	High grade									
	2S207A	Grab	L0.0002	L0.0003	L0.0003	0.642	6950	3.85	655	0.88	Hnbd pyroxenite with coarse cp
	J82-745	Grab	L0.0002	L0.0003	L0.0003	0.044	3050	4.00	660	1.07	Hnbd pyroxenite with coarse cp
	2S207B										

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)				Analyses[3] (units as shown)				Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
180	J82-747	1ft chip									
	2S209	12ft long	L0.0002	L0.001	L0.001	0.023	1300	6.35	1080	1.80	Hnbd pyroxenite with ml and cp
	J82-748	1ft chip									
	2S210	6ft long	L0.0002	L0.0003	L0.0003	0.008	1420	6.00	1120	1.59	Pyroxenite with ml and cp
	J82-749	1ft chip									
	2S211	10ft long	L0.0002	L0.0003	L0.0003	0.015	1390	5.85	1110	1.90	Pyroxenite with ml and cp
181	J82-750	1ft chip									
	2S212	20ft long	L0.0002	L0.0003	L0.0003	0.015	955	5.65	990	1.39	Pyroxenite with ml and cp
	J82-751	Rep chip									
	2S213	2ft long	L0.0002	L0.0003	L0.0003	0.023	1630	5.60	950	2.07	Pyroxenite with ml and cp
	J82-752	1ft chip									
	2S214	9ft long	L0.0002	L0.0003	L0.0003	0.012	720	5.65	1020	1.47	Hnbd pyroxenite with cp
	J82-753	1ft chip									
	2S215	14ft long	L0.0002	L0.0003	L0.0003	0.006	1180	6.65	1050	1.73	Hnbd pyroxenite with cp
	J82-754	1ft chip									
	2S216	25ft long	L0.0002	L0.0003	L0.0003	0.006	910	6.30	1130	1.63	Hnbd pyroxenite with cp
182	J82-758	Grab	L0.0002	L0.0003	L0.0003	0.020	1670	5.85	1090	1.60	Hnbd pyroxenite with cp
	2S220										
183	J82-756	1ft chip									
	2S218	20ft long	L0.0002	L0.0003	L0.0003	0.006	378	7.50	715	1.53	Hnbd pyroxenite with cp
	J82-757	Grab	L0.0002	L0.0003	L0.0003	0.009	399	5.60	690	1.32	Hnbd pyroxenite with cp
	2S219										
184	J82-755	Grab	L0.0002	L0.0003	L0.0003	0.006	52	6.05	1000	1.32	Hnbd pyroxenite
	2S217										
						Canyon #1					
185	J81-1236	Float									
	1S228	grab	L0.0002	L0.001	L0.001	L0.20	730	8.00	500	0.30	Pyroxenite with ml and cp
	J81-1237	SS	L0.0002	L0.001	L0.001	0.020	88	6.00	400	0.30	
	1S229										
186	J82-658	PC	L0.0001	L0.001	L0.001	——	——	——	——	——	
	2S123										
	J82-659	Float									
	2S124	Grab	L0.0002	L0.0003	L0.0003	0.012	900	5.40	820	2.06	Pyroxenite with ml and cp
	J82-660	Float									
	2S125	Grab	L0.0002	L0.0003	0.001*	0.023	1360	6.10	885	2.16	Pyroxenite with ml and cp

