APPENDICES

LIST OF APPENDICES

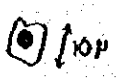
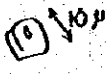
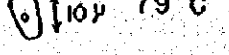
Sample No.	Field No.	Ore body						
1	H 102805A	Siete Jeringas						
(a)		221°C	(b)		115°C	(c)		152°C
(d)		85°C	(e)		79°C			
2	H 102903	Uncush Sur						
(a)		72°C	(b)		92°C			
3	F 110501	San Vicente						
(a)		132°C	(b)		125°C			
4	F 110503	San Vicente						
(a)		118°C	(b)		124°C			
5	F 110505	San Vicente						
(a)		138°C	(b)		145°C			

Fig. 19 Sketch of Fluid Inclusion in Dolomite Crystals

Table 4. List of Rock Samples

Geological Index

Sedimentary rocks		Igneous rocks			
Quaternary (gravel & sand)	QU	Tertiary (Neogene)	Volcanics		TV
Contamana Group	CO	Tertiary (Palaeogene)	Andesite, Rhyolite & Dacite		TR
Lourdes Formation	PA		Diorite-porphyrite, Quartz-porphyry, Aplite & Granite-porphyry		MP
Chonta Group	CH	Jurassic	Diorite complex		MD
Oriente Group	OR	Permian ~ Triassic	Granite & Granodiorite		PG
Sarayaquillo Formation	SA		Granodiorite complex		PC
Pucara Group	PU				
Mitu Group	MI				
Copacabana ~ Tarma Group	TA				
Ambo Group	AM				
Excelcior Group	EX				
Basement Complex (gneiss & schist)	BC				

No.	Sample No.	Location	Geological unit	Rock name	Thin section	Polished section	Chemical analysis	X-ray	Dating	Fossil	Pollen	Fluid inclusion	Magnetic susceptibility
1	F 90901	6F		Gossan			o						
2	F 91201	4G	MI	Conglomerate	o								o
3	F 91902	1G		Gossan		o	o						
4	F 92202	2G	PG	White Granite	o								o
5	F 92203	2G	PG	Meta andesite					o				o
6	F 92301	4F		Gossan			o						
7	F 92302	4F		Gossan			o						
8	F 92303	4F	MP	Microdiorite					o				o
9	F 92304	4F	PU	Dolomite	o								o
10	F 93002	10H	CH	Limestone	o						o		o
11	F 100102	10I	CO	Lutite	o						o		o
12	F 100202	11H	CO	Lutite	o						o		o
13	F 100203	12H	CO	Calcareous mudstone	o						o		o
14	F 100701	4E	TV	Mudstone	o								o
15	F 101102	6E	TR	Dacite	o								o
16	F 101103	6E	TR	Quartz-Porphyry	o								o
17	F 101104	6F	PU	Limestone						o			
18	F 101201	7E	TR	Dacite					o				o
19	F 101202A	7E	PG	Red Granite	o								o
20	F 101202B	7D	PC	Mylonite	o								o
21	F 101301	6D	PC	Diorite	o								o
22	F 102401	7E	PC	Aplite	o								o
23	F 103001	4H		Gossan		o	o						o
24	F 103101	3G		Pb. Zn Ore		o							
25	F 103102	3F	MI	Sandstone	o								o
26	F 110501	3F		Pb. Zn Ore		o						o	
27	F 110502	3F		Pb. Zn Ore		o							
28	F 1105053	3F		Pb. Zn Ore								o	
29	F 110504	3F		Pb. Zn Ore									
30	F 110505	3F		Pb. Zn Ore								o	
31	S 91202	3G		Pb. Zn Ore		o	o						
32	S 91203	3G	MP	Quartz-porphyry	o								o
33	S 91204	3G		Gossan			o						
34	S 91301	6G	PA	Sandstone						o	o		

No.	Sample No.	Location	Geological unit	Rock name	Thin section	Polished section	Chemical analysis	X-ray	Dating	Fossil	Pollen	Fluid inclusion	Magnetic susceptibility
35	S 91502	6G		Gossan			○						
36	S 91504	6G		Gossan			○						
37	S 91601	6G	PU	Limestone	○						○		○
38	S 91602	6F	PU	Mudstone	○								
39	S 91702	6G	MI	Conglomerate	○								○
40	S 92101	7G	MP	Monzonite	○			○					○
41	S 92104	7G	MP	Hornblende porphyrite	○								○
42	S 92203	8H	SA	Conglomerate	○								○
43	S 92301	8H	CH	Shale	○					○			○
44	S 93001	8F	BC	Gneiss	○								○
45	S 100301	12E	CH	Dolomitic limestone						○			
46	S 100701	12F	CH	Limestone						○			
47	S 101001	9E	MP	Biotite granite	○								○
48	S 101401	10E	CH	Gypsum	○			○					
49	S 102101	8E	MP	Rhyolite	○								○
50	S 102501	8I	CH	Acidic tuff	○								○
51	S 102502	7I	CH	Red calcareous mudstone	○						○		○
52	S 102601	7I	CH	Limestone	○								○
53	S 102802	5H		Manganese		○	○						
54	T 90802	3F	PU	Mudstone	○								○
55	T 90803	3E	BC	Mylonitized two mica granite	○								○
56	T 90901	2E	PG	Quartz dioritic lamprophyre	○								
57	T 90903	2E	PG	Felsite	○								
58	T 90904	2E	PG	Phyolite	○								○
59	T 90905	2E	PG	Muscovite granite	○								○
60	T 90906	2E	PG	Quartz porphyry	○								○
61	T 91101	2E	PG	Cataclastic biotite granite	○								
62	T 91102	2E	MD	Granite	○								○
63	T 91104	2E	PG	Quartz porphyry	○								○
64	T 91302	2E	PU	Limestone	○								○
65	T 91304	2E	BC	Hornblende-quartz schist	○								○
66	T 91305A	2E	TR	Tuffaceous rhyolite	○								○
67	T 91305B	2D	TR	Rhyolitic tuff	○								○
68	T 91306	2D	TA	Muscovite-chlorite phyllite	○								○

No.	Sample No.	Location	Geological unit	Rock name	Thin section	Polished section	Chemical analysis	X-ray	Dating	Fossil	Pollen	Fluid inclusion	Magnetic susceptibility
69	T 91307	2D	PU	Oolitic limestone	O								O
70	T 91403	1D	TA	Sandstone	O								O
71	T 91404	1D	MI	Conglomerate	O								O
72	T 91501	1D	PU	Limestone	O								O
73	T 91601	2D	PU	Crystalline limestone	O								O
74	T 91602	2D	PU	Limestone						O			
75	T 91801	1E	MD	Biotite granite	O								
76	T 91802	1E	MP	Quartz porphyry	O								O
77	T 91803	1E		Hematite		O	O						
78	T 91901	1E	TR	Altered rhyolite	O								O
79	T 91902	2E		Cu Ore		O	O						
80	T 92101	2E	PG	Muscovite granodiorite	O								
81	T 92102	2F	PG	Muscovite granodiorite	O								O
82	T 92103	2F	BC	Talc schist	O								O
83	T 92104	2F	BC	Serpentinite	O								O
84	T 92201	2D	MI	Conglomerate	O								O
85	T 92202	2D	TR	Rhyolitic tuff breccia	O								O
86	T 92203	2D	BC	Chlorite-muscovite-quartz schist	O								O
87	T 102501	7H	CK	Limestone	O								
88	T 102701	5H	SA	Conglomerate	O								O
89	O-1	3G	PG	Red granite	O								O
90	O-2	3G	PG	Microgranite	O								O
91	O-3	3G	PG	Red granite	O								O
92	O-4	2G	PG	Dolerite	O								
93	O-6	2G	PG	White granite					O				O
94	O-7	2G	PG	Red granite	O								O
95	O-12	4F	PU	Mudstone	O								O
96	O-17	6G	SA	Sandstone	O								O
97	O-18	6G	SA	Mudstone	O						O		O
98	O-19	6G	PA	Sandstone	O								O
99	O-21	9F	OR	Sandstone	O								O
100	O-22	9F	PU	Limestone	O								O
101	O-25	9E		Gypsum	O								O
102	O-27	8F	MP	Granite porphyry	O								O

No.	Sample No.	Location	Geological unit	Rock name	Thin section	Polished section	Chemical analysis	X-ray	Dating	Fossil	Pollen	Fluid inclusion	Magnetic susceptibility
103	0-28	8F	OR	Sandstone	o								o
104	0-29	8F	PU	Dolomitic limestone	o								o
105	0-31	8F	MP	Quartz porphyry	o								o
106	0-32	7F	PU	Limestone	o								o
107	0-33	7F	PG	White granite	o								o
108	0-36	10E	PU	Limestone	o								o
109	0-37	10E	CH	Sandstone	o						o		o
110	0-39	10E	CH	Mudstone	o								o
111	0-43	11E	PU	Dolomite	o								
112	0-46	9E	TR	Mylonite	o								o
113	0-48	9D	MP	Aplitic granite	o								
114	0-49	9D	PG	Granodiorite	o								o
115	0-50	8C	PG	Granodiorite	o								o
116	0-53	9E	MP	Quartz porphyry	o								o
117	0-54	9E	SA	Sandstone	o						o		o
118	0-56	6G	TR	Basaltic andesite	o								
119	0-57	6G	CH	Sandstone	o								o
120	0-58	6H	CH	Limestone	o								
121	0-60	6H	CH	Limestone						o			
122	0-62	5I	CH	Sandstone	o								o
123	0-63	3E	PG	Porphyrite	o								o
124	0-65	2E	PG	Metabasite	o								
125	0-66	1D	TA	Limestone						o			
126	OP-1	4F		Pb. Zn Ore		o							
127	OS-1	8G		Cu Ore		o							
128	H 92004	3G	PU	Red sandstone	o			o					
129	H 92005	3F	PU	Black muddy limestone				o					
130	H 92006	3F	PG	Altered granodiorite	o								o
131	H 92007	3F	PU	Black muddy limestone				o					o
132	H 92101	3G	PG	Granite	o								o
133	H 92102	3G	PG	Quartz porphyry	o								
134	H 92105	3G	PU	Bedded limestone	o			o					
135	H 92201	2G	PU	Limestone				o					
136	H 92202	2G	PU	Dolomite				o					

No.	Sample No.	Location	Geological unit	Rock name	Thin section	Polished section	Chemical analysis	X-ray	Dating	Fossil	Pollen	Fluid inclusion	Magnetic susceptibility
137	H 92203	2G	PU	Limestone	○			○					
138	H 92204	2G	PU	Calcareous shale	○			○					
139	H 92205	2G	PU	Calcareous shale				○					
140	H 92206	2G	PU	Limestone	○			○					
141	H 92301	3G	PU	Calcareous mudstone	○			○					○
142	H 93001	2G	PG	Schist	○								
143	H 10101	2G	PU	Limestone				○					○
144	H 10102	2G	PU	Dolomite				○					
145	H 10103	2G	PU	Limestone	○			○					
146	H 10104	2G	PU	Dolomite				○					
147	H 10105	2G	PU	Dolomite	○			○					
148	H 10107	2G	MD	Andesite	○								
149	H 10108	2G	MD	Porphyrite	○								
150	H 10207	2G	MI	Sandstone	○								
151	H 10209	2G	MI	Andesite	○								
152	H 10501	3P	PU	Dolomite	○			○					
153	H 10502	3P	PU	Dolomite	○			○					
154	H 10503	3P	PU	Dolomite	○			○					
155	H 10504	3P		Pb. Zn Ore		○							○
156	H 10701	3P	PU	Dolomite				○					
157	H 10901	3P	PU	Black shale				○					
158	H 10902	3P	PU	Arenaceous limestone				○					
159	H 101001	3P	PU	Arenaceous limestone				○					
160	H 101002	3P	PU	Limestone				○					
161	H 101003	3P	PU	Arenaceous limestone						○			
162	H 101101	3P	PU	Muddy limestone				○					
163	H 101102	3P	PU	Brecciated limestone				○					
164	H 101103	3P	PU	Dolomite				○					
165	H 101302	3P	TR	Porphyritic andesite	○								
166	H 101303	3P	TR	Epidote veinlet in andesite				○					
167	H 101305	3P	PU	Muddy limestone				○					
168	H 101401	3P	PU	Dolomite				○					
169	H 101402	3P	PU	Dolomite				○					○
170	H 101403	3P	PU	Dolomitic limestone				○					

No.	Sample No.	Location	Geological unit	Rock name	Thin section	Polished section	Chemical analysis	X-ray	Dating	Fossil	Pollen	Fluid inclusion	Magnetic susceptibility
171	H 101404	3F	PU	Black limestone	○			○					
172	H 101405	3F	PU	Limestone						○			
173	H 102301	2G	PU	Sandstone				○					○
174	H 102302	2G	PU	Dolomite				○					
175	H 101303	2G	PU	Dolomite				○					
176	H 102401	2G	PU	Dolomite				○					
177	H 102601	4F		Hematite		○							
178	H 102701	2G	MD	Granodiorite	○								○
179	H 102703	2G	MD	Porphyritic granodiorite	○								
180	H 102704	2G	MD	Porphyritic granodiorite	○								
181	H 102801	2G	PU	Dolomite				○					
182	H 102802	2G	PU	Dolomite				○					
183	H 102803	2G	PU	Dolomite				○					
184	H 102804	2G	PU	Dolomite				○					
185	H 102805A	2G		Pb. Zn Ore		○						○	
186	H 102805B	2G		Pb. Zn Ore		○							○
187	H 102806	3F	PU	Dolomite	○			○					
188	H 102807	3F	PU	Dolomite	○			○					
189	H 102808	3F	PU	Dolomite	○			○					
190	H 102809	3F	PU	Dolomite	○			○					
191	H 102810	3F	PU	Dolomite	○			○					○
192	H 102811	3F	PU	Dolomite	○			○					
193	H 102812	3F	PU	Dolomite	○			○					
194	H 102813	3G	PU	Limestone	○			○					
195	H 102814	3G	PU	Calcareous sandstone	○			○					
196	H 102815	3G	PU	Arenaceous limestone	○			○					
197	H 102816	3G	PU	Sandstone	○			○					
198	H 102817	3G	PU	Dolomite	○			○					
199	H 102818	3G	PU	Dolomite	○			○					
200	H 102819	3G	MI	Mudstone	○			○					
201	H 102820	3G	MI	Calcareous sandstone	○			○					○
202	H 102901	3F	MD	Microdiorite					○				○
203	H 102902	3F	PU	Sandstone						○			
204	H 102903	3F	PU	Pb. Zn Ore		○						○	

No.	Sample No.	Location	Geological unit	Rock name	Thin section	Polished section	Chemical analysis	X-ray	Dating	Fossil	Pollen	Fluid inclusion	Magnetic susceptibility
205	XH 92201	2G	PU	Limestone				O					
206	XH 92202	2G	PU	Limestone				O					
207	XH 92203	2G	PU	Limestone				O					
208	XH 92204	2G	PU	Limestone				O					
209	XH 10501	3F	PU	Mudstone				O					
210	XH 102301	2G	PU	Limestone				O					
211	V 102203	2G	MD	Granodiorite	O								
212	F 92201	2G	PG	Red granite					O				O
213	H 92106	3G	MI	Sandstone	O								

Table 5. Microscopic Observations of Thin Sections

Geological Index

Sedimentary rocks		Igneous rocks		
Quaternary (gravel & sand)	QU	Tertiary(Neogene)	Volcanics	TV
Contamana Group	CO	Tertiary(Palaeogene)	Andesite, Rhyolite & Dacite	TR
Lourdes Formation	PA		Diorite-porphyrite, Quartz-porphyry, Aplite & Granite-porphyry	MP
Chonta Group	CH			
Oriente Group	OR	Jurassic	Diorite complex	MD
Sarayaquillo Formation	SA			
Pucara Group	PU	Permian - Triassic	Granite & Granodiorite	PG
Mitu Group	MI		Granodiorite complex	PC
Copacabana - Tarma Group	TA			
Ambo Group	AM			
Excelcior Group	EX			
Basement Complex (gneiss & schist)	BC			

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Observation	Remarks
2	P91201	4G	MI	Conglomerate	The matrix part of this rock consists of coarse-grained calcite. In this matrix, quartz and feldspar grains exist. Rock fragments in this rock consist of sandstone and limestone, and igneous rock. Size of rock fragments are up to 2mm - 12mm.	See Photo. No.24.
4	P92202	2G	PG	Biotite granite	This is coarse-grained holocrystalline rock consisting of feldspar, quartz, plagioclase and biotite. Colored minerals in this rock are brown biotite and hornblende. Alkali feldspar in this rock is perthitic microcline. These perthite is mostly 'rod'. Inclusions in the microcline are plagioclase, biotite and quartz. Plagioclase has albite-law twin. These fresh plagioclase has fine microcline inclusion with unclearly boundary. Rim of plagioclase is dirty and is altered to sericite. Colored minerals are mostly biotite and rarely hornblende. Other minerals are apatite and opaque minerals.	See Photo. No.5.
5	P92203	2G	PG	Meta-andesite	Occurrence of this rock is dike-like, but this rock shows strong foliation. Constituent minerals are fine-grained biotite and quartz. Foliation in this rock is represented by the parallel arrangement of biotite.	See Photo. No.12.
8	P92303	4F	MP	Microdiorite	This rock is holocrystalline, and consists of hornblende, calcite and plagioclase, and subordinate mineral of apatite.	See Photo. No.15.
9	P92304	4F	PU	Crystalline dolomite	The component mineral in this rock is almost holocrystalline dolomite. Dolomite grains are fine- to coarse-grained. Dolomite cleavages are waved and the crystals show wavy extinction.	See Photo. No.29.
10	P93002	10H	CH	Limestone	This rock consists of almost fine-grained calcite and has some foraminiferous fragments. Usually quartz grains are observed.	See Photo. No.37.
11	P100102	10I	CO	Mudstone	This rock shows fine-grained texture. The grains are composed of quartz, plagioclase and ore minerals.	See Photo. No.39.
12	P100202	11H	CO	Sandstone	This rock is fine-grained calcareous sandstone. Detrital grains are mainly occupied by quartz and calcite. Besides, iron mineral and biotite are rarely detected. Quartz grain is subrounded in shape as a rule.	See Photo. No.38.
13	P100203	12H	CO	Calcareous mudstone	This is fine-grained calcareous rock consisting of a large amount of calcite. Matrix is composed of very fine-grained calcite. The plentiful columnar and irregular shaped calcite and small amounts of quartz, plagioclase and iron oxide are embedded in the matrix as grains.	

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Observation	Remarks
14	F100701	4E	TV	Mudstone	The common constituent minerals in this rock are clay minerals, quartz and plagioclase. Reddish brown opaque mineral is hematite. Clay minerals form lamelae and thin bedding plane are limited by arranged opaque mineral. Fine-grained quartz and plagioclase exist rarely. Quartz veins cut the lamellae. In the veins, quartz is destroyed and show wavy extinction.	
15	F101102	6E	TR	Rhyolite	This rock shows porphyritic texture. Coroded quartz, plagioclase and biotite are constituent minerals of phenocrysts. Groundmass is usually glassy, but occasionally, microcrystalline aggregate of plagioclase, quartz and iron oxide. Unidentified fibrous mineral makes up the spherulite. Small amounts of sericite occur along the twinning plane and fracture of plagioclase.	See Photo. No.20.
16	F101103	6E	TR	Altered plagioclase porphyrite	This rock has a porphyritic texture and is very altered. The phenocryst is plagioclase and is usually very altered sericite. The matrix is composed of quartz, albite, zeolite and some opaque minerals.	
18	F101201	7E	TR	Dacite	This rock shows porphyritic texture, which consists of quartz, plagioclase, orthoclase, microcline and muscovite. Quartz is often corroded. Plagioclase shows euhedral crystal. Chlorite and sericite are formed as secondary minerals in groundmass.	See Photo. No.13.
19	F101202A	7E	PC	Granite	This rock is leucocratic and has medium-grained and holocrystalline texture and consists of quartz, microcline, perthite, plagioclase and biotite. Plagioclase is often saussuritized and hypidiomorphic. Biotite is rare and altered to epidote and chlorite. The graphic texture is observed in this section.	
20	F101202B	7D	PC	Mylonitized granite	The mylonitic texture is strongly marked. Quartz and plagioclase are destroyed into many fragments. The former shows undulatory extinction and deformation lamellae. The latter is usually twisted and kinked. The plentiful minute calcite and sericite are disseminated throughout the thin section. These minerals are constituent minerals of the vein, also.	See Photo. No.10.
21	F101301	6D	PC	Hornblende diorite	This rock is hornblende diorite. The common constituents are greenish brown hornblende and plagioclase. And rare minerals are greenish brown biotite, quartz, apatite and opaque minerals. Hornblende and biotite are partly altered to chlorite and also plagioclase is altered to sericite and muscovite. Plagioclase has sometimes zonal structure. Biotite, quartz and plagioclase are weakly deformed, so that these minerals show wavy extinction and the twin lamellae of plagioclase are bented.	See Photo. No.14.

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Observation	Remarks
22	F102401	7E	PC	Aplitic granite	This is leucocratic and fine-grained rock with holocrystalline texture. It mainly consists of quartz, microcline, perthite and plagioclase. Biotite is rare and often altered to epidote and chlorite. Plagioclase is saussuritized giving rise to sericite and epidote. The accessory minerals are opaque minerals.	See Photo. No.8.
25	F103102	3F	MI	Sandstone	This rock is quartzose sandstone, which is composed of quartz, plagioclase, chert and matrix (biotite and muscovite). The amount of quartz grain is about 90 % in the total composition. Secondary overgrowth on quartz grain is often observed.	
31	S91202	3G			This rock consists of garnet, calcite and sphalerite, and subordinate amount of quartz and epidote. Garnet is grossularite, and shows hexagonal euhedral crystal and zonal structure.	
32	S91203	3G	MP	Porphyrite	This rock shows porphyritic texture. It consists of the phenocrysts of plagioclase, alkali feldspar and hornblende, and also of the groundmass of quartz, plagioclase, hornblende and ore minerals. As accessory minerals, epidote and apatite are observed. Plagioclase is frequently crowded with such secondary minerals as sericite. A number of green hornblendes are aggregates, which partly change into chlorite, owing to alteration.	
37	S91601	6G	PU	Limestone	This rock consists of calcite and a few plagioclase. Plagioclase is euhedral and its grain is rarely observed. Brownish mineral is perhaps hematite.	
38	S91602	6F	PU	Mudstone	This rock is calcareous mudstone. Interstitial quartz and plagioclase are scattered.	See Photo. No.28.
39	S91702	6G	MI	Conglomerate	The common constituent grains in this rock are quartz and feldspars. Most of quartz grains show wavy extinction. Some quartz grains have fine-grained inclusion of muscovite. Feldspars in this rock are mostly alkali feldspar. Usually grain boundary is altered to sericite.	
40	S92101	7G	MP	Hornblende monzonite	This is holocrystalline rock. Large phenocrysts in this rock are plagioclase (partly dirty surface) and alkali feldspar (fresh surface). Plagioclase shows albite-law twin and alkali feldspar shows perthitic texture. The colored mineral is brownish green chloritized hornblende. In the groundmass, fine-grained plagioclase and quartz crystals show aggregates of reddish growth. Fine-grained opaque minerals scatter in whole part. Quartz rarely exists in this rock. This rock is weakly deformed.	See Photo. No.18.

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Observation	Remarks
41	S92104	7G	MP	Clinopyroxene bearing hornblende porphyrite	This is a medium-grained non-porphyritic rock. The primary constituents are plagioclase, green hornblende, interstitial quartz and small amounts of clinopyroxene, sphene and magnetite. The former two minerals are idiomorphic and show prominent zonal structure. Plagioclase and quartz often give rise to micrographic intergrowths. As secondary minerals, sericite, epidote and chlorite are observed.	See Photo. No.21.
42	S92203	8H	SA	Plagioclase porphyry	This rock is mostly composed of quartz, muscovite and opaque reddish minerals. Plagioclase and muscovite are phenocryst. Plagioclase is wholly sericitized. Phenocryst consisting of aggregate of muscovite and opaque mineral may be altered from biotite. Groundmass is composed of fine-grained plagioclase, quartz and muscovite.	
43	S92301	8H	CH	Siltstone	This rock is a very fine-grained clastic rock, which consists of quartz and plagioclase. And the matrix consists of calcite, chlorite and muscovite, which are metasomatized minerals.	
44	S93001	8F	BC	Hornblende gneiss	This rock is holocrystalline gneiss rock. The common costituents are hornblende, plagioclase and quartz. Hornblende is greenish brown in color and is partly altered to chlorite and greenish biotite. Plagioclase is mostly sericitized, so that original form is destroyed. Quartz shows wavy extinction and is corroded. Fine veins run through quartz and plagioclase. This veins consist of quartz and calcite. Apatite and opaque minerals are often observed.	See Photo. No.1.
47	S101001	9E	MP	Biotite granite	This shows holocrystalline texture. Plagioclase, quartz, alkali feldspar and biotite are major constituents. Epidote and ore minerals are also observed as minor constituents. Plagioclase is sometimes crowded with such secondary minerals as sericite. It includes small grains of other minerals, such as muscovite, quartz and alkali feldspar. Alkali feldspar occurs as both interstitial and subhedral crystal. The latter is frequently twinned after Carlsbad-law and is poikilitic. Remarkable microcline structure and perthitic structure are often observed. Biotite is decomposed into chlorite, epidote and ore minerals.	
48	S101401	10E	CH	Gypsum	This rock mainly consists of gypsum. A small amount of calcite and opaque minerals are also observed in thin section. Almost all gypsum are fine-grained and irregular in shape and some of them are coarse-grained and prismatic.	See Photo. No.36.
49	S102101	8E	MP	Rhyolite	This rock carries the phenocrysts of plagioclase and quartz in a fluxional cryptocrystalline groundmass, and as accessory minerals, hematite and zircon. Secondary minerals of plagioclase are sericite and ore minerals.	

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Observation	Remarks
50	S102501	8I	CH	Acidic tuff	This rock consists of the matrix of calcite and glass. Irregular quartz and plagioclase are also scattered. As accessory minerals, epidote, tourmaline and ore minerals are observed. Sometimes mosaic calcite grains fill vesicle.	
51	S102502	7I	CH	Red calcareous mudstone	This rock is very fine-grained. The chief constituent grains are angular to rounded quartz (up to 0.01 mm in size). The accessory grains are flakes of muscovite, zircon, rutile and hercynite. The matrix is the mixture of calcareous and ferruginous matters. The proportion of grains in matrix is roughly equal.	See Photo. No.35.
52	S102601	7I	CH	Limestone	This rock is composed of cacite, quartz and gypsum. The calcite has a various grain size (up to 0.03 mm in size). The grain size of quartz is up to 0.05 mm. Gypsum is observed as filling in the pores. Some skeltons are observed in thin section.	
54	T90802	3F	PU	Mudstone	This rock is calcareous mudstone consisting mainly of quartz, plagioclase and calcite. They show anhedral crystal. Muscovite may be the product of thermal metamorphism.	
55	T90803	3E	BC	Mylonitized two mica granite	The rock shows mylonitic texture and is composed mainly of quartz, plagioclase, muscovite and biotite. Small amounts of sphene and opaque minerals occur as accessory minerals. The secondary minerals are chlorite having the abnormal purplish interference color and sericite. Quartz and muscovite show undulatory extinction and are remarkably flattered perpendicular to foliation. The albite-law twin of plagioclase and cleavage of muscovite are bent. The fine-grained quartz and sericite are newly recrystallized around the crystals of quartz and muscovite, respectively.	
56	T90901	2E	PG	Quartz dioritic lamprophyre	The constituent minerals are mostly greenish brown hornblende, plagioclase and quartz. Rarely fine-grained epidote exists. Whole rock is deformed and colorless minerals are most clastic. Sericite that is seen in thin section is formed as secondary mineral. Hornblende is altered to chlorite. Quartz was deformed so that it shows wavy extinction. Plagioclase is almost altered to sericite.	
57	T90903	2E	PG	Pelsite	This is a fine-grained microcrystalline rock. Quartz and plagioclase are main constituents. Occasionally, they show micrographic intergrowth. The grain boundary of these minerals is vague. Other primary mineral is iron oxide. As secondary minerals, sericite and chlorite occur. Vein-filling quartz or epidote are often developed.	

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Observation	Remarks
58	T90904	2E	PG	Rhyolite	Remarkable feature in this rock is chalcedony texture of quartz. It is accepted that those texture are often developed in quartz vein which is altered by low temperature by hydrothermal process. There are some clusters of plagioclase and quartz with ordinary shape. Mafic minerals are very few. One grain of allanite which shows dark pleochroism is altered.	
59	T90905	2E	PG	Muscovite granite	This is coarse-grained holocrystalline rock. Quartz, plagioclase and microcline are essential minerals. These minerals are subhedral. Quartz always undergoes the deformation characterized by striking wavy extinction. Plagioclase show remarkable albite law twin and are usually weakly deformed, but partly change into the aggregate of small crystals by strong deformation. The common accessory is sphene. The secondary minerals are those of chlorite, sericite and calcite. The veins of chlorite and sericite run throughout the whole thin section.	
60	T90906	2E	PG	Quartz porphyry	The common constituent minerals are plagioclase, alkali feldspar, quartz and biotite. Apatite and opaque mineral are rarely observed. Quartz is corroded and has wavy extinction. Subidiomorphic plagioclase exists. Alkali feldspar is dirty and includeds medium-grained prismatic plagioclase. Matrix consists of quartz and plagioclase. At some parts of matrix, thread like intergrowth and spherulitic granophyre exists.	See Photo. No.11.
61	T91101	2E	PG	Cataclastic biotite granite	The primary constituent minerals are quartz, plagioclase, alkali feldspar, biotite accompanied with sphene and iron oxide. The rock is suffered cataclastic deformation. The crystals of quartz and feldspar are broken down, and granulated by further deformation. The cracks and interspaces of these minerals are occupied by the secondary minerals such as sericite and chlorite. Some chlorites seem to replace the biotite.	
62	T91102	2E	MD	Granite	This rock has holocrystalline texture. The main constituents are quartz, orthoclase, plagioclase and less amounts of biotite. The biotite shows brown to green pleochroism. Orthoclase shows perthitic texture. Both feldspathic minerals and biotite have moderately been altered, and fine-grained white micas are developed within these minerals.	

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Observation	Remarks
63	T91104	2E	PG	Quartz porphyry	This rock shows porphyritic texture. The phenocryst consists of plagioclase and quartz. The former is separated into smaller segments by the fracturing and often decomposed to sericite. The groundmass is within some parts cryptocrystalline and within other parts, microcrystalline texture composed of anhedral quartz and plagioclase. Plagioclase and quartz veins are rarely observed.	
64	T91302	2E	PU	Limestone	The rock consists of calcite accompanied with very small amounts of interstitial quartz and hematite. Many large grains of calcite (2.5 mm in maximum length) are scattered in the fine-grained calcareous matrix. The cleavage of calcite is bent generally.	
65	T91304	2E	BC	Muscovite-quartz schist	The common constituent minerals are quartz, muscovite and opaque minerals. Most of the muscovite elongate to the foliation. Quartz grains show wavy extinction. Some of the quartz vein are paralle to the foliation. Another quartz vein is crossed acute angle to the foliation. Many opaque minerals scatter in all part but rarely arranges along the foliation.	See Photo. No.2.
66	T91305A	2E	TR	Tuffaceous rhyolite	This rock shows flow structure. The common constituent minerals are quartz, chlorite and fine-grained mica. Fine-grained sericite and original muscovite exist in groundmass. Perhaps the groundmass consists of quartz and feldspar.	
67	T91305B	2D	TR	Rhyolitic tuff	Phenocryst minerals are quartz and plagioclase. Groundmass is fine-grained, and shows tuffaceous texture being composed of quartz and plagioclase. Phenocrysts are commonly corroded. Rock fragments in this rock are quartz-plagioclase grain and needle-like plagioclase. Reddish brown semitransparent mineral is perhaps hematite. The groundmass shows fine aggregates of quartz. Both groundmass and phenocryst of plagioclase are altered to sericite. Epidote is an accessory mineral.	
68	T91306	2D	TA	Muscovite-chlorite phyllite	The dominant constituents are fine-grained plagioclase, quartz and argillaceous material. Chlorite, epidote and opaque minerals are observed as minor constituents, and also muscovite is observed as the major constituent. The original bedding is contorted and the cleavage crosses it. This is discontinuous and the parallel arrangement of mineral is not observed. Shearing is probably confined to the argillaceous phase of this rock.	See Photo. No.22.
69	T91307	2D	PU	Oolitic limestone	The matrix of this rock is composed of fine-grained calcite and the grains are of oolite and quartz. The grain size is up to 0.5 mm.	See Photo. No.31.

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Observation	Remarks
70	T91403	1D	TA	Sandstone	This is fine-grained quartzose sandstone, consisting mainly of well-sorted quartz and iron mineral. As detrital grain, toumaline, muscovite and zircon are rarely detected. Quartz may be enlarged by secondary overgrowth so that the adjacent grains grow together to form an interlocking aggregate.	
71	T91404	1D	MI	Conglomerate	This rock is pebbly conglomerate. Size of rock fragments are from 2 mm to 13 mm in diameter. Gravels consist of shale, sandstone and acdic tuff. Matrix consists of quartz and ore materials.	
72	T91501	1D	PU	Limestone	This rock consists of various sizes of calcite grain, a few quartz grains and some veins. The veins are composed of calcite and zeolite,and the latter is cut by the former. The size on quartz grain is up to 0.05 mm.	
73	T91601	2D	PU	Crystalline limestone	This rock consists mainly of fine to medium size of calcite. Sporadically distributed quartz and feldspar are minor constituents. This rock does not show schistose texture. Opaque materials such as hematite are deposited along the grain boundaries, and therefore this thin section shows pale brown in color under open nicoles.	See Photo. No. 23.
75	T91801	1E	MD	Biotite diorite	This rock has fine-grained and holocrystalline texture and mainly consists of plagioclase and biotite. Biotite is usually altered to epidote and chlorite. Plagioclase is slightly sassuritized giving rise to sericite and calcite. The accessory minerals are apatite and opaque minerals.	
76	T91802	1E	MP	Quartz porphyry	The common constituent minerals are quartz, plagioclase and mica, Opaque minerals and reddish hematite exist, too. The flow structure is observed in the groundmass. All of the quartz is weakly destroyed. Plagioclase is altered to sericite and reddish brown hematite. Chloritized muscovite is secondary mineral that has altered from primary biotite.	
78	T91901	1E	TR	Altered rhyolite	This rock consists of fine-grained quartz and altered feldspar. Because of strong alteration the grain boundaries become blurred. The feldspathic minerals are weakly elongated and tend to arrange their long axis parallel to each other. Networks of various veinlets of small white mica are developed.	
80	T92101	2E	PG	Muscovite granodiorite	This is holocrystalline rock and essential minerals are muscovite, quartz and plagioclase. Muscovite, in which kink bands are remarkably developed, shows partly poikilitic texture and are decomposed into pale green chlorite and iron ore. Quartz is mostly subhedral, and it undergoes weak deformation. Accessory mineral is hematite.	See Photo. No.9.

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Observation	Remarks
81	T92102	2F	PG	Muscovite granodiorite	This is holocrystalline rock and essential minerals are muscovite, plagioclase and quartz. Muscovite, in which kink bands are remarkably developed, shows partly poikilitic texture and are decomposed into pale green chlorite and hematite. Plagioclase shows idiomorphic crystal. Its common decompositional products are sericite. Quartz is mostly subhedral, and undergoes weak deformation. Secondary mineral occurs hematite.	
82	T92103	2F	BC	Talc schist	The constituent minerals are talc, chlorite and magnetite. The former is most predominant and shows kink band, occasionally. Chlorite has both brownish and purplish interference color. Magnetites occur mesh-likely.	See Photo. No.3.
83	T92104	2F	BC	Surpentinite	This rock is pretty surpentinized. Mineral form suggests chrysolite but most minerals alter to clay minerals. These minerals show fiber in shape and preserve rarely original shape. In this section some of the plagioclase are altered to surpentine.	
84	T92201	2D	MI	Conglomerate	There are considerable amounts of rock fragments. They are schistose biotite hornfels, quartz schist, sericite-quartz schist, arkose sandstone, granophyre and granite. The components of grain are quartz, plagioclase, microcline and orthoclase. The matrix is composed of quartz, feldspar, sercite and iron-oxides.	
85	T92202	2D	TR	Rhyolitic tuff breccia	The rock consists of phenocrysts of quartz with corroded form, orthoclase, plagioclase and various rock fragments. The fragments include acidic volcanics such as rhyolite. One pebble of sedimentary rock (sandstone) is also included. In the matrix recrystallized chlorite with pale green pleochroism are widely distributed.	See Photo. No.19.
86	T92203	2D	BC	Chlorite-muscovite-quartz schist	This rock is composed of chlorite, muscovite, quartz, albite and magnetite. The optic sign of chlorite is positive. The parallel arrangement of flaky minerals such as chlorite and needles of magnetite is well designated. Quartz and plagioclase are flattened parallel to the schistosity plane. The crenulation cleavage is developed.	
87	T102501	7H	CH	Clastic limestone	This rock consists of calcareous argillaceous materials and fragments. The fragments are mainly feldspar and quartz: the former is sub-anhedral, partly twinned and have various grain size but almost fine-grained, and latter occurs in many forms. This rock shows clastic type. The matrix is dolomitic and aphanitic materials, and argillaceous materials. Small amount of oolite occurs. Gypsum and opaque material are constituents of this rock. Gypsum is often slender flaky crystals and common material. Constituent material of this rock occurs in fractures that are developed and the orientations are several. From gypsum and dolomitic calcareous material an alteration is estimated.	