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton) Au	Pt	Pd	Ag	Analyses[3] (units as shown) Cu ppm	Fe %	V ppm	Ti %	Comments
187	J81-1235 1S227	SS	0.002*	0.005*	0.007	0.041	84	7.00	500	0.40	
188	J82-667 2S132	SS	L0.0002	L0.0003	L0.0003	0.006	130	3.80	850	1.68	
189	J81-1233 1S225	Float Grab	0.003	L0.001	L0.001	L0.200	2200	4.00	200	0.08	Gabbro with disseminated po and cp
	J82-1234 1S226	Grab	L0.0002	L0.001	L0.001	L0.200	860	8.00	300	0.01	Iron stained pyroxenite with po and cp
	J82-665 2S130	Float Grab	L0.0002	L0.0003	L0.0003	0.009	1375	4.60	815	2.12	Pyroxenite with disseminated cp
	J82-666 2S131	PC	L0.0001	0.004	L0.001	———	———	———	———	———	
190	J82-663 2S128	PC	0.0002	L0.001	L0.001	———	———	———	———	———	
	J82-664 2S129	Float Grab	L0.0002	L0.0003	L0.0003	0.012	1720	4.40	725	2.39	Hnb pyroxenite with cp and ml
191	J81-1230 1S222	Float Grab	L0.0002	L0.0009	L0.0009	L0.200	240	10.00	800	0.80	Hnbd pyroxenite with ml
192	J81-1231 1S223	Float Grab	0.0003*	L0.0009	L0.0009	L0.200	960	7.00	300	0.40	Hnbd diorite with po and cp
	J81-1232 1S224	SS	0.0002	L0.0009	L0.0009	0.047	43	7.00	500	0.40	
193	J82-661 2S126	Float Grab	L0.0002	L0.0003	L0.0003	0.038	4850	3.10	610	1.55	Hnbd pyroxenite with cp and ep
	J82-662 2S127	Float Grab	L0.0002	L0.0003	L0.0003	0.035	3600	3.05	570	1.37	Hnbd pyroxenite with cp and ep
194	J82-833 20848	High grade grab	L0.0002	L0.0003	L0.0003	L0.006	1760	4.00	307	1.54	Hnbd-pyx gabbro with ml
	J82-834 20849	Grab	L0.0002	L0.0003	L0.0003	0.006	4800	0.60	53	0.06	Feldspathic dike rock with ml stain
	J82-835 20850	High grade grab	L0.0002	L0.0003	L0.0003	0.006	625	4.05	480	1.78	Plagioclase hnbd pyroxenite with cp,po, and py

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)				Analyses[3] (units as shown)				Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
195	J82-836 20851	High grade grab	L0.0002	L0.0003	L0.0003	0.006	452	3.30	475	1.05	Plagioclase hnbd gabbro with cp,po, and ml
196	J82-837 20853	Grab	L0.0002	L0.0003	L0.0003	0.006	23	8.20	480	1.80	Fine grained sill, andesitic?
	J82-838 20854	Grab	L0.0002	L0.0003	L0.0003	0.006	9	6.80	399	2.03	Hnbd pyroxenite with mag
							Southern area				
197	J82-786 2S248	Grab	L0.0002	L0.0003	L0.0003	0.006	38	5.55	775	1.13	Hnbd pyroxenite with mag
198	J82-789 2S251	Grab	0.004	L0.0003	L0.0003	0.029	4620	4.10	265	0.99	Altered hnbd diorite with disseminated cp and po. Alteration clinozoisite and chlorite
199	J82-788 2S250	Float Grab	L0.0002	L0.0003	L0.0003	0.006	17	3.20	865	1.64	Hornblendite with ep and mag
	J82-791 2S253	Float Grab	L0.0002	L0.0003	L0.0003	0.006	16 G	10.00	1240	2.92	Mag pyroxenite
200	J82-790 2S252	SS	L0.0002	L0.0003	L0.0003	———	———	———	———	———	
201	J82-731 2S196	Chip .3ft long	L0.0002	L0.0003	L0.0003	0.006	41	0.65	65	0.08	Altered plagioclase with ep and chl
	J82-732 2S197	Grab	L0.0002	L0.0003	L0.0003	0.006	200	2.80	450	0.82	Hnbd diorite with ep and cl
202	J82-733 2S198	Float Grab	L0.0002	L0.0003	L0.0003	0.006	8	9.35	2100	2.36	Mag pyroxenite
203	J82-301 2S090	Grab	L0.0003	L0.002	0.0004	0.006	720	7.50	606	0.803	Ep hnbd diorite with chl and cp
204	J82-864 20885	Grab	L0.0002	L0.0003	L0.0003	0.006	72	1.40	65	2.43	Hnbd pyroxenite dike in foliated hnbd diorite country rock
205	J82-863 20884	Grab	L0.0002	L0.0003	L0.0003	0.006	92	2.25	255	1.09	Hnbd diorite