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Observation	Remarks
88	T102701	5H	SA	Conglomerate	This rock is pebble-sized conglomerate. Rock particles are from 2 to 15 mm in size. The common constituent gravels in this rock are biotite-sericite-quartz schist, granite, quartz and crystalline limestone. Matrix is sandy grains. Muscovite, sericite and biotite are observed as secondary minerals which may be crystallized by thermal metamorphism.	
89	0-1	3G	PG	Biotite granite	This is a coarse-grained holocrystalline rock composed of orthoclase, microcline, plagioclase, quartz and small amounts of muscovite, calcite, sphene and magnetite. Idiomorphic original biotite is decomposed to muscovite, hematite and calcite. Orthoclase shows perthitic texture and microcline lattice twin. Plagioclases are clouded by secondary sericite. The rude micrographic intergrowths of orthoclase and quartz are frequently observed.	
90	0-2	3G	PG	Granite	The texture of this rock is hypidiomorphic-granular. The essential constituents are plagioclase, quartz, alkali feldspar, biotite and little amount of epidote and ore minerals. Plagioclase is subhedral tabular and trubid crystal. Orthoclase occurs as interstitial crystal. Perthitic texture and moire appearance are commonly observed. Biotite is almost decomposed into chlorite and ore minerals.	
91	0-3	3G	PG	Biotite granite	The common constituent minerals are alkali feldspar, plagioclase, quartz and biotite. These minerals form holocrystalline texture. Alkali feldspar are mostly microcline. Perthite lamellae are fine to large types. The large type of perthite sometimes appears antiperthitic texture. Most of the feldspars have partly fresh surface at inner and border parts. Quartz shows always wavy extinction. Only colored mineral is greenish brown biotite that is altered to chlorite. Opaque minerals are often observed.	
92	0-4	2G	PG	Olivine dolerite	The texture is ophitic. Primary minerals are olivine, pyroxene, plagioclase and magnetite. Secondary minerls are composed of calcite, albite and serpentine. Olivine and pyroxen are wholly decomposed to serpentine, magnetite and partly to hematite. Plagioclases are stained by calcite and sericite. Vesicules filled with calcite are rarely developed.	
93	0-6	2G	PG	White granite	This rock consists of quartz, microcline and biotite, and subordinate minerals of zircon and apatite. Microcline is altered to sericite and shows perthitic texture. The rock is coarse-grained.	See Photo. No.6.

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Observation	Remarks
94	0-7	2G	PG	Granite	This is a holocrystalline rock, mainly consisting of plagioclase, quartz, orthoclase and biotite, and including subsidiary amount of epidote, hematite and ore minerals. Plagioclase occurs generally as turbid crystal due to secondary alteration. Orthoclase occurs as both interstitial and euhedral crystal. Perthitic texture and moire appearance are usually observed. Biotite is brownish green in color. It is tabular and often forms clots. Also it shows strongly pleochroic haloes round minute enclosed zircons.	
95	0-12	4F	FU	Mudstone	This rock is fine-grained, consisting of quartz, plagioclase and alkali feldspar accompanied with muscovite, tourmaline and iron oxide. Quartz grain is most predominant. The constituent grains occur as angular to subangular form, and their average size is about 0.1 mm in length. The matrix is occupied by iron-oxide and calcite. Calcite is often iron-stained.	
96	0-17	6G	SA	Sandstone	This rock is medium-grained quartzose sandstone, which is composed of quartz, plagioclase, alkali feldspar, chert and matrix (chlorite). Epidote and ore mineral are rarely observed.	See Photo. No.32.
97	0-18	6G	SA	Sandstone	This is fine-grained calcareous quartzose sandstone consisting mainly of quartz, calcite and feldspar of detrital grains. There are interstitial calcite as matrix. Grain size is about 0.10 - 0.13 mm on average and sorting is very well. Iron oxide is distributed all over the section.	
98	0-19	6G	FA	Conglomerate	This is composed of the grains of quartz, plagioclase and hornblende which are destroyed and matrix is fine- to medium-grained calcite. Other grains are igneous rocks, oolitic limestone and muscovite. At grain boundary, calcite growth is observed.	
99	0-21	9F	OR	Sandstone	This rock is quartzose sandstone and composed mainly of quartz with subordinate amount of epidote and muscovite. It is a well-sorted sandstone and has a good marine fauna. Original grain outlines are very distinct. Muscovite is developed between the quartz grains.	
100	0-22	9F	FU	Limestone	This rock consists chiefly of calcite. Most calcites are very fine but some are medium-grained. Calcite veins run through over the thin section. Very fine opaque mineral and plagioclase exist. Perhaps rounded calcite grains and needle-like calcite grains were initially fossils.	
101	0-25	9E		Gypsum	This rock mainly consists of gypsum. A small amount of epidote, apatite and ore mineral are also detected. Gypsum is also identified by X-ray analysis.	

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Obaervation	Remarks
102	0-27	SP	MP	Quartz porphyry	The rock shows porphyritic texture characterized by occurrence of the phenocrysts of quartz, alkali feldspar, plagioclase and biotite. The phenocrysts are found in a microcrystalline groundmass of rounded quartz, plagioclase and alkali feldspar. The phenocryst of plagioclase is sometimes crowded with sporadical sericite. The phenocryst of alkali feldspar is often characterized by the presence of moire appearance and perthitic texture. Some crystals of biotite are decomposed into chlorite, epidote and ore mineral.	
103	0-28	SP	OR	Sandstone	This sandstone is orthoquartzite. The mineral composition consists of quartz (more than 90%), hornblende and matrix (muscovite and chlorite). Secondary overgrowth of quartz is developed but each detrital quartz is clearly shown by dust rings.	
104	0-29	SP	PU	Oolitic limestone	This rock almost consists of calcite that yield by the thermal metamorphism. Originally, it had been composed of concentric oolite and sparry calcite cement.	
105	0-31	SP	MP	Quartz porphyry	This rock is porphyritic texture. The phenocrysts consist of quartz, plagioclase and alkali feldspar. The groundmass is microcrystalline texture composed of quartz and plagioclase. The phenocrystic quartz is subhedral or euhedral. The other groundmass crystals are interstitial. The phenocryst of plagioclase is subhedral and tabular, sometimes with weak zonal structure. The phenocryst of alkali feldspar is anhedral and often twinned after Carlsbad-law. Perthitic texture and moire appearance are usually observed.	
106	0-32	TP	PU	Mudstone	This rock is calcareous mudstone. Interstitial quartz and ore mineral are rarely observed. Many calcite veins run throughout the thin section.	
107	0-33	TP	PG	Biotite granite	This rock is holocrystalline and shows a hypidiomorphic-granular texture composed of euhedral to subhedral crystals in chief minerals. Plagioclase, quartz, alkali feldspar and biotite are essential minerals, being accompanied with epidote, hematite and ore minerals as accessory minerals. Sericite and muscovite are observed sporadically as secondary minerals in plagioclase. Sometimes, plagioclase shows bending of albite twin and weak zonal structure, and the dirty core is mantled by fresh rim. Alkali feldspar is often twinned after Carlsbad-law. Faint microcline structure and perthite structure are frequently observed. Biotite, in which kink bands are developed and almost decomposed into chlorite and ore minerals.	

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Observation	Remarks
108	0-36	10E	PU	Calcareous mudstone	This is a very fine-grained calcareous rock. Matrix is mainly composed of calcite, and partly the aggregate of chlorite and felsic minerals. A little grains of angular quartz and plagioclase are up to 0.01 mm in size, oolitic grains consist of quartz, zeolite or limonite and they are scattered in the matrix. The veins filled with calcite and quartz occur perpendicular to the bedding surface.	
109	0-37	10E	CH	Sandstone	This rock is fine-grained calcite-cemented quartzose sandstone. Detrital grains consist mainly of quartz, calcite and ore minerals (iron mineral). And biotite, muscovite and feldspar grains were subordinately included. Quartz grains are generally subrounded in shape.	See Photo. No.34.
110	0-39	10E	CH	Mudstone	This rock mainly consists of argillaceous material. Clay mineral is the major constituent and quartz, chlorite, plagioclase, white mica, calcite and opaque minerals are also observed. This rock is argillaceous rock, and quartz and plagioclase are dominant. They are irregular in shape and fine-grained size. Fissility or bedding are not observed clearly.	
111	0-43	11E	PU	Limestone	The bulk of rock is wholly composed of fine-grained equigranular calcite. The detrital grains of quartz and iron-oxide occur rarely calcite veins are observed.	
112	0-46	9E	TR	Mylonitized granite	This rock essentially consists of quartz, plagioclase and alkali feldspar, and has scarcely number of mafic such as biotite, epidote and ore minerals. The rock is characterized by cataclastic texture and almost all the grain in this section altered to smaller grain aggregates. Some of quartz remains as phenocrysts. Quartz shows distinctly wavy extinction. Plagioclase is moderately saussuritized and argillized. Mafic minerals are altered to greenish chlorite and ore minerals.	
113	0-48	9D	MP	Biotite granite	This rock is holocrystalline and shows hypidiomorphic-granular texture. Plagioclase, quartz, alkali feldspar and brownish green biotite are the major constituents. Epidote, chlorite and ore minerals are observed as minor constituents. Plagioclase is euhedral to subhedral tabular and the core suffers sericitization. Alkali feldspar occurs as interstitial crystal. Perthitic texture and moire appearance are usually observed. Biotite is often small slender flakes.	See Photo. No. 17.
114	0-49	9D	PC	Biotite granite	This rock has a medium-grained and holocrystalline texture, and mainly consists of quartz, perthitic microcline, plagioclase and biotite. Biotite is often altered to epidote and chlorite. Plagioclase is hypidiomorphic and slightly saussuritized giving rise to sericite. Quartz and perthitic microcline are interstitial to plagioclase. The accessory minerals are apatite and opaque minerals.	See Photo. No.4.

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Observation	Remarks
115	0-50	8C	PG	Hornblende-biotite granodiorite	The rock is holocrystalline and mainly composed of quartz, plagioclase, biotite and green hornblende. Accessory minerals are apatite, sphene, epidote and opaque minerals. Plagioclase shows well developed albite twin and Carlsbad twin. Sometimes, it has zonal structure. Hornblende has bluish green pleochroism, and the angle between c-axis and Z principal vibration axis of it is about 27.	
116	0-53	9E	MP	Rhyolite	The rock shows porphyritic texture. Phenocrysts are composed of eroded quartz, plagioclase and biotite. Plagioclase is considerably decomposed into sericite. The groundmass characterized by the presence of fluidal structure consists of the aggregate of very fine-grained crystals of feldspar, quartz, sericite and magnetite. The biotite flakes which are now replaced by hematite are arranged parallel to the trend of flow.	
117	0-54	9E	SA	Red shale	This is characterized by fine-grained quartz, opaque materials and muscovite flakes. They make up lamination. The grain size of quartz is up to 0.02 mm. Muscovite is thought as a product of thermal metamorphism.	See Photo. No.33.
118	0-56	6G	TR	Augite basalt	The dominant phenocryst is augite. The color of augite is pale brownish yellow. Minerals in groundmass include lath-shaped plagioclase, augite and brown hornblende. Actinolite, muscovite and hematite are found as metamorphic minerals.	
119	0-57	6G	CH	Fine-grained arkose sandstone	The matrix is poor. The main constituent grains are quartz, plagioclase and alkali feldspars. Accessory minerals are biotite muscovite, hornblende, chlorite, tourmaline, rutile and opaque minerals. These grains are angular or partly subrounded and their average size is about 0.1 mm.	
120	0-58	6H	CH	Calcareous mudstone	This rock consists of very fine-grained calcite. Sometimes, interstitial quartz, ore mineral and aggregate of calcite are rarely observed.	
122	0-62	5I	CH	Sandstone	This rock is coarse-grained quartzose sandstone, which is composed of quartz, plagioclase, alkali feldspar (microcline), chert and a little matrix. Besides, as detrital grain, epidote, muscovite and ore minerals are rarely detected.	
123	0-63	3E	PG	Porphyrite	The phenocrysts of plagioclase and pale green hornblende are embedded in a microcrystalline groundmass. It consists of anhedral plagioclase and rounded quartz. As accessories, apatite and ore minerals are sometimes found. The phenocrysts of plagioclase occur generally as turbid crystals due to secondary alteration. Some plagioclases often show strong zonal structure. The subhedral to anhedral hornblende phenocrysts are partly altered to green chlorite, epidote and ore minerals.	

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Observation	Remarks
124	0-65	2E	PG	Meta diabase	This rock shows ophitic texture. Plagioclase, quartz and ore minerals are the major constituents. Chlorite and calcite are observed as secondary minerals. The anhedral phenocrysts may be undoubtedly originated from olivine and pyroxene. Plagioclase is subhedral and euhedral tabular crystal, often turbid in the interior, owing to alteration. Quartz is rarely detected. The slender flakes of ore minerals are abundant.	
128	H92004	3G	PU	Dolomite	This rock is medium-grained dolomite with subordinate minerals of calcite and quartz. Dolomite shows subhedral crystal.	
130	H92006	3F	PG	Muscovite granite	This is a holocrystalline rock, including quartz, plagioclase, alkali feldspar and muscovite as essential minerals. Accessory minerals are epidote and apatite. Both plagioclase and alkali feldspar are frequently crowded with sericite. Some crystals of muscovite are altered to epidote, ore minerals and calcite. Calcite veins are observed. The effects of deformation are well designated. Quartz shows strong wavy extinction.	
132	H92101	3G	PG	Biotite granite	This rock shows holocrystalline texture. It is composed of quartz, plagioclase, alkali feldspar and biotite as primary minerals. As accessory minerals, a few of epidote, hematite and other opaque minerals are observed. Plagioclase is frequently crowded with such secondary minerals as sericite and muscovite. Alkali feldspar occurs as interstitial crystal. Perthitic texture and moire appearance are of common occurrence in the alkali feldspar. The pseudomorph of an aggregate chlorite and ore mineral always builds in form of biotite.	
133	H92102	3G	PG	Quartz porphyry	This rock is hypocrystalline and shows porphyritic texture, characterised by occurrence of the phenocrysts of quartz, plagioclase, alkali feldspar and biotite. Matrix consists of quartz, plagioclase, glass and opaque minerals. Plagioclase is anhedral to subhedral tabular crystal, sometimes it shows zonal structure. The phenocrysts are subhedral and often twinned after Carlsbad-law. Perthitic texture and moire appearance are commonly observed. The pseudomorph of chlorite and ore mineral are always formed in form of biotite.	
134	H92105	3G	PU	Schistose crystalline limestone	This rock consists of two layers separated by a bedding plane. One consists of weakly to moderately elongated calcite and less amounts of quartz. The elongation direction is parallel to bedding trace and shows well defined schistose texture. In all of the calcite, twin lamellae are well developed. Large grains of quartz show no effects of deformation, while small grains are elongated parallel to bedding schistosity. The other layer consists of very fine-grained calcite. Large grains of calcite, which are probably derived from crinoid stems, are sporadically distributed. Other fragments of fossils are also observed. Bedding schistosity are well developed.	

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Observation	Remarks
137	H92203	2G	PU	Carcareous sandstone	This rock is fine-grained carcareous sandstone, which consists of quartz and plagioclase as clastic grains and calcite as matrix.	
138	H92204	2G	PU	Calcareous mudstone	The chief constituent grains are angular quartz plagioclase (up to 0.01 mm in size) and iron oxides. Accessory grains are composed of orthoclase, muscovite, epidote, rutile and zircon. These grains are embedded in calcareous and herruginous matrix. In thin slice, colorless band and blackish band alternate with each other at various intervals, the former consists chiefly of calcite, the latter iron oxides. Slaty cleavages are developed remarkably.	
140	H92206	2G	PU	Mudstone	The rock is a fine-grained calcareous mudstone. The essential constituents are calcite, quartz and ore minerals. Interstitial quartz sometimes shows wavy extinction.	
141	H92301	3G	PU	Mudstone	This rock is calcareous mudstone. Quartz, ore minerals and comparative large grains of calcite are detected.	
142	H93001	2G	PG	Biotite-quartz schist	The common constituent minerals are biotite and quartz. All minerals are fine-grained. Biotite is greenish brown prismatic. Quartz is all deformed so that it shows wavy extinction. Medium-grained quartz is anhedral and short prismatic biotite exists.	
145	H10103	2G	PU	Limestone	This rock is mainly composed of calcite crystals, calcite grains are arranged in an equigranular. Also the clots of fine-grained quartz are rarely observed.	
147	H10105	2G	PU	Limestone	This rock chiefly consists of calcite. A few of fine-grained quartz and plagioclase are included. Rarely coarse-grained calcite exists. At the border of calcite grains rainbow-like structure.	
148	H10107	2G	MD	Meta olivine basalt	The rock shows porphyritic texture. The micro phenocryst consists of olivine and plagioclase. Plagioclase, microlites, olivine and iron oxide make up the groundmass. The alteration of rock is remarkable. Olivine is decomposed to serpentine, iddingsite and calcite. The fine-grained calcites are disseminated in the groundmass. Amygdules filled with calcite are well developed.	
149	H10108	2G	MD	Plagioclase porphyrite	The rock shows porphyritic texture. Phenocrysts consist of plagioclase (1.5 mm length in average). Groundmass is fine-grained aggregates of plagioclase lath and minute iron oxide. Because of alteration, plagioclase is partly altered to calcite and epidote. The vein and cavity filled with calcite, quartz, chlorite, a little albite and epidote are observed.	

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Observation	Remarks
150	H10207	2G	MI	Sandstone	This rock is fine-grained (maximum 0.7 mm in size) quartzose sandstone (more than about 80 %) consisting mainly of clastic quartz grain. Secondary overgrowth of quartz grain is often observed so that each worn quartz grain is clearly shown by dust ring. Additional minerals include feldspar, chert, muscovite, tourmaline and zircon.	See Photo. No.25.
151	H10209	2G	MI	Basaltic vitric tuff	Originally, this rock is composed of glass, crystals of olivine, plagioclase, magnetite and small quantities of the fragments of grassy basaltic rock. The fragments of initial glasses are now converted to the aggregate of chlorite, sericite, quartz and calcite. Olivine is decomposed to serpentine and iron oxides. Idiomorphic plagioclase is wholly replaced by calcite. The rock fragments are fine particle (up to 1 mm in size), and usually charged with magnetite dust.	
152	H10501	3F	PU	Limestone	This rock chiefly consists of calcite. These calcite grains form mosaic texture. All of the grains show wavy extinction. In the cracks of the rock, opaque minerals are formed.	
153	H10502	3F	PU	Crystalline limestone	The common constituent minerals in this section are calcite and quartz. Calcite grains are fine- to medium-grained. Along the elongated direction of the large calcite grain, dirty part exists. Calcite cleavages are straight but grains show wavy extinction. Perhaps, a few coarse-grained calcites were recrystalized as the secondaries, so that they grew one large grain. Quartz in this rock is fine-grained crystal.	
154	H10503	3F	PU	Dolomite	This rock consists only of dolomite with various sizes. Being soiled with impurities, all of the grains show pale to dark brown in color. Two sets of cleavage are well developed in each larger of dolomite grains, but twin-lamella is rare.	
165	H101302	3F	TR	Porphyrite	This rock shows porphyritic texture characterized by occurrence of the phenocrysts of plagioclase and alkali feldspar. These phenocrysts are found in a microcrystalline groundmass of quartz, plagioclase of the slender flakes and ore minerals. As secondary minerals, interstitial calcite and epidote are frequently observed. The porphyritic crystals of plagioclase are subhedral tabular and include muscovite and sericite, owing to alteration.	
171	H101404	3F	PU	Crystalline limestone	This rock consists of various sizes of calcite. The range of grain size variation is very wide. Some clustered quartzoses are distributed as minor constituents. Various size of veinlets filled up with large grains of calcite are developed. Schistose texture is not recognized.	

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Observation	Remarks
178	H102701	2G	MD	Biotite granodiorite	This rock has a fine-grained and holocrystalline texture, and mainly consists of quartz, microcline and biotite. Biotite is usually altered to muscovite, chlorite and opaque minerals. Plagioclase is very saussurized giving rise to sericite. The accessory minerals are apatite and opaque minerals.	
179	H102703	2G	MD	Hornblende-plagioclase porphyrite	The common constituent minerals are plagioclase, quartz, chlorite and sericite. Original minerals are plagioclase phenocryst and in the groundmass quartz and perhaps hornblende. Initially this rock is fine-grained volcanic rock. Probably chlorite keeps the initial form that suggests original hornblende. Plagioclase that is medium-grained phenocryst is altered to sericite and sometimes has zonal structure. Medium-grained quartz is corroded and all of the quartz show wavy extinction. Calcite veins run through some of part and medium-grained calcites exist.	
180	H102704	2G	MD	Hornblende-plagioclase porphyrite	This rock has porphyritic texture. Plagioclase, brown hornblende and hornblende phenocryst are abundantly found in a microcrystalline groundmass. Sometimes orthoclase occurs as phenocryst, but alkali feldspar is found as both phenocryst and groundmass. Biotite is decomposed into chlorite, but the hornblende always becomes changed into the aggregate of smaller pale green chloritic substances. Plagioclase phenocryst is frequently ill-shaped and shows strong zonal structure. As secondary minerals, sericite and muscovite are sporadically distributed in it.	
187	H102806	3F	PU	Limestone	This rock consists mainly of calcite and subordinate amount of quartz and plagioclase. The part of calcite is holocrystalline. All of the calcite show wavy extinction. At gaps of calcite, radial aggregates of quartz and plagioclase which is recrystallized exist. In this part, calcite grains are included.	
188	H102807	3F	PU	Mudstone	This rock is calcareous mudstone and shows fine-grained texture. It consists of calcite, interstitial quartz and ore minerals.	
189	H102808	3F	PU	Oolitic limestone	This rock is characterized by a well-developed oolitic structure. It shows that this rock has been built up in the shallow sea. Calcite crystals are equigranular and about 0.03 mm in size. Calcite veins are observed in thin section.	
190	H102809	3F	PU	Crystalline dolomite	This rock is crystalline dolomite. Dolomite occurs as poligonal crystal. Interstitial quartz and ore minerals are embedded in dolomite crystals.	
191	H102810	3F	PU	Limestone	The constituent minerals are calcite and quartz. Calcite consists of poligonal crystals. The aggregate of fine-grained quartz occupies the interspace of calcite grains.	

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Observation	Remarks
192	H102811	3F	PU	Limestone	This rock almost consists of equigranular calcite. The anhedral fine-grained quartz is scattered. The small quantity of quartz is scattered in interspace of calcite grains. Some calcite veins are running throughout the whole thin section.	
193	H102812	3F	PU	Limestone	The rock consists of calcite accompanied with small quantity of quartz, zircon and iron oxide. The size of calcite is about 0.05 mm in average. Calcite veins are observed rarely.	
194	H102813	3G	PU	Limestone	Almost grains in this rock are initially fossils. Some of these fossils are replaced by calcite and others are not. These fine fossils are ranged roughly one direction. Very narrow calcite veins run through over the thin section. Very fine-grained quartz rarely exists.	
195	H102814	3G	PU	Fine-grained calcareous sandstone	This rock consists of fine detrital quartz grains and calcareous matrix. Opaque minerals with elongated shape are also included as minor constituents. Very weak schistose texture is observed. Calcite veinlets filled up with large clean calcite grains are also observed.	See Photo. 27.
196	H102815	3G	PU	Limestone conglomerate	The rock fragment is limestone, which is rounded and has some calcite veins. The matrix consists of oolite, micrite, a few quartz grains and a small amount of opaque minerals.	See Photo. 30.
197	H102816	3G	PU	Calcareous sandstone	The rock has a fine-grained texture. The grains are composed of quartz, some rock fragments and hematite. The rock fragments are chert. The matrix is composed of quartz and calcite. Quqrtz-calcite vein is observed in thin section.	
198	H102817	3G	PU	Limestone	This rock is crystalline limestone. Quartz and calcite veins are observed. Detrital quartz and iron minerals are also rarely detected. Altered minerals are not observed at all.	
199	H102818	3G	PU	Limestone	This rock is mainly composed of calcite. The size of calcite crystal is about 0.05 mm. Otherwise a few opaque minerals are observed in thin section. Calcite veins are observed.	
200	H102819	3G	MI	Red mudstone	Matrix is ferruginous and calcareous. The componets of grain are angular quartz (0.05 mm in mean length) and small quantity of plagioclase. The proportion of grains to matrix is very low. The thin slice shows reddish color due to the possession of ferruginous matrix.	See Photo. No.26.
201	H102820	3G	MI	Fine-grained calcareous sandstone	The grains of quartz and calcite are embeded in the calcareous cement. Generally quartz grain is intruded by calcite vein. The calcareous organisms such as fusulinid are observed in the matrix. Each grain is frequently coated by iron oxide.	

Sample No.	Field No.	Locality	Formation	Rock Name	Microscopic Observation	Remarks
202	H102901	3F	MD	Microdiorite	This rock holocrystalline microdiorite, which consists of actinolite and plagioclase. Plagioclase is altered to sericite in part. Mafic minerals are chloritized.	See Photo. 16.
211	V102203	2G	MD	Hornblende granite	The rock has holocrystalline texture and consists mainly of quartz, plagioclase, microcline and green hornblende. Quartzes occur both as large grain and interstitial small grain. Feldspars and hornblende are generally hypidiomorphic. The former are slightly saussurized giving rise to sericite and epidote. The accessory minerals are sphene and opaque minerals.	
212	P92201	2G	PG	Red granite	This rock is composed of quartz, microcline, plagioclase, sphene and apatite. Each mineral grain is coarse-grained. Plagioclase and microcline are altered to sericite in part. Microcline shows microcline texture. Mafic minerals are chloritized.	See Photo. No.7.
213	H92106	3G	MI	Sandstone	This rock is a fine-grained calcite-cemented quartzose sandstone. Grains are mainly composed of quartz, calcite, plagioclase, rock fragments and opaque minerals. The amount of quartz grains are approximately 50 % to the total composition. Grains are very angular and well-sorted.	

Table 6. Microscopic Observations of polished sections

(1)

Sample No.	Field No.	Locality	Types of Ore Deposit	Reflecting Microscopic Observation	Remarks
P-1	F110501	Mina San Vicente San Vicente Ore deposit, No.2 Ore body 1625m S.L	Lead-zinc bedded deposit Brown Sphalerite	Identified minerals; galena, sphalerite, chalcopyrite and pyrite. Galena: Galena is the most abundant mineral in this specimen (more than 90 per cent of the polished surface). On the polished surface, triangular pits are developed commonly. The mineral includes sphalerite in various forms ranging from a few microns to about 500 microns in size. Sphalerite in galena usually includes emulsoidal chalcopyrite (less than 10 microns). Chalcopyrite occurs only in galena but also in gangue minerals as small grains (less than 50 microns).	See Photo. No.40.
P-2	F110502	Mina San Vicente San Vicente Ore deposit, No.2 Ore body 1625m S.L	Lead-zinc bedded deposit Black Sphalerite	Identified minerals; sphalerite, chalcopyrite and pyrite Sphalerite: Sphalerite is main constituent mineral of this specimen. According to Skinner et.al. (1959) and Skinner (1961), FeS content of sphalerite was determined by X-ray powder diffraction method, using internal standard of sodium chlorite. FeS content of the sphalerite is relatively small (5.92 mol per cent in FeS). and may formed at relatively lower temperatures. Sphalerite usually includes very minute amount of emulsoidal chalcopyrite. Pyrite occurs in sphalerite and in gangue minerls as euhedral or subhedral grains.	From the observed textural relationships, it may be concluded that pyrite formed later than sphalerite.
P-3	H10504	Mina San Vicente San Vicente Ore deposit, No.2 Ore body outcrop 1600m S.L	Lead-zinc bedded deposit Zebra Ore	Identified minerals; sphalerite, chalcopyrite, pyrrhotite and pyrite. Sphalerite: Sphalerite is the main constituent mineral in this specimen. The mineral usually includes emulsoidal chalcopyrite. Some chalcopyrite blebs are oriented along crystallographic plane of the host sphalerite. Sphalerite also includes small amount of pyrrhotite (less than 30 microns). Iron content of sphalerite was determined by X-ray powder diffraction method described already in the previous. The sphalerite contains 5.41 mol per cent of FeS. This value is relatively low and may suggest that the formation-temperature of sphalerite is relatively low (less than 500°C).	

Sample No.	Field No.	Locality	Types of Ore Deposit	Reflecting Microscopic Observation	Remarks
P-4	H102805A	Mina San Vicente Siete Jeringas deposit Exploration tunnel	Lead-zinc bedded deposit	Identified minerals; galena and sphalerite. Galena: The specimen is mainly composed of galena and the mineral includes small amount of sphalerite. Triangular pits along the cleavage lines are very common. Sphalerite: Textural relationships of sphalerite indicate two mineralization stage: One is related to the main sulfide-stage represented by galena and the other is that of later one represented by small veinlets of sphalerite. The latter is not important from the economical stand point of view.	See Photo. No.41.
P-5	H102805B	Mina San Vicente Siete Jeringas deposit Exploration tunnel	Lead-zinc bedded deposit	Identified minerals; sphalerite and pyrite. Sphalerite: The specimen is composed of almost only sphalerite. The mineral in question is very pure including none of other sulfides such as pyrrhotite and chalcopyrite. Only small amount of pyrite blebs ranging from few to some tens microns are distributed among the specimen. Probably, pyrite belongs to certain later stage of mineralization than that of sphalerite. FeS mol per cent of sphalerite was determined by X-ray powder methods described previously. The sphalerite contains 6.80 FeS mol per cent, suggesting intermediate temperature of its formation.	
P-6	H102903	Mina San Vicente Uncush Sur deposit outcrop	Lead-zinc bedded deposit	Identified minerals; sphalerite, chalcopyrite and pyrite. Sphalerite and chalcopyrite: The specimen includes very small amount of sphalerite, chalcopyrite and pyrite. Sphalerite usually includes emulsoidal chalcopyrite. Pyrite occurs very small grains (less than 20 microns) all over the samples. Very minute grains of greenish mineral with strong anisotropy is recognized. Owing to its minute size, the identification of the mineral is not successful.	
P-7	P103101	Mina San Vicente Llanco Cateador deposit outcrop	Lead-zinc bedded deposit	Identified minerals; galena, chalcopyrite, sphalerite and pyrite. The specimen has only very small amount of ore minerals. Among the gangue minerals, galena is almost predominant mineral and it includes, small blebs of pyrite. Chalcopyrite commonly occurs as minute inclusions (less than 10 microns in diameter). Sphalerite rarely occurs as small veinlets and minute blebs of pyrite (less than 50 micorns) are sometimes recognized.	In some parts of the sample galena is found in considerable amount.

Sample No.	Field No.	Locality	Types of Ore Deposit	Reflecting Microscopic Observation	Remarks
P-8	OP-1	Mina Pichita Carga	Lead-zinc bedded deposit	Identified minerals; galena, sphalerite, pyrite, chalcopyrite and "bluish mineral X". The specimen is composed mainly of galena, pyrite, sphalerite and bluish mineral X. Galena is the most predominant mineral among these minerals and includes euhedral or subhedral grains of pyrite ranging from a few microns to about 50 microns in size. Sphalerite is also included in galena in small amount. Greenish mineral X is recognized. It occurs in galena associating intimately with pyrite blebs. Optical properties of the mineral under the reflecting microscope are similar to those of liveingite ($5PbS \cdot 4As_2S_3$). Fluorescent X-ray was taken using LiF crystals. The results indicate that the specimen includes Pb, Bi and As with small amount of Fe, Cu and Zn. Owing to the minute size of the mineral and also the difficulty in getting pure sample, X-ray powder diffraction data mean very little. Considering from the results of fluorescent X-ray, the mineral may belong to (Pb-) Bi-As sulphosalt. In the literatures up to the present, no X-ray powder data for liveingite have been reported. Efforts to identify the mineral described above was vein. Textural relationships between galena, pyrite and mineral X are shown in Photo. No.42.	See Photo. No.42.
P-9	S91202	Mina Santos	Lead-zinc skarn deposit	Identified minerals; galena, sphalerite and pyrite. Galena and sphalerite: These two minerals occur together showing "mutual boundaries" with each other, and, in general, have no inclusion of another sulfides. Only in few cases, sphalerite has minute inclusion of emulsoidal chalcopyrite (less than 30 microns).	
P-10	T91902	Mina Olividada	Vein type copper deposit	Identified minerals; sphalerite, chalcopyrite and pyrite. Sphalerite: The sample includes only small amount of opaque minerals and sphalerite is the most common mineral. In general, sphalerite is very pure and rarely includes minute inclusion of emulsoidal chalcopyrite(less than 10 microns in diameter). Subhedral blebs of pyrite are scattered among the specimens ranging from a few to 20 microns in size.	The ore minerals mean very little in this sample.

Sample No.	Field No.	Locality	Types of Ore Deposit	Reflecting Microscopic Observation	Remarks
P-11	P100001	Mina Soldad	Lead-zinc skarn ore deposit	Identified minerals; galena, sphalerite and chalcopyrite. Galena: Among the opaque minerals in this specimen, galena is the most common mineral (more than 80 per cent in volume). Triangular pits along the cleavage lines are sometimes observable. The mineral includes very minute inclusion of chalcopyrite and sphalerite (less than 10 microns in diameter). Sphalerite: The mineral occures in two forms. One is small veinlets and the other is minute blebs in galena, respectively. The former cuts clearly galena, which suggests that there exist two different stage of sphalerite, i.e. one belongs to the main stage represented by galena and the other is the subsequent hydrothermal stage represented by small veinlets of sphalerite with small amount of chalcopyrite. Chalcopyrite: Chalcopyrite is not main constituent mineral in this sample. It occures as very minute inclusions in galena (less than 10 microns) and as also small inclusions in sphalerite.	The main sulfide-mineralization is represented by almost pure galena which may intimately related to the formation of skarn.
P-12	OS-1	Mina San Alberto	Undetermined copper deposit	Identified minerals; hematite(?) and greenish-colored X. The specimen includes very small amount of opaque minerals. Along certain veins of gangue minerals, small white-colored mineral is sometimes observed. Because of the strong random reflections or reflections of gangue minerals, and also the minute size of the mineral, it is very difficult to identify the mineral. Hematite is the most possible. Another small greenish mineral (less than 10 microns) is also recognized.	Based on the relatively small amount of opaque minerals in this specimen, the sample is, economically, not important.
P-13	T91803	Tapo	Vein typed iron deposit	Identified minerals; hematite and magnetite. Hematite: The mineral occurs as tabular or thin-tabular forms. The size of the crystals is ranging from some tens microns to about 1 mm. Occasionally, it occurs as fibrous on radiated aggregates. Magnetite is not common. Magnetite is observed associated with tabular hematite. Lamellar twinning in hematite is occasionally recognizable.	The amout of magnetite in this sample is very small. It is remnats of replacing by hematite. However, magnetite is also developed in gangue minerals independetly from hematite, which suggests the different origin of the mineral.

Sample No.	Field No.	Locality	Types of Ore Deposit	Reflecting Microscopic Observation	Remarks
P-14	S102802	Mina Huachiroque	Sedimentary mangane deposit	Identified minerals; intermediate phase between coronadite (PbR_8O_{16}) and hollandite (BaR_8O_{16}). R = mainly Mn, Fe and Co. Under the reflection microscope, the specimen is composed of almost one phase. This phase has creamy white in color with faint yellowish tint and has distinct bireflectance. Under the crossed nicols, strong anisotropy is observed from dark grey to yellowish white. The mineral occurs as platy crystals or arranged in sheaf-like aggregates. In some cases, the crystal developes more than 1 mm. Fluorescent X-ray were taken using LiF and EDDT crystals. With EDDT crystal, only manganese was detected. With LiF crystal, Mn with small amount of Pb, Zn and Fe were detected. X-ray powder diffraction patterns were also taken using CuK radiation, resulting following d-spacings: 3.12, 2.40, 2.20, 2.11, 1.97, 1.62 and 1.56 A. Considering from the above characteristics, especially based on the optical properties under the reflecting microscope and results of Fluorescent X-ray, the mineral is identified as the intermediate phase between coronadite and hollandite (much closer to coronadite).	See Photo. No.44.
P-15	H102601	Rio Naianjal	Not determined	Identified minerals; hematite. Hematite: Hematite is the only opaque mineral in this sample. The crystal forms of the mineral are tabular or thin-tabular and, in some parts, it occurs as fibrous or radiated aggregates of needle-shaped crystals. Lamellar twinning is very common which may caused by certain strain. The direction of the twinning is usually intersects the elongation direction of the crystals.	

Sample No.	Field No.	Locality	Types of Ore Deposit	Reflecting Microscopic Observation	Remarks
P-16	F91902	Monobanda	Vein typed sulfides in Precambrian	Identified minerals: pyrite, chalcopyrite and hematite. Pyrite: More than 90 per cent of opaque minerals of this sample are composed of pyrite. It occurs as euhedral or subhedral forms ranging from 50 to 700 microns in diameter. Hematite: Hematite occurs as tabular or thin-tabular forms and fibrous or radiated aggregates of needle-shaped crystals. The size of the crystals of this mineral is ranging from 0.3 to 0.4 mm. Hematite shows no direct genetical relation to pyrite and occurs independently in gangue minerals. Chalcopyrite: Only a few minute grains of chalcopyrite are found in gangue minerals (less than 10 microns in diameter).	Three minerals described left show none of the genetical relationships and may be derived from different solutions (minerlization stage, respectively.

Table 7. Microphotographs

Thin section

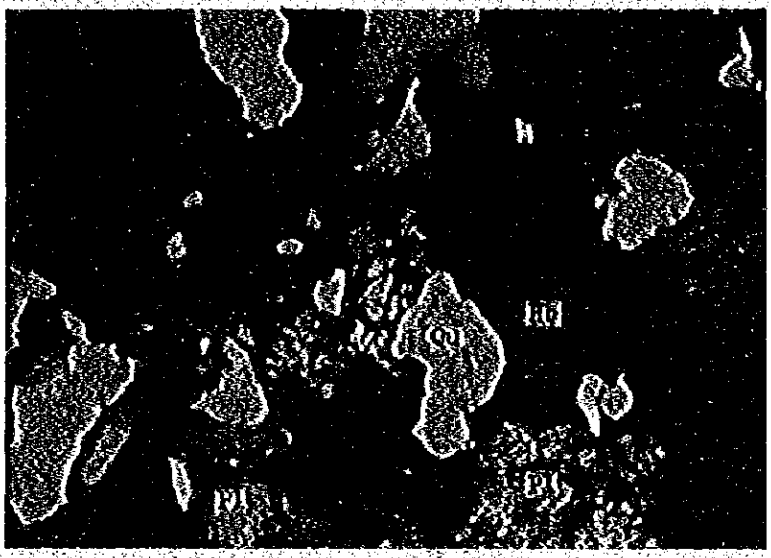
	Sample No.	Rock name	Locality
(1)	S93001	Hornblende gneiss	8F
(2)	T91304	Muscovite-quartz schist	2E
(3)	T92103	Talc schist	2F
(4)	O-49	Biotite granite	9D
(5)	F92202	Biotite granite	2G
(6)	O-6	White granite	2G
(7)	F92201	Red granite	2G
(8)	F102401	Aplitic granite	7E
(9)	T92101	Muscovite granodiorite	2E
(10)	F101202B	Mylonitized granite	7D
(11)	T90906	Quartz porphyry	2E
(12)	F92203	Meta-andesite	2G
(13)	F101201	Dacite	7E
(14)	F101301	Hornblende diorite	6D
(15)	F92303	Microdiorite	4F
(16)	H102901	Microdiorite	3F
(17)	O-48	Biotite granite	9D
(18)	S92101	Hornblende monzonite	7G
(19)	T92202	Rhyolitic tuff breccia	2D
(20)	F101102	Rhyolite	6E
(21)	S92104	Clinopyroxene bearing hornblende porphyrite	7G
(22)	T91306	Muscovite-chlorite phyllite	2D
(23)	T91601	Crystalline limestone	2D
(24)	F91201	Conglomerate	4G
(25)	H10207	Sandstone	2G
(26)	H102819	Red mudstone	3G
(27)	H102814	Calcareous sandstone	3G
(28)	S19602	Mudstone	6F
(29)	F92304	Crystalline dolomite	4F
(30)	H102815	Limestone conglomerate	3G
(31)	T91307	Oolitic limestone	2D
(32)	O-17	Sandstone	6G
(33)	O-54	Red shale	9E

(34)	O-37	Sandstone	10E
(35)	S102502	Red calcareous mudstone	7I
(36)	S101401	Gypsum	10E
(37)	F93002	Limestone	10H
(38)	F100202	Sandstone	11H
(39)	H100102	Mudstone	10I

Polished section

(40)	F110501	Lead-Zinc bedded deposit	Mina San Vicente
(41)	H102805A	Lead-Zinc bedded deposit	Mina San Vicente
(42)	OP-1	Lead-Zinc bedded deposit	Mina Pichita Carga
(43)	F103001	Lead-Zinc skarn ore deposit	Mina Soldad
(44)	S102802	Sedimentary manganese deposit	Mina Huachiroque

(1)



S93001
Locality: 8P
Basement complex
Hornblende gneiss
Qu: Quartz
Hb: Hornblende
Pl: Plagioclase

Crossed nicols
1 mm

Plagioclase is mostly sericitized.

(2)

T91304
Locality: 2E
Basement complex
Muscovite-quartz schist

Crossed nicols
1 mm

The common constituent minerals are quartz, muscovite, and opaque minerals. Most of the muscovite elongates paralled to the foliation.

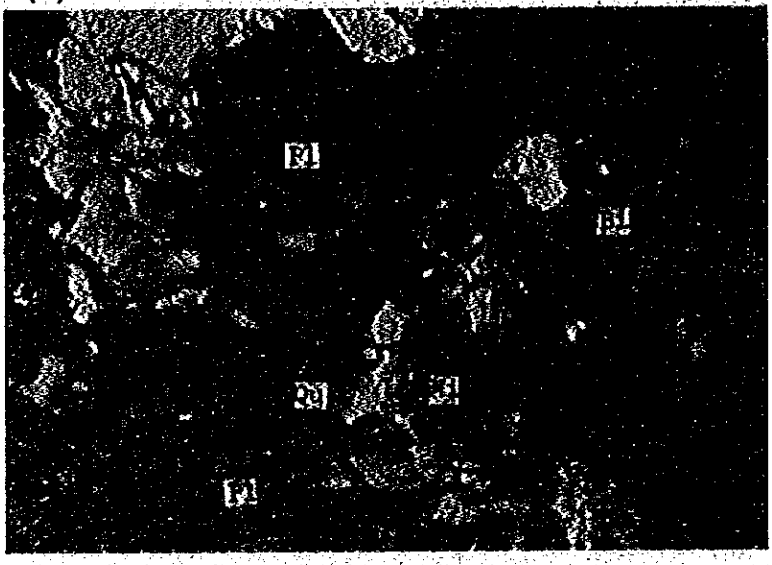
(3)

T92103
Locality: 2F
Basement complex
Talc schist
Ta: Talc

Crossed nicols
1 mm

This rock consists of talc, chlorite and magnetite.

(4)

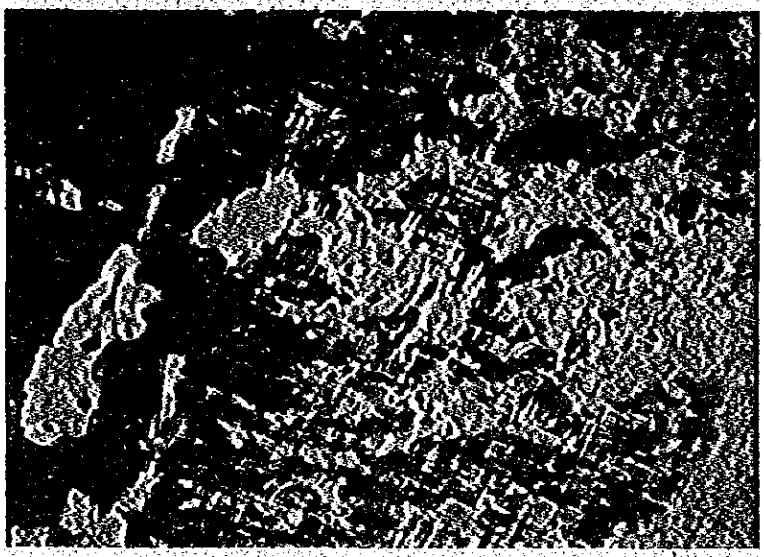


O-49
Locality: 9D
Permian-Triassic igneous rock
Biotite granite
Qu: Quartz
Pl: Plagioclase
Mi: Microcline
Bi: Biotite

Crossed nicols
1 mm

This rock has a medium-grained and holocrystalline texture.

(5)

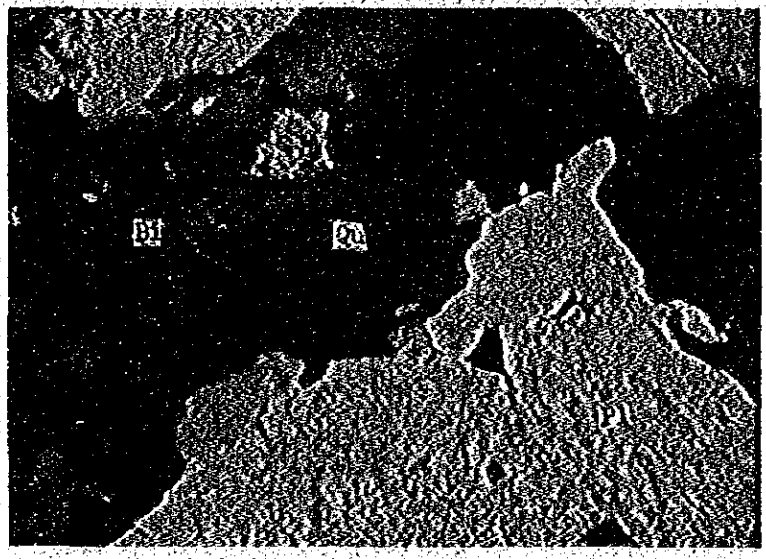


F92202
Locality: 2G
Permian-Triassic igneous rock
Biotite granite

Crossed nicols
1 mm

Showing perthitic microcline.

(6)

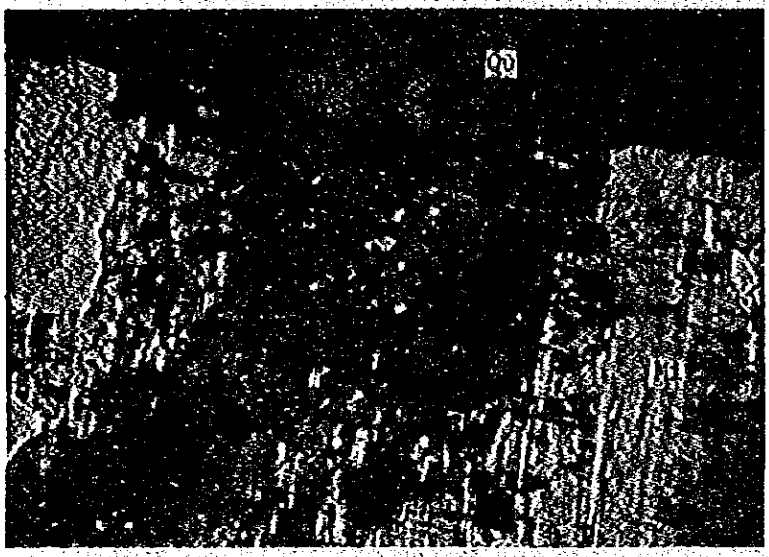


O-6
Locality: 2G
Permian-Triassic igneous rock
White granite
Qu: Quartz
Bi: Biotite
Pl: Plagioclase

Crossed nicols
1 mm

This rock is coarse-grained and consists mainly of quartz, microcline, plagioclase and biotite. Feldspars are sericitized.

(7)

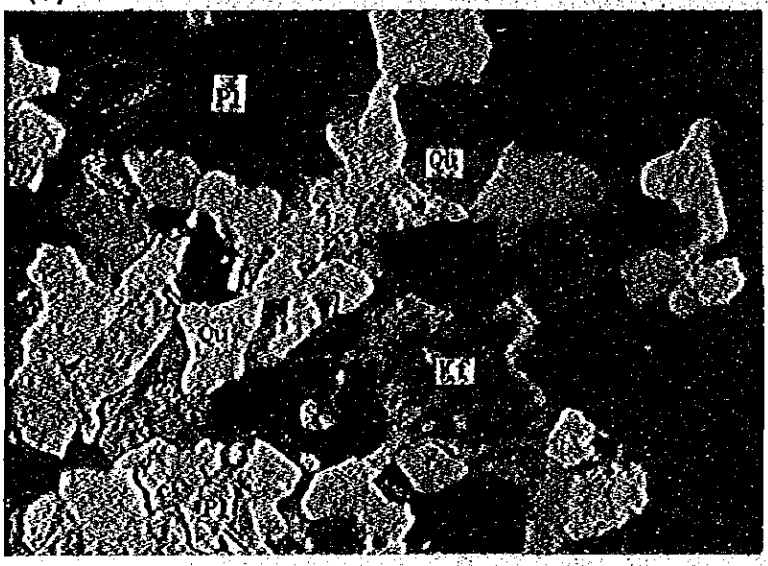


P92201
Locality: 2G
Permian-Triassic igneous rock
Red granite
Mi: Microcline
Qu: Quartz

Crossed nicols
1 mm

This rock is composed of quartz, microcline, plagioclase, sphene and apatite. Microcline is sericitized.

(8)

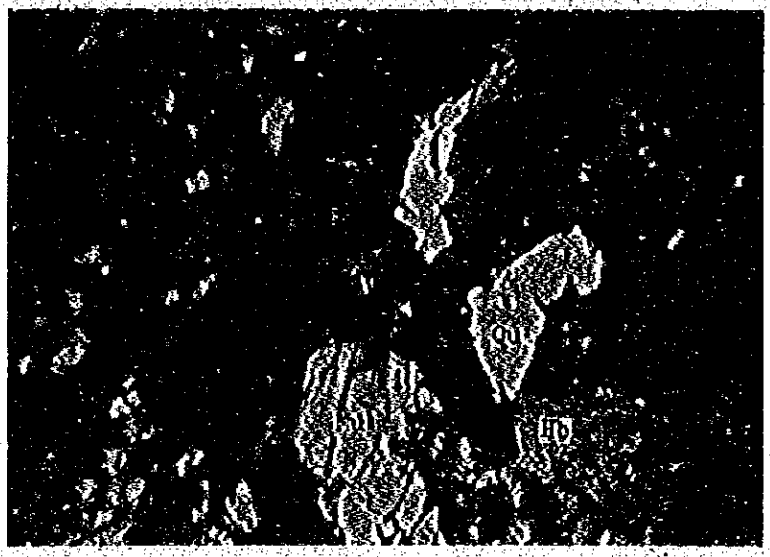


P102401
Locality: 7E
Permian-Triassic igneous rock
Aplitic granite
Qu: Quartz
Pl: Plagioclase
Kf: Potassium feldspar

Crossed nicols
1 mm

Showing holocrystalline texture.

(9)

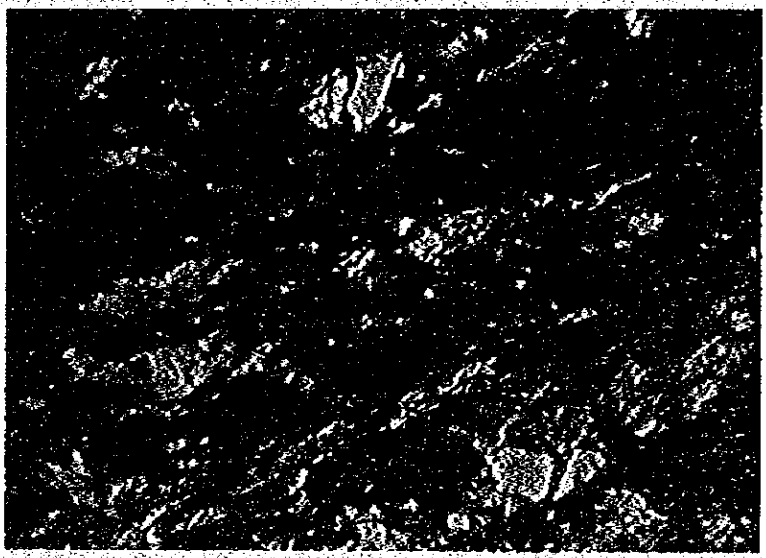


T92101
Locality: 2E
Permian-Triassic igneous rock
Muscovite granodiorite
Qu: Quartz
Hb: Hornblende
Mu: Muscovite

Crossed nicols
1 mm

Muscovite is decomposed into pale green chlorite.

(10)

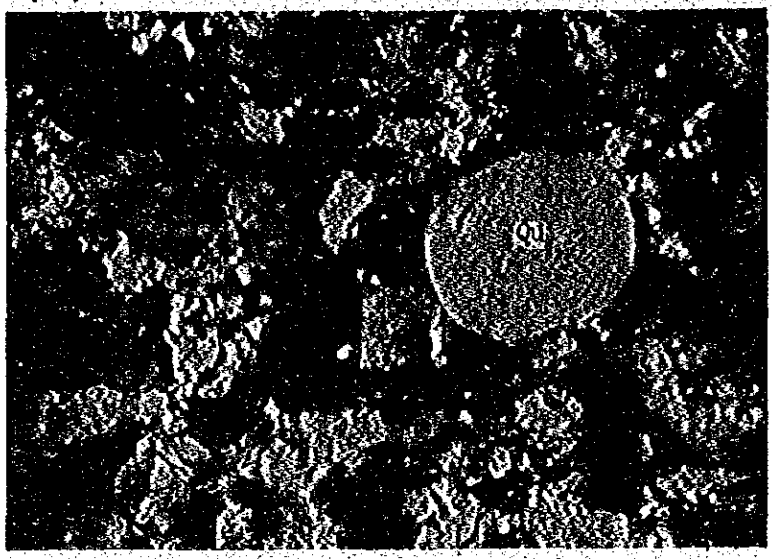


T101202B
Locality: 7D
Permian-Triassic igneous rock
Mylonitized granite
Qu: Quartz

Crossed nicols
1 mm

Showing mylonitic texture.

(11)

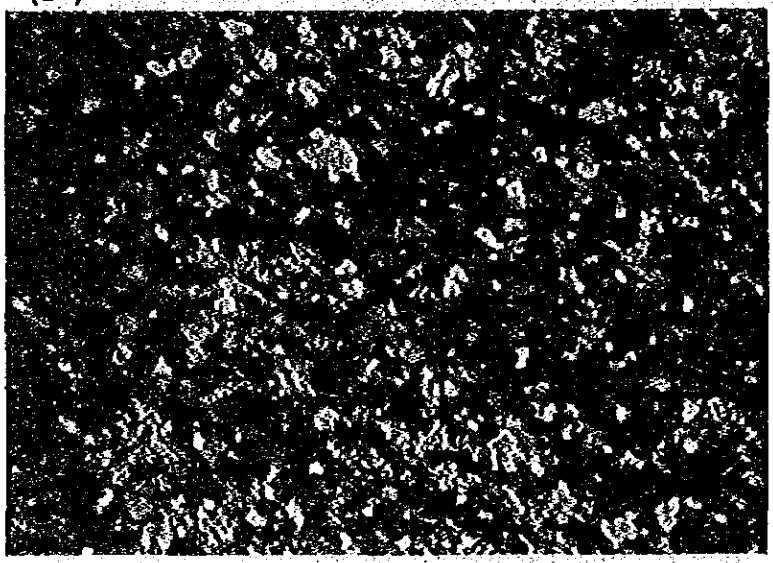


T90906
Locality: 2E
Permian-Triassic igneous rock
Quartz porphyry
Qu: Quartz

Crossed nocols
1 mm

Spherulitic granophyre exists in matrix.

(12)

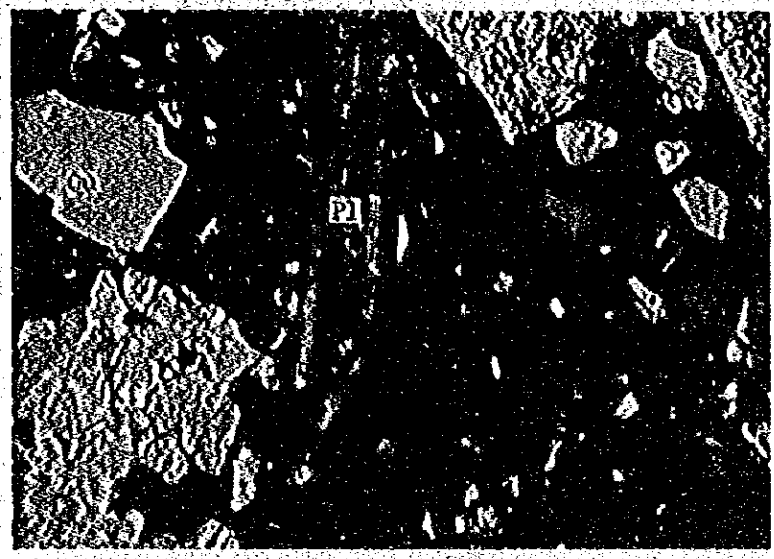


E92203
Locality: 2G
Permian-Triassic igneous rock
Meta-andesite

Crossed nicols
1 mm

This rock consists of quartz and biotite. Foliation in this rock is represented by the parallel arrangement of biotite.

(13)

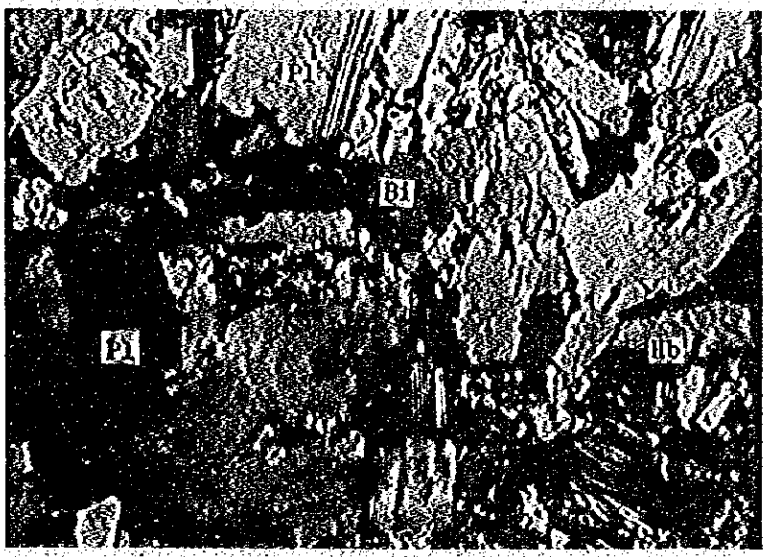


P101201
Locality: 7E
Permian-Triassic igneous rock
Dacite
Pl: Plagioclase
Qu: Quartz
Kf: Potassium feldspar

Crossed nicols
1 mm

This rock shows porphyritic texture, which consists of quartz, plagioclase, microcline and muscovite.

(14)

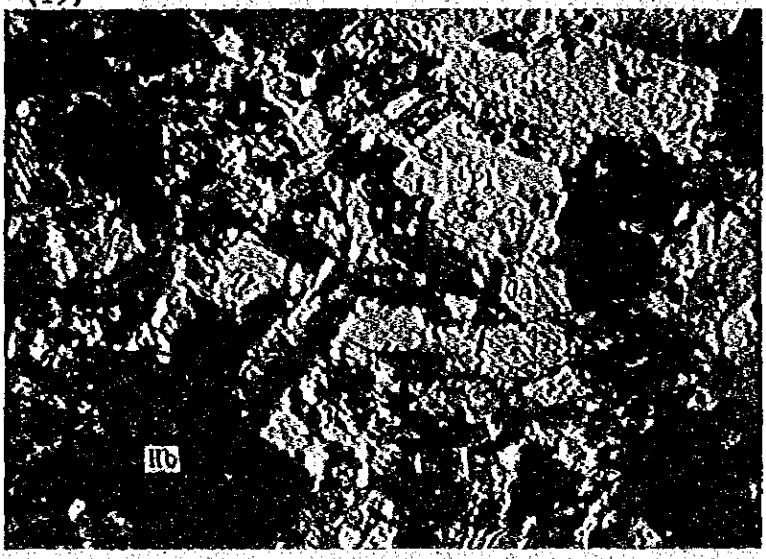


P101301
Locality: 6D
Permian-Triassic igneous Rock
Hornblende diorite
Pl: Plagioclase
Hb: Hornblende
Bi: Biotite

Crossed nicols
1 mm

Plagioclase shows zonal structure.

(15)

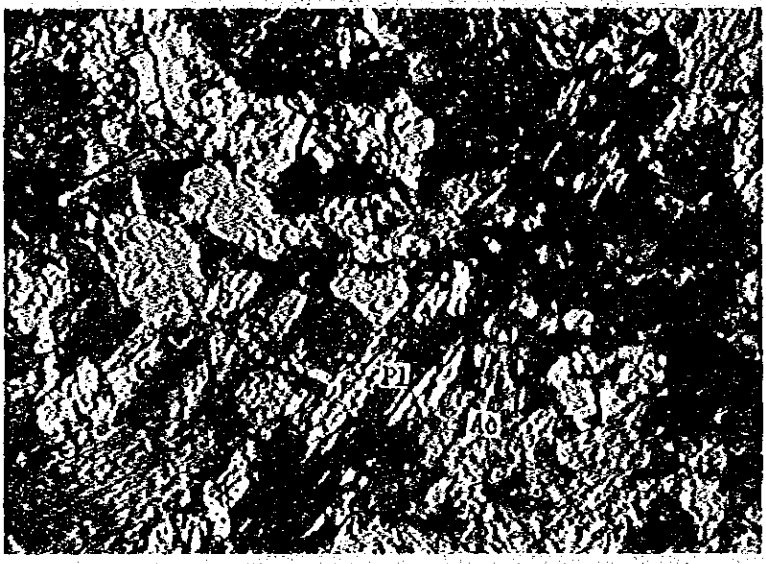


P92303
Locality: 4F
Jurassic igneous rock
Microdiorite
Hb: Hornblende
Ca: Calcite
Pl: Plagioclase

Crossed nicols
1 mm

This rock consists mainly of hornblende, calcite and plagioclase.

(16)

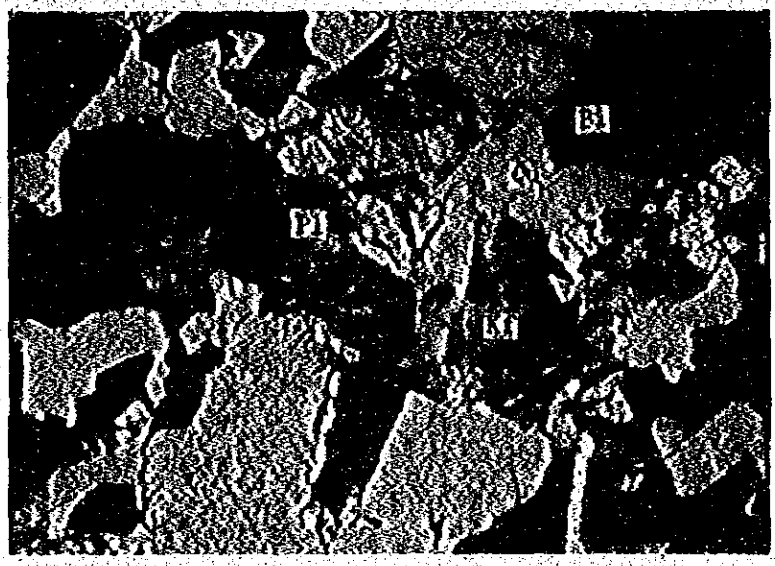


H102901
Locality: 3F
Jurassic igneous rock
Microdiorite
Pl: Plagioclase
Ac: Actinolite

Crossed nicols
1 mm

This rock is holocrystalline microdiorite.

(17)

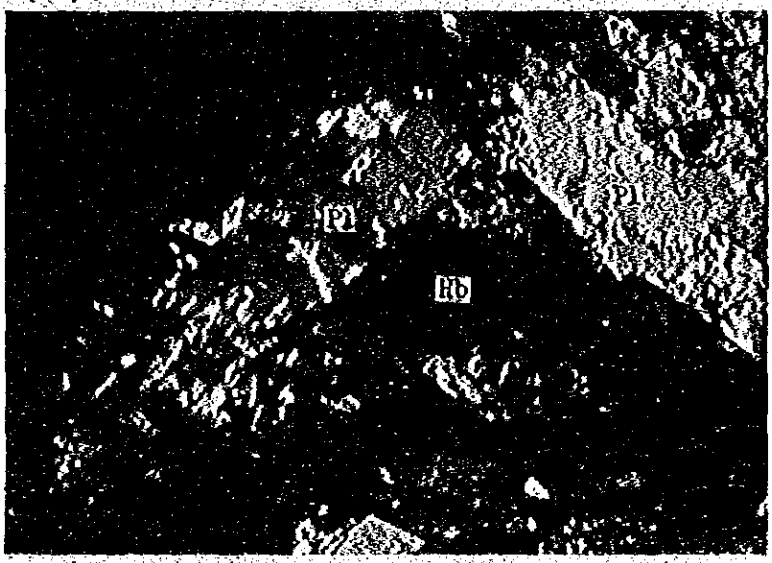


O-48
Locality: 9D
Palaeogene igneous rock
Biotite granite
Qu: Quartz
Kf: Potassium feldspar
Bi: Biotite

Crossed nicols
1 mm

This rock is holocrystalline and shows hypidiomorphic-granular texture.

(18)

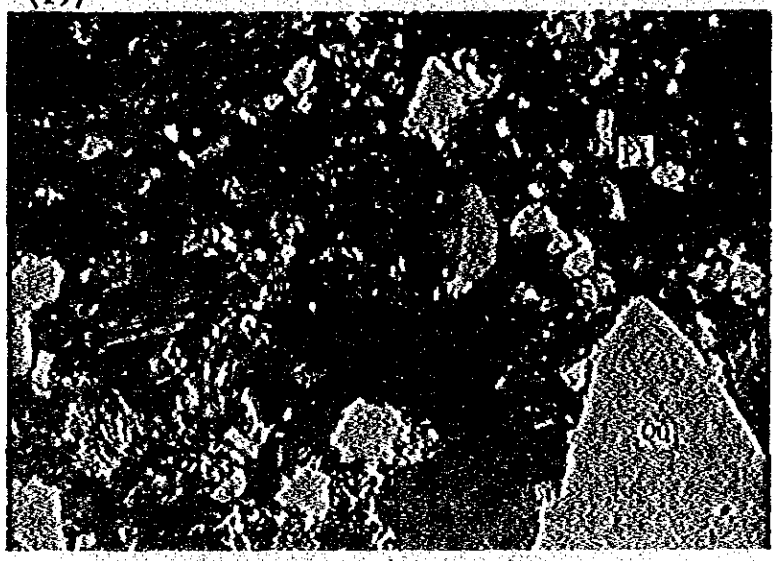


S92101
Locality: 70
Palaeogene igneous rock
Hornblende monzonite
Pl: Plagioclase
Hb: Hornblende

Crossed nicols
1 mm

Hornblende is chloritized.

(19)

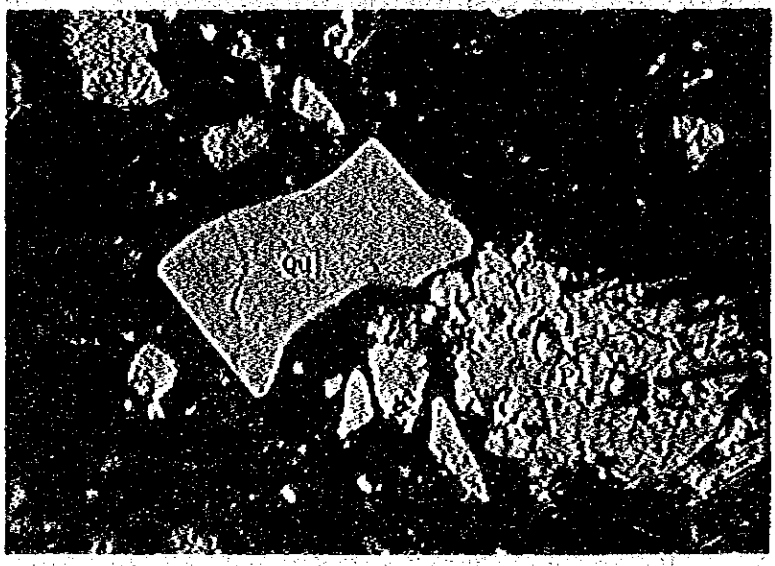


T92202
Locality: 2D
Palaeogene igneous rock
Rhyolitic tuff breccia
Qu: Quartz
Pl: Plagioclase

Crossed nicols
1 mm

This rock consists of phenocrysts of quartz and plagioclase.

(20)



F101102
Locality: 6E
Palaeogene igneous rock
Rhyolite
Qu: Quartz
Pl: Plagioclase

Crossed nicols
1 mm

This rock shows porphyritic texture. Groundamss is usually glassy.

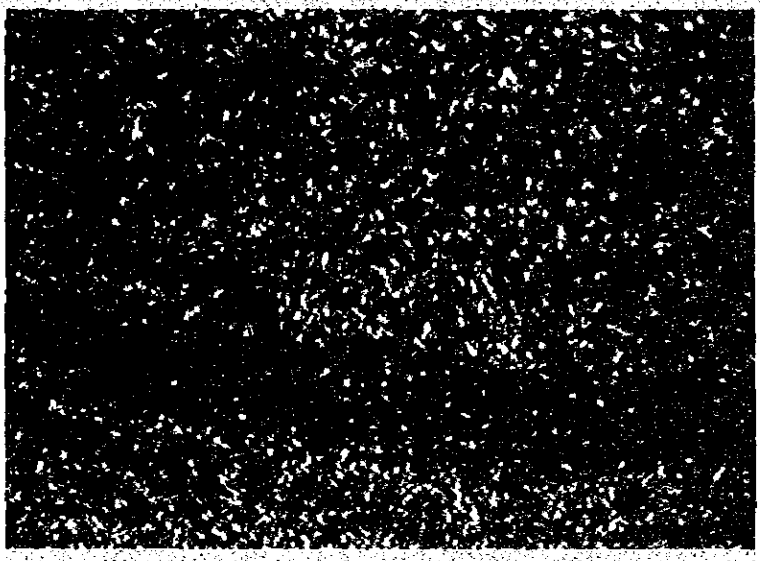
(21)

S92104
Locality: 70
Palaeogene igneous rock
Clinopyroxane bearing
hornblende porphyrite
Pl: Plagioclase
Hb: Hornblende

Crossed nicols
1 mm

Plagioclase and hornblende show prominent zonal structure.

(22)

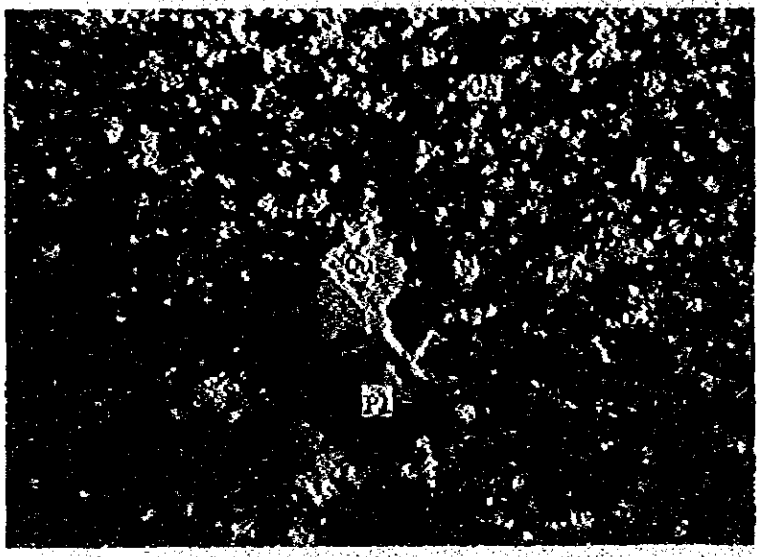


T91306
Locality: 2D
Copacabana-Tarma group
Muscovite-chlorite
phyllite

Crossed nicols
1 mm

The dominant constituents are fine-grained plagioclase, quartz and argillaceous material. The original bedding is shown by black part on the photograph

(23)

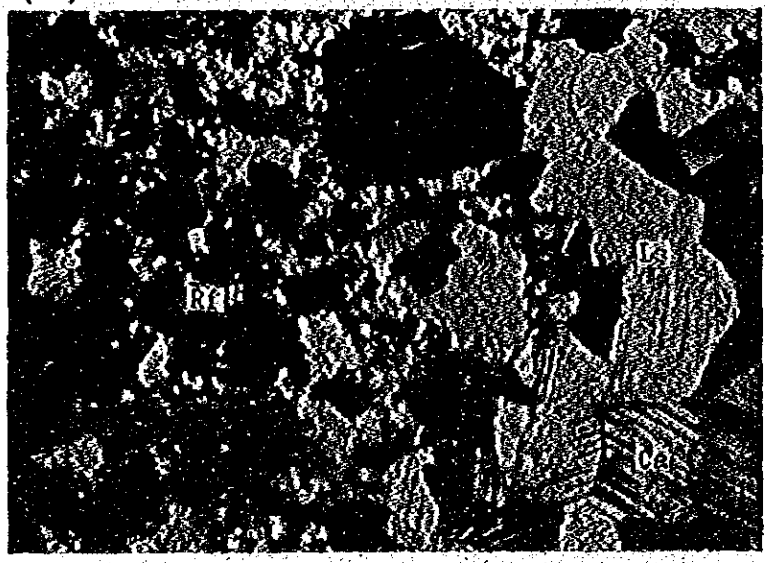


T91601
Locality: 2D
Copacabana-Tarma group
Crystalline limestone
Ca: Calcite
Pl: Plagioclase
Qu: Quartz

Crossed nicols
1 mm

This rock consists mainly of fine- to medium-grained calcite.

(24)

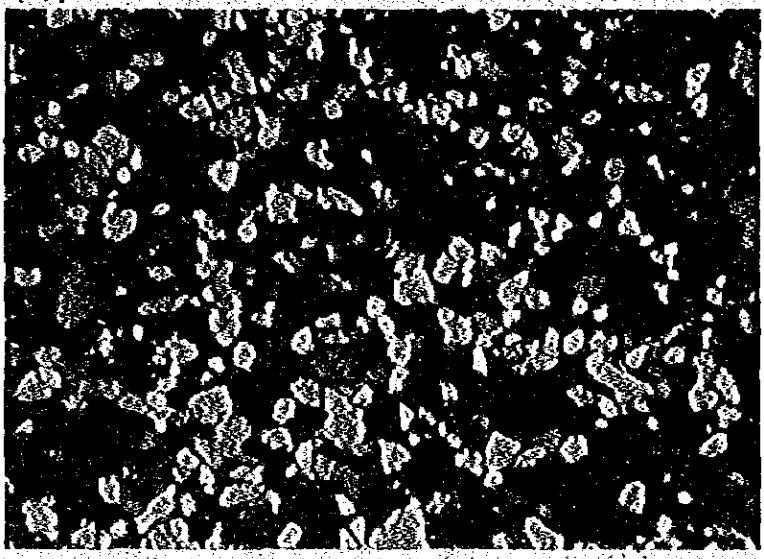


F91201
Locality: 4G
Mitu group
Conglomerate
Ls: Limestone
Rf: Rock fragment
Ca: Calcite

Crossed nicols
1 mm

Coarse-grained calcites occupy matrix part of this rock, and rock fragment is an igneous rock.

(25)

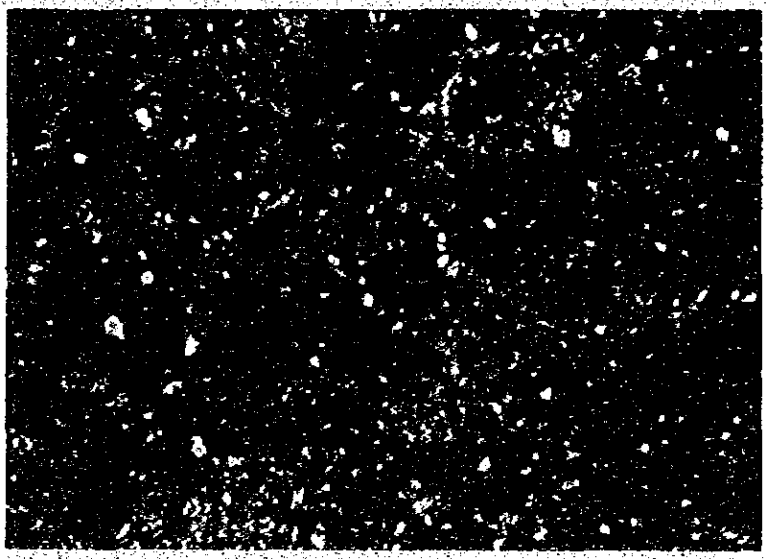


H10207
Locality: 2G
Mitu group
Sandstone

Crossed nicols
1 mm

This rock is fine-grained (maximum 0.7 mm in size) quartzose sandstone consisting mainly of clastic quartz grain.