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton) Au	Pt	Pd	Ag	Analyses[3] (units as shown) Cu ppm	Fe %	V ppm	Ti %	Comments
206	J82-772 2S234	Chip .7ft long	L0.0002	L0.0003	L0.0003	0.006	45	0.15	20	0.06	Hydrothermal vein rock in shear zone
	J82-773 2S235	Chip 1ft long	L0.0002	L0.0003	L0.0003	0.006	160	3.45	316	1.12	Prochlorite, ep, and clinozoisite altered hnbd diorite
207	J82-776 2S238	Chip 1ft long	0.002	0.000*	0.001	0.038	47000	2.85	373	0.37	Hydrothermal vein rock consisting of plagioclase replaced by sericite ep, ml, hem, cp, and bn
	J82-777 2S239	Grab	L0.0002	L0.0003	L0.0003	0.023	3800	2.45	520	1.17	Mafic segregation around 2S238 vein. Hornblendite with chl and ep alteration and cp
	J82-778 2S240	Chip .5ft long	0.001	0.001	L0.0003	0.280	58500	2.75	260	0.18	Hydrothermal vein rock consisting of ep,tr bn, cp, and hem
	J82-779 2S241	Grab	———	———	———	0.006	4650	2.40	470	0.78	Altered hnbd diorite. Plagioclase to clinozoisite with ep, tr, and cp
	J82-780 2S242	High grade grab	0.14	L0.0003	L0.0003	0.320	30000	0.80	37	1.69	Higher grade portion of 2S238
208	J82-774 2S236	Float Grab	L0.0002	L0.0003	L0.0003	0.006	98	3.25	350	1.60	Iron stained hydrothermal rock
	J82-775 2S237	Float Grab	L0.0002	L0.0003	L0.0003	0.006	341	2.70	442	1.55	Hnbd diorite with ml and cp
	J82-781 2S243	Chip .5ft long	0.005	L0.0003	L0.0003	0.554	65000	3.60	445	1.12	Hydrothermal vein rock with ml, cp, and bn
209	J81-1197 1D106	Float Grab	0.166	L0.0003	L0.0003	1.900	39000	7.00	600	0.40	Hydrothermal rock with ml and cp
210	J82-782 2S244	Grab	0.005	L0.0003	L0.0003	0.006	400	1.80	210	0.66	Calcite and chalcedony from iron stained zone
	J82-783 2S245	Chip .5ft long	0.120	0.001*	L0.0003	0.219	1000	3.00	285	0.61	Hydrothermal rock, mostly limonite with cp, po, and ep

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)				Analyses[3] (units as shown)				Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
210	J82-784 2S246	Chip 1ft long	0.090	L0.0003	L0.0003	0.125	19600	4.40	380	0.69	Hydrothermal rock with ml, az, qz, and cp
211	J82-831 20846	Float Grab	L0.0002	L0.0003	L0.0003	0.006	37	2.40	184	0.19	Altered fine grained iron stained volcanic rock
212	J82-874 20868	Grab	L0.0002	L0.003	L0.003	0.006	158	2.90	329	1.28	Iron stained altered hnbd diorite
213	J82-767 2S229	Chip 20ft long	L0.0002	L0.0003	L0.0003	0.006	156	2.80	201	0.53	Fine grained hnbd diorite
	J82-768 2S230	Chip 1.5ft long	L0.0002	L0.0003	L0.0003	0.006	13	0.25	20	L0.05	Hydrothermal vein rock
	J82-769 2S231	Chip 1.5ft long	L0.0002	L0.0003	L0.0003	0.006	138	3.35	272	1.15	Ep hnbd gabbro with po
	J82-770 2S232	Chip 1ft long	0.030	0.002	0.005	0.671	31500	0.50	22	0.06	Hydrothermal vein with bn,cp, and ml
	J82-771 2S233	Chip .5ft long	0.02	0.003	0.008	0.108	12600	0.65	50	0.06	Hydrothermal vein with bn, cp, and ml
214	J82-829 20843	Grab	L0.0002	L0.0003	L0.0003	0.006	293	3.10	300	1.13	Foliated hnbd diorite
215	J82-785 2S247	Grab	0.005	L0.0003	L0.0003	0.105	4230	1.00	190	0.57	Hydrothermal ep vein rock with ml and az
216	J82-737 2S201	Float Grab	L0.0002	L0.0003	L0.0003	0.006	194	2.70	380	1.07	Ep hnbd diorite
	J81-1198 1D110	Float Grab	0.010	L0.001	L0.001	0.200	9800	8.00	400	0.40	Hydrothermal rock with ml, cp, and bn
217	J82-738 2S202	Float Grab	L0.0002	L0.0003	L0.0003	0.006	1770	3.10	450	1.29	Ep hnbd gabbro
	J82-739 2S203	Float Grab	L0.0002	L0.0003	L0.0003	0.006	470	2.45	360	1.08	Hnbd diorite with ml
	J82-740 2S204	Float Grab	L0.0002	L0.0003	L0.0003	0.006	870	2.65	400	0.85	Hnbd diorite with ml