(26)

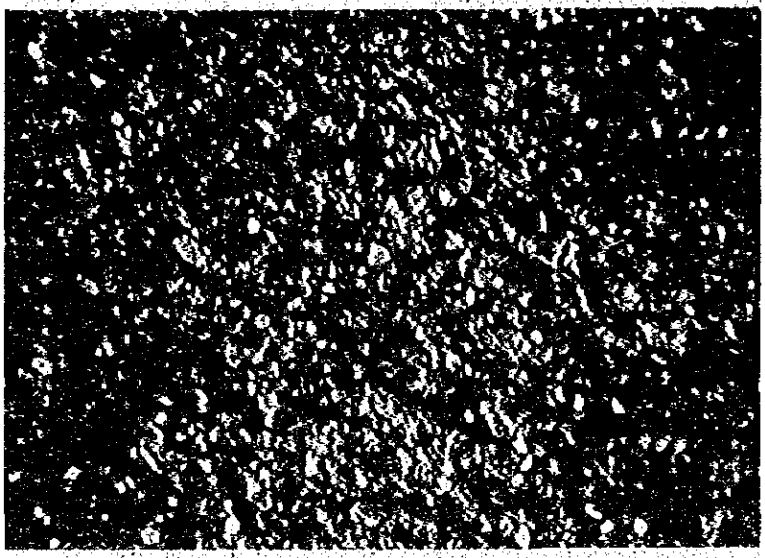


H102819
Locality: 3G
Mitu group
Red mudstone

Crossed nicols
1 mm

Matrix is ferruginous and calcareous. Grains are angular quartz and small quantity of plagioclase.

(27)

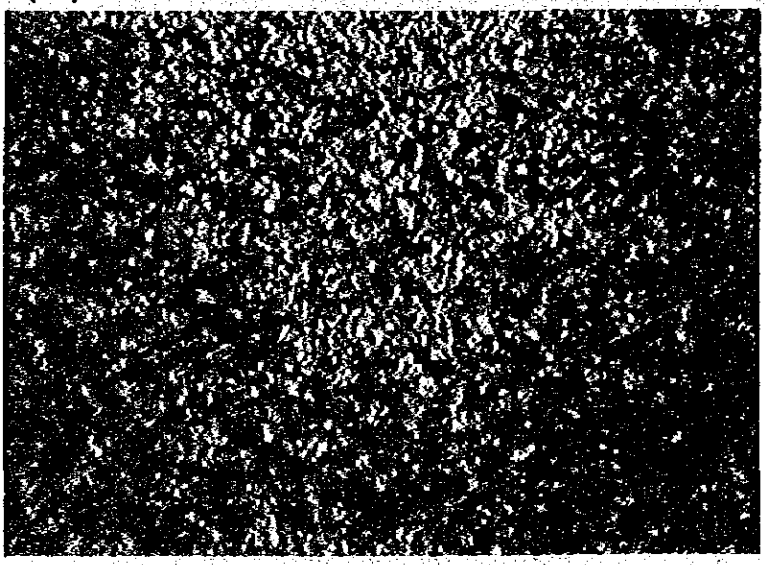


H102814
Locality: 3G
Pucara group
Calcareous sandstone

Crossed nicols
1 mm

This rock consists of fine-grained detrital quartzs and calcareous matrix.

(28)

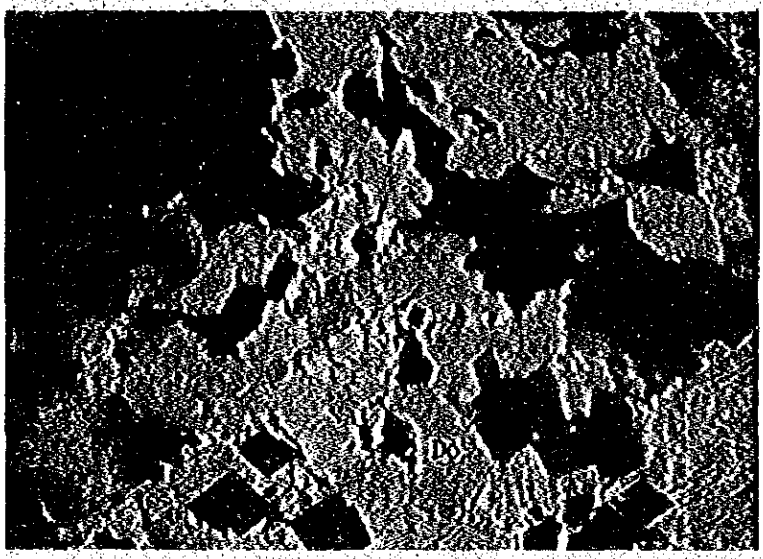


S19602
Locality: 6F
Pucara group
Mudstone

Crossed nicols
1 mm

This mudstone consists of calcite and a few plagioclase.

(29)

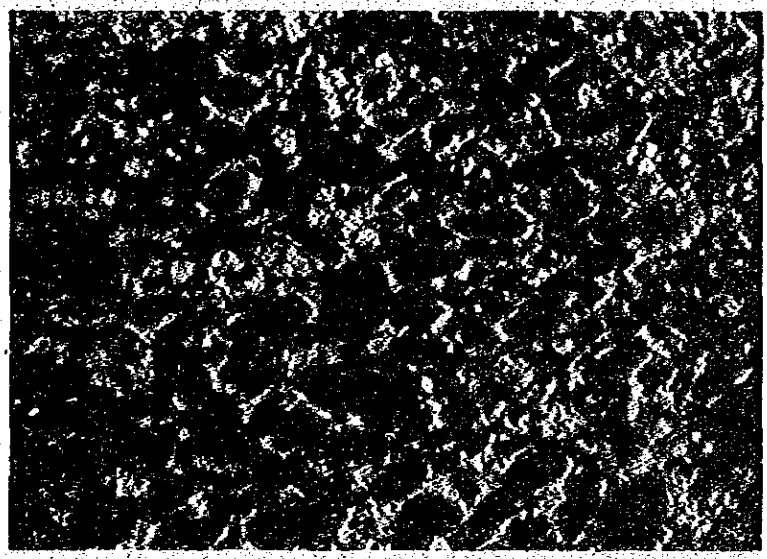


F92304
Locality: 4F
Pucara group
Crystalline dolomite
Do: Dolomite

Crossed nicols
1 mm

The component mineral is almost holocrystalline dolomite.

(30)

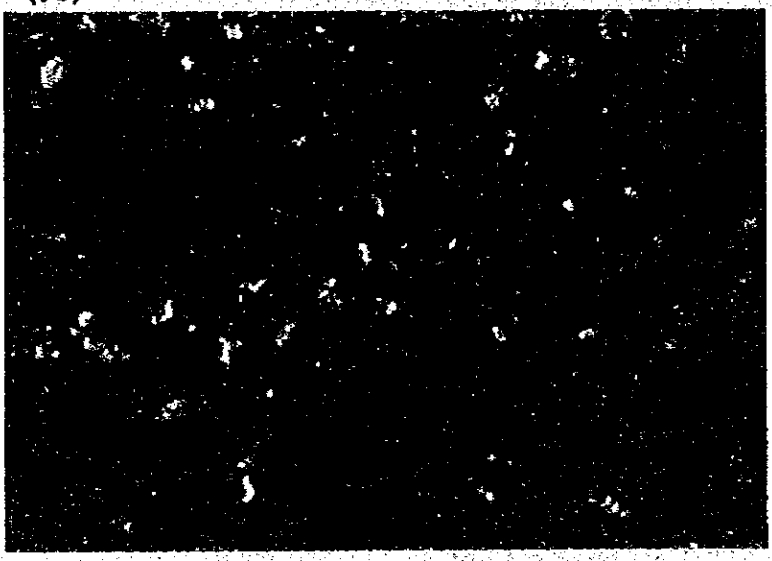


H102815
Locality: 3G
Pucara group
Limestone conglomerate

Crossed nicols
1 mm

The rock fragments are limestone, which is rounded. The matrix consists of oolite, micrite and a few quartz grains.

(31)

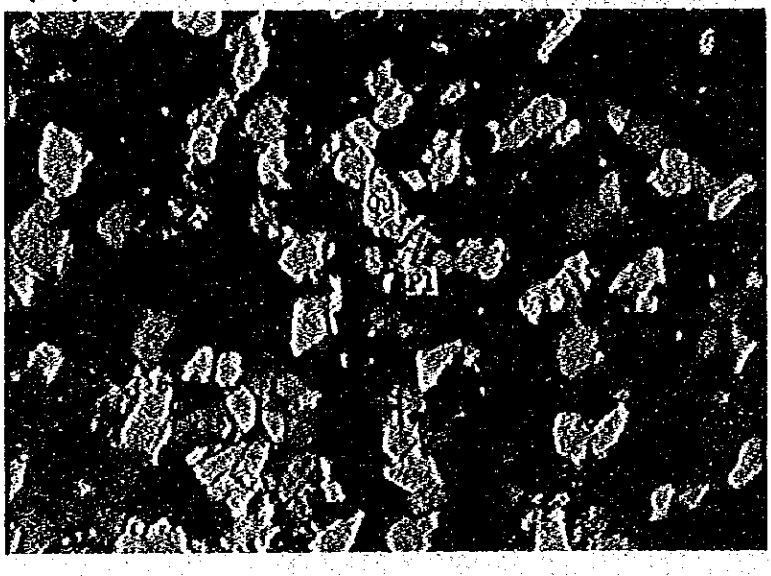


T91307
Locality: 2D
Pucara group
Oolitic limestone

Crossed nicols
1 mm

The grains are of oolite and quartz, and the matrix is composed of fine-grained calcite.

(32)

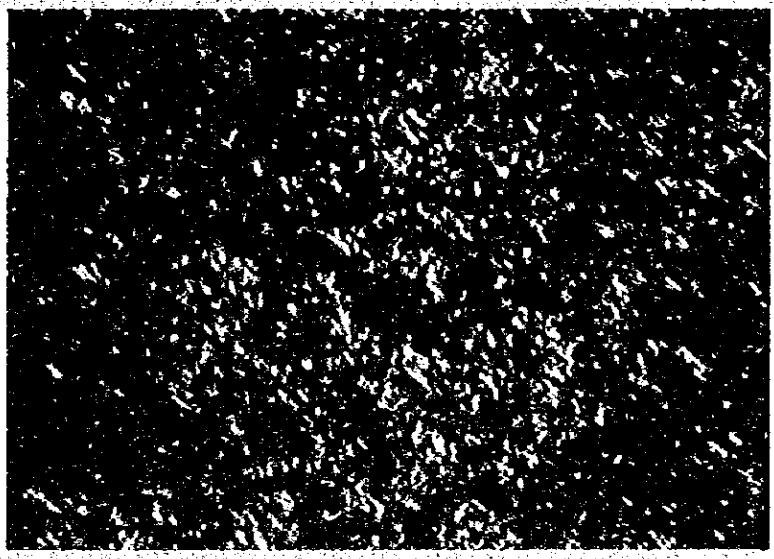


O-17
Locality: 6G
Sarayaquillo formation
Sandstone
Qu: Quartz
Pl: Plagioclase

Crossed nicols
1 mm

This rock is medium-grained quartzose sandstone.

(33)

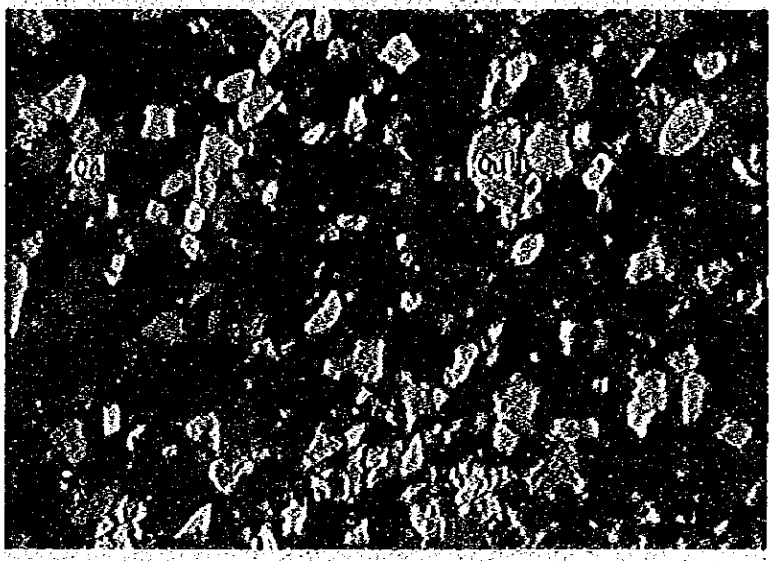


O-54
Locality: 9E
Sarayaquillo formation
Red shale

Crossed nicols
1 mm

This rock is characterized by fine-grained quartz, opaque materials and muscovite flakes.

(34)

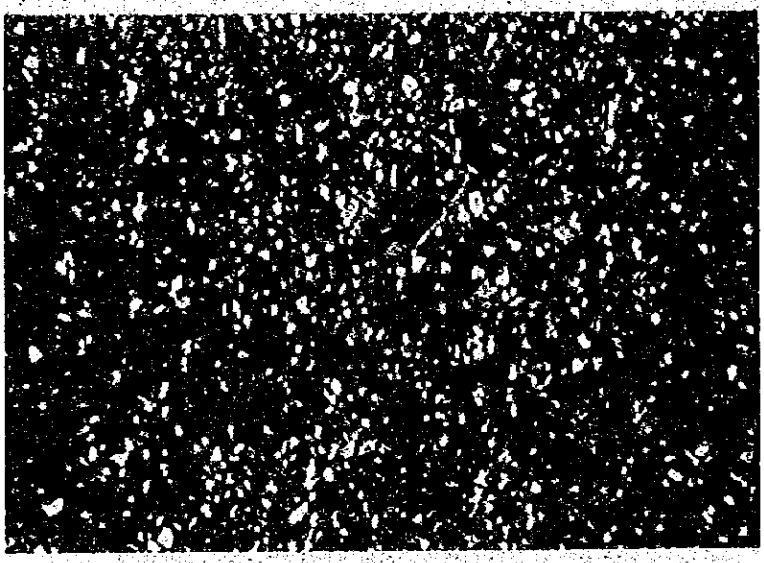


O-37
Locality: 10E
Chonta group
Sandstone
Qu: Quartz
Ca: Calcite

Crossed nicols
1 mm

This rock is fine-grained calcite-cemented quartzose sandstone.

(35)

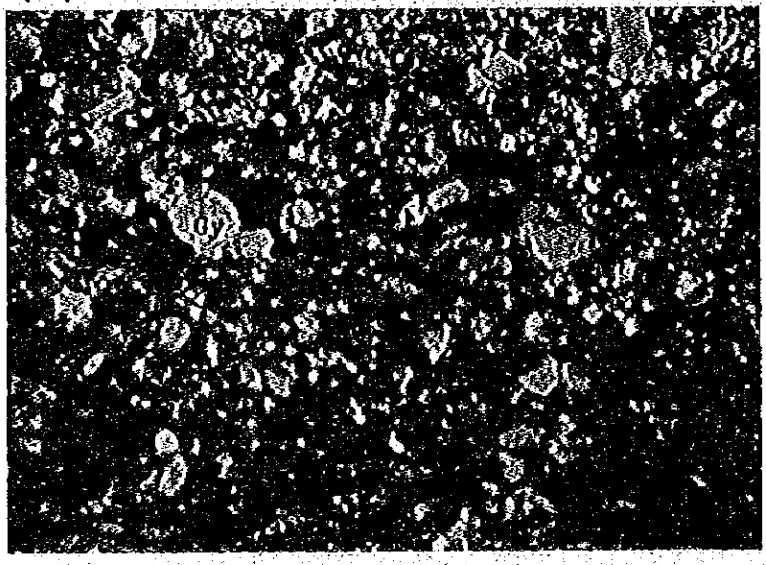


S102502
Locality: 7I
Chonta group
Red calcareous mudstone

Crossed nicols
1 mm

This rock is very fine-grained. The chief constituent grains are angular to rounded quartz.

(36)



S101401
Locality: 10E
Chonta group
Gypsum
Gy: Gypsum

Crossed nicols
1 mm

This rock consists mainly of gypsum.

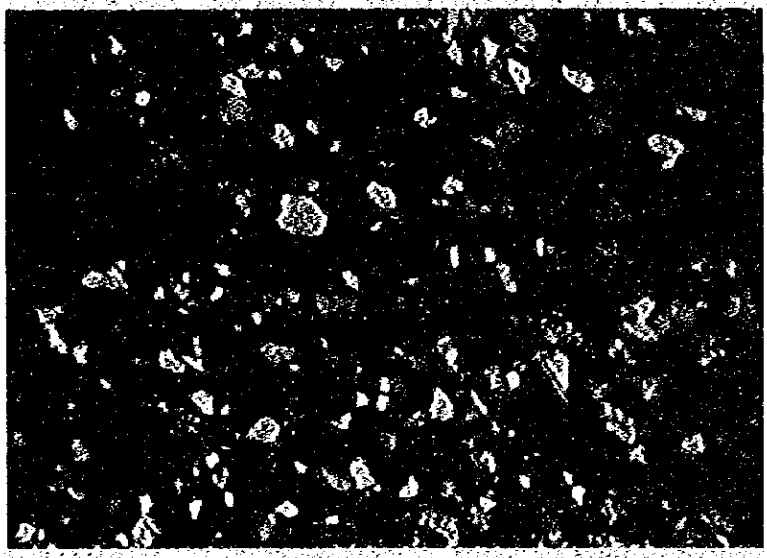
(37)

F93002
Locality: 10H
Chonta group
Limestone

Crossed nicols
1 mm

This rock consists of almost fine-grained calcite and has some foramineferous fragments.

(38)

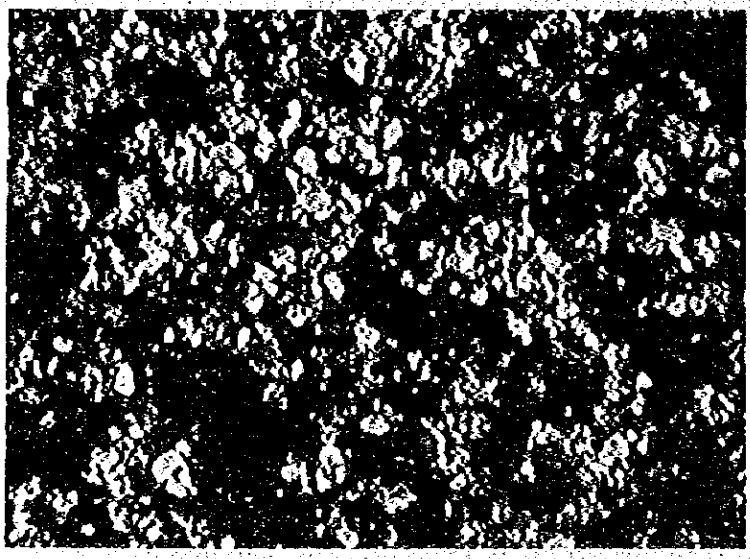


F100202
Locality: 11H
Contamana group
Sandstone

Crossed nicols
1 mm

Showing fine-grained calcareous sandstone. The matrix consists of calcite.

(39)

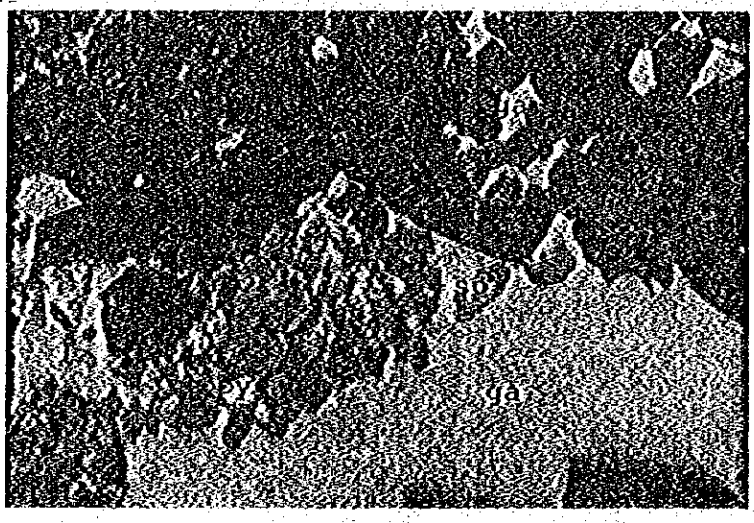


P100102
Locality: 101
Contamana group
Mudstone

Crossed nicols
1 mm

This rock shows fine-grained texture. The grains are composed of quartz, plagioclase and ore minerals.

(40)

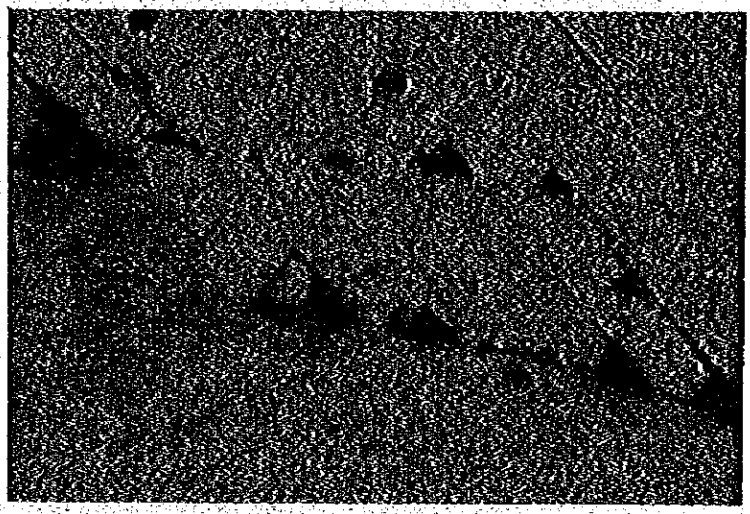


P110501
Locality: Mina San Vicente
Lead-Zinc bedded deposit
ga: Galena
sp: Sphalerite
py: Pyrite

0.2 mm

Pyrite and sphalerite with chalcopyrite.

(41)



H102805A
Locality: Mina San Vicente
Lead-Zinc bedded deposit

0.2 mm

Triangular pits in galena,

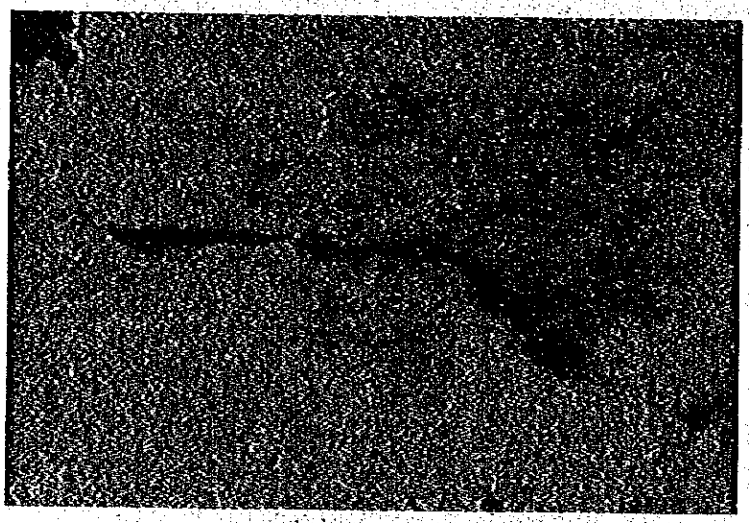
(42)

Op-1
Locality: Mina Pichita Carga
Lead-Zinc bedded deposit
Py: Pyrite
ga: Galena

0.2 mm

Euhedral or subhedral pyrite with greenish mineral x.

(43)



P103001
Locality: Mina Soldad
Lead-Zinc skarn ore deposit
sp: Sphalerite
ga: Galena

0.2 mm

Sphalerite veinlets in galena.

(44)

S102802
Locality: Mina Huachiroque
Sedimentary manganese deposit

0.2 mm

Intermediate phase between coronadite and hollandite.

Table 8. Chemical analysis of Igneous Rocks

Sample No. Field No. Rock name Locality	5 F92203 Meta-andesite 2G	8 F92303 Micro-diorite 4F	18 P101201 Dacite 7E	93 0-6 White granite 2G	202 H102901 Micro-diorite 3F	202 F92201 Red granite 2G
SiO_2	57.03	42.29	70.17	68.58	46.21	73.83
TiO_2	0.75	2.37	0.35	0.49	0.78	0.26
Al_2O_3	20.43	15.34	15.53	16.72	20.48	15.10
Fe_2O_3	0.61	1.77	1.64	0.05	3.87	0.50
FeO	5.98	6.70	0.40	2.68	6.40	0.36
MnO	0.06	0.14	0.04	0.06	0.20	tr
MgO	3.32	5.88	0.54	0.74	6.89	0.16
CaO	1.87	11.04	0.67	1.50	11.00	0.43
Na_2O	1.68	3.27	3.29	2.95	1.52	3.25
K_2O	3.92	2.08	5.50	4.76	0.42	4.86
H_2O+	3.39	2.73	0.80	0.82	2.29	0.78
H_2O-	0.12	0.17	0.19	0.18	0.10	0.12
P_2O_5	0.18	0.87	0.08	0.18	0.11	0.08
CO_2	tr	3.30	0.34	nd	0.04	nd
S*	0.44	1.16	0.01	nd	0.01	nd
Fe*	0.39	1.02	0.01	nd	0.01	nd
Total	100.17	100.13	99.56	99.71	100.33	99.73
MgO	22.28	32.79	5.54	6.64	45.23	1.85
FeO	40.13	37.76	4.11	24.07	42.02	4.17
$(Na,K)_2O$	37.58	29.83	90.33	69.27	12.73	93.68
Q	20.40	0.0	28.48	27.85	0.06	35.81
or	24.17	13.40	33.09	28.50	2.54	29.06
ab	14.83	9.04	28.34	25.29	13.14	27.82
an	8.45	22.93	2.85	6.35	48.85	1.63
ne	0.0	11.44	0.0	0.0	0.0	0.0

Sample No. Field No. Rock name Locality	5 F92203 Meta- andesite 2G	8 F92303 Micro- diorite 4F	18 F101201 Dacite 7E	93 0-6 White granite 2G	202 H102901 Micro- diorite 3F	212 F92201 Red granite 2G
wo en } di	0.0	12.77	0.0	0.0	2.57	0.0
fs	0.0	8.03	0.0	0.0	1.66	0.0
en fs } hy	0.0	3.94	0.0	0.0	0.74	0.0
	8.63	0.0	1.37	1.87	15.87	0.40
	9.76	0.0	0.0	4.24	7.06	0.0
fo	0.0	5.56	0.0	0.0	0.0	0.0
fa	0.0	3.00	0.0	0.0	0.0	0.0
mt	0.92	2.80	0.41	0.07	5.73	0.41
il	1.49	4.91	0.68	0.94	1.51	0.50
ap	0.44	2.20	0.19	0.42	0.26	0.19
C	10.91	0.0	3.20	4.48	0.0	3.95
hm	0.0	0.0	1.39	0.0	0.0	0.22

Table. 9 Chemical Analysis of Ore Samples

No	Sample No	Analysis Ag g/t.	Cu %	Pb %	Zn %	Mn %	Remarks
1	S 91202		0.392	0.178	14.740		Santos Mine. Ore of a high temperature metasomatic deposit developed between Pucara group and an intruded quartz porphyry.
2	S 91204		0.037	0.055	0.158		Santos Mine. Gossan being at the surface of the ground and between Pucara group and an intruded quartz porphyry.
3	S 91502		0.012	0.046	0.176		8 kilometers northwest of Paucar Tambo, Gossan in Pucara group.
4	S 91504		0.004	0.015	0.057		8 kilometers west northwest of Paucar Tambo. Gossan in Pucara group.
5	S 102802	0.18	0.141	0.473	0.095	48.1	Huachiroque Mine. Manganese dioxide ore. Collected from an ore pile in the field.
6	F 90901		0.008	0.020	0.033		12 kilometers west northwest of Paucar Tambo. Gossan in Pucara group.
7	F 91902		0.463	0.005	0.050		5 kilometers south of Monobamba. Gossan in Precambrian outcroping along Rio Tambillo.
8	F 92301		0.004	0.107	0.644		Down stream of Rio Casca. Gossan in Pucara group. Sampling width of 0.5 meters.
9	F 92302		0.002	0.023	0.205		Down stream of Rio Casca. Gossan in Pucara group. Sampling width of 0.5 meters (same as F92301).
10	F 103001		0.005	0.037	0.064		Soldado Mine. Gossan around an acidic intrusive rock between Pucara group.
11	T 91803		0.572	0.007	0.027		3 kilometers south of Tapo. Cupper oxide vein in Precambrian muscovite schist.
12	T 91902		0.092	0.021	0.033		La Olividada Mine. Country rock of cupper oxide stockwork deposit being in Pucara group.

Table 10. Radiometric age of Rocks in the Surveyed Area

No.	Sample No.	Rock Name	Locality	Mineral	Sample Wt. (g)	K %	$^{40}Ar^{R}/^{40}K$	air contami. %	Age m.y.	
1	0-6	White granite	Northern Monobamba	Biotite	0.8466	7.33	0.015239	0.48	244	This rock occurs as batholyth and shows weak gneissosity. There is the part which exists together "red granite" but sometimes it is cut by red granite. This rock is homogeneous.
2	F92201	Red granite	Northern Monobamba	K-feldspar	0.9424	3.97	0.011992	4.51	195	This rock occurs as batholyth, it shows weak gneissosity and homogeneous. The age of same type sample is determined as 238 ± 16 m.y. (not published).
3	F92203	Meta-andesite	Northern Monobamba	Whole	1.0955	3.04	0.013359	1.69	216	This rock occurs as dykes (from 3 to 5 m in width). It is commonly observed and cut red and white granite.
4	F101201	Liparite	Western Yaupi	Whole	1.0230	4.48	0.002348	20.90	40	This rock is very heterogeneous and occurs as stock and lava. Monzonitic parts are partly observed.
5	F92303	Microdiorite	Rio Casca	Whole	1.0541	2.66	0.002653	48.55	45	This rock occurs as stock and it is heterogeneous, and also medium- to very fine-grained. Dacitic and monzonitic appearances are partly recognized in this rock. And also this rock includes into Pucara limestone formations and cuts them as dyke.
6	H102901	Microdiorite	Rio Puntayac	Whole	1.0924	0.51	0.009443	24.95	155	This rock occurs as stock and it is heterogeneous.

$\lambda_e = 0.585\ 10^{-10}\ yr^{-1}$, $^{40}K/K = 1.19\ 10^{-2}$ atom. %

$\lambda_\beta = 4.72\ 10^{-10}\ yr^{-1}$, $^{40}Ar^{R}$: radiogenic argon 40.

Table 11. List of fossils

No.	Sample No.	Formation	Fossils observed	Remarks
1	O-66	Tarma g.	Fusulinella peruana (meyer)	Middle Carboniferous; This is correlated to Upper Atokan series of Pensylvanian at North America.
2	S92301	Oriente g.	Rhynchonellidae	Latter Paleozoic —— Cretaceous; Genus and species is indetermined. It is the typical of Spirobranchia and has thrived in Jurassic.
3	O-60	Chonta g.	Anomia sp. Anomia cfr.	Upper Cretaceous?; It is correlated to Anomia argentaria species of Upper Cretaceous at North America.
4	P101104	Pucara g.	Bivalve	Genus and species is indetermined.
5	H101405	Pucara g.	Pectinid ?	Genus and species is indetermined.
6	H102902	Pucara g.	Psiloceras sp.	Lower Jurassic Lower Hettagian
7	T91602	Pucara g.	Pteria sp. pteria cfr. obtusa (Bittner)	Lower Jurassic ?
8	T91602	Pucara g.	Pteria sp. Pteria cfr. cassiana (Bittner)	Lower Jurassic ?
9	T91602	Pucara g.	Bakevellia or Pteria sp.	Lower Jurassic ??
10			Dicotyledonous leaves	Tertiary ?; It is a species of Angiosperms.
11			Monocotyledonous leaf	Tertiary ?; It is a species of Angiosperms.

Table 12. Photographs of fossils

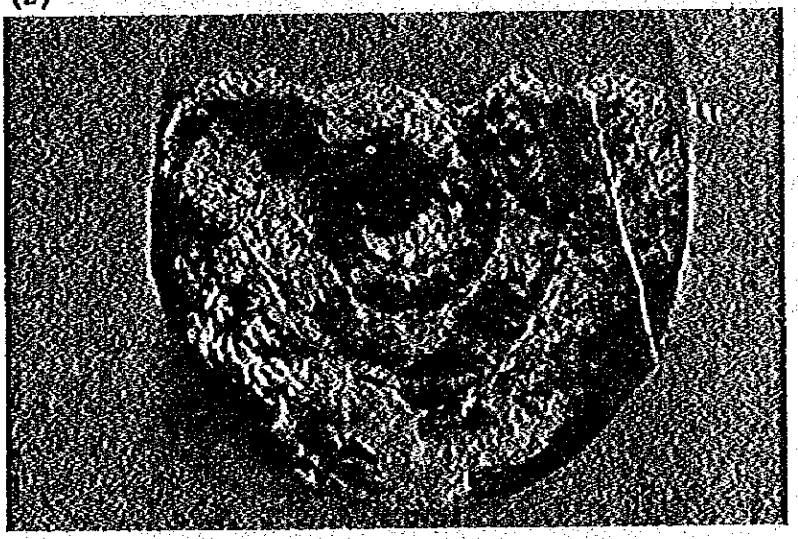
Fossils of Carboniferous and Jurassic.

(1) Fusulinella peruana (Mayer)
(2) Psilocerous sp.

(1)

O-66
Tarma group
Fusulinella peruana (Meyer)
Age: Upper Atokan Series, Pennsylvanian,
Middle Carboniferous.

(2)



H102902
Pucara group
Psilocerous Sp.
Age: Hettangian stage, Lower Jurassic.

Mesozoic shells in the Surveyed Area

1-4 : Rhynchonellidae, gen. & sp. indet.
1,2: ventral valve, 3,4: dorsal valve; X 1; Loc.: S92301; Oriento sandy shale.

5-8 : Anomia sp. Anomia cfr. argentaria Morton
left valves; X 2; Loc.: 0-60; Chonta limestone.

9 : Bivalve, gen. ? sp. indet.
left valve; X 3; Loc.: F101104; Pucara limestone.

10 : Pectinid?, gen. & sp. indet.
X 1; Loc.: H101405; Pucara limestone.

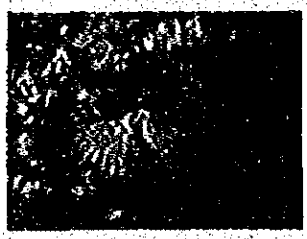
11-16: Pteria sp. Pteria cfr. obtusa (Bittner)
11-13: left valve, 14, 15: right valve & 16: both valve; X 3; Loc.: T91602; Tarma limestone.

17 : Pteria sp. Pteria cfr. cassiana (Bittner)
left valve; X 3; Loc.: T91602; Tarma limestone.

18,19: Bakevellia or Pteria sp.
left valve; X 3; Loc.: T91602; Pucara limestone.

20-22: Mysidioptera or Plagiostoma sp. (cf. M. gremblichi Bittner) right valve; X 1.5; Loc.: T91602; Pucara limestone.

23 : Schafhautlia astartiformis Munster
left valve; X 3; Loc.: T91602; Pucara limestone.



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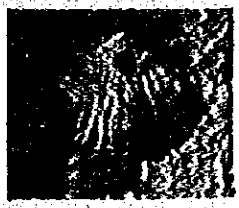

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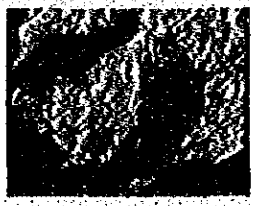

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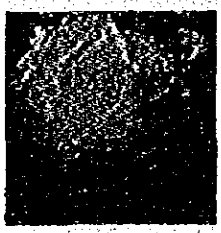

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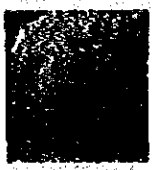

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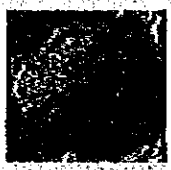

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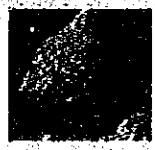

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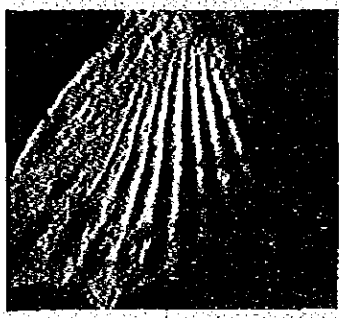

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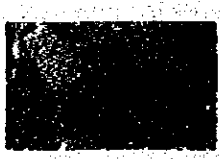

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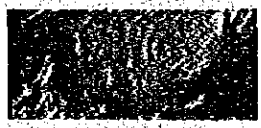

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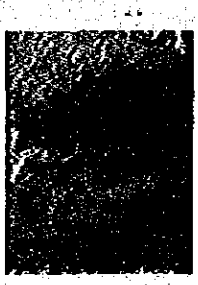

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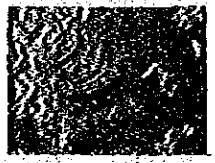

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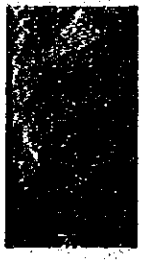

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Table 13. Results of pollen analysis

Sample		Locality		Formation	Rock Name	Observation	Remarks
		Coordination	Place Name				
1	F93002	10E	Iscozacin	Contamana g.	Grey shale	Fossils recognized under the microscope are Aquifoliceae, evergreen typed Quercus and Sequoia, and besides large-typed Tricolpopollenites is also observed. Therfore it is agreeable that geologic age is estimated as "Tertiary" by these speciesas and morphologic alteration.	Tertiary
2	F100102	10T	Iscozacin	Contamana g.	Red mudstone	Many amount of fragments of plant fossils are observed, but only one piece of polyad type. A key for age determinating is nothing.	Undetermined
3	F100202	11H	Iscozacin	Contamana g.	Yellow sandy mudstone	Large-sized and inaporate typed pollen (larger than 0.1 mm in size), which may be recognized as Pseudotsuga of needle-leaf tree, is observed, and also distinct pollen of Monocolpollenites. Therefore it is suitable that geologic age is estimated as "Tertiary".	Tertiary
4	F100203		Isocozacin	Contamana g.	Tuffaceous sandy shale	The residue has strongly dark brownish color and is unlike with that of other rocks. Age determination is impossible so that pollen is nothing.	Undetermined
5	S91301		Playa Pampa	Paracas f.	Muddy sandstone	In this specimen, pollen of Sequoia is observed, and besides other pollens of Taxodioceae, Polyporopollenites and Tricolpollenites are included. Geologic age of this specimen is suitablly seen as "Upper——Middle Tertiary" because thrived age of Sequoia has been recognized as Neogen.	Tertiary (middle——upper)
6	S102502		Villa Rica	Chonta g.	Reddish purple shale	Pollens of Triporopollenites and spore fossils of fungus are observed and entirely color of fossils is light. It is possible that geologic age is "Tertiary"	Tertiary (?)
7	O-37		Rio Pozuzo	Chonta g.	Reddish purple shale	Pollens of Stephanoporopollenites such as Pterocarya and pollens of Taxodiaceae are observed, but geologic age is nearly seen as "Paleogen" because of alteration of this specimen.	Tertiary (Paleogen)
8	S91601		Reymundi	Oriente g.	Tuffaceous shale	Very fine-grained matter of minerals are merely observed and pollen is nothing.	Undetermined
9	O-18		Paucartambo	Sarayaqillo f. (?)	Reddish purple shale	Many amount of plant fragments and pollens ? (larger than 0.2 mm in size) are observed in this sample. Geologic is seen older than "Tertiary" with comparison to other specimens and occurrence of those large-typed pollens.	Mesozoic (?)

Sample		Locality		Formation	Rock Name	Observation	Remarks
		Coordination	Place Name				
IO	O-5A		Lantu Rache	Sarayaquillo f. (?)	Reddish purple shale	This specimen is composed of fine-grained matter of minerals and only a few fossils are observed. But by occurrence of Chenopodiaceae (Periporopollenites), it may be possible that geologic age is "Tertiary" and it is estimated from "Paleogen" to "Lower Neogen".	Tertiary (Paleogen——Lower Neogen)

Table 14. Temperature of Fluid Inclusion in Dolomite Crystals

Sample No.	Field No.	Ore Body	Ore Mineral	Temperature of Fluid Inclusion in Dolomite Crystals	Remarks
1	H102805A	Siete Jerngas	galena and a little amount of sphalerite	Max.; 221°C Min.; 75°C Mean; 130°C Number of measurement; 5	South of mineralized zone. Underground. Pb-Zn deposit
2	H102903	Uncush Sur	black compact sphalerite	Max.; 92°C Min. 72°C Mean; 82°C Number of measurement; 2	South side of center of mineralized zone Pb-Zn deposit
3	F110501	San Vicente	dark brownish coarse-grained sphalerite	Max.; 132°C Min.; 125°C Mean; 129°C Number of measurement; 2	Center of mineralized zone No.2 ore body 1625m S.L. in underground
4	F110503	San Vicente	black sphalerite and brown sphalerite, banded ore	Max.; 124°C Min.; 118°C Mean; 121°C Number of measurement; 2	Center of mineralized zone No.1-2 ore body 1580m S.L. at outcrop
5	F110505	San Vicente	brown sphalerite banded ore	Max.; 145°C Min.; 138°C Mean; 142°C Number of measurement; 2	Center of mineralized zone No.1 ore body 1625m S.L. in underground

Table 15. Flow sheets of chemical analysis

(Cu, Pb, Zn, Ni)

Sample (1 g) (in 100 - 300 ml conical beaker).

← $HCl + HNO_3 + H_2O$ (3:1:1, 20 ml).

← $HClO_4$ (5 ml).

Evaporation for consolidation.

← (1 + 1) HCl (8 ml).

Heating for solution.

Natural cooling.

Transfering in 100 ml measuring flask.

Shaking.

Filtration (No. 6, 9 cm).

Atomic absorption.

(Co, Cr)

Sample (2 g) (in 100 ~ 300 ml conical beaker).

←— HCl, HNO_3, H_2O (3:1:1, 20 ml).

←— $HClO_4$ (5 ml).

Heating for solution. (White smoke appears).

Natural cooling.

←— HCl (1 + 1) (8 ml).

Transfering in 100 ml measuring flask.

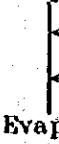
Shaking.

Filtration (No. 6, 9 cm).

Atomic absorption.

(Mn)

Sample (1 g).



←— HCl, HNO_3, H_2O (3:2:1, 20 ml).

←— $HClO_4$ (5 ml).

Evaporation for consolidation.

←— (1 + 1) HCl (8 ml).

Heating for solution.

Natural cooling.

Transfering in 100 ml measuring flask.

Shaking.

Filtration (No. 6, 9 cm).

Atomic absorption.

Table 16. Flow sheets of chemical analysis of Carbonate Rocks

(Zn)

Sample (1 g) (in 100 - 300 ml conical beaker).

← $HCl + HNO_3 + H_2O$ (3:1:1, 20 ml).

← $HClO_4$ (5 ml).

Evaporation for consolidation.

← (1 + 1) HCl (8 ml).

Heating for solution.

Natural cooling.

Transfering in 100 ml measuring flask.

Shaking.

Filtration (No. 6, 9 cm).

Atomic absorption.

(S)

Sample (0.5 g) (in 100 ~ 300 ml conical beaker).

← $KClO_4$, about 1 g.

← HNO_3, 30 ml.

Leaveing out at room temperature.

(reacting to SO_4 for about 30 minutes).

Evaporation for consolidation.

(at lower than 100°C).

Cooling.

← HCl 5 ml.

← H_2O 30 ml.

Heating for solution.

Filtration (No. 131, 15 cm, filter paper).

Washing (hot water added to filtrate makes 200 ml).

Heating (until reaching a boil).

(If Fe is present, it is added a few drops of $NH_2OH \cdot HCl$ (10 %) and becomes colourless).

← $BaCl_2$ (10 %) 20 ml.

Heating and leaveing out (for 2 ~ 3 hours).

Filtration (No. 6, 12.5 cm).

Evaporation.

Laying in ashes (at 900 ~ 1,000 °C).

Cooling (in desiccator).

Weighing. (S % is $\frac{S}{BaSO_4}$)

Table 17. 2-Elemental Chemical Analyses of Carbonate Rocks

Sample No.	Zn Content (ppm)	S Content	S/Zn
1	64.0	0.14	21.8
2	109.4	0.45	41.1
3	74.7	1.42	190.1
4	61.3	0.09	14.7
5	93.4	0.92	98.5
6	22.4	1.24	553.6
7	33.3	0.86	258.3
8	58.5	0.06	10.3
9	76.4	0.09	11.3
10	77.2	1.15	149.0
11	87.7	0.09	10.3
12	100.3	0.19	18.9
13	1217.2	0.80	6.6
14	108.5	0.18	16.6
15	20.3	0.08	39.4
16	26.4	0.22	83.3
17	26.8	0.23	85.8
18	50.6	0.57	112.6
19	67.2	0.20	29.8
20	52.2	0.15	28.7
21	86.3	0.06	7.0
22	92.6	0.08	8.6

Sample No.	Zn Content (ppm)	S Content	S/Zn $\times 10^{-2}$
23	103.9	0.08	7.7
24	97.4	0.11	11.3
25	68.4	0.10	14.6
26	29.6	0.10	33.8
27	19.9	0.12	60.3
28	56.2	0.11	19.6
29	66.5	0.10	15.0
30	75.6	0.10	13.2
31	40.3	0.05	12.4
32	25.8	0.04	15.5
33	34.0	1.43	420.6
34	77.2	0.02	3.0
35	54.8	0.02	3.6
36	1127.7	0.03	0.3
37	113128.0	5.04	0.4
38	160384.0	8.05	0.5
39	109.2	0.04	3.6
40	53.9	0.24	44.5
41	53.7	0.02	3.7
42	22.8	0.03	13.2
43	18.4	0.10	54.3
44	18.2	0.44	241.8
45	71.4	0.04	5.6
46	73.0	0.17	23.3
47	48.5	0.05	10.3
48	64.8	0.06	9.3

Sample No.	Zn Content (ppm)	S Content (%)	S/Zn $\times 10^{-2}$
49	33.8	0.08	23.7
50	20.5	0.19	92.7
51	76.0	0.09	11.8
52	39.6	0.06	15.2
53	24.9	0.06	24.1

Table 18. Geochemical Data of the Surveyed Area on 3 Elements

Geological Index

Sedimentary rocks			
	Quaternary (gravel & sand)		QU
	Contamana Group		CO
	Lourdes Formation		PA
	Chonta Group		CH
	Oriente Group		OR
	Sarayaquillo Formation		SA
	Pucara Group		PU
	Mitu Group		MI
	Copacabana - Tarma Group		TA
	Ambo Group		AM
	Excelcior Group		BX
	Basement Complex (gneiss & schist)		BC
Igneous rocks			
	Tertiary (Neogene)	Volcanics	TV
	Tertiary (Palaeogene)	Andesite, Rhyolite & Dacite	TR
		Diorite-porphyrite, Quartz-porphyry, Aplite & Granite-porphyry	MP
	Jurassic	Diorite complex	MD
	Permian Triassic	Granite & Granodiorite	PG
		Granodiorite complex	PC

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1	3G	TO90801	QU	13.6	295.3	11.5
2	3G	TO90802	QU	25.0	85.5	28.9
3	3G	RO90803	QU	13.6	34,030.7	24.8
4	3G	RO90804	QU	8.4	21,107.6	21.5
5	3G	RO90805	QU	14.6	121.8	24.0
6	3G	RO90806	PG	14.1	73.2	25.5
7	3G	RO90807	QU	9.9	67.2	17.3
8	3G	RO90808	QU	10.4	64.7	22.3
9	3G	RO90809	QU	8.0	51.8	23.1
10	3G	RO90810	QU	6.6	54.4	14.9
11	3G	RO90811	QU	6.6	59.6	20.7
12	3G	RO90812	QU	12.7	131.2	20.7
13	3G	RO90813	QU	13.2	83.6	17.3
14	3G	RO90814	QU	6.6	71.2	13.2
15	3G	RO90815	QU	10.3	93.3	17.3
16	3G	RO90816	PG	16.9	69.3	21.5
17	3G	RO90817	PG	15.0	344.6	19.8
18	3G	TO90818	QU	14.1	99.3	17.3
19	3G	RO90819	QU	8.9	66.9	16.5
20	3G	TO90820	QU	17.4	400.0	9.1
21	3G	RO90821	QU	11.3	218.4	14.0
22	3G	RO90822	PG	9.9	65.8	20.7
23	3G	RO90823	PG	9.9	67.3	8.2
24	3G	RO90824	PG	13.6	61.8	17.3
25	3G	TO90825	PG	31.3	64.9	15.7
26	3G	RO90826	PG	13.2	64.9	16.5
27	3G	RO90827	PG	19.3	59.3	19.8
28	3G	TO90828	PG	7.5	49.6	16.5
29	3G	RO90829	PG	10.3	61.6	17.3
30	3G	RO90830	PG	6.1	66.0	21.5
31	3G	RO90831	PG	12.2	69.2	19.8
32	3G	RO90832	PG	5.6	51.0	9.9
33	3G	RO90901	PG	5.1	34.0	3.3

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
34	3G	RO90902	PG	12.7	62.3	19.8
35	2G	RO90903	PG	4.7	55.2	11.5
36	2G	RO90904	PG	11.3	68.7	22.3
37	2G	TO90905	PG	3.3	79.3	4.9
38	2G	RO90906	PG	12.2	94.7	15.7
39	2G	RO90907	PG	11.7	69.0	19.8
40	2G	TO90908	PG	24.0	132.0	10.7
41	2G	RO90909	PG	17.9	66.0	28.1
42	2G	TO90910	PG	21.6	110.1	14.0
43	2G	TO90911	PG	12.2	77.2	17.3
44	2G	RO90912	PG	9.9	68.1	9.9
45	2G	RO90913	PG	13.2	76.6	22.3
46	2G	RO90914	PG	13.2	64.4	18.2
47	2G	RO90915	PG	6.6	66.3	13.2
48	2G	RO90916	PG	17.9	69.0	19.8
49	2G	RO90917	PG	13.6	64.7	19.8
50	2G	RO90918	PG	11.3	64.3	23.1
51	2G	RO91001	PG	9.5	70.6	27.7
52	2G	RO91002	PG	10.7	80.0	26.9
53	2G	RO91003	PG	19.1	150.9	29.4
54	2G	RO91004	PG	2.3	46.7	16.0
55	2G	RO91005	PG	7.7	68.3	21.0
56	2G	RO91006	PG	7.1	73.0	22.7
57	2G	RO91007	PG	10.7	71.4	24.4
58	2G	RO91008	PG	10.1	75.0	23.5
59	2G	RO91009	PG	13.1	71.2	26.9
60	2G	RO91010	PG	10.7	62.9	13.4
61	2G	RO91011	PG	12.5	67.9	16.8
62	2G	RO91012	PG	11.9	67.9	15.1
63	2G	RO91013	PG	7.1	63.4	14.3
64	2G	TO91014	PG	0.0	29.4	1.7
65	2G	RO91015	PG	0.5	24.1	3.3
66	2G	RO91016	PG	4.7	26.4	13.6

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
67	4G	RO91101	QU	16.1	61.1	23.5
68	4G	RO91102	QU	17.9	63.4	23.5
69	4G	RO91103	PG	8.9	58.6	9.2
70	4G	TO91104	PA	16.7	76.2	17.6
71	4G	TO91105	PA	133.5	107.3	21.8
72	4G	TO91106	MI	256.2	222.6	41.2
73	4G	TO91107	MI	25.1	84.0	12.6
74	4G	RO91108	MI	14.3	58.0	8.4
75	4F	RO91109	PU	14.9	50.7	17.6
76	4F	TO91110	PU	10.7	113.1	34.5
77	4F	TO91111	PU	14.3	109.8	52.2
78	4F	TO91112	PU	13.1	114.9	46.3
79	4F	TO91113	PU	6.5	100.8	23.5
80	4F	TO91114	PU	8.9	126.4	36.2
81	4F	RO91115	PU	7.9	40.4	12.0
82	4F	TO91116	PU	12.2	45.7	19.1
83	4F	TO91117	PU	12.7	48.3	21.2
84	4F	TO91118	PU	32.8	400.0	109.0
85	4F	TO91119	PU	31.0	458.7	63.7
86	4F	TO91120	PU	21.4	410.7	34.4
87	4F	TO91121	PU	17.5	109.2	38.9
88	4F	RO91122	PU	4.4	27.9	9.9
89	4F	RO91201	MI	14.0	52.9	14.2
90	4F	RO91202	MI	9.2	34.0	10.6
91	4F	TO91203	MI	17.0	44.8	22.7
92	4F	RO91204	MI	7.9	31.7	16.3
93	4F	RO91205	PU	21.4	63.6	17.7
94	4F	TO91206	PU	15.3	234.7	55.9
95	4F	TO91207	PU	7.0	189.3	41.1
96	4F	TO91208	PU	10.5	94.3	30.4
97	4F	TO91209	PU	38.5	77.8	92.7
98	4F	RO91210	PU	7.9	29.4	15.7
99	4F	TO91211	PU	5.7	71.2	26.2

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
100	4F	TO91212	PU	5.2	152.0	25.5
101	4F	TO91213	PU	8.3	80.1	34.7
102	4F	TO91214	PU	8.7	58.7	37.5
103	4F	TO91215	PU	3.5	57.8	21.2
104	4F	RO91216	PU	2.6	29.2	16.3
105	4F	TO91217	PU	44.6	250.7	58.8
106	3F	RO91301	PU	3.9	34.7	14.2
107	3F	RO91302	QU	16.6	82.1	29.0
108	4F	TO91303	MI	22.7	68.3	23.4
109	4F	TO91304	MI	11.4	56.5	14.2
110	4F	TO91305	MI	14.0	55.6	14,9
111	4F	TO91306	MI	21.0	67.9	11.3
112	4F	TO91307	MI	11.4	82.4	14.2
113	4F	TO91308	PU	7.4	75.0	24.8
114	4F	TO91309	MI	46.3	108.7	14.2
115	4F	TO91310	MI	14.9	51.5	16.3
116	4F	TO91311	MI	11.4	49.6	7.8
117	4F	TO91312	MI	29.3	43.6	7.8
118	4F	RO91313	MI	11.8	34.9	8.5
119	4F	RO91314	MI	11.4	30.7	16.3
120	4F	RO91315	MI	4.8	57.6	14.2
121	4F	TO91316	MI	2.9	37.9	5.8
122	4F	TO91317	PU	49.7	1,797.9	31.1
123	4F	TO91318	PU	48.5	595.8	155.7
124	4F	TO91319	PU	77.8	914.3	11.7
125	4F	TO91320	PU	22.1	28.7	5.0
126	4F	TO91321	MI	38.3	5,192.9	16.0
127	4F	TO91322	MI	32.9	1,219.1	10.9
128	6G	TO91701	OR	7.1	41.4	13.4
129	6G	TO91702	SA	14.3	28.7	24.4
130	6G	RO91703	SA	53.8	66.0	21.0
131	6G	TO91704	SA	2.9	53.7	14.3
132	6G	TO91705	SA	56.2	60.7	30.3

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
133	6G	TO91706	SA	7.7	49.2	26.9
134	6G	RO91707	SA	5.9	29.6	22.7
135	6G	RO91708	SA	7.1	20.8	12.6
136	6G	TO91709	SA	19.1	93.1	21.8
137	6G	TO91710	SA	4.7	36.5	16.8
138	6G	TO91711	PA	5.3	27.5	15.1
139	6G	RO91712	PA	5.3	39.3	16.8
140	6G	RO91713	PA	2.3	21.2	10.1
141	6G	RO91714	PA	7.1	34.7	10.1
142	6G	TO91715	PA	17.9	60.0	29.4
143	6G	RO91716	PA	7.1	38.4	27.7
144	6G	TO91717	PA	14.3	66.5	15.1
145	6G	TO91718	PA	22.1	66.5	19.3
146	6G	RO91719	PA	5.9	29.1	20.2
147	6G	TO91720	PA	10.7	30.9	7.5
148	6G	TO91721	PA	11.3	29.1	14.3
149	8F	TO91901	QU	24.5	20.6	11.7
150	8F	TO91902	QU	0.0	6.6	0.8
151	8F	TO91903	QU	5.9	50.1	18.5
152	8F	TO91904	QU	5.9	277.3	21.8
153	8F	RO91905	QU	4.7	45.8	10.1
154	8F	RO91906	QU	6.7	55.3	14.3
155	8F	TO91907	QU	3.6	28.4	1.6
156	8F	TO91908	QU	28.7	74.4	10.9
157	8F	RO91909	PU	5.9	59.3	10.9
158	8F	RO91910	QU	34.7	73.0	20.2
159	8F	TO91911	QU	31.7	74.6	56.4
160	8F	TO91912	QU	20.4	47.1	59.7
161	8F	TO91913	PU	63.4	99.1	33.6
162	8F	TO91914	QU	37.1	37.5	26.1
163	8F	RO91915	QU	29.9	84.8	31.1
164	8F	RO91916	QU	6.5	48.9	10.1
165	8F	TO91917	QU	41.3	93.1	41.2

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
166	8F	TO91918	QU	1.7	41.9	2.5
167	8F	TO91919	QU	7.7	115.8	5.8
168	8F	TO91920	QU	9.5	90.2	12.6
169	8F	RO91921	QU	4.7	110.4	10.9
170	8F	TO91922	QU	20.3	119.0	19.3
171	8F	TO91923	QU	5.3	19.0	5.8
172	8F	RO91924	QU	3.5	34.8	0.8
173	8F	TO91925	QU	4.1	83.4	21.8
174	8F	RO91926	QU	7.7	82.0	7.5
175	9F	TO91927	QU	6.5	75.7	5.8
176	9F	RO91928	QU	7.1	64.0	9.2
177	9F	TO91929	QU	12.5	39.9	7.5
178	9F	RO91930	PU	23.9	81.2	30.2
179	9F	TO91931	PU	13.1	94.9	25.2
180	9F	TO91932	PU	20.9	102.1	36.2
181	9F	TO91933	PU	5.3	48.7	14.3
182	9F	TO92001	OR	7.7	41.7	10.1
183	9F	TO92002	MI	14.9	75.1	18.5
184	9F	TO92003	MI	14.3	70.1	20.2
185	9F	RO92004	OR	22.7	72.8	26.1
186	9F	TO92005	OR	20.3	69.9	21.0
187	9F	TO92006	OR	10.7	54.4	10.1
188	9F	RO92007	PU	7.1	70.6	5.8
189	9F	RO92008	PU	7.1	64.7	7.5
190	9F	TO92009	PU	6.5	68.5	6.7
191	9F	RO92010	PU	10.2	51.4	9.9
192	9F	RO92011	PU	9.8	60.4	15.7
193	9F	RO92012	PU	11.1	57.3	19.8
194	9F	RO92013	PU	9.3	66.2	14.0
195	9F	TO92014	PU	14.7	79.7	17.3
196	9E	TO92015	PU	5.7	36.9	10.7
197	9E	TO92016	PU	12.4	37.6	24.7
198	9E	TO92017	QU	10.2	76.5	11.5

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
199	9E	RO92018	QU	10.6	63.0	14.0
200	9E	RO92019	QU	22.7	64.3	28.9
201	9E	TO92101	QU	10.2	27.1	8.2
202	9E	TO92102	PU	6.2	116.4	8.2
203	9E	TO92103	PU	10.2	103.3	15.7
204	9E	TO92104	PU	8.9	454.2	30.5
205	9E	TO92105	PU	3.1	9.6	0.8
206	9E	TO92106	PU	10.2	56.4	7.4
207	9E	RO92107	PU	18.7	67.5	20.6
208	9E	TO92108	PU	31.2	69.6	38.0
209	9E	RO92109	QU	26.3	67.8	31.4
210	9E	RO92110	QU	8.9	47.0	7.4
211	9E	RO92111	SA	4.4	31.5	0.0
212	9E	TO92112	PU	29.4	78.2	25.6
213	9E	TO92113	PU	32.0	67.4	23.1
214	9E	TO92114	PU	30.7	77.5	23.1
215	9E	TO92115	PU	28.5	73.6	25.6
216	9E	TO92116	PU	13.3	64.6	9.0
217	9E	TO92117	PU	17.3	288.5	16.5
218	9E	TO92118	PU	8.9	425.7	8.2
219	9E	RO92119	PU	10.6	63.6	10.7
220	9E	TO92120	PU	6.6	78.3	10.7
221	9E	RO92121	PU	10.6	59.9	12.3
222	9E	TO92122	PU	21.8	78.4	5.7
223	9E	TO92123	PU	17.8	268.5	15.7
224	9E	RO92124	PU	14.7	240.1	14.0
225	9E	TO92125	PU	22.7	155.8	58.6
226	9E	TO92126	PU	18.7	55.1	8.2
227	9E	TO92127	PU	7.5	28.2	4.1
228	9E	TO92128	PU	16.4	46.9	10.7
229	9E	RO92129	PU	23.1	64.5	13.2
230	10E	TO92130	PU	15.1	37.9	16.5
231	10E	TO92131	PU	11.1	45.6	14.8

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
232	10E	TO92132	PU	11.1	60.9	21.4
233	10E	TO92133	PU	19.6	90.7	24.7
234	10E	TO92134	PU	6.6	38.7	15.7
235	10E	RO92135	PU	8.0	41.4	16.5
236	10E	TO92136	PU	1.3	11.1	11.5
237	8F	TO92201	QU	22.7	97.5	22.3
238	8F	TO92202	QU	16.0	75.3	13.2
239	8F	TO92203	QU	17.3	91.3	25.6
240	8F	TO92204	QU	15.1	91.6	28.9
241	8F	TO92205	QU	19.1	91.3	19.0
242	8F	TO92206	QU	14.2	76.3	14.0
243	8F	TO92207	QU	11.1	74.4	17.3
244	8F	TO92208	QU	14.2	85.7	16.5
245	8F	RO92209	QU	8.4	51.0	13.2
246	8F	RO92210	QU	4.4	238.5	9.9
247	8F	TO92211	QU	4.0	52.3	9.0
248	8F	TO92212	QU	16.4	116.2	15.7
249	8F	RO92213	QU	8.0	50.2	14.0
250	8F	TO92214	MP	16.9	155.8	15.7
251	8F	TO92215	MP	3.1	69.5	4.9
252	8F	RO92216	MP	4.0	251.4	7.4
253	8F	RO92217	QU	2.6	102.6	0.0
254	8F	TO92218	MP	10.2	351.0	6.6
255	8F	TO92219	MP	6.2	60.5	4.9
256	8F	RO92220	MP	1.7	31.8	1.6
257	8F	RO92221	QU	7.1	49.1	14.8
258	8F	TO92222	CH	0.0	7.1	2.4
259	8F	TO92223	CH	3.5	22.7	0.0
260	8F	TO92224	MP	7.5	74.3	4.9
261	8F	RO92225	MP	6.6	54.8	2.4
262	8F	RO92226	MP	9.3	55.2	17.3
263	8F	TO92227	MP	8.0	60.7	4.9
264	8F	RO92228	MP	0.8	33.2	3.3

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
265	8F	TO92229	MP	16.0	92.3	4.9
266	8F	TO92230	MP	4.4	74.4	4.1
267	8F	TO92231	MP	4.0	47.8	1.6
268	8F	TO92232	MP	4.0	59.2	7.4
269	8F	TO92233	MP	29.8	83.2	5.7
270	8F	RO92234	MP	2.2	93.2	5.7
271	8F	RO92235	MP	12.0	54.2	19.0
272	8B	TO92236	MP	11.5	56.8	19.0
273	8B	RO92237	MP	11.1	58.2	17.3
274	8F	RO92301	QU	6.2	34.0	11.5
275	8F	TO92302	QU	19.6	103.8	19.0
276	8F	TO92303	QU	13.8	85.4	16.5
277	8F	TO92304	QU	10.2	78.0	18.1
278	8F	TO92305	QU	13.8	56.8	14.0
279	8F	RO92306	QU	5.7	42.3	22.3
280	8F	TO92307	QU	76.6	90.1	76.8
281	8F	TO92308	PU	22.2	682.8	80.1
282	8F	RO92309	PU	9.8	28.7	14.0
283	8F	RO92310	PU	2.2	62.3	4.9
284	8F	TO92311	MP	8.4	265.7	4.9
285	8F	RO92312	MP	5.7	94.7	7.4
286	8F	TO92313	QU	46.8	411.4	47.1
287	8F	TO92314	QU	16.9	78.0	22.3
288	8F	TO92315	MP	15.1	72.5	19.8
289	8F	TO92316	MP	7.1	64.5	13.2
290	8F	TO92317	MP	11.1	62.3	21.4
291	8F	RO92318	MP	1.6	52.8	7.1
292	8F	TO92319	MP	1.6	40.1	10.5
293	8F	TO92320	MP	0.5	25.5	4.2
294	8F	RO92321	MP	6.1	53.9	20.4
295	8F	TO92322	MP	2.8	103.9	9.8
296	8F	RO92323	MP	0.0	71.7	6.3
297	8F	RO92324	MP	0.0	38.0	4.9

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
298	8F	TO92325	MP	0.0	63.7	10.5
299	8F	TO92326	MP	3.9	56.8	13.3
300	8F	TO92327	MP	0.0	75.2	9.1
301	8E	TO92328	MP	11.2	55.7	12.6
302	8E	TO92329	MP	11.2	55.7	13.3
303	8E	TO92330	MP	12.3	56.7	9.1
304	8F	TO92401	PU	14.5	135.0	53.3
305	8F	TO92402	PU	15.7	267.9	79.3
306	8F	TO92403	PU	28.5	317.7	142.4
307	8F	TO92404	PU	8.9	535.8	64.6
308	8F	TO92405	PU	30.8	426.8	87.0
309	8F	TO92406	PU	51.5	137.9	228.8
310	7F	RO92407	PU	11.2	69.5	33.0
311	7F	TO92408	PU	20.1	88.9	51.2
312	7F	TO92409	PU	27.4	190.0	83.5
313	7F	TO92410	PU	24.1	136.2	61.1
314	7F	TO92411	PU	26.9	196.3	56.1
315	7F	TO92412	PU	43.7	261.7	66.7
316	7F	TO92413	PU	5.0	72.3	22.5
317	7F	TO92414	PU	27.4	299.1	89.8
318	7F	TO92415	PU	29.7	108.0	28.1
319	7F	TO92416	PU	3.3	88.7	12.6
320	7F	TO92417	PU	16.8	1,336.4	44.2
321	7F	TO92418	PU	17.9	1,532.7	96.8
322	7F	TO92419	PU	129.5	616.8	150.9
323	7F	TO92420	PU	10.6	482.9	45.6
324	7F	TO92421	PU	13.4	258.6	26.0
325	7F	TO92422	PU	8.4	236.8	21.8
326	7F	TO92423	PU	2.8	27.9	4.9
327	7F	TO92424	PG	129.5	80.6	111.6
328	7F	TO92425	PG	108.7	82.9	82.8
329	7F	TO92426	PG	22.4	1,180.7	23.2
330	7F	TO92427	PG	132.8	55.4	188.8

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
331	7F	TO92428	PG	1.6	19.4	0.7
332	7F	TO92429	PG	0.0	9.2	0.0
333	7F	TO92430	PG	6.1	41.8	5.6
334	7F	TO93001	PG	9.5	51.0	5.6
335	7F	TO93002	PG	12.8	65.6	5.6
336	7F	TO93003	PG	11.2	48.5	9.1
337	7F	TO93004	PG	26.3	23.3	12.6
338	7F	TO93005	PG	7.8	21.1	9.8
339	7F	TO93006	PG	17.3	44.9	7.7
340	7F	RO93007	PG	7.2	40.6	0.7
341	7F	TO93008	PG	3.3	25.0	8.4
342	7F	RO93009	PG	1.6	45.1	2.1
343	7F	TO93010	PG	5.6	38.2	0.7
344	7F	TO93011	PG	7.8	44.7	0.0
345	7F	TO93012	PG	9.5	67.3	7.0
346	7F	TO93013	PG	8.9	63.4	7.0
347	7F	RO93014	PG	11.2	63.3	11.2
348	7F	TO93015	PG	10.6	76.6	2.8
349	7F	RO93016	PG	1.1	27.4	0.0
350	7F	TO93017	PG	1.6	39.8	0.0
351	7F	TO93018	PG	6.7	60.6	7.7
352	7F	RO93019	PG	6.7	63.3	12.6
353	7F	RO93020	PG	0.5	20.5	4.5
354	7F	TO93021	PG	1.6	37.9	5.6
355	7F	TO93022	PG	2.2	40.5	2.8
356	7F	RO93023	PG	5.0	28.5	21.8
357	7F	TO93024	PG	7.8	39.3	20.4
358	7F	TO93025	PG	16.2	43.2	20.4
359	7F	TO93026	PG	8.4	43.7	25.3
360	7F	TO93027	PG	29.1	77.9	21.8
361	7F	TO93028	PG	15.7	72.9	18.2
362	7F	TO93029	PG	8.9	51.2	18.2
363	7F	TO93030	PG	14.5	72.2	21.1

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
364	7F	TO93031	MP	10.6	56.5	9.1
365	7F	TO93032	MP	1.1	24.0	7.7
366	7F	TO93033	MP	0.5	13.0	35.1
367	8F	TO100101	QU	12.3	719.6	45.6
368	8F	TO100102	QU	28.0	862.9	23.1
369	8F	RO100103	QU	1.1	61.7	3.5
370	8F	TO100104	MP	11.7	76.8	10.5
371	8F	TO100105	MP	3.9	88.4	5.6
372	8F	TO100106	MP	2.8	70.6	5.6
373	8F	RO100107	MP	6.7	81.8	6.3
374	8F	TO100108	MP	8.9	68.4	9.1
375	8F	TO100109	MP	5.6	48.9	6.3
376	8F	TO100110	MP	0.0	20.2	2.8
377	8F	RO100111	MP	1.1	29.1	4.9
378	8F	RO100112	MP	0.0	34.0	1.4
379	8F	RO100113	MP	0.0	55.3	5.6
380	8F	TO100114	MP	1.2	80.4	8.4
381	8F	TO100115	MP	3.3	82.7	4.2
382	8F	RO100116	MP	8.4	76.9	9.1
383	8F	RO100117	MP	2.2	79.0	4.2
384	8F	TO100118	MP	6.1	84.0	5.6
385	8F	RO100119	MP	2.8	80.8	9.1
386	8F	RO100120	MP	7.8	69.7	9.8
387	8F	RO100121	MP	2.2	59.5	6.3
388	8F	RO100122	MP	7.8	80.1	14.7
389	10E	TO100201	PU	9.5	60.2	24.6
390	10E	TO100202	PU	10.0	60.3	23.9
391	10E	TO100203	PU	7.0	245.3	19.1
392	10E	RO100204	PU	9.1	98.0	14.9
393	10E	RO100205	PU	11.8	52.6	11.3
394	10E	TO100206	PU	12.7	1,010.0	26.0
395	10E	TO100207	CH	8.7	38.9	12.0
396	10E	TO100208	CH	14.9	64.6	20.5

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
397	10E	TO100209	CH	12.7	60.7	19.8
398	10E	RO100210	CH	14.9	64.9	21.2
399	10E	TO100211	CH	21.9	81.0	24.1
400	10E	TO100212	CH	19.2	75.3	28.3
401	10E	TO100213	CH	19.7	71.5	33.2
402	10E	TO100214	CH	15.7	60.4	22.7
403	10E	TO100215	CH	18.8	76.4	25.5
404	10E	TO100216	CH	21.0	68.9	31.2
405	10E	TO100217	CH	21.0	72.4	29.7
406	10E	TO100218	CH	7.0	78.9	35.4
407	10E	TO100219	CH	9.2	39.2	23.4
408	10E	TO100220	CH	1.3	13.6	5.0
409	10E	TO100221	CH	16.2	61.1	29.0
410	10E	RO100222	CH	9.2	54.3	16.3
411	10E	TO100223	CH	20.1	63.7	24.8
412	10E	TO100224	CH	21.7	76.1	30.4
413	10E	RO100225	CH	12.7	39.0	26.9
414	10E	TO100301	CH	15.3	46.7	7.8
415	10E	TO100302	CH	14.9	63.7	20.5
416	10E	RO100303	CH	12.7	52.6	21.2
417	10E	RO100304	CH	18.8	61.8	27.6
418	10E	TO100305	CH	38.0	52.4	51.7
419	10E	TO100306	CH	9.2	75.7	21.2
420	10E	TO100307	CH	37.2	23.2	30.4
421	10E	TO100308	CH	9.2	70.3	27.6
422	10E	TO100309	PU	9.6	181.3	28.3
423	10E	TO100310	PU	7.0	554.7	29.7
424	10E	TO100311	PU	8.7	389.3	24.8
425	10E	RO100312	PU	6.6	51.4	15.6
426	11E	TO100313	PU	9.6	112.9	31.2
427	11E	TO100314	PU	7.9	74.6	18.4
428	11E	TO100315	PU	4.4	282.7	22.7
429	11E	TO100316	PU	10.9	298.7	22.7

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
430	11E	TO100317	PU	7.9	86.2	24.1
431	11E	TO100318	PU	14.4	226.7	48.1
432	11E	TO100319	PU	16.6	173.3	46.7
433	11E	TO100320	PU	30.2	82.9	37.5
434	11E	TO100321	PU	17.0	226.7	54.5
435	11E	TO100322	PU	19.2	245.3	53.1
436	11E	TO100323	PU	12.2	108.2	38.9
437	11E	TO100324	PU	14.4	210.7	43.2
438	11E	TO100325	PU	11.8	216.0	38.2
439	11E	TO100326	PU	11.8	168.0	36.8
440	11E	TO100327	PU	16.2	103.5	26.9
441	11E	TO100328	PU	13.1	116.4	41.1
442	11E	TO100329	PU	18.4	192.0	51.0
443	11E	TO100330	PU	14.4	178.7	43.2
444	11E	TO100331	PU	8.7	274.7	61.6
445	11E	TO100332	PU	24.5	72.6	28.3
446	11E	TO100333	PU	10.9	241.7	34.7
447	11E	TO100334	PU	36.7	94.9	81.4
448	11E	TO100335	CH	9.6	1,324.5	26.9
449	12E	TO100501	CH	10.5	50.3	17.0
450	12E	TO100502	CH	14.4	57.2	27.6
451	11E	TO100601	CH	10.9	32.1	18.5
452	11E	TO100602	CH	22.9	46.1	25.6
453	11E	TO100603	CH	8.7	29.3	9.9
454	11E	TO100604	CH	9.3	42.0	19.2
455	11E	TO100605	CH	22.3	87.9	44.0
456	11E	TO100606	CH	12.5	88.0	13.5
457	11E	TO100607	CH	6.5	28.7	14.9
458	11E	TO100608	CH	11.4	62.5	13.5
459	11E	TO100609	CH	4.4	68.2	24.9
460	11E	TO100610	CH	0.0	21.3	6.4
461	11E	RO100611	CH	6.0	36.6	14.2
462	11E	TO100612	CH	9.3	36.9	12.8