See footnotes at end of appendix A

Map number	Lab & field sample number	Sample type[1] & length (ft)	Analyses[2] (oz/ton)				Analyses[3] (units as shown)				Comments
			Au	Pt	Pd	Ag	Cu ppm	Fe %	V ppm	Ti %	
218	J82-792	Float									
	2S254	Grab	0.004	L0.0003	L0.0003	0.038	5200	3.90	570	2.42	Hornblendite with cp and ml
	J82-793	Float									
	2S255	Grab	L0.002	L0.0003	L0.0003	0.085	580	5.15	405	1.90	Iron stained hydrothermal rock
	J82-794	Float									
	2S256	Grab	0.004	L0.0003	L0.0003	0.032	2200	4.50	770	2.46	Iron stained hydrothermal rock, clinozoisite ep, and hnbd with cp and po
219	J82-798	Chip .2ft									
	2S260	long	0.001	L0.0003	L0.0003	1.37	560	1.65	19	0.14	Qz vein with py,cp,po hosted in hnbd pyroxenite
220	J82-795	Grab	0.003	L0.0003	L0.0003	0.131	10000	2.60	480	1.89	Hornblendite with ml and cp
	2S257										
	J82-796	Grab	L0.0002	L0.0003	L0.0003	0.006	68	2.75	313	1.03	At hnbd diorite/hnbd pyroxenite contact
	2S258										
221	J82-797	Grab	L0.002	0.000*	0.001*	0.017	1120 G	10.00	1580	4.95	Hnbd diorite with mag and ml stain
	2S259										

See footnotes at end of apppendix A

1. SS - Stream sediment sample
   PC - Panned concentrate sample
   Rep - Representative

   For example: chip 5ft long means a continuous chip sample 5 ft long;
   0.5ft chip 12 ft long means a 0.5 ft spaced chip sample
   12 ft long

2. Au, Pt, and Pd analyses were by Fire Assay - Atomic Absorption, (FA-AA) Inductively Coupled Argon Plasma Spectroscopy, (ICP) or Fire Assay (FA)

   Ag, Cu, Fe, V, and Ti analyses were by Atomic Absorption or x-ray fluorescence

   Where a number of analyses for either Au, Pt, and Pd were completed for a sample, the value estimated to be most accurate from available data is given.

   Sample analyses were by the Bureau of Mines Research Center in Reno, Nevada, TSL Laboratories in Spokane, Washington, and Bondar-Clegg Inc. of Lakewood Colorado.

   Units of measure abbreviation used:

   ppm means parts per million
   L0.0003 means not detected above the lower limit of detection, that is, 0.0003 oz./ton
   G10.00 means greater than 10.00%
   ——— means not analyzed

   Mineral abbreviations used:

az — azurite	mag — magnetite
bn — bornite	ml — malachite
calc - calcite	mo — molybdenite
chl — chlorite	plag - plagioclase
cp — chalcopyrite	po — pyrrhotite
ep — epidote	py — pyrite
hem — hematite	pyx — pyroxene
hnbd - hornblende	qz — quartz