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
463	11E	TO100613	CH	10.3	61.0	19.9
464	11E	TO100614	CH	10.9	93.4	25.6
465	11E	TO100615	CH	7.1	51.6	15.6
466	11E	TO100616	CH	4.9	53.0	18.5
467	9E	RO100801	SA	0.0	28.4	0.7
468	9E	TO100802	SA	0.0	19.2	2.8
469	9E	TO100803	SA	0.0	46.2	7.1
470	9E	TO100804	QU	1.0	32.6	6.4
471	9E	RO100805	QU	1.6	26.4	4.3
472	9E	TO100806	QU	15.6	27.1	8.5
473	9E	TO100807	PU	3.3	30.5	7.1
474	9E	TO100808	PU	2.7	117.4	5.7
475	9E	TO100809	PU	17.4	493.4	29.1
476	9E	TO100810	MP	3.3	98.4	12.1
477	9E	TO100811	MP	1.6	28.2	3.6
478	9E	RO100812	MP	0.0	31.8	5.7
479	9E	RO100813	SA	16.3	50.7	10.7
480	9E	TO100814	MI	1.0	47.9	6.4
481	9E	TO100815	MP	4.4	35.4	0.7
482	9E	TO100816	MP	0.5	24.4	1.4
483	9E	TO100817	MI	1.6	30.8	2.1
484	9E	RO100818	MI	0.0	22.3	0.0
485	9E	TO100819	MI	31.6	32.2	3.6
486	9E	TO100820	MI	0.0	29.5	0.0
487	10E	TO100901	SA	13.6	60.5	29.8
488	10E	TO100902	CH	14.7	50.0	21.3
489	10E	TO100903	CH	16.9	70.5	34.8
490	10E	TO100904	CH	10.3	43.1	21.3
491	10E	TO100905	CH	7.0	21.6	14.2
492	10E	RO100906	CH	6.5	36.2	23.4
493	10E	TO100907	CH	15.2	54.1	36.9
494	10E	TO100908	CH	4.4	80.9	26.3
495	10E	TO100909	CH	16.3	50.3	37.7

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
496	10E	RO100910	CH	7.6	61.8	23.4
497	10E	RO100911	CH	23.9	78.0	34.1
498	10E	TO100912	CH	22.9	340.4	46.9
499	10E	TO100913	CH	26.1	82.6	41.2
500	10E	TO100914	CH	7.1	36.2	12.9
501	10E	TO100915	CH	7.6	44.9	15.6
502	9E	TO101001	MI	0.5	19.5	6.0
503	9E	TO101002	MI	2.1	43.8	6.4
504	9E	TO101003	MI	1.6	30.7	6.4
505	9E	TO101004	MI	4.9	65.4	9.9
506	9E	RO101005	MI	2.2	63.1	9.2
507	9E	TO101006	MI	9.8	43.4	9.9
508	9E	TO101007	QU	17.9	61.8	11.4
509	9E	TO101008	QU	13.6	94.1	13.5
510	9E	RO101009	QU	2.7	61.8	10.7
511	9E	TO101010	QU	13.6	63.9	7.8
512	9E	TO101011	QU	16.3	59.0	9.9
513	9E	TO101012	TR	14.2	57.2	5.7
514	9E	TO101013	TR	3.8	87.5	6.4
515	9E	TO101014	TR	4.9	59.7	4.3
516	9E	TO101015	TR	1.0	42.3	5.0
517	9E	RO101016	QU	0.5	36.6	4.3
518	9E	TO101017	QU	2.7	68.2	6.4
519	9E	TO101018	QU	3.8	57.0	5.7
520	9E	RO101019	QU	2.2	135.7	1.4
521	9E	RO101020	QU	19.6	38.4	8.1
522	9E	TO101021	QU	24.5	54.9	13.5
523	9E	TO101022	TR	6.0	75.7	5.7
524	9E	TO101023	TR	16.9	58.4	7.8
525	9E	RO101024	TR	2.7	50.7	4.3
526	9D	RO101025	TR	19.6	40.3	12.8
527	9D	TO101026	TR	3.8	20.3	5.7
528	9D	RO101027	TR	57.2	50.5	29.1

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
529	9D	TO101028	TR	22.9	76.6	6.4
530	9D	TO101029	MP	25.6	38.5	7.8
531	9D	TO101030	MP	4.9	97.9	5.7
532	9D	TO101101	MP	3.8	136.2	11.4
533	9D	RO101102	MP	9.8	54.8	14.9
534	9D	TO101103	MP	31.6	71.1	7.1
535	9D	TO101104	MP	56.1	57.2	18.5
536	9D	TO101105	PC	28.3	66.6	9.9
537	9D	RO101106	PC	15.2	44.9	7.1
538	9D	TO101107	PC	31.6	57.7	17.8
539	9D	TO101108	PC	12.5	56.7	8.5
540	9D	TO101109	PC	18.5	61.8	13.5
541	9D	TO101110	PC	24.5	66.9	26.3
542	9D	RO101111	PC	23.9	66.1	34.8
543	9D	TO101112	PC	20.7	74.8	9.9
544	8C	RO101301	PG	16.9	40.5	7.8
545	8C	TO101302	PG	23.9	61.3	11.4
546	8C	RO101303	PG	7.1	30.3	8.5
547	8C	TO101304	PG	21.2	67.4	11.4
548	8D	RO101305	PG	12.0	41.0	9.9
549	8D	TO101306	PG	16.9	56.7	10.7
550	8D	RO101307	PG	11.4	50.7	16.3
551	8D	TO101308	PG	16.3	72.8	12.1
552	8D	TO101309	PG	26.1	69.2	12.8
553	8D	RO101310	PG	31.0	50.7	13.5
554	8D	RO101311	PG	31.6	51.6	13.5
555	8D	RO101312	PG	14.2	36.1	7.8
556	8D	TO101313	PG	37.6	66.2	14.2
557	8D	TO101314	PG	13.6	50.6	16.3
558	8D	TO101315	PG	25.0	39.3	21.3
559	9B	TO101401	QU	7.6	358.7	22.0
560	9B	RO101402	MI	20.1	103.8	13.5
561	9B	TO101403	SA	8.7	139.3	5.7

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
562	9B	TO101404	SA	3.3	50.5	4.9
563	9B	TO101405	MP	2.2	42.0	3.6
564	9B	TO101406	MP	8.2	63.1	6.4
565	9B	TO101407	MP	2.2	44.1	7.1
566	9B	TO101408	SA	3.3	46.6	3.6
567	9B	TO101409	SA	12.5	87.5	12.1
568	9B	TO101410	SA	16.3	48.2	5.7
569	9B	TO101411	SA	2.2	87.4	9.9
570	9B	TO101412	SA	5.4	35.3	5.0
571	10B	TO101413	PU	7.6	544.0	27.7
572	10B	TO101414	PU	3.8	1,267.5	37.6
573	10B	TO101415	PU	2.7	243.2	22.0
574	10B	TO101416	PU	6.0	124.4	14.9
575	10B	TO101417	SA	6.5	228.0	12.8
576	10B	TO101418	SA	21.2	234.0	20.6
577	10B	TO101501	SA	140.0	28.7	2.1
578	10B	TO101502	PU	13.6	30.7	13.5
579	10B	TO101503	PU	2.7	17.0	5.7
580	10B	TO101504	PU	12.5	33.1	14.9
581	10B	RO101505	PU	4.4	79.8	10.7
582	10B	TO101506	PU	9.3	118.5	24.9
583	10B	TO101507	PU	13.1	120.7	17.1
584	10B	TO102101	PU	7.1	23.1	9.9
585	10B	TO102102	SA	30.5	52.5	19.2
586	10B	TO102103	SA	61.5	2,463.5	92.4
587	10B	TO102104	SA	1.6	55.4	9.9
588	10B	TO102105	SA	37.6	1,062.9	113.0
589	10B	TO102106	PU	0.5	65.4	5.7
590	10B	TO102107	PU	27.2	793.3	37.7
591	10B	TO102108	PU	7.1	255.3	32.0
592	10B	TO102109	SA	10.3	246.2	30.6
593	10B	TO102110	SA	11.4	286.7	45.5
594	10B	TO102111	SA	8.7	103.1	15.6

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
595	10E	TO102112	PU	2.7	63.9	16.3
596	10E	TO102201	CH	12.5	56.9	8.5
597	10E	TO102202	SA	9.8	410.3	31.3
598	10E	TO102203	SA	8.7	106.6	13.4
599	10E	TO102204	SA	93.6	446.8	21.3
600	10E	TO102205	SA	28.9	137.4	24.1
601	10E	RO102206	SA	16.7	1,120.9	16.8
602	10E	TO102207	SA	21.2	1,704.6	36.6
603	10E	TO102208	SA	26.3	640.6	38.9
604	10E	TO102209	SA	16.7	715.3	25.1
605	8F	RO102301	QU	10.9	54.8	16.8
606	8F	TO102302	QU	14.7	64.8	16.0
607	8F	TO102303	MI	12.2	63.0	14.5
608	8F	TO102304	MI	7.7	48.9	19.0
609	8F	TO102305	MI	10.3	52.0	16.0
610	8F	RO102306	MI	10.3	57.7	15.2
611	8F	TO102307	MI	13.5	61.6	25.9
612	8F	TO102308	MI	13.5	63.7	22.9
613	8F	TO102309	MI	20.5	75.8	30.4
614	8G	RO102310	MI	16.0	64.8	16.0
615	8G	TO102311	MI	17.3	58.0	20.6
616	8G	TO102312	MI	8.3	56.0	16.8
617	8G	TO102313	MI	1.9	28.6	8.4
618	8G	RO102314	MI	25.6	64.2	14.5
619	8G	RO102315	MI	4.5	66.0	11.4
620	8G	TO102316	MI	4.5	45.7	8.4
621	8G	RO102317	MI	5.1	63.0	12.2
622	8G	TO102318	MI	5.6	62.8	14.5
623	8G	TO102319	MI	2.6	34.3	7.6
624	8G	RO102320	MI	9.6	68.9	14.5
625	6G	TO102401	CH	23.1	73.0	67.0
626	6G	TO102402	CH	16.0	93.4	57.9
627	6G	TO102403	CH	2.6	18.0	10.7

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
628	6G	RO102404	CH	5.8	41.1	18.3
629	6G	TO102405	CH	9.0	33.1	17.5
630	6G	TO102406	CH	1.3	39.7	23.6
631	6G	TO102407	CH	17.9	44.0	25.1
632	6G	TO102408	CH	10.3	44.8	25.9
633	6G	TO102409	CH	7.7	38.8	17.5
634	6G	RO102410	CH	8.3	44.0	18.3
635	6G	TO102411	CH	10.9	50.9	26.7
636	6G	TO102412	CH	19.2	52.8	31.2
637	6G	TO102413	CH	12.2	76.0	41.9
638	6G	TO102414	CH	13.5	85.8	39.6
639	6G	TO102415	CH	17.9	80.8	32.8
640	6G	RO102416	CH	10.9	55.9	29.7
641	6G	TO102417	CH	13.5	76.7	38.1
642	6G	TO102418	CH	18.6	109.3	57.1
643	6G	TO102419	CH	32.1	102.7	41.1
644	6G	RO102420	CH	7.1	56.6	29.0
645	6H	TO102421	CH	4.5	66.9	34.3
646	6H	TO102422	CH	9.0	84.9	48.0
647	6H	TO102423	CH	3.9	51.4	17.5
648	6H	TO102424	CH	5.8	61.2	23.6
649	6H	TO102425	CH	10.3	63.3	35.8
650	7G	TO102501	CH	16.0	114.2	52.6
651	7G	TO102502	CH	7.5	73.3	21.3
652	7G	TO102503	CH	9.8	85.4	9.9
653	7G	TO102504	CH	4.6	41.8	6.9
654	7G	TO102505	CH	3.5	37.2	12.2
655	7G	TO102506	CH	5.8	59.6	25.1
656	7G	TO102507	CH	3.5	21.9	4.6
657	7G	TO102508	CH	5.2	27.4	12.2
658	6G	TO102509	CH	1.2	21.2	6.1
659	6G	TO102510	CH	0.0	33.5	9.1
660	6G	TO102511	CH	1.7	21.2	3.1

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
661	6G	TO102512	CH	0.0	19.4	7.6
662	6G	TO102513	CH	1.2	23.3	3.8
663	6G	TO102514	CH	11.0	69.0	25.1
664	6G	TO102515	CH	2.3	39.0	20.6
665	6G	TO102516	CH	5.2	55.5	19.0
666	6G	TO102517	CH	13.2	59.8	19.8
667	6H	TO102518	CH	2.3	72.2	25.1
668	6H	TO102519	CH	7.5	35.6	8.4
669	6H	TO102520	CH	9.2	37.7	20.6
670	6H	TO102521	CH	2.3	50.7	8.4
671	6H	TO102522	CH	11.0	70.8	28.2
672	6H	TO102523	CH	4.0	38.8	9.1
673	6H	TO102524	CH	9.2	97.2	32.8
674	6H	TO102525	CH	7.5	29.4	29.7
675	6H	TO102526	CH	5.8	36.3	15.2
676	6H	TO102527	CH	7.5	43.7	25.9
677	6H	TO102528	CH	27.2	46.8	32.8
678	6H	RO102529	CH	9.2	54.4	27.4
679	6H	RO102530	CH	4.6	43.6	22.9
680	6H	TO102531	CH	11.0	107.1	51.0
681	6H	TO192532	CH	13.9	92.7	42.7
682	6H	TO102533	CH	11.6	72.6	33.5
683	6H	RO102534	CH	8.7	38.3	9.9
684	6G	TO102601	CH	12.7	54.1	25.9
685	6H	TO102602	CH	16.2	61.7	30.5
686	6H	TO102603	CH	4.6	34.5	23.6
687	6H	TO102604	CH	4.6	28.1	19.0
688	6H	TO102605	CH	1.2	30.4	16.8
689	6H	RO102606	CH	0.6	25.4	8.4
690	6H	TO102607	CH	7.5	58.9	21.3
691	6H	TO102608	CH	14.5	58.4	32.8
692	6H	RO102609	CH	3.5	37.7	16.0
693	6H	TO102610	CH	12.7	89.9	35.8

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
694	6H	TO102611	CH	13.9	81.1	35.0
695	6H	TO102612	CH	15.6	70.8	38.1
696	6H	TO102613	CH	18.5	85.9	29.0
697	6H	TO102614	CH	5.2	71.5	20.6
698	6H	RO102615	CH	6.4	52.5	21.3
699	6H	RO102616	CH	4.0	42.2	15.2
700	6H	TO102617	CH	7.5	42.9	12.2
701	6H	TO102618	CH	16.4	64.9	23.3
702	6H	TO102619	CH	8.5	53.7	19.1
703	6H	TO102620	CH	2.5	25.9	5.7
704	6H	TO102621	CH	2.0	28.1	8.5
705	6H	TO102622	CH	9.0	52.9	12.7
706	6H	TO102623	CH	8.0	45.1	12.0
707	6H	TO102624	CH	6.5	77.7	12.0
708	6H	TO102625	CH	14.0	59.5	29.0
709	6H	TO102626	CH	6.5	35.0	10.6
710	6H	TO102627	CH	10.0	62.1	21.2
711	6H	TO102628	CH	2.5	23.1	7.8
712	6H	TO102629	CH	5.0	52.9	19.8
713	6H	TO102630	CH	6.5	56.4	31.8
714	6J	TO102701	CH	4.0	20.4	5.7
715	6J	TO102702	CH	13.0	50.1	19.8
716	6J	TO102703	CH	2.5	21.5	4.2
717	6I	TO102704	CH	6.0	36.2	18.4
718	6I	TO102705	CH	19.4	24.1	17.0
719	6I	TO102706	CH	6.5	23.5	12.7
720	6I	TO102707	CH	9.5	44.7	12.7
721	6I	TO102708	CH	9.0	24.1	14.1
722	6I	TO102709	CH	11.5	31.7	15.5
723	5I	TO102710	CH	11.5	38.4	11.3
724	5I	RO102711	CH	4.0	25.9	4.2
725	5I	TO102712	CH	13.0	43.6	22.6
726	5I	TO102713	CH	14.0	31.1	12.7

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
727	5I	TO102714	CH	15.0	35.7	17.7
728	5I	TO102715	CH	5.5	22.2	4.2
729	6I	TO102716	CH	4.5	17.5	4.2
730	6I	TO102717	CH	0.0	7.4	0.0
731	6I	TO102718	OR	10.5	18.9	0.0
732	6I	TO102719	OR	3.0	27.1	12.0
733	6I	TO102720	OR	16.4	33.4	16.3
734	6I	TO102721	OR	10.5	46.3	14.8
735	6I	TO102722	OR	12.0	53.2	12.7
736	6I	RO102723	OR	1.5	21.3	4.2
737	6I	TO102724	SA	4.5	23.1	9.9
738	6I	TO102725	SA	4.0	31.7	7.0
739	6I	TO102901	CH	5.0	43.0	7.8
740	6I	TO102902	CH	12.5	83.0	25.4
741	6I	TO102903	OR	7.5	48.7	12.0
742	6I	TO102904	OR	15.0	38.1	9.9
743	6I	TO102905	OR	24.4	36.4	10.6
744	6I	TO102906	OR	7.5	36.5	0.0
745	6I	TO102907	OR	95.7	68.6	55.1
746	6I	TO102908	OR	10.7	53.3	15.5
747	6I	TO102909	OR	26.9	90.0	29.0
748	6I	TO102910	OR	11.0	74.2	21.2
749	6I	TO102911	OR	3.5	48.3	7.1
750	6I	TO102912	OR	35.4	85.7	34.6
751	6I	TO102913	OR	10.5	53.6	6.4
752	6I	TO102914	OR	13.5	36.1	9.2
753	6I	TO102915	OR	75.2	43.4	38.2
754	6I	TO102916	SA	14.0	51.7	12.0
755	6I	RO102917	SA	9.0	39.8	15.5
756	6I	TO102918	SA	23.9	81.7	14.8
757	3G	RO110501	PG	3.0	36.5	1.4
758	3G	RO110502	PG	19.4	74.9	0.0
759	3G	RO110503	PG	19.4	94.0	0.0

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
760	3G	RO110504	PG	20.9	107.9	25.4
761	4G	TS91101	QU	163.9	421.2	96.8
762	4G	TS91102	QU	10.5	92.4	10.6
763	3G	TS91103	QU	10.0	88.5	9.2
764	3G	TS91104	QU	7.0	77.9	8.5
765	3G	TS91105	QU	7.5	43.1	8.5
766	3G	RS91106	QU	1.0	35.0	2.8
767	3G	RS91107	PG	56.8	426.9	13.4
768	3G	RS91108	PG	6.5	45.7	5.7
769	3G	RS91109	PG	24.4	91.5	12.0
770	3G	TS91110	PG	28.9	119.6	15.5
771	3G	RS91111	QU	13.0	87.0	11.3
772	3G	RS91112	PG	16.9	115.9	21.9
773	3G	RS91113	PG	6.0	46.4	2.1
774	3G	RS91114	PG	7.0	69.5	5.7
775	3G	RS91115	PG	8.5	55.2	4.2
776	3G	RS91116	PG	4.0	48.3	0.0
777	3G	RS91201	PU	8.0	90.5	3.5
778	3G	RS91202	PU	14.0	361.0	21.2
779	3G	RS91203	PU	19.4	289.4	16.3
780	4G	RS91204	PG	2.0	34.8	2.8
781	6G	RS91301	OR	6.5	16.9	9.9
782	6G	RS91302	SA	3.5	12.8	3.5
783	6G	RS91303	SA	5.5	39.8	10.6
784	6G	TS91304	SA	17.4	74.1	14.1
785	6G	RS91305	SA	2.0	17.5	2.8
786	6G	TS91306	SA	8.0	42.4	12.0
787	6G	RS91307	SA	1.0	18.6	0.7
788	6G	RS91308	SA	2.0	25.1	4.2
789	6G	TS91309	SA	19.9	76.2	16.3
790	6G	RS91310	PA	7.5	40.8	8.5
791	6G	TS91311	PA	17.9	70.5	17.0
792	6G	RS91312	PA	5.0	39.5	8.5

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
793	6G	TS91313	PA	10.5	52.4	7.8
794	6G	RS91314	PA	6.0	41.3	7.8
795	6G	TS91315	PA	15.4	60.2	19.1
796	6G	RS91316	PA	6.0	37.0	9.2
797	6G	RS91317	PA	13.0	70.5	14.1
798	6G	TS91318	PA	15.9	62.6	16.3
799	6G	RS91501	PA	3.0	24.6	17.0
800	6G	TS91502	PA	6.5	52.7	19.8
801	6G	TS91503	PU	18.7	95.5	12.0
802	6G	TS91504	PA	14.2	18.2	34.5
803	6G	TS91505	PU	15.6	544.8	25.7
804	6G	RS91506	PU	1.9	2,064.5	16.9
805	6G	RS91507	PU	4.5	82.5	17.7
806	6G	RS91508	PU	0.6	36.6	16.9
807	6F	TS91601	PU	5.8	24.5	12.0
808	6F	TS91602	PU	14.8	1,000.0	39.4
809	6F	TS91603	PU	0.0	81.9	8.0
810	6F	RS91604	PU	1.9	23.1	9.6
811	6F	RS91605	PU	3.9	81.9	10.4
812	6F	TS91606	PU	16.1	43.3	29.7
813	6G	RS91701	PA	5.8	29.7	16.1
814	6G	RS91702	PA	3.9	29.7	15.3
815	6G	RS91703	PA	2.6	29.0	12.9
816	6G	RS91704	PU	2.6	46.4	11.2
817	6G	RS91705	PU	9.0	36.8	19.3
818	6G	TS91706	PU	11.6	53.5	18.5
819	6G	RS91707	PU	0.0	31.8	9.6
820	6G	TS91708	PU	8.4	50.2	20.9
821	6G	RS91709	PU	5.2	39.8	16.9
822	6G	TS91710	PU	14.8	51.7	24.9
823	6G	TS91711	PU	7.1	24.3	25.7
824	6G	TS91712	PU	12.9	33.2	28.9
825	6G	RS91713	PU	5.8	45.0	14.5

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
826	6G	TS91714	PU	0.6	16.1	5.6
827	6G	TS91715	MI	12.3	75.0	39.4
828	6G	TS91716	MI	9.0	63.9	32.1
829	6G	RS91717	PU	5.2	31.6	14.5
830	7G	RS91718	PU	1.9	29.3	12.9
831	7G	TS91719	PU	13.5	59.5	27.5
832	6G	TS91720	PU	0.0	12.5	4.0
833	6G	TS91721	PU	9.0	25.9	19.3
834	6G	TS91722	PU	19.4	58.5	42.6
835	7G	TS91723	PU	20.6	89.4	32.9
836	7G	TS91724	PU	21.3	83.9	39.4
837	7G	TS91725	PU	9.7	63.5	28.9
838	7G	TS91726	PU	25.2	45.5	38.6
839	7G	TS91727	PU	12.3	58.5	24.9
840	7G	TS91728	SA	3.2	66.5	20.1
841	7G	RS91729	SA	6.5	43.7	9.6
842	7G	RS91730	OR	20.0	37.2	15.3
843	7G	RS91901	OR	2.6	29.9	9.6
844	7G	TS91902	SA	11.0	113.5	22.5
845	7G	TS91903	PU	18.7	43.6	16.1
846	7G	TS91904	PU	18.1	53.0	16.1
847	7G	TS91905	PU	0.0	35.2	12.1
848	7G	RS91906	PU	7.7	77.8	9.6
849	7G	RS91907	PU	6.5	67.7	12.0
850	7G	TS91908	PU	16.1	91.5	28.9
851	7G	TS91909	PU	10.3	94.3	17.7
852	7G	TS91910	PU	11.0	84.9	20.1
853	7G	TS91911	PU	14.8	113.5	37.8
854	7G	TS91912	PU	14.2	162.0	62.7
855	7G	TS91913	PU	46.5	465.9	86.7
856	7G	TS91914	PU	21.9	75.2	15.3
857	7G	TS91915	PU	5.2	78.8	26.5
858	7G	TS91916	PU	17.4	59.5	39.4

Sample No.	Location	Stream Sediment (R) or Soil (S)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
859	7G	RS91917	PU	5.8	48.8	9.6
860	7G	RS91918	PU	11.6	60.8	15.3
861	7G	TS91919	PU	5.8	64.2	20.9
862	7G	RS91920	PU	5.2	25.2	8.8
863	7G	RS91921	PU	5.2	69.3	15.3
864	7G	RS91922	PU	5.2	19.1	12.9
865	7G	TS91923	PU	10.3	62.0	34.5
866	7G	RS91924	PU	7.1	63.2	25.7
867	7G	TS91925	PU	20.6	70.1	28.1
868	7F	RS91926	PU	4.5	32.8	18.5
869	7F	TS91927	PU	12.9	99.1	25.7
870	7F	TS91928	PU	31.0	77.4	31.3
871	7F	RS91929	PU	3.2	17.5	16.1
872	7F	RS9193-	PU	3.2	27.3	15.3
873	7F	TS91931	PU	9.0	16.7	23.3
874	7F	TS91932	PU	11.0	20.0	28.1
875	7F	RS91933	PU	9.7	109.7	24.9
876	7F	TS91934	PU	3.2	67.0	24.1
877	7F	RS91935	PU	96.1	133.2	47.4
878	7F	RS92001	PU	12.9	37.3	16.1
879	7F	RS92002	PU	8.4	33.3	12.9
880	7F	RS92003	PU	1.3	32.6	8.8
881	7F	TS92004	PU	9.7	65.6	7.2
882	7F	TS92005	PU	6.5	57.1	9.6
883	7F	TS92006	PU	3.9	12.7	0.0
884	7F	TS92007	PU	12.3	50.2	9.6
885	7F	TS92008	PU	8.4	41.0	13.7
886	7F	TS92009	PU	23.9	104.0	40.2
887	7F	TS92010	PU	11.6	37.2	4.8
888	8F	TS92011	PU	49.0	31.8	22.5
889	8F	RS92012	QU	2.6	18.4	4.0
890	8F	TS92013	OR	16.1	28.8	18.5
891	8G	TS92014	OR	7.7	26.0	11.2

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
892	8G	TS92015	OR	16.1	36.5	24.1
893	8G	RS92016	OR	6.5	39.2	13.7
894	8G	RS92017	OR	14.8	50.9	10.4
895	8G	RS92018	OR	5.2	36.5	9.6
896	8G	RS92019	OR	8.4	22.6	7.2
897	8G	TS92020	OR	2.6	14.9	4.0
898	8G	TS92021	OR	13.5	14.6	9.6
899	8G	TS92022	OR	13.5	30.6	14.5
900	8G	TS92101	OR	25.8	19.6	18.5
901	8G	TS92102	OR	9.4	37.5	26.3
902	8G	RS92103	OR	5.2	20.4	5.5
903	8G	TS92104	OR	7.8	20.8	13.1
904	8G	RS92105	OR	6.3	25.1	7.6
905	8G	RS92106	OR	8.3	32.8	8.3
906	8G	TS92107	OR	2.6	19.9	9.7
907	8G	RS92108	OR	3.7	20.7	6.9
908	8G	TS92109	OR	5.7	19.8	9.0
909	8G	RS92110	OR	8.9	33.7	15.9
910	7G	RS92111	MP	9.9	38.4	15.2
911	7G	RS92112	MP	10.9	31.1	11.8
912	7G	RS92113	MP	13.0	37.4	12.5
913	7G	RS92114	MP	13.0	37.2	7.6
914	7G	RS92115	MP	16.2	44.6	10.4
915	7G	RS92116	MP	14.1	36.5	11.1
916	7G	RS92117	MP	12.5	34.5	10.4
917	7G	RS92118	MP	11.5	36.9	6.9
918	7G	RS92119	MP	5.2	22.6	4.2
919	7G	RS92120	MP	6.8	21.0	5.5
920	7G	RS92121	MP	3.7	17.4	1.4
921	7G	RS92122	MP	6.3	20.1	4.8
922	7G	RS92123	OR	8.9	18.8	2.1
923	8G	TS92124	OR	6.8	20.8	4.2
924	8F	TS92125	QU	5.2	16.6	10.4

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
925	8F	RS92126	QU	4.2	21.8	3.5
926	8F	RS92127	QU	3.7	15.2	2.1
927	8F	TS92128	QU	5.7	24.3	4.8
928	8F	TS92129	QU	7.3	51.6	9.0
929	8F	TS92130	QU	12.0	30.5	6.9
930	8G	RS92201	OR	13.6	19.8	4.2
931	8G	RS92202	OR	1.6	14.8	0.0
932	8G	RS92203	OR	9.9	23.6	3.5
933	8G	TS92204	OR	6.8	18.6	9.7
934	8G	TS92205	OR	1.6	11.3	2.1
935	8G	TS92206	OR	4.2	15.3	4.2
936	8G	TS92207	OR	6.8	42.4	51.9
937	8G	TS92208	OR	8.3	15.0	0.7
938	8G	TS92209	OR	7.3	39.3	18.7
939	8G	TS92210	OR	5.7	11.7	0.0
940	8G	TS92211	OR	12.5	51.3	28.4
941	8G	TS92212	OR	33.4	24.8	31.1
942	8G	TS92213	OR	6.3	21.0	20.8
943	8G	TS92214	OR	12.0	44.1	21.6
944	8G	RS92215	OR	14.6	18.3	7.6
945	8G	RS92216	OR	6.8	14.2	4.8
946	8G	TS92217	OR	9.4	746.9	31.1
947	8G	TS92218	OR	56.9	28.0	41.5
948	8G	RS92219	OR	12.5	20.5	21.5
949	8G	TS92220	OR	10.4	28.3	28.4
950	8G	TS92221	OR	10.4	28.6	15.9
951	8G	TS92222	OR	4.2	38.3	18.0
952	8G	TS92223	OR	11.0	32.8	15.9
953	8G	RS92224	OR	7.3	24.3	11.1
954	8G	TS92225	OR	18.3	69.2	30.4
955	8G	TS92226	OR	11.0	66.0	27.0
956	8G	TS92227	OR	43.3	64.2	31.1
957	8G	RS92228	OR	18.8	59.2	21.5

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
958	8G	TS92229	OR	20.3	60.4	29.8
959	8G	RS92230	OR	18.3	59.4	22.8
960	8G	RS92231	OR	14.1	22.6	11.1
961	8G	RS92232	OR	9.4	35.3	10.4
962	8G	RS92233	OR	13.0	68.5	21.5
963	8G	TS92234	OR	12.0	71.6	16.2
964	8G	TS92235	OR	20.9	64.8	21.5
965	8G	RS92236	OR	25.6	57.0	15.9
966	8G	TS92237	SA	730.4	64.5	46.4
967	8G	TS92238	SA	12.0	78.2	25.6
968	8H	TS92239	SA	27.1	45.6	31.8
969	8H	TS92240	CH	17.2	67.9	26.3
970	8H	TS92241	CH	64.7	70.7	42.9
971	8H	RS92242	CH	24.5	71.4	25.6
972	8H	RS92301	CH	52.3	78.4	41.5
973	8H	TS92302	CH	44.9	88.3	42.9
974	8H	RS92303	CH	47.0	72.9	32.5
975	8H	TS92304	CH	51.1	64.8	35.3
976	8H	RS92305	CH	36.0	78.4	31.8
977	8H	TS92306	CH	58.4	57.5	32.5
978	8H	TS92307	CH	26.6	119.5	78.2
979	8H	RS92308	CH	53.2	80.5	35.3
980	8H	TS92309	CH	101.2	53.5	38.8
981	8H	TS92310	CH	56.9	87.5	47.1
982	8H	TS92311	CH	53.2	60.1	27.0
983	8H	TS92312	CH	72.5	90.0	20.8
984	8H	TS92313	CH	78.8	62.9	42.2
985	8H	TS92314	CH	79.3	83.6	42.2
986	8H	TS92315	CH	51.7	42.5	13.1
987	8H	TS92316	CH	47.0	40.9	25.6
988	8H	RS92317	CH	53.7	46.6	22.8
989	8H	TS92318	CH	67.3	51.9	36.0
990	8H	RS92319	CH	59.0	71.4	32.5

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
991	8H	RS92320	CH	51.0	71.6	35.3
992	8H	RS92321	CH	17.2	27.7	16.6
993	8H	TS92322	CH	113.7	57.8	44.3
994	8H	RS92323	CH	17.2	38.1	16.6
995	8F	TS92401	PU	14.1	81.7	31.1
996	8F	TS92402	PU	13.0	75.1	10.4
997	8F	RS92403	PU	5.7	11.7	2.8
998	8F	RS92404	PU	5.7	17.7	2.1
999	8F	TS92405	PU	12.0	32.3	12.5
1000	8F	TS92406	MI	7.3	22.0	5.5
1001	8F	RS92407	MI	9.5	30.2	10.8
1002	8F	TS92408	MI	29.2	71.5	18.7
1003	8F	RS92409	MI	22.6	71.0	21.6
1004	8F	RS92410	MI	23.2	66.3	22.3
1005	8F	RS92411	MI	17.3	41.4	23.7
1006	8F	RS92412	MI	21.4	68.4	23.0
1007	8F	RS92413	MI	22.6	63.5	20.9
1008	8F	TS92414	PU	27.4	37.8	22.3
1009	8F	TS92415	PU	29.2	56.6	22.3
1010	8F	RS92416	PU	19.0	20.6	8.6
1011	8F	RS92417	PU	55.4	74.8	28.1
1012	8F	RS92418	PU	58.9	72.7	28.9
1013	8F	RS92419	PU	49.4	70.3	24.5
1014	8F	RS92420	PU	58.3	54.9	25.2
1015	8F	RS92421	MI	52.4	82.0	25.9
1016	8F	RS93001	MI	56.0	80.8	25.9
1017	8F	RS93002	MI	63.1	82.0	25.9
1018	8F	RS93003	MI	58.9	82.5	27.3
1919	8F	RS93004	MI	101.2	86.9	42.4
1020	8F	RS93005	MI	53.6	87.1	26.6
1021	8F	RS93006	MI	42.9	75.7	23.0
1022	8F	RS93007	MI	44.6	88.8	23.7
1023	8F	RS93008	MI	64.3	75.3	29.5

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1024	8F	RS93009	MI	41.7	65.9	19.4
1025	8F	TS93010	MI	39.3	68.2	15.1
1026	8F	RS93011	MI	61.9	79.9	33.8
1027	9F	RS93012	MI	75.6	95.3	37.4
1028	8F	RS93013	MI	80.4	96.9	39.6
1029	8F	TS93014	MI	25.0	46.0	19.4
1030	9F	RS93015	MI	76.8	80.4	30.9
1031	9F	RS93016	MI	84.5	97.4	43.3
1032	8F	RS93017	MI	95.8	97.6	44.0
1033	9F	TS100101	MI	12.5	47.6	10.1
1034	9F	TS100102	MI	25.6	138.3	51.3
1035	9F	RS100103	MI	25.6	75.2	16.6
1036	9F	TS100104	MI	33.3	85.5	29.6
1037	9F	TS100105	MI	16.7	58.7	16.6
1038	9F	RS100106	MI	27.4	84.6	35.4
1039	9F	RS100107	MI	9.5	67.5	18.1
1040	9F	TS100108	MI	11.9	38.5	7.9
1041	9F	RS100109	MI	35.7	80.8	33.9
1042	9F	RS100110	MI	23.2	87.4	36.1
1043	9F	RS100111	MI	26.8	74.3	28.2
1044	9F	TS100112	MI	11.9	43.0	12.3
1045	9F	TS100113	MI	6.0	48.6	7.9
1046	9F	RS100114	MI	18.5	68.7	26.7
1047	12E	RS100201	CH	19.6	37.3	17.3
1048	12E	RS100202	CH	11.9	84.1	31.0
1049	12E	RS100203	CH	18.5	120.5	55.6
1050	12E	RS100204	CH	13.7	90.7	41.9
1051	12E	RS100205	CH	9.7	30.1	7.9
1052	12E	RS100206	CH	20.3	72.6	16.6
1053	12E	TS100207	CH	12.6	36.9	15.9
1054	12E	TS100301	CH	78.8	88.3	41.2
1055	12E	TS100302	CH	17.0	60.0	15.9
1056	12E	TS100303	CH	21.9	87.8	23.8

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1057	12B	RS100304	CH	38.3	68.4	33.2
1058	12B	RS100305	CH	21.9	59.3	24.5
1059	12B	RS100306	CH	36.7	81.1	30.3
1060	12B	TS100307	CH	21.4	64.9	17.3
1061	12B	TS100308	CH	12.0	22.0	10.8
1062	11B	TS100309	CH	13.1	16.6	9.4
1063	11B	TS100310	CH	33.4	74.3	30.3
1064	11B	RS100311	CH	20.3	52.6	23.8
1065	11B	RS100312	CH	20.2	52.4	15.2
1066	11B	RS100313	CH	27.9	65.4	29.6
1067	11B	TS100314	CH	17.0	41.8	18.8
1068	11B	RS100315	CH	19.2	45.6	15.2
1069	11B	TS100316	CH	37.2	86.9	26.7
1070	11B	TS100317	CH	13.7	128.4	13.0
1071	11B	RS100318	CH	18.1	64.7	30.3
1072	11B	TS100319	CH	14.8	71.5	16.6
1073	11B	RS100320	CH	14.2	54.7	24.5
1074	11B	TS100321	CH	8.8	44.6	19.5
1075	11B	TS100322	CH	15.3	55.1	30.3
1076	11B	TS100323	CH	10.9	71.7	15.9
1077	11B	TS100324	CH	19.7	115.4	33.2
1078	11B	TS100325	CH	18.6	54.9	28.9
1079	11B	TS100326	CH	9.3	70.1	23.8
1080	11B	RS100327	CH	11.5	54.9	27.4
1081	11B	TS100328	CH	23.0	43.0	26.7
1082	11B	TS100329	CH	27.4	51.7	24.5
1083	11B	RS100330	CH	11.5	61.5	18.1
1084	11B	RS100331	CH	9.9	45.8	15.9
1085	11B	RS100332	CH	9.3	49.1	20.9
1086	12B	RS100401	CH	11.5	140.2	38.3
1087	12B	TS100402	CH	15.3	157.5	59.9
1088	12B	RS100403	CH	8.8	50.4	18.7
1089	12B	TS100404	CH	90.3	97.2	62.1