APPENDIX B*
SUMMARY OF INVESTIGATIONS BY AREA

*See footnotes in appendix A for list of abbreviations

Area	Figure	Sample map numbers and sample types	Sample results	Comments
Canyon #9	3	19 - 31 4 bedrock; 4 PC; 5 float; 4 SS	A SS sample assayed 0.003 oz/ton Au and 0.002 oz/ton Pt; while a PC sample assayed 0.0021 oz/ton Pt and 0.0022 oz/ton Pd. Samples of diorite assayed up to 4000 ppm Cu and 0.002 oz/ton Au.	The likely source for the Pt,Pd,Au mineralization is ultramafic rock or mineralized zones related to the ultramafic. However, only diorite (Kgd) is mapped or reported in this canyon. The source of the mineralization presents an excellent exploration target. In places this canyon is full of steep dangerously loose rubble and caution should be exercised.
4700 ft elevation stained zone	4	46 - 47 7 bedrock; 1 soil	A high grade grab sample assayed 6.2% Cu while a 10 ft long sample assayed 0.35% Cu. Samples assayed up to 0.003 oz/ton Au and one sample assayed 0.003 oz/ton Pd.	Iron stained zone up to 20 ft thick and thousands of feet long is less resistant to weathering and forms a ledge that is soil and rubble covered. Zone consists of altered and sheared hnbd pyroxenite that contains both vein and magmatic cp.
Canyon #8	3 4	39 3 float; 1PC	No significant mineralization found	
Canyon #7	3 4	50 - 57 4 bedrock; 1 float	Samples of hnbd pyroxenite containing disseminated chalcopyrite assayed up to 990 ppm Cu and 0.003 oz/ton Au.	
Canyon #6	4	50 - 57 1 bedrock; 6 float 5 SS	Sample of hnbd pyroxenite and gabbro with cp contained up to 2800 ppm Cu and 0.001 oz/ton Au.	
Canyon #5	4	58 - 70 3 bedrock; 10 float; 5 PC; 6 SS	Float samples of hnbd pyroxenite or gabbro with cp contained up to 2500 ppm Cu and 0.005 oz/ton Au. Of 11 SS and PC samples one contained 0.00072 oz/ton Pd.	

Area	Figure	Sample map numbers and sample types	Sample results	Comments
Canyon #4	4	71 - 81 11 bedrock; 9 float; 2 PC; 1 SS	Samples of hnbd pyroxenite contained up to 3100 ppm Cu and one sample contained a trace of Pd. A 20 ft long sample of massive magnetite contained 46.2% Fe.	Portions of this canyon are rich in magnetite. Copper or precious metal concentrations were not associated with the iron rich portions of this canyon.
Ridge above Canyon #3 #4 and #5		82 - 88 7 bedrock	A sample of ml stained diorite contained 4000 ppm Cu and 0.009 oz/ton Au while the pyroxenite contained up to 78 ppm Cu.	The upper portion of the ultramafic appears layered from a distance. These layers appear to strike in a northwesterly direction and dip into the mountain. However, the layers are not apparent from observations made on layers themselves.
Canyon #3	5	89 - 118 13 bedrock; 10 float; 11 SS	Values up to 0.013 oz/ton Au, 0.001 oz/ton Pt, 0.0024 oz/ton Pd, and 2500 ppm Cu were found in bedrock, float, or SS samples. Most of the values were found in hnbd pyroxenite or pyroxenite.	A number of samples contained Au, Pt, or Pd and some of these were in place. This area is worthy of more detailed examination to delineate the areas of precious metal mineralization and determine if higher grade areas exist. In general, the precious metal mineralization was associated with chalcopyrite mineralization and not with the magnetite.
Basalt Unit below Canyon #2	5	119 - 125 6 bedrock; 2 float	Samples of basalt contained up to 295 ppm Cu, 7% Fe, 500 ppm V, and 2.76% Ti.	These samples did not indicate any significant mineralization within the basalt unit.
Canyon #2	5	126 - 166 35 bedrock; 27 float; 7 PC; 15 SS; 2 bulk	Values of up to 0.019 oz/ton Au, 0.031 oz/ton Pt, and 0.011 oz/ton Pd was found in SS, PC, float and bedrock samples (mostly of hnbd pyroxenite with cp). Up to 4.1% Cu was found in bedrock and float samples (mostly of hnbd pyroxenite). A float sample of hnbd gabbro, location 145, sample 1S018, assayed 0.010 oz/ton Au, 0.031 oz/ton Pt, 0.001 oz/ton Pd, and 2800 ppm Cu.	A zone of intermittent Cu mineralization located near the basal contact of the ultramafic extends from Canyon #1 to Canyon #2. Another zone of Cu mineralization is located in the upper part of Canyon #2. Figure 5 shows the locations of these zones. Some portions of these zones contain low Au, Pt, Pd mineralization. These areas are worthy of more detailed examination. The float sample 1S018, is worthy of follow up. The hnbd gabbro at the top contact above Canyon #2 may be the source of this float.

Area	Figure	Sample map numbers and sample types	Sample results	Comments
Canyon #2 North Side	5	131 - 134 4 float; 5 SS	Float and SS samples contained up to 0.019 oz/ton Au, 0.001 oz/ton Pt, and 0.001 oz/ton Pd. Float samples of hnbd pyroxenite contained up to 1020 ppm Cu.	
Canyon #2 South Side	5	135 - 139 4 bedrock; 1 SS	Bedrock samples of hnbd pyroxenite contained up to 0001 oz/ton Pt and 1230 ppm Cu.	
Canyon #2 lower copper area	5	144 4 bedrock: 3 float; 1 bulk	Cu ranged form 495 to 1100 ppm while Fe ranged from 13.7% to 25.5% in samples of mag hnbd pyroxenite. 0.0005 oz/ton Au and 0.0010 oz/ton Pt were detected in the 193 lb. bulk sample.	Sampling indicates Au, Pt, and Pd are sparse in this iron rich section of the copper zone that extends from Canyon #1 to Canyon #2.
Canyon #2 upper copper area	5	150 - 166 18 bedrock; 13 float; 1 PC 1 SS; 1 bulk	15 of 34 samples contained Au, Pt, or Pd usually in amounts well below 0.01 oz/ton. A high grade grab sample of a copper-rich area assayed 0.014 oz/ton Pt, 0.011 oz/ton Pd, and 4.1% Cu. Most of the samples taken were of hnbd pyroxenite with varying amounts of mag and cp.	Sparse sampling indicates that this copper zone may average 750-1000 ppm Cu with some sections running significantly higher. The combined Au, Pt, Pd may average less than 0.001 oz/ton.
Canyon #1	5	167 - 196 68 bedrock; 12 float; 5 PC; 8 SS; 4 bulk	Bedrock samples of mostly hnbd pyroxenite with mag, cp, and occasionally bn assayed up to 0.0022 oz/ton Au, 0.0085 oz/ton Pt, 0.0085 oz/ton Pd, and 8300 ppm Cu. Some float, PC, and SS samples contain low Au, Pt, Pd values and up to 4850 ppm Cu. Some samples of hnbd diorite or gabbro float with cp contain low Au, Pt, Pd values.	Portions of a zone of intermittent Cu mineralization extending from the south side of Canyon #1 to Canyon #2 contain low Au, Pt, and Pd. Figure 5 shows the location of this zone. Float, PC, and SS samples taken well above this zone contain low Au, Pt, and Pd values and significant copper indicating potential for mineralized zones in the upper portions of this canyon.

Area	Figure	Sample map numbers and sample types	Sample results	Comments
Canyon #1 South Side	5	174 - 176 20 bedrock; 3 bulk	18 of 20 bedrock samples contained Au, Pt, Pd and up to 8300 ppm Cu.	Sparse sample data indicate the copper zone on the south side of Canyon #1 may average up to 1500 ppm Cu and 0.002 oz/ton combined Au, Pt, Pd.
Canyon #1 North Side	5	177 -184 41 bedrock	15 of 41 bedrock samples contained up to 0.003 oz/ton Au, 0.002 oz/ton Pt, and up to 6950 ppm Cu.	Sparse sample data indicate this portion of the copper zone may average up to 1500 ppm Cu and less than 0.001 oz/ton combined Au, Pt, Pd
Canyon #1 above the copper zone	5	185 - 196 7 bedrock; 10 float; 3 PC; 4 SS	Samples contained up to 0.003 oz/ton Au, 0.005 oz/ton Pt, 0.007 oz/ton Pd and up to 4850 ppm Cu.	
Southern Area	6	197 - 221 30 bedrock; 15 float; 1 SS	A sample of hnbd diorite (sample #198) with po and cp taken near the ultramafic diorite contact contained 0.004 oz/ton Au and 4620 ppm Cu. Vein samples of hydrothermal rock with bn, cp, and ml assayed up to 0.14 oz/ton Au, 0.003 oz/ton Pt, 0.008 oz/ton Pd, and up to 6.5% Cu.	The most interesting aspect of this area are veins (probably formed from residual fluids from the ultramafics) that occupy shear zones that strike north to northwesterly and dip steeply. These veins pinch and swell and are very irregularly mineralized. This area is worthy of examination for structural controls that might concentrate these residual hydrothermal deposits.
South Canyon	2	9 - 18 8 float; 2 PC; 3 SS	Samples of diorite float containing veins of cp and bn up to 0.1 ft thick contained up to 0.156 oz/ton Au and 2.95% Cu. Note: PC samples #7 and #8 taken at streams located just north of the South Canyon contain up to 0.0035 oz/ton Au.	A brief examination of the area above the canyon (where the float was found) at elevations of 4500 to 5000 ft revealed nearly in place (sample # 17) diorite with ml and bn in mafic segregations. This area is worthy of detailed examination.