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1090	12E	RS100405	CH	156.0	832.2	80.9
1091	12E	RS100406	CH	9.3	55.1	28.2
1092	12E	TS100407	CH	15.9	79.4	34.6
1093	12E	RS100408	CH	2.2	34.3	15.2
1094	12E	TS100409	CH	14.8	95.6	20.9
1095	12E	RS100410	CH	15.3	80.8	22.4
1096	12E	TS100411	CH	8.2	51.0	20.2
1097	12E	RS100412	CH	27.4	62.4	18.1
1098	12E	TS100413	CH	9.9	65.6	17.3
1099	12E	RS100414	CH	10.4	67.0	28.2
1100	12E	RS100501	CH	40.0	69.6	23.1
1101	12E	RS100502	CH	27.9	58.3	17.3
1102	12E	TS100503	CH	17.8	39.7	24.7
1103	12E	TS100504	CH	12.0	43.6	14.0
1104	12E	TS100505	CH	13.5	52.9	18.0
1105	12E	TS100506	CH	15.9	30.9	26.7
1106	12E	TS100507	CH	11.6	49.1	18.0
1107	12E	RS100508	CH	23.1	53.0	17.3
1108	11E	RS100601	CH	15.4	55.3	22.0
1109	11E	TS100602	CH	15.4	66.2	18.0
1110	11E	TS100603	CH	19.7	43.4	25.3
1111	11E	TS100604	CH	9.6	33.7	14.7
1112	11E	RS100605	CH	9.1	32.4	14.0
1113	11E	RS100606	CH	7.7	36.1	12.7
1114	11E	RS100607	CH	15.4	49.2	21.3
1115	11E	RS100608	CH	16.4	50.0	22.0
1116	11E	RS100609	CH	16.4	48.9	25.3
1117	12F	RS100701	CH	14.4	45.8	24.0
1118	12F	RS100702	CH	16.9	51.5	44.7
1119	12F	TS100703	CH	13.0	65.6	23.3
1120	12F	RS100704	CH	14.9	49.8	28.7
1121	12E	TS100705	CH	8.7	56.4	20.0
1122	12E	RS100706	CH	14.4	58.6	17.3

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1123	12E	TS100707	CH	15.9	76.4	26.7
1124	12E	RS100708	CH	9.1	48.5	15.3
1125	12E	TS100709	CH	20.7	113.3	28.0
1126	12E	TS100710	CH	21.7	86.4	30.0
1127	12E	TS100711	CH	17.3	48.3	25.3
1128	12E	TS100712	CH	15.9	58.5	19.3
1129	12E	TS100713	CH	26.0	79.1	24.0
1130	12E	TS100714	CH	14.9	69.8	21.3
1131	12E	TS100715	CH	6.7	27.0	12.7
1132	10E	RS100901	CH	10.1	51.7	20.0
1133	10E	TS100902	CH	24.1	96.4	36.7
1134	10E	RS100903	CH	12.5	55.5	22.0
1135	10E	TS100904	CH	20.7	78.3	28.7
1136	10E	TS100905	CH	10.1	58.6	18.0
1137	10E	TS100906	CH	18.3	90.0	20.7
1138	10E	TS100907	CH	14.4	79.8	22.0
1139	10E	RS100908	CH	13.0	60.2	22.0
1140	10E	RS100909	CH	12.5	55.3	20.7
1141	10E	RS100910	CH	14.0	51.7	23.3
1142	10E	TS100911	CH	8.2	76.7	17.3
1143	10E	TS100912	CH	15.9	92.7	19.3
1144	10E	RS100913	CH	12.0	57.7	22.7
1145	9E	TS101001	QU	4.3	35.5	4.7
1146	9E	TS101002	SA	5.3	20.2	0.0
1147	9E	TS101003	QU	5.3	34.7	0.0
1148	9E	RS101004	QU	2.4	30.5	0.0
1149	9E	TS101005	MP	2.4	18.6	1.3
1150	9E	TS101006	QU	3.9	36.4	2.7
1151	9E	RS101007	QU	14.7	75.6	7.3
1152	9E	RS101008	MP	3.7	73.6	1.3
1153	9E	RS101009	MP	3.7	75.0	0.0
1154	9E	TS101010	MP	4.1	44.8	2.7
1155	9E	TS101011	MP	5.1	60.9	2.7

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1156	9E	RS101012	MP	3.2	54.7	0.7
1157	9E	RS101013	MP	3.7	70.5	1.3
1158	9E	RS101014	MP	2.8	49.7	0.0
1159	9E	RS101015	MP	3.7	60.3	0.7
1160	9E	TS101016	MP	6.9	85.3	4.0
1161	9E	RS101017	MP	4.1	76.5	1.3
1162	9E	RS101018	MP	2.8	49.2	0.0
1163	9E	TS101019	MP	10.6	80.0	0.7
1164	9E	RS101020	MP	4.1	32.0	0.7
1165	9E	RS101021	MP	4.1	28.0	0.0
1166	9E	TS101022	MP	6.4	61.8	2.7
1167	9E	TS101023	MP	7.4	28.9	0.7
1168	9E	TS101024	MP	6.9	54.8	6.0
1169	9E	RS101025	MP	4.1	24.5	3.3
1170	9E	RS101101	PU	19.8	64.4	18.7
1171	9E	TS101102	PU	8.7	34.8	13.3
1172	9E	RS101103	PU	26.7	67.1	25.3
1173	9E	TS191104	PU	6.9	78.3	8.7
1174	9E	TS101105	PU	12.9	103.4	20.7
1175	9E	RS101106	MI	11.5	48.2	15.3
1176	9E	RS101107	MI	14.3	48.9	12.0
1177	9E	TS101108	MI	28.1	60.0	24.0
1178	9E	TS101109	MI	25.3	66.7	23.3
1179	9E	TS101110	MI	21.2	69.1	19.3
1180	9F	RS101111	MI	14.3	59.4	22.0
1181	9F	TS101112	MI	20.2	49.5	17.3
1182	9F	TS101113	MI	20.2	35.9	12.0
1183	9F	RS101114	MI	32.2	77.3	33.3
1184	9F	RS101115	MI	36.8	84.8	35.3
1185	9F	TS101116	MI	19.8	68.2	54.7
1186	9F	RS101117	MI	31.7	74.1	29.3
1187	9F	RS101118	MI	31.7	68.6	26.0
1188	9F	RS101119	MI	41.9	88.2	36.0

Sample No.	Location	Stream Sediment (R) or Soil (I)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1189	9F	RS101120	MI	40.5	84.7	37.3
1190	9F	TS101121	MI	50.6	102.9	48.7
1191	9F	TS101122	MI	43.7	99.2	40.0
1192	9F	RS101123	MI	40.0	89.1	35.3
1193	9F	TS101124	MI	22.5	78.0	30.0
1194	9F	TS101125	MI	29.0	74.8	34.7
1195	9F	RS101126	MI	21.6	64.7	33.3
1196	9F	TS101127	MI	28.1	61.1	28.7
1197	9F	TS101128	MI	15.2	33.9	14.7
1198	8D	RS101301	PG	15.6	38.3	6.0
1199	8D	RS101302	PG	17.0	40.5	14.7
1200	8D	TS101303	PG	34.5	88.0	24.0
1201	8D	TS101304	PG	21.7	62.5	17.6
1202	8D	RS101305	PC	19.3	48.3	17.6
1203	8D	TS101306	PC	76.7	51.6	17.6
1204	8D	RS101307	PC	23.5	47.4	16.9
1205	8D	RS101308	PC	27.2	54.5	21.3
1206	8D	RS101309	PC	10.3	43.2	16.7
1207	8D	RS101310	PC	17.5	58.3	19.8
1208	8D	RS101311	PC	19.3	64.4	16.9
1209	8D	TS101312	PC	62.2	78.0	28.6
1210	8D	RS101313	PC	30.2	51.9	16.1
1211	8D	RS101314	PC	21.1	47.4	15.4
1212	10E	RS101401	CH	4.8	46.5	23.5
1213	10E	TS101402	CH	10.9	79.2	31.6
1214	10E	TS101403	CH	13.9	102.1	28.6
1215	10E	RS101404	PU	2.4	109.9	18.3
1216	10E	TS101405	CH	0.6	19.3	8.8
1217	10E	TS101406	PU	6.6	53.3	19.1
1218	10E	TS101407	PU	5.4	47.6	28.6
1219	10E	TS101408	PU	0.0	101.2	22.8
1220	10E	RS101409	CH	0.0	67.7	16.9
1221	10E	TS101410	CH	10.3	36.6	1.5

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1222	10E	TS101411	CH	10.9	25.7	19.8
1223	10E	TS101412	PU	7.2	114.6	26.4
1224	10E	TS101413	PU	17.5	196.7	13.9
1225	10E	TS101414	PU	8.5	300.0	19.1
1226	10E	TS101415	PU	4.2	45.7	18.3
1227	9E	TS101501	MP	3.0	63.9	8.1
1228	9E	TS101502	MP	0.6	35.2	2.2
1229	9E	TS101503	MP	15.7	52.6	10.3
1230	9E	TS101504	SA	1.8	38.0	4.4
1231	9E	TS101505	MP	1.7	44.8	5.9
1232	9E	TS101506	SA	6.8	137.3	12.5
1233	9E	RS101507	SA	0.0	283.3	11.0
1234	9E	TS101508	SA	10.8	246.7	12.5
1235	9E	TS101509	SA	0.0	68.9	34.5
1236	10E	TS101510	SA	23.4	363.3	11.0
1237	10E	TS101511	SA	10.8	47.4	63.1
1238	10E	TS101512	SA	22.8	616.7	28.6
1239	10E	RS101513	SA	4.6	1,253.3	23.5
1240	8E	RS102101	MP	11.4	63.4	5.2
1241	8E	RS102102	MP	2.3	36.8	0.7
1242	8E	RS102103	MP	14.8	52.6	15.4
1243	8E	RS102104	MP	8.6	46.2	9.5
1244	8E	RS102105	MP	11.4	57.5	16.9
1245	8E	RS102106	MP	53.6	52.8	28.6
1246	8E	RS102107	MP	9.7	52.1	16.1
1247	8E	TS102108	MP	10.8	66.7	8.8
1248	8E	RS102109	MP	6.3	47.6	8.8
1249	8E	TS102110	MP	4.6	52.6	5.1
1250	8E	RS102111	MP	10.3	54.9	17.6
1251	8E	TS102112	MP	19.4	77.8	12.5
1252	8E	TS102113	MP	7.4	73.1	8.8
1253	6F	TS102301	SA	24.5	806.7	80.0
1254	6F	TS102302	SA	9.7	37.8	16.1

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1255	6F	TS102303	SA	50.8	84.7	33.0
1256	6F	TS102304	SA	33.1	42.0	21.3
1257	6F	TS102305	SA	16.0	30.2	17.6
1258	6F	RS102306	OR	16.5	34.9	16.9
1259	6F	RS102307	PU	7.4	24.8	10.3
1260	6F	TS102308	PU	22.2	77.1	30.1
1261	6F	RS102309	OR	3.4	19.4	1.5
1262	6F	TS102310	OR	7.4	67.4	18.3
1263	6F	TS102311	OR	18.3	137.3	52.8
1264	6F	TS102312	OR	13.1	62.2	27.2
1265	6F	TS102313	OR	1.1	55.2	7.3
1266	6F	TS102314	OR	45.1	79.5	33.0
1267	6F	TS102315	OR	171.1	28.8	14.7
1268	6F	RS102316	SA	4.0	25.9	5.9
1269	6F	TS102317	SA	10.3	26.9	11.0
1270	6F	RS102318	SA	2.9	19.3	3.7
1271	6F	TS102319	SA	25.1	95.5	26.4
1272	6F	TS102320	SA	45.6	753.3	76.3
1273	6F	TS102321	SA	14.8	88.0	41.8
1274	6F	TS102322	SA	63.9	133.5	64.6
1275	6F	TS102323	SA	14.3	113.9	47.7
1276	6F	TS102324	PU	59.3	120.3	35.2
1277	6F	TS102325	PU	21.7	125.7	38.2
1278	6F	TS102326	SA	7.4	21.5	16.9
1279	6F	TS102327	PU	52.5	756.7	133.6
1280	6F	TS102328	PU	1,452.6	2,190.0	82.9
1281	6F	TS102329	PU	7.4	14.2	9.5
1282	6F	TS102330	SA	23.9	11.8	8.8
1283	6F	TS102331	SA	14.3	16.8	12.5
1284	6F	TS102332	PU	1.1	12.2	5.9
1285	6F	TS102333	PU	33.1	125.3	44.8
1286	6F	TS102334	PU	4.0	12.0	6.6
1287	6F	TS102335	PU	5.1	39.7	18.3

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1288	6F	TS102336	PU	53.0	746.7	132.8
1289	6F	TS102337	PU	51.3	823.3	39.6
1290	6F	TS102338	PU	29.1	146.9	41.8
1291	6F	TS102339	PU	22.8	696.7	53.6
1292	6F	TS102340	PU	16.5	853.3	25.7
1293	6F	TS102341	PU	27.4	35.6	20.6
1294	6F	TS102342	PU	40.5	93.6	26.4
1295	6F	TS102343	PU	7.4	61.3	16.9
1296	6F	TS102344	PU	19.4	109.2	33.8
1297	6F	TS102345	PU	24.0	75.3	34.5
1298	6F	TS102346	PU	3.4	21.9	5.9
1299	6G	TS102347	PU	10.8	41.0	27.9
1300	6G	TS102348	PU	10.8	49.5	27.9
1301	6G	TS102349	PU	20.0	39.0	29.3
1302	6G	TS102350	PU	9.1	64.4	15.3
1303	6G	TS102351	PU	20.0	375.4	45.3
1304	6G	TS102352	PU	9.1	78.2	24.0
1305	7G	TS102401	CH	12.9	68.5	21.3
1306	7G	TS102402	CH	8.6	33.8	16.0
1307	7G	TS102403	CH	7.2	45.0	19.3
1308	7G	TS102404	CH	13.8	62.3	30.7
1309	7G	TS102405	CH	12.4	73.0	38.0
1310	7G	TS102406	CH	20.0	80.5	35.3
1311	7H	TS102407	CH	13.4	74.5	39.3
1312	7H	TS102408	CH	14.8	81.2	42.7
1313	7H	TS102409	CH	54.8	88.0	46.0
1314	7H	TS102410	CH	11.0	53.0	21.3
1315	7H	TS102411	CH	9.1	49.5	19.3
1316	7H	TS102412	CH	21.9	75.1	32.7
1317	7H	TS102413	CH	15.3	32.0	12.7
1318	7H	RS102414	CH	9.5	31.4	12.0
1319	7H	TS102415	CH	12.9	71.6	33.3
1320	7H	TS102416	CH	11.4	47.6	22.0

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1321	7H	TS102417	CH	40.1	74.9	33.3
1322	7H	TS102418	CH	11.4	41.9	16.0
1323	7H	TS102419	CH	4.8	34.8	13.3
1324	7H	TS102420	CH	7.6	40.5	16.0
1325	7H	TS102421	CH	1.4	16.4	6.7
1326	7H	TS102422	CH	0.0	10.4	2.7
1327	7H	TS102423	CH	7.2	35.3	14.0
1328	7H	TS102424	CH	9.5	46.4	20.0
1329	7H	TS102425	CH	3.3	9.8	4.0
1330	8I	TS102501	CH	21.0	52.9	21.3
1331	8I	TS102502	CH	17.2	54.7	12.7
1332	8I	TS102503	CH	24.8	83.0	20.7
1333	8I	TS102504	CH	28.1	79.4	19.3
1334	8I	RS102505	CH	15.3	56.0	15.3
1335	8I	TS102506	CH	15.7	54.1	13.3
1336	8I	TS102507	CH	28.6	75.8	21.3
1337	7I	TS102508	CH	47.2	68.6	19.3
1338	7I	TS102509	CH	17.2	74.5	28.0
1339	7I	TS102510	CH	55.3	100.3	30.7
1340	7I	TS102511	CH	37.2	78.5	13.3
1341	7I	TS102512	CH	21.5	83.2	20.7
1342	7I	TS102513	CH	23.4	71.2	16.7
1343	7I	TS102514	CH	29.1	50.9	18.7
1344	7I	TS102515	CH	12.4	47.0	14.0
1345	7I	TS102516	CH	45.8	45.0	16.7
1346	7I	TS102517	CH	21.0	62.0	22.0
1347	7I	RS102518	CH	12.9	73.4	17.3
1348	7I	TS102519	CH	9.1	38.0	10.0
1349	7I	TS102520	CH	14.8	49.8	19.3
1350	7I	TS102521	CH	38.2	87.7	28.7
1351	7I	TS102522	CH	22.5	45.8	22.0
1352	7I	TS102523	CH	14.2	56.4	15.3
1353	7I	TS102524	CH	28.5	82.1	27.3

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1354	7I	TS102525	CH	33.5	77.5	25.3
1355	7I	RS102526	CH	17.0	53.8	16.7
1356	7H	TS102601	CH	10.6	41.1	15.3
1357	7H	TS102602	CH	6.9	52.6	20.0
1358	7H	TS102603	CH	11.5	48.2	18.7
1359	7H	TS102604	CH	10.6	62.3	16.7
1360	7H	TS102605	CH	13.8	67.1	20.0
1361	7H	TS102606	CH	9.6	47.7	19.3
1362	7H	TS102607	CH	9.6	40.7	13.3
1363	7H	TS102608	CH	2.3	26.9	16.0
1364	7H	TS102609	CH	14.2	82.7	26.0
1365	7H	TS102610	CH	19.3	264.3	24.0
1366	7H	TS102611	CH	12.7	78.7	30.7
1367	7H	TS102612	CH	59.3	58.0	22.7
1368	7H	RS102613	CH	6.0	43.2	12.0
1369	7H	TS102614	CH	17.5	84.2	40.7
1370	7H	TS102615	CH	14.2	48.8	17.3
1371	7H	RS102616	CH	15.6	54.1	24.0
1372	7H	TS102617	CH	1.8	18.5	4.7
1373	7H	TS102618	CH	3.7	38.9	11.3
1374	7H	TS102619	CH	29.4	38.9	33.3
1375	7H	TS102620	CH	4.6	38.9	18.0
1376	7H	TS102621	CH	8.3	36.3	24.7
1377	7H	TS102622	CH	17.0	69.8	33.3
1378	7H	TS102623	CH	10.6	76.4	21.3
1379	7H	TS102624	CH	8.3	55.9	16.7
1380	7H	TS102625	CH	11.5	69.4	24.7
1381	7H	TS102626	CH	10.6	66.1	20.7
1382	7H	TS102627	CH	6.9	47.9	26.0
1383	7H	RS102628	CH	8.3	38.3	17.3
1384	7H	TS102629	CH	10.6	49.2	23.3
1385	7H	TS102630	CH	4.1	25.1	15.3
1386	7H	TS102631	CH	11.5	50.2	28.7

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1387	7H	TS102632	CH	10.6	57.4	14.0
1388	7H	TS102633	CH	7.8	55.9	20.0
1389	7H	TS102634	CH	7.4	45.8	16.0
1390	7H	TS102635	CH	5.1	35.3	16.0
1391	7H	TS102636	CH	10.1	79.4	21.3
1392	7H	RS102637	CH	17.5	77.0	28.0
1393	7H	TS102638	CH	16.5	80.0	27.3
1394	7H	TS102639	CH	24.3	87.2	25.3
1395	7H	RS102640	CH	12.9	59.0	16.7
1396	7H	TS102641	CH	15.6	70.7	20.7
1397	7H	TS102642	CH	10.6	78.2	18.7
1398	7H	TS102643	CH	9.2	68.6	17.3
1399	7H	TS102644	CH	19.8	88.4	22.7
1400	7H	TS102645	CH	24.3	79.7	26.0
1401	7H	TS102646	CH	21.4	37.1	29.8
1402	7I	RS102647	CH	9.3	54.7	18.3
1403	7I	TS102648	CH	29.0	73.7	29.8
1404	7I	TS102649	CH	19.1	63.5	22.1
1405	7I	TS102650	CH	17.4	89.0	25.9
1406	7I	TS102651	CH	4.6	33.1	17.6
1407	7I	TS102652	CH	17.4	88.2	29.0
1408	7H	TS102653	CH	8.1	65.5	28.2
1409	7H	TS102654	CH	11.6	60.5	26.7
1410	7H	TS102655	CH	6.4	57.6	22.1
1411	7H	TS102656	CH	5.2	41.8	23.0
1412	7H	TS102657	CH	16.2	60.5	24.4
1413	7H	TS102658	CH	8.1	56.0	19.1
1414	7H	TS102659	CH	13.3	58.9	19.8
1415	7H	TS102660	CH	3.5	34.8	8.4
1416	7H	TS102701	CH	8.1	32.9	10.9
1417	7H	RS102702	CH	9.3	63.7	10.7
1418	7H	TS102703	CH	6.9	38.5	13.7
1419	7H	TS102704	CH	8.1	32.3	11.5

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1420	7H	TS102705	CH	8.7	64.7	13.7
1421	7H	TS102706	CH	12.2	86.3	21.3
1422	7H	TS102707	CH	8.1	70.8	22.1
1423	7H	TS102708	CH	5.2	46.0	15.2
1424	7H	TS102709	CH	13.9	60.3	22.1
1425	7H	TS102710	CH	11.6	51.9	13.7
1426	7H	TS102711	CH	16.8	60.2	23.7
1427	7H	TS102712	CH	13.9	86.9	45.0
1428	7H	TS102713	CH	106.6	52.7	30.5
1429	7H	RS102714	CH	5.8	48.2	16.0
1430	7H	TS102715	CH	3.5	37.4	22.1
1431	6H	TS102716	CH	5.2	52.7	33.6
1432	6H	TS102717	CH	3.5	27.3	9.2
1433	6H	RS102718	CH	0.6	31.9	13.0
1434	6H	TS102719	CH	6.4	42.7	20.6
1435	6H	TS102720	CH	5.2	44.2	16.0
1436	6H	TS102721	CH	0.0	29.2	16.0
1437	6H	TS102722	CH	2.3	49.2	33.6
1438	6H	TS102723	CH	0.0	28.1	13.0
1439	6H	RS102724	CH	3.5	38.9	22.9
1440	6H	TS102725	CH	9.8	62.6	27.5
1441	6H	TS102726	CH	15.1	109.2	51.1
1442	6H	TS102727	CH	8.6	87.1	38.2
1443	6H	TS102728	CH	6.5	67.6	31.3
1444	6H	RS102729	CH	4.9	31.1	13.0
1445	6H	TS102730	CH	3.2	31.3	12.2
1446	6H	TS102731	CH	10.8	61.1	19.8
1447	6H	TS102732	CH	14.6	39.0	25.2
1448	6H	RS102733	CH	2.7	21.6	7.6
1449	6H	TS102734	CH	9.7	25.8	19.1
1450	6H	RS102735	CH	1.6	29.5	9.2
1451	6H	TS102736	CH	4.3	18.5	11.4
1452	6H	TS102737	CH	1.6	13.9	7.6

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1453	6H	TS102738	CH	5.9	25.8	9.2
1454	6H	TS102739	CH	9.7	28.4	13.7
1455	6H	TS102740	CH	3.2	14.5	6.1
1456	6H	TS102741	CH	7.6	31.0	9.2
1457	6H	RS102742	CH	8.6	45.0	25.2
1458	6H	TS102743	CH	24.3	72.4	24.4
1459	5H	RS102801	SA	0.0	37.6	9.2
1460	5H	TS102802	SA	4.3	25.6	30.5
1461	5H	TS102803	SA	4.3	34.5	22.1
1462	5H	RS102804	SA	0.0	13.7	4.6
1463	5H	TS102805	SA	21.6	29.8	13.7
1464	5H	TS102806	SA	6.5	65.5	9.2
1465	5H	TS102807	SA	17.3	996.9	33.6
1466	5H	TS102808	SA	4.3	53.5	37.4
1467	5H	RS102809	SA	0.0	11.3	4.6
1468	5H	TS102810	SA	155.9	136.9	113.7
1469	5H	TS102811	SA	0.0	22.1	9.2
1470	5H	RS102812	SA	0.0	15.8	8.4
1471	5H	TS102813	SA	11.3	29.2	13.7
1472	5H	TS102814	OR	1.6	31.9	11.5
1473	5H	RS102815	OR	0.5	15.0	3.8
1474	5H	RS102816	OR	0.5	16.3	6.1
1475	5H	TS102817	OR	2.7	37.4	26.9
1476	5H	RS102818	SA	9.7	61.8	29.0
1477	2G	RS103001	PG	15.6	65.2	21.4
1478	2G	RS103002	PG	15.1	54.7	21.4
1479	2G	RS103003	PG	9.2	25.8	18.3
1480	2G	RS103004	PG	12.4	66.5	22.9
1481	4G	TF90801	QU	9.4	83.4	7.0
1482	4G	TF90802	QU	9.8	38.9	5.6
1483	4G	TF90803	PG	10.1	73.7	6.3
1484	4G	TF90804	PG	7.0	66.3	5.2
1485	4G	TF90805	QU	6.8	27.2	4.1

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1486	4G	TF90806	QU	10.6	62.0	9.6
1487	4G	TF90807	QU	22.8	97.5	10.4
1488	4G	RF90808	QU	14.6	69.5	12.1
1489	4G	RF90809	QU	4.3	36.6	3.4
1490	4G	RF90810	QU	2.0	24.9	2.5
1491	4G	RF90811	QU	5.7	38.5	3.0
1492	4G	RF90812	QU	12.7	19,393.8	14.4
1493	4G	TF90813	QU	7.3	35.8	5.2
1494	4G	TF90814	QU	15.1	77.3	14.5
1495	4G	TF90815	QU	10.5	36.1	10.7
1496	4G	RF90816	QU	8.3	83.2	7.4
1497	4G	RF90817	QU	9.6	67,715.0	20.4
1498	4G	RF90818	QU	9.1	55.7	8.4
1499	4G	RF90819	QU	9.3	62.0	9.4
1500	4G	RF90820	QU	10.4	21,227.5	17.6
1501	4G	RF90821	PG	10.8	44.9	11.0
1502	4G	RF90822	PG	20.4	94.2	9.3
1503	4G	RF90823	PG	9.8	37.1	12.7
1504	4G	TF91102	QU	9.7	27.4	9.0
1505	4G	TF91103	QU	14.2	48.9	10.5
1506	4G	RF91104	PG	12.3	35.5	11.5
1507	4G	RF91105	PG	11.5	33.4	10.9
1508	4G	RF91106	PA	8.0	12.8	8.0
1509	4G	RF91107	PA	7.9	16.0	8.2
1510	4G	RF91108	PA	7.7	11.9	8.9
1511	4G	RF91109	PA	7.5	12.9	7.1
1512	4G	RF91110	PA	8.6	18.9	8.1
1513	4G	RF91111	PA	9.0	26.5	8.9
1514	4G	RF91112	QU	8.6	24.0	11.6
1515	4G	RF91113	QU	9.6	33.1	10.7
1516	4G	RF91114	PA	7.8	31.7	8.7
1517	4G	TF91115	PA	12.0	33.4	11.7
1518	4G	RF91201	PA	6.9	19.8	8.7

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1519	4G	RF91202	PA	7.5	14.7	7.8
1520	4G	RF91203	PA	8.6	23.6	12.6
1521	4G	RF91204	PA	8.2	24.5	10.3
1522	4G	RF91205	PA	8.7	23.4	10.7
1523	4G	RF91206	MI	10.2	27.0	12.0
1524	4G	RF91207	MI	8.3	20.6	10.1
1525	4F	RF91208	MI	8.6	18.6	9.2
1526	4G	RF91209	PU	13.4	tr	6.8
1527	5F	TF91210	PU	18.2	90.6	24.9
1528	5F	TF91211	PU	57.2	36.9	19.7
1529	5F	TF91212	PU	14.0	11.5	14.7
1530	4G	TF91213	PU	6.9	94.5	11.9
1531	5G	RF91301	PG	1.7	7.4	2.1
1532	5G	RF91302	PA	9.3	31.5	12.2
1533	5G	RF91303	PA	9.0	26.3	12.1
1534	5G	RF91304	PA	9.1	17.7	6.6
1535	5G	RF91305	PA	9.5	39.6	12.3
1536	5G	TF91306	MI	5.3	13.1	6.7
1537	5G	RF91307	PA	3.8	12.7	3.3
1538	5G	RF91308	PA	7.7	21.1	7.3
1539	5G	RF91309	MI	8.4	31.8	10.4
1540	5G	RF91310	MI	9.1	29.7	10.1
1541	5G	RF91311	MI	8.8	21.6	11.0
1542	5G	TF91501	MI	11.4	35.6	10.3
1543	5G	RF91502	PG	9.1	28.8	12.5
1544	5G	RF91503	PG	3.7	16.1	2.7
1545	5G	RF91504	PA	6.3	17.0	6.4
1546	5G	RF91505	PG	6.1	19.0	6.0
1547	5G	RF91506	PG	7.0	0.6	1.2
1548	5G	RF91507	MD	9.9	39.8	10.0
1549	5G	RF91508	MD	9.2	26.5	10.5
1550	5G	RF91509	SA	10.6	42.5	11.2
1551	6G	RF91510	OR	6.4	9.8	8.3

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1552	6G	RF91511	CH	10.9	3.1	10.4
1553	4F	TF91701	PU	10.6	118.3	18.3
1554	4F	TF91702	PU	9.7	110.4	30.2
1555	4F	RF91703	PU	6.5	41.9	6.0
1556	5F	RF91704	PU	11.1	16.3	11.5
1557	2G	RF91901	PU	14.8	45.2	19.4
1558	2G	TF91902	PU	32.0	142.4	32.2
1559	2G	TF91903	BC	17.5	52.5	23.3
1560	2G	TF91904	BC	16.2	53.2	20.2
1561	2G	TF91905	BC	13.3	66.3	18.4
1562	1G	RF91906	BC	6.3	67.9	5.5
1563	1G	RF91907	BC	21.8	122.0	28.5
1564	1G	RF91908	BC	25.9	126.0	26.8
1565	1G	RF91909	BC	21.1	52.9	27.5
1566	1G	RF91910	PG	27.2	71.7	65.6
1567	1G	TF91911	PG	72.0	81.6	54.4
1568	1G	TF91912	PG	22.2	59.3	40.1
1569	1G	TF91913	PG	21.0	66.7	29.3
1570	1G	TF91914	BC	62.4	82.6	5.3
1571	1G	TF91915	BC	32.4	66.5	35.7
1572	1G	RF91916	BC	41.5	118.5	48.1
1573	1G	TF91917	BC	10.6	524.8	28.7
1574	1G	TF91918	BC	36.2	546.0	41.6
1575	1G	TF91919	BC	5.5	34.5	1.9
1576	1G	TF91920	BC	9.6	35.1	2.5
1577	1G	TF91921	BC	18.5	400.4	23.4
1578	1G	RF91922	BC	9.2	47.8	14.2
1579	1G	TF91923	BC	12.6	247.9	20.0
1580	1G	TF91924	BC	43.6	263.2	62.2
1581	2G	TF91925	BC	10.5	22.9	18.4
1582	2G	RF92001	BC	11.0	49.8	17.1
1583	2G	TF92002	BC	3.1	5.2	3.2
1584	2G	TF92003	BC	19.2	81.1	22.0

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1585	2G	RF92004	BC	20.9	82.0	20.9
1586	2G	TF92005	BC	23.5	120.7	28.5
1587	2G	RF92006	BC	15.0	63.8	24.0
1588	2G	TF92007	BC	26.4	71.9	25.6
1589	2G	RF92008	BC	13.5	33.3	20.3
1590	2G	TF92009	MI	4.6	10.8	6.2
1591	2G	TF92010	MI	12.3	47.5	23.7
1592	2G	TF92011	MI	6.8	32.8	12.1
1593	2G	TF92012	MI	30.2	74.3	31.6
1594	2G	TF92013	MI	40.8	95.5	39.0
1595	2G	RF92014	BC	6.4	21.1	8.6
1596	2G	TF92015	BC	20.8	58.4	21.8
1597	2G	TF92016	BC	19.5	63.0	21.2
1598	2G	TF92017	BC	20.5	68.9	23.3
1599	1G	TF92018	BC	28.7	106.2	31.3
1600	1G	RF92019	BC	6.0	50.2	8.7
1601	1G	RF92020	BC	19.0	60.9	18.3
1602	1G	TF92101	PG	22.3	106.4	6.2
1603	1G	RF92102	PG	6.1	126.5	4.3
1604	1G	TF92103	MI	7.3	57.9	3.0
1605	1G	RF92104	MI	5.6	25.6	2.7
1606	1G	RF92105	MI	23.6	29.2	28.0
1607	1G	RF92106	MI	7.3	21.7	7.9
1608	1G	RF92107	MI	7.8	44.9	13.7
1609	1G	TF92108	MI	42.5	85.9	49.6
1610	1G	TF92109	MI	24.9	152.8	18.8
1611	1G	RF92110	MI	12.2	12.0	11.6
1612	1G	RF92111	MI	11.3	53.7	20.4
1613	1G	RF92112	MI	9.6	28.4	18.3
1614	1G	RF92113	MI	7.5	50.9	8.0
1615	1G	TF92114	PG	6.7	228.5	5.3
1616	1G	RF92115	PG	3.1	48.7	2.8
1617	1G	RF92116	PG	5.1	69.9	3.3

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1618	1G	TF92117	PG	24.1	205.3	14.6
1619	1G	RF92118	PG	4.7	42.2	2.8
1620	1G	RF92119	PG	4.6	63.5	3.1
1621	2G	TF92120	PG	10.0	151.5	6.2
1622	2G	RF92121	PG	17.8	53.6	16.8
1623	1G	RF92122	PG	17.2	57.2	16.2
1624	2G	RF92201	PG	14.1	50.9	13.9
1625	2G	RF92202	PG	13.2	56.7	14.5
1626	2G	TF92203	PG	72.0	42.2	6.4
1627	2G	RF92204	PG	16.6	62.9	19.0
1628	2G	TF92205	PG	12.1	74.7	9.3
1629	2G	RF92206	PG	18.6	69.2	18.3
1630	4F	RF92301	PU	30.1	230.1	18.9
1631	4F	RF92302	PG	85.0	96.5	8.2
1632	4F	RF92303	MI	17.2	41.4	8.4
1633	4F	TF92304	MD	15.0	46.3	3.7
1634	4F	RF92305	MI	20.6	52.9	8.0
1635	4F	TF92306	MI	22.3	62.5	10.6
1636	4F	TF92307	PG	34.5	48.8	14.2
1637	4F	TF92308	MI	49.9	111.7	5.5
1638	4F	TF92309	MI	13.5	22.2	6.3
1639	4F	TF92310	PU	20.1	151.5	9.1
1640	4F	TF92311	PU	37.7	895.9	107.7
1641	4F	TF92312	PU	27.6	610.9	65.5
1642	4F	TF92313	PU	26.0	179.2	57.3
1643	4F	RF92314	PU	8.1	48.9	17.2
1644	5F	RF92401	MI	12.0	27.6	15.8
1645	5F	RF92402	MI	12.8	26.9	15.3
1646	5F	RF92403	MI	12.2	29.2	13.8
1647	5G	TF92404	PU	13.5	55.7	11.9
1648	5G	RF92405	PU	9.7	22.2	12.3
1649	5G	RF92406	MI	14.9	36.4	16.6
1650	5G	RF92407	MI	12.4	28.1	13.4

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1651	5G	TF92408	PU	9.4	29.6	9.7
1652	5G	TF92409	PU	9.8	36.0	10.7
1653	5G	RF92410	PU	13.3	25.2	15.9
1654	5G	RF92411	PU	12.9	17.8	9.5
1655	5G	RF92412	MI	8.8	12.4	10.6
1656	5G	RF92413	MI	7.2	11.4	9.3
1657	5G	RF92414	MI	10.2	41.4	13.4
1658	5G	RF92415	MI	10.9	16.4	9.9
1659	11H	RF93001	CO	22.8	38.9	16.0
1660	11H	RF93002	CO	18.9	30.7	14.0
1661	11H	RF93003	CO	20.6	25.3	13.0
1662	11H	RF93004	CO	23.7	38.8	17.7
1663	11H	RF93005	CO	14.7	22.5	11.5
1664	11H	RF93006	CO	21.7	28.3	14.6
1665	11H	RF93007	CO	12.5	20.9	11.6
1666	11H	RF93008	CO	7.7	8.3	7.6
1667	11H	RF93009	CO	11.4	17.3	10.3
1668	11H	RF93010	CO	12.9	31.9	14.4
1669	11H	RF93011	CO	13.2	17.0	10.7
1670	11H	RF93012	CO	17.8	49.3	16.9
1671	11H	RF93013	CO	15.2	19.6	12.3
1672	11H	RF93014	CO	16.0	27.9	14.0
1673	11H	RF93015	CO	13.5	17.1	10.3
1674	11H	RF93016	CO	27.6	18.5	10.1
1675	10H	RF93017	CH	8.7	6.4	5.4
1676	10H	RF93018	CH	15.3	17.8	10.8
1677	10H	RF93019	CH	7.0	7.8	7.4
1678	10H	RF93020	CH	9.0	8.0	7.4
1679	10H	RF93021	CH	13.3	20.6	12.3
1680	10H	RF93022	CH	11.6	17.6	10.5
1681	10H	RF93023	CH	18.7	39.3	14.4
1682	10H	RF93024	CH	14.2	14.2	10.4
1683	10H	RF93025	CH	8.0	14.3	6.1

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1684	10H	RF93026	CH	6.9	5.9	7.2
1685	10H	RF93027	CH	16.0	19.9	12.9
1686	10H	RF93028	CH	19.9	22.0	12.6
1687	10H	RF93029	CH	6.5	3.4	6.4
1688	10H	RF93030	CH	23.2	44.3	18.9
1689	10G	RF93031	CH	6.8	5.3	5.3
1690	10G	RF93032	CH	14.7	19.0	11.5
1691	10G	RF93033	CH	20.2	27.6	14.2
1692	10G	RF93034	CH	21.3	20.7	13.9
1693	11H	RF93035	CO	8.2	13.3	7.6
1694	11H	RF93036	CO	11.1	16.3	9.5
1695	11H	RF93037	CO	17.4	28.5	14.1
1696	11H	RF93038	CO	19.3	26.0	15.1
1697	11H	RF100101	CO	9.0	19.0	9.2
1698	11H	RF100102	CO	7.5	16.5	8.6
1699	11H	RF100103	CO	8.7	18.2	8.6
1700	11H	RF100104	CO	6.7	16.0	6.6
1701	11H	RF100105	CO	7.7	16.3	7.7
1702	11H	RF100106	CO	7.2	11.9	7.2
1703	11H	RF100107	CO	8.6	17.6	8.1
1704	11H	RF100108	CO	7.1	18.1	8.8
1705	11H	RF100109	CO	8.3	19.8	8.9
1706	11H	RF100110	CO	8.4	22.6	9.7
1707	11H	RF100111	CO	7.1	16.8	7.7
1708	11I	RF100112	CO	15.5	46.4	11.8
1709	11H	RF100113	CO	8.4	14.3	7.4
1710	11I	RF100114	CO	9.6	23.3	11.5
1711	11H	RF100115	CO	7.4	16.6	10.4
1712	11H	RF100116	CO	5.4	8.8	4.9
1713	11H	RF100117	CO	7.7	15.2	7.3
1714	11H	RF100118	CO	10.2	24.9	8.9
1715	10H	RF100119	CO	7.1	16.8	8.4
1716	10H	RF100120	CO	4.9	9.9	5.7

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1717	10H	RF100121	CO	12.1	25.7	10.0
1718	10H	RF100122	CO	5.1	10.3	4.5
1719	10H	RF100123	CO	4.8	16.1	7.5
1720	10I	RF100124	CO	7.7	15.0	8.8
1721	10I	TF100125	CO	8.2	20.2	8.8
1722	10I	RF100126	CO	5.5	22.2	6.6
1723	10I	TF100127	CO	4.6	21.1	8.6
1724	10I	RF100128	CO	8.9	20.8	9.3
1725	10I	TF100129	CO	7.0	17.3	7.9
1726	10I	RF100130	CO	4.6	15.6	4.0
1727	10I	RF100131	CO	7.0	18.9	6.7
1728	10I	RF100132	CO	9.3	21.1	8.8
1729	10I	TF100133	CO	9.6	23.4	9.1
1730	10I	TF100134	CO	8.1	15.0	6.8
1731	10I	RF100135	CO	9.9	19.5	9.1
1732	10I	RF100136	CO	11.1	29.6	12.9
1733	10I	TF100137	CO	8.7	20.1	7.5
1734	10I	RF100138	CO	11.2	23.2	9.7
1735	10I	RF100139	CO	6.5	20.3	8.2
1736	10I	RF100140	CH	14.9	53.4	12.1
1737	10I	TF100141	CO	9.9	21.5	8.6
1738	10I	RF100142	CO	6.4	6.7	5.2
1739	10I	RF100143	CO	6.2	13.1	6.8
1740	10I	RF100144	CO	12.2	25.6	11.0
1741	11H	RF100201	CO	30.8	68.2	13.3
1742	11H	RF100202	CO	13.8	22.1	10.2
1743	11H	RF100203	CO	6.3	11.1	6.6
1744	11H	RF100204	CO	7.1	11.8	5.8
1745	11H	RF100205	CO	11.9	28.5	10.0
1746	11H	RF100206	CO	16.6	27.6	13.2
1747	11H	RF100207	CO	10.5	20.7	10.0
1748	11H	RF100208	CO	14.7	22.0	11.1
1749	11H	RF100209	CO	18.7	27.4	12.2

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1750	11H	RF100210	CO	9.1	13.6	7.2
1751	12H	RF100211	CO	9.8	26.8	14.0
1752	12H	RF100212	CO	11.9	40.1	12.3
1753	12H	RF100213	CO	10.1	21.3	9.2
1754	12H	RF100214	CO	15.1	26.4	13.2
1755	12H	RF100215	CO	11.0	25.6	10.5
1756	12H	RF100216	CO	10.1	34.0	8.3
1757	12H	RF100217	CO	13.6	22.0	12.6
1758	12H	TF100218	CO	16.1	34.4	17.2
1759	12H	RF100219	CO	5.0	4.8	3.7
1760	12H	RF100220	CO	11.5	18.5	10.7
1761	12H	TF100221	CO	11.6	21.9	11.9
1762	12H	RF100222	CO	13.6	21.7	11.3
1763	12H	RF100223	CO	6.3	8.1	5.4
1764	12H	RF100224	CO	9.5	12.8	7.1
1765	13H	RF100225	CO	13.9	17.7	11.2
1766	12H	RF100301	CO	10.5	14.7	10.9
1767	12H	RF100302	CO	11.2	18.3	10.9
1768	12H	RF100303	CO	10.8	28.4	9.9
1769	12H	RF100304	CO	11.5	17.7	11.2
1770	12H	RF100305	CO	9.7	19.2	9.9
1771	12H	RF100306	CO	12.3	16.4	10.9
1772	11H	RF100307	CO	12.6	23.5	13.1
1773	12H	RF100308	CO	10.5	20.7	11.7
1774	12H	RF100309	CO	10.6	25.3	11.5
1775	12H	RF100310	CO	9.3	16.8	11.1
1776	12H	RF100311	CO	12.6	26.6	12.6
1777	12H	RF100312	CO	11.0	20.6	11.6
1778	11H	RF100313	CO	7.3	24.6	6.3
1779	11H	RF100314	CO	11.2	16.7	11.6
1780	11H	RF100315	CO	10.1	20.8	9.7
1781	11H	RF100316	CO	13.9	22.5	14.0
1782	11H	RF100317	CO	9.9	21.3	11.5

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1783	11H	RF100318	CO	8.7	16.6	9.5
1784	11H	RF100319	CO	12.9	24.9	13.0
1785	11H	RF100320	CO	8.9	16.5	10.1
1786	11H	RF100321	CO	6.8	22.0	7.4
1787	11H	RF100322	CO	10.7	20.5	11.1
1788	11H	RF100323	CO	7.8	11.9	7.7
1789	11H	RF100324	CO	12.2	20.9	12.7
1790	11H	RF100325	CO	9.7	15.0	9.8
1791	11H	RF100326	CO	11.0	20.7	11.1
1792	11H	RF100327	CO	8.2	10.0	7.9
1793	11H	RF100328	CO	7.9	13.7	7.4
1794	11H	RF100329	CO	9.8	17.0	9.4
1795	11H	RF100330	CO	9.8	15.3	10.0
1796	5D	RF100601	PG	12.8	51.7	12.1
1797	4D	RF100602	PG	8.7	29.4	8.1
1798	4D	TF100603	BC	9.7	33.8	11.8
1799	5D	TF100604	BC	12.3	44.3	14.8
1800	4D	RF100605	PG	3.1	7.8	4.8
1801	4D	TF100606	PG	5.5	12.9	5.2
1802	4D	RF100607	PG	9.5	24.4	11.1
1803	4D	TF100608	PC	13.2	44.5	3.9
1804	4D	RF100609	TV	5.9	19.7	7.5
1805	4D	RF100610	PC	4.9	18.4	5.4
1806	4D	RF100611	PC	5.6	13.3	5.0
1807	5D	RF100612	PG	11.3	26.4	12.1
1808	5D	RF100613	PC	23.6	95.0	14.3
1809	5D	RF100614	PC	19.9	104.4	15.1
1810	5D	RF100615	PC	22.2	113.9	14.8
1811	5D	RF100616	PC	20.5	110.8	15.1
1812	5D	RF100617	PC	26.5	115.5	15.1
1813	5D	RF100618	PC	16.7	124.0	18.6
1814	5C	RF100619	PC	16.0	120.9	18.5
1815	4E	RF100701	PC	6.3	20.4	4.4

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1816	4B	RF100702	PC	7.6	12.4	6.0
1817	4B	RF100703	PC	6.0	6.6	3.6
1818	4E	RF100704	PC	43.7	15.5	81.0
1819	5E	RF100705	PC	11.0	14.6	41.8
1820	5E	RF100706	PC	6.0	3.1	11.3
1821	4E	RF100707	PC	2.9	1.7	5.2
1822	5E	RF100708	PC	6.9	0.3	4.2
1823	5E	RF100801	PC	9.4	5.3	6.3
1824	5F	RF100802	PU	28.6	42.4	25.4
1825	5F	RF100803	PU	37.6	60.8	63.5
1826	5F	RF100804	PU	26.1	80.4	101.0
1827	5F	RF100805	PU	15.8	146.9	15.2
1828	5F	RF100806	PU	22.0	114.2	18.2
1829	6F	RF101101	PU	18.5	36.9	8.2
1830	6F	RF101102	PU	10.8	247.6	15.5
1831	6F	TF101103	PU	25.0	28.0	11.3
1832	6F	TF101104	PU	38.2	16.7	9.9
1833	6F	TF101105	PU	37.9	36.9	28.2
1834	6F	TF101106	PU	7.1	40.5	22.6
1835	6F	TF101107	PU	17.1	179.0	16.6
1836	6F	TF101108	TR	7.6	15.7	15.8
1837	6F	TF101109	TR	14.2	30.6	9.8
1838	6E	TF101110	TR	2.0	1.8	1.7
1839	6E	TF101111	TR	1.7	1.2	1.7
1840	6E	TF101112	TR	4.6	10.3	2.0
1841	6E	TF101113	TR	9.0	37.8	1.4
1842	6E	TF101114	TR	3.6	32.0	17.4
1843	6E	TF101115	TR	3.1	2.7	7.5
1844	6E	RF101116	TR	2.5	16.3	1.8
1845	6E	TF101117	TR	2.8	15.7	1.5
1846	7E	TF101118	TR	14.6	30.9	6.3
1847	7E	TF101119	TR	3.9	21.4	3.6
1848	7E	TF101120	TR	4.5	92.1	4.8

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1849	7B	RF101121	MI	3.8	29.2	2.3
1850	7B	TF101201	MI	3.7	14.7	2.1
1851	7B	TF101202	MI	7.4	51.5	4.4
1852	7B	TF101203	MI	4.2	15.7	2.9
1853	7B	TF101204	MI	2.2	tr	1.9
1854	7B	TF101205	MI	4.4	31.0	3.4
1855	7B	TF101206	TR	2.6	14.9	2.0
1856	7B	TF101207	TR	2.4	29.8	1.7
1857	6B	TF101208	TR	3.2	39.7	1.9
1858	7B	TF101209	PC	3.5	60.5	3.7
1859	7B	TF101210	PC	7.0	74.5	4.2
1860	7B	RF101211	PG	9.2	17.9	6.2
1861	7B	TF101212	PG	41.9	98.1	1.5
1862	7B	RF101213	PC	7.0	48.9	2.4
1863	7B	TF101214	PG	6.7	18.3	1.1
1864	7B	TF101215	PG	2.2	18.2	1.5
1865	7B	TF101216	PG	5.6	30.2	2.8
1866	7B	TF101217	PG	3.5	33.2	1.5
1867	7B	TF101218	PG	2.8	24.7	1.4
1868	7B	TF101219	PG	20.1	44.6	2.3
1869	7B	TF101220	PG	12.7	80.0	3.2
1870	7B	TF101221	PG	8.4	68.3	2.1
1871	7B	TF101222	PG	3.4	11.6	1.7
1872	7B	TF101223	PG	7.1	50.5	4.3
1873	7B	TF101224	PG	13.4	65.0	18.3
1874	7B	RF101225	PG	2.3	11.7	1.2
1875	7B	TF101226	PG	2.8	12.3	1.3
1876	7B	TF101227	PG	3.1	15.5	0.8
1877	7B	RF101228	PG	4.0	28.2	2.8
1878	7B	TF101229	PG	15.4	68.5	2.0
1879	7B	TF101230	PG	13.7	68.5	2.2
1880	7B	TF101231	PG	9.2	76.2	2.7
1881	7B	TF101232	PG	7.4	40.8	2.7

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1882	7B	RF101233	PG	19.3	20.1	8.5
1883	7D	TF101234	PG	12.5	118.9	3.1
1884	7D	RF101235	PG	17.9	33.4	11.1
1885	7D	TF101236	PG	10.5	32.5	5.0
1886	7D	TF101237	PG	35.7	67.5	15.7
1887	7D	RF101238	PC	11.2	16.4	7.1
1888	7D	RF101239	PC	22.5	21.9	9.4
1889	7D	TF101240	PC	23.0	39.4	9.2
1890	7D	RF101241	PG	37.6	36.6	25.8
1891	7D	RF101242	PC	21.5	27.9	79.2
1892	7D	TF101243	PC	534.4	58.5	35.0
1893	7D	TF101244	PC	48.7	29.8	17.6
1894	7D	RF101245	PC	39.1	28.0	27.6
1895	7D	RF101246	PG	17.5	29.2	14.6
1896	7D	TF101247	PG	56.1	44.2	27.9
1897	7D	TF101248	PG	26.8	42.6	18.1
1898	7D	TF101249	PG	22.5	32.8	13.1
1899	7D	RF101250	PC	16.6	18.6	8.8
1900	7D	TF101251	PC	50.0	48.5	11.7
1901	7D	TF101252	PC	11.6	31.6	8.1
1902	7D	RF101301	PG	7.9	6.2	4.3
1903	7D	RF101302	PG	27.7	40.3	12.4
1904	6D	TF101303	PC	52.7	39.6	37.4
1905	6D	RF101304	PC	26.7	30.1	48.0
1906	6D	RF101305	PC	29.2	31.6	30.2
1907	6D	TF101306	PC	38.3	48.8	44.6
1908	6D	RF101307	PC	34.4	28.7	38.3
1909	6D	RF101308	PC	22.0	30.8	20.6
1910	6D	RF101309	PC	8.4	25.3	9.2
1911	6D	RF101310	PC	7.9	30.0	7.0
1912	6D	TF101311	PC	11.8	32.2	15.8
1913	6D	RF101312	PG	10.3	16.1	3.6
1914	7D	RF101313	PG	13.5	20.9	5.5

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1915	7D	TF101314	PG	23.8	36.2	14.8
1916	7D	RF101315	PG	6.7	10.7	2.2
1917	6D	RF101316	PG	8.9	34.1	6.5
1918	6C	RF101317	PG	26.1	40.8	8.4
1919	6C	RF101318	PG	8.4	37.9	6.1
1920	6C	RF101319	PG	8.8	39.0	7.2
1921	7C	RF101320	PG	46.1	89.1	9.6
1922	7D	RF102201	PG	21.6	38.0	9.4
1923	7D	RF102202	PG	13.4	33.3	6.2
1924	7D	RF102203	PC	18.5	34.7	8.0
1925	7D	RF102204	PC	23.0	27.2	7.1
1926	7D	RF102205	PC	43.1	24.4	11.6
1927	7D	RF102206	PC	37.8	17.4	9.0
1928	7D	RF102207	PC	36.0	17.7	8.4
1929	7D	RF102208	PC	37.3	23.5	12.8
1930	7D	RF102209	PC	30.3	13.3	6.4
1931	7D	RF102210	PC	36.8	29.3	13.4
1932	7D	RF102211	PG	38.1	29.7	9.8
1933	7D	RF102212	PG	34.4	20.5	11.2
1934	7D	RF102213	PC	31.9	25.8	21.6
1935	7D	RF102214	PC	25.0	20.7	8.4
1936	7D	RF102215	PG	7.1	8.6	3.8
1937	7C	RF102216	PG	9.6	17.4	5.6
1938	7C	RF102217	PG	9.8	10.7	6.1
1939	7C	RF102218	MD	12.2	31.4	7.6
1940	6D	RF102301	PC	1.9	3.2	1.7
1941	6D	TF102302	PG	2.8	21.3	2.8
1942	6D	RF102303	PG	2.5	8.2	2.9
1943	6D	RF102304	PG	2.6	1.7	1.6
1944	6D	RF102305	PG	4.9	9.8	4.9
1945	6D	TF102306	PG	2.8	26.5	4.4
1946	6D	RF102307	PG	3.2	12.3	5.6
1947	6D	TF102308	PG	4.9	50.3	6.8

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1948	6D	RF102309	PG	2.1	7.1	1.6
1949	6D	RF102310	PG	3.3	7.6	1.9
1950	6D	RF102311	PG	23.2	18.7	6.1
1951	6D	TF102312	PC	4.9	24.4	4.9
1952	6D	TF102313	PC	16.7	49.4	2.9
1953	6D	TF102314	PC	29.2	20.3	3.4
1954	6D	RF102315	PC	12.1	22.2	10.9
1955	6D	RF102316	PC	6.3	29.3	6.1
1956	6D	RF102317	PC	21.0	35.6	13.8
1957	6D	RF102318	PC	4.0	26.1	4.4
1958	6D	RF102319	PC	6.1	35.6	6.6
1959	6C	RF102320	PC	4.8	33.4	4.3
1960	6C	RF102321	PC	3.0	21.1	3.5
1961	6C	RF102322	PC	8.2	82.5	6.3
1962	7E	TF102401	PG	10.6	77.9	3.6
1963	7E	TF102402	PG	5.4	43.8	1.8
1964	7E	TF102403	PG	2.7	21.7	4.1
1965	7E	TF102404	PG	8.1	69.9	2.3
1966	7E	TF102405	PG	2.4	32.7	2.3
1967	7E	TF102406	PG	5.8	49.6	1.7
1968	7E	RF102407	PG	4.5	31.5	1.8
1969	7E	RF102408	PG	7.9	35.3	6.4
1970	7E	RF102409	PG	5.3	25.1	6.0
1971	7E	TF102410	PC	5.1	29.7	2.0
1972	7E	TF102411	PC	10.4	40.0	3.1
1973	7E	TF102412	PC	3.6	3.9	2.5
1974	7E	RF102413	PC	4.3	20.4	2.2
1975	7E	TF102414	PC	2.2	tr	1.8
1976	7E	TF102415	PC	5.9	14.5	8.4
1977	4H	RF103001	PG	5.9	43.2	7.1
1978	4G	TF103002	PU	14.5	136.8	16.7
1979	4G	TF103003	PU	17.5	48.4	13.3
1980	4G	RF103004	PG	12.9	67.7	10.0

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
1981	4G	RF103005	PG	18.9	102.6	16.7
1982	4G	RF103006	PG	7.1	78.5	3.0
1983	4G	RF103007	PG	4.4	37.3	3.4
1984	4G	RF103008	PG	3.1	44.7	2.3
1985	4G	RF103009	PG	2.4	41.2	2.5
1986	4G	RF103010	PG	7.1	46.8	3.8
1987	4G	RF103011	PG	10.4	68.4	7.1
1988	6G	TF110301	OR	15.6	27.3	22.2
1989	6G	RF110302	OR	11.3	68.9	9.8
1990	6G	TF110303	OR	4.0	8.7	8.3
1991	6G	RF110304	OR	10.0	6.1	9.8
1992	6G	TF110305	CH	15.1	19.5	27.4
1993	6G	TF110306	OR	7.2	12.9	9.3
1994	6G	RF110307	OR	12.3	65.3	10.4
1995	6G	TF110308	SA	8.6	10.7	12.1
1996	6G	RF110309	SA	9.5	22.7	14.5
1997	5G	TF110310	SA	3.4	6.1	8.1
1998	5G	RF110311	PG	2.4	0.6	1.9
1999	5G	TF110312	PG	3.5	4.6	3.3
2000	5G	RF110313	PG	7.9	28.9	5.4
2001	5G	RF110314	PG	3.6	8.5	3.1
2002	5G	TF110315	PG	3.4	8.5	2.5
2003	5G	RF110316	PG	2.9	15.4	2.5
2004	5G	RF110317	PG	6.7	22.9	5.3
2005	5G	TF110318	PG	2.3	5.6	1.5
2006	5G	RF110319	PG	8.7	27.3	10.2
2007	5G	TF110320	PG	2.4	8.7	1.4
2008	4G	RT90801	QU	22.0	81.0	15.2
2009	3F	TT90802	QU	31.5	77.0	27.0
2010	3F	RT90803	QU	24.0	131.5	22.5
2011	3F	RT90804	QU	29.0	94.0	15.0
2012	3F	TT90805	PU	35.0	73.5	17.0
2013	3F	TT90806	PU	47.5	207.0	25.0

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
2014	3F	RT90807	PU	25.5	94.0	19.0
2015	3F	TT90808	PU	17.5	254.0	34.0
2016	3F	RT90809	PU	30.0	59.0	12.0
2017	3F	RT90810	PU	14.3	111.5	11.3
2018	3F	TT90811	PG	58.5	159.0	38.0
2019	3F	RT90812	BC	29.0	60.0	26.0
2020	3F	TT90813	BC	79.0	188.5	54.0
2021	3E	TT90814	BC	50.5	66.5	47.0
2022	3E	TT90815	BC	46.5	58.5	68.0
2023	3E	RT90816	BC	31.5	56.5	35.0
2024	3E	TT90817	BC	71.5	116.0	103.0
2025	3E	TT90818	BC	346.5	116.0	111.0
2026	3E	TT90819	BC	88.5	108.5	105.0
2027	3E	RT90901	BC	47.0	60.0	48.0
2028	2E	TT90902	PG	29.5	149.5	65.0
2029	2E	RT90903	PG	26.5	169.0	18.0
2030	2E	RT90904	PG	33.5	228.5	22.0
2031	3F	TT91001	PU	27.0	78.5	25.0
2032	3F	RT91002	MD	17.5	61.0	18.0
2033	3F	RT91003	MD	25.0	97.5	21.0
2034	3F	RT91004	MD	18.0	54.5	15.0
2035	3F	RT91005	MD	13.5	55.5	16.0
2036	2E	RT91101	PG	15.5	28.0	4.0
2037	2E	RT91102	PG	13.5	180.5	11.0
2038	2E	RT91103	PG	13.1	147.5	4.5
2039	2E	RT91104	PG	18.0	55.5	16.0
2040	2E	TT91105	MD	22.1	75.5	32.5
2041	2E	RT91106	MD	12.8	100.1	18.7
2042	2E	RT91107	PG	24.0	102.5	18.8
2043	2E	RT91108	PG	32.5	73.5	22.5
2044	2E	RT91109	PG	15.6	55.5	27.9
2045	2E	RT91110	PG	18.9	63.0	17.3
2046	2E	RT91111	PG	27.4	85.0	16.8

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
2047	2B	TT91301	PU	10.2	52.0	15.0
2048	2B	TT91302	PG	12.1	28.0	7.0
2049	2B	TT91303	PG	22.8	446.0	13.5
2050	2B	TT91304	BC	38.0	48.0	26.8
2051	2B	TT91305	BC	62.6	71.2	28.9
2052	2B	TT91306	BC	12.5	217.5	33.0
2053	2B	TT91307	BC	21.7	76.0	30.5
2054	2B	TT91308	BC	25.4	39.0	19.3
2055	2B	TT91309	BC	44.4	340.0	36.8
2056	2B	TT91310	BC	4.9	175.2	37.7
2057	2D	TT91311	AM	61.3	3,076.0	25.3
2058	2D	TT91312	AM	18.3	307.8	12.7
2059	2D	TT91313	TA	17.7	119.5	16.0
2060	2D	RT91314	TA	24.5	186.5	17.9
2061	2D	TT91315	TA	27.4	26.0	24.5
2062	2D	TT91316	TA	27.3	136.3	20.6
2063	2D	TT91317	TA	33.2	153.3	21.7
2064	2D	TT91318	TA	43.0	441.0	36.3
2065	2D	TT91319	PU	21.8	324.1	18.9
2066	2D	TT91401	BC	55.5	110.4	37.7
2067	2D	TT91402	BC	66.6	133.5	45.7
2068	2D	TT91403	BC	28.7	1,175.0	19.0
2069	2D	TT91404	BC	29.9	79.0	22.7
2070	2D	TT91405	TA	14.4	139.2	14.9
2071	2D	TT91406	TA	24.1	1,217.0	65.5
2072	2D	TT91407	TA	15.7	126.9	37.9
2073	1D	TT91408	TA	35.5	73.0	40.5
2074	1D	TT91409	TA	22.1	64.0	16.5
2075	1D	TT91410	TA	33.8	24.5	31.0
2076	1D	TT91411	TA	30.6	50.5	11.5
2077	1D	TT91412	TA	18.4	50.5	14.0
2078	1D	TT91413	TA	30.5	23.5	52.0
2079	1D	TT91414	TA	17.2	25.0	15.5

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
2080	1D	TT91415	TA	34.9	486.0	31.5
3081	1D	TT91416	TA	21.2	68.5	26.0
2082	1D	TT91417	TA	29.7	543.0	39.5
2083	1D	TT91418	TA	42.8	274.0	52.5
2084	1D	TT91419	TA	39.5	762.0	33.5
2085	1D	TT91420	MI	11.1	76.5	26.0
2086	1D	TT91421	MI	13.6	63.0	25.0
2087	1D	TT91422	MI	18.6	201.0	31.0
2088	1D	TT91423	MI	10.8	253.5	21.0
2089	1D	TT91424	MI	14.8	70.0	20.0
2090	1D	TT91425	MI	8.8	23.0	16.0
2091	1C	TT91426	MI	10.2	143.5	20.5
2092	1C	RT91427	PU	30.1	1,430.0	20.9
2093	1D	TT91501	TA	20.2	33.5	11.0
2094	1D	TT91502	TA	17.0	50.5	28.0
2095	1D	TT91503	TA	36.8	99.0	46.8
2096	1D	TT91504	TA	21.0	111.0	20.0
2097	1D	TT91505	TA	12.3	106.0	18.5
2098	1D	TT91506	TA	28.6	32.5	47.0
2099	1D	TT91507	TA	3.7	54.3	42.0
2100	1D	TT91508	TA	18.6	136.5	36.0
2101	1D	TT91509	MI	17.8	76.5	48.5
2102	1D	TT91510	MI	29.3	68.5	22.5
2103	1D	TT91511	MI	13.3	60.3	18.5
2104	1D	TT91512	PU	17.6	116.5	27.0
2105	1D	RT91513	PU	19.0	133.0	20.8
2106	1D	TT91514	PU	9.2	986.0	15.0
2107	1D	TT91515	PU	23.2	1305.	36.0
2108	1D	TT91516	PU	13.0	89.5	20.8
2109	1D	TT91517	PU	23.8	106.5	26.8
2110	1D	TT91518	PU	21.2	108.5	26.5
2111	1D	TT91519	PU	19.2	132.2	38.9
2112	1D	TT91520	PU	28.4	98.0	25.0

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
2113	1D	TT91521	PU	30.4	160.5	33.8
2114	1D	TT91522	PU	21.8	166.0	34.5
2115	1D	TT91523	PU	19.8	278.5	35.8
2116	1D	TT91524	PU	13.4	127.0	23.8
2117	1D	RT91525	TA	8.8	44.5	12.5
2118	1D	RT91526	TA	22.4	144.0	21.0
2119	2D	TT91601	TA	15.5	101.5	15.9
2120	2D	TT91602	BC	6.8	13.0	3.7
2121	2D	TT91603	BC	19.4	89.0	18.6
2122	2D	TT91604	BC	19.2	81.0	16.7
2123	2D	TT91605	BC	19.3	43.8	14.3
2124	2D	RT91606	TA	11.9	107.5	10.7
2125	2D	RT91607	TA	10.5	123.5	10.2
2126	2D	RT91608	TA	10.5	138.0	10.5
2127	2D	RT91609	TA	12.7	167.5	10.1
2128	2D	RT91610	TA	13.7	179.5	9.7
2129	2D	RT91611	TA	10.6	178.0	9.7
2130	2D	RT91612	TA	10.8	215.5	9.6
2131	2D	RT91613	TA	12.1	243.5	10.3
2132	2D	RT91614	TA	11.2	226.0	10.3
2133	2D	RT91615	TA	12.5	285.0	10.9
2134	2D	RT91616	TA	18.7	68.3	14.9
2135	2D	RT91701	TA	18.6	54.8	14.7
2136	2D	RT91702	TA	17.3	55.3	14.8
2137	2D	RT91703	TA	19.0	64.3	15.2
2138	2D	RT91704	TA	17.5	61.0	14.7
2139	2D	RT91705	TA	17.6	56.4	14.6
2140	2D	RT91706	TA	17.4	69.8	14.5
2141	2D	RT91707	TA	17.2	60.8	13.7
2142	2D	RT91708	TA	17.9	72.5	14.4
2143	2D	RT91709	TA	17.1	63.5	13.9
2144	2D	RT91710	TA	18.5	67.8	14.7
2145	2D	RT91711	TA	16.6	58.0	14.8

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
2146	2D	RT91712	TA	17.4	58.3	14.2
2147	2D	RT91713	TA	16.6	51.8	12.4
2148	2D	RT91714	TA	16.7	64.0	13.3
2149	2D	RT91715	TA	17.2	47.7	13.9
2150	2D	RT91716	TA	16.9	58.3	15.2
2151	2D	RT91717	TA	21.9	60.3	15.9
2152	2D	RT91718	PU	20.0	57.4	16.2
2153	2D	RT91719	PU	17.9	64.4	13.5
2154	2D	RT91720	PU	18.4	57.3	13.9
2155	2D	RT91721	PU	19.8	683.5	13.9
2156	2D	RT91722	PU	21.5	70.0	15.9
2157	2D	RT91723	PU	18.1	40.9	15.0
2158	2D	RT91724	PU	16.3	45.0	14.1
2159	2D	RT91725	PU	16.3	50.8	13.4
2160	2D	RT91726	PU	14.8	40.8	11.8
2161	2D	RT91727	PU	16.8	68.0	12.9
2162	2C	RT91728	PU	17.0	59.3	13.7
2163	2D	RT91729	TA	8.4	103.3	6.2
2164	2E	RT91801	PG	17.8	41.0	27.7
2165	2E	TT91802	PG	18.5	28.4	18.2
2166	2E	TT91803	BC	13.0	50.5	24.4
2167	2E	TT91804	PU	22.2	19.9	24.0
2168	2E	TT91805	PU	13.4	24.0	28.5
2169	2E	TT91806	PU	34.9	55.8	36.8
2170	2E	TT91807	BC	28.8	58.3	27.9
2171	2E	TT91808	BC	14.4	29.7	37.3
2172	2E	TT91809	BC	21.2	116.3	26.8
2173	1E	TT91810	PU	18.1	147.0	18.9
2174	1E	RT91811	PU	8.1	39.5	9.4
2175	1E	RT91812	PU	8.0	39.0	9.9
2176	1E	RT91813	MI	8.4	39.3	9.9
2177	1E	RT91814	MI	10.1	45.3	13.9
2178	1E	TT91815	MI	15.6	137.8	17.9

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
2179	1E	TT91816	MI	15.6	213.0	27.0
2180	1E	TT91817	MI	3.7	10.8	3.3
2181	1E	RT91818	MI	7.8	36.3	8.7
2182	1E	RT91819	MI	7.0	42.0	7.8
2183	1E	RT91820	MI	6.0	35.8	7.4
2184	1E	TT91821	PU	5.7	15.5	6.9
2185	1E	RT91822	PU	8.7	57.8	8.4
2186	2E	RT91901	PG	17.6	26.9	10.4
2187	2E	RT91902	PG	28.9	69.7	17.6
2188	2E	RT91903	PU	31.4	73.6	17.9
2189	2E	RT91904	PU	15.6	32.7	31.4
2190	1E	RT91905	PU	33.7	69.2	15.4
2191	1E	RT91906	MI	30.9	76.5	14.4
2192	1E	RT91907	MI	10.2	12.8	9.4
2193	1E	RT91908	MI	30.6	65.7	16.1
2194	1E	RT91909	MI	8.3	47.8	6.2
2195	1E	RT91910	MI	48.2	81.9	17.8
2196	1E	RT91911	MI	4.6	16.8	5.5
2197	1E	RT91912	MI	38.6	66.6	17.0
2198	1E	RT91913	MI	40.1	77.4	19.8
2199	1E	RT91914	PU	35.8	99.8	16.8
2200	1E	RT91915	PU	6.1	17.8	9.8
2201	1E	RT91916	PU	38.1	75.2	16.8
2202	1E	RT91917	PU	36.4	71.4	17.2
2203	1E	RT91918	PU	48.8	60.7	17.3
2204	1E	RT91919	MI	67.3	74.0	20.3
2205	1E	RT91920	MI	54.9	64.3	19.8
2206	1E	RT91921	MI	13.4	66.5	14.1
2207	1E	RT91922	MI	17.2	24.6	10.7
2208	1E	RT91923	TA	11.2	26.4	15.4
2209	1D	TT92001	BX	24.5	79.8	28.2
2210	1D	TT92002	BX	26.0	67.9	49.4
2211	1D	TT92003	BX	14.4	36.0	12.4

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
2212	1D	RT92004	TA	25.8	34.5	24.5
2213	1D	TT92005	TA	19.0	19.5	16.7
2214	1D	TT92006	TA	26.1	74.3	25.8
2215	1D	TT92007	TA	61.2	48.0	39.5
2216	1D	RT92008	TA	17.7	28.4	21.8
2217	1D	TT92009	TA	51.9	30.0	35.1
2218	1D	RT92010	TA	29.1	30.3	21.9
2219	1D	TT92011	TA	37.6	60.3	35.4
2220	1D	RT92012	TA	14.5	14.0	11.5
2221	1D	RT92013	TA	14.1	15.6	12.8
2222	1D	RT92014	TA	18.9	52.2	20.2
2223	1D	TT92015	TA	19.2	13.4	9.4
2224	1D	TT92016	TA	7.8	15.6	4.9
2225	1D	RT92017	TA	4.2	14.8	4.4
2226	1D	RT92018	TA	3.7	11.1	3.8
2227	1D	RT92019	TA	5.5	14.0	6.9
2228	1D	RT92020	TA	6.6	15.2	7.9
2229	1D	RT92021	TA	9.5	22.8	12.3
2230	2E	TT92101	PG	20.3	24.5	15.1
2231	2E	TT92102	MD	10.3	17.2	10.5
2232	2E	TT92103	MD	15.7	71.0	4.6
2233	2E	TT92104	MD	9.5	25.8	9.3
2234	2E	TT92105	PG	19.9	27.5	16.9
2235	2E	TT92106	PG	4.8	43.7	10.2
2236	2E	TT92107	PG	47.4	31.7	17.4
2237	2E	TT92108	PG	78.5	25.8	13.4
2238	2E	TT92109	PG	36.4	51.7	22.2
2239	2E	TT92110	PG	17.9	86.4	17.6
2240	2E	RT92111	PG	21.5	43.2	26.9
2241	2E	TT92112	BC	49.0	70.5	46.8
2242	2F	RT92113	BC	14.8	47.5	40.6
2243	2F	RT92114	BC	7.1	44.7	27.7
2244	2F	RT92115	BC	7.1	29.7	21.1

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
2245	2F	RT92116	BC	8.1	40.1	25.5
2246	2F	TT92117	BC	47.7	64.9	57.3
2247	2F	TT92118	BC	79.6	52.8	378.8
2248	2F	RT92119	BC	39.4	38.0	31.1
2249	2F	TT92120	BC	12.8	30.9	8.1
2250	2F	RT92121	BC	7.2	28.6	20.0
2251	2F	TT92122	BC	22.8	56.2	32.6
2252	2F	RT92123	BC	5.8	23.3	16.6
2253	2D	RT92201	TA	13.2	63.7	17.1
2254	2D	RT92202	TA	9.5	45.0	13.0
2255	2D	RT92203	TA	9.0	34.5	11.7
2256	2D	RT92204	TA	9.5	38.9	13.6
2257	2D	RT92205	TA	8.8	38.9	14.9
2258	1B	RT92206	MI	8.7	39.3	11.0
2259	1B	RT92207	MI	8.1	38.0	10.5
2260	1D	RT92208	PU	4.5	22.2	6.2
2261	1D	RT92209	TA	8.1	43.2	10.8
2262	2D	TT92210	TA	36.4	172.5	37.7
2263	2D	TT92211	TA	9.1	24.9	4.6
2264	2D	RT92212	TA	14.2	93.8	9.7
2265	2D	TT92213	TA	21.5	64.3	13.8
2266	2D	TT92214	TA	11.6	25.3	9.2
2267	2D	TT92215	TA	7.2	23.0	5.3
2268	2D	TT92216	TA	13.3	34.9	5.1
2269	2D	TT92217	AM	30.5	19.3	7.0
2270	2D	RT92218	AM	4.4	11.7	2.7
2271	2D	TT92219	AM	48.1	66.5	58.3
2272	2D	TT92220	AM	9.8	17.4	7.4
2273	2D	TT92221	BC	26.9	34.0	28.5
2274	2D	RT92222	BC	13.4	26.0	9.5
2275	2D	TT92223	BC	68.4	90.4	50.0
2276	5F	TT92301	PU	13.8	87.9	9.8
2277	5F	TT92302	PU	17.4	128.8	14.9

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
2278	5F	TT92303	PU	4.8	86.3	13.4
2279	5F	TT92304	PU	7.2	75.8	24.3
2280	5F	TT92305	PU	13.7	84.3	27.3
2281	5F	TT92306	PU	20.4	673.8	69.2
2282	5F	TT92307	PU	29.3	175.9	70.7
2283	5F	TT92308	PU	28.8	361.1	91.4
2284	5F	TT92309	PU	11.9	208.3	43.6
2285	5F	TT92310	PU	28.7	1,317.6	75.4
2286	5F	TT92311	PU	13.8	79.4	26.2
2287	5F	RT92312	PU	7.7	35.5	15.8
2288	5F	TT92313	PU	14.5	117.8	26.9
2289	5F	TT92314	PU	26.4	253.6	67.8
2290	5F	RT92315	PU	6.2	127.4	16.4
2291	7G	RT102401	CH	15.8	34.6	16.2
2292	7G	TT102402	CH	5.6	39.2	16.3
2293	7G	TT102403	CH	15.3	21.8	9.2
2294	7H	RT102404	CH	6.3	18.4	7.7
2295	7H	TT102405	CH	21.9	69.5	14.5
2296	7H	TT102406	CH	7.6	35.7	10.0
2297	7H	TT102407	CH	26.1	31.6	14.1
2298	7H	TT102408	CH	9.6	28.2	11.8
2299	7H	RT102409	CH	11.4	51.1	9.8
2300	7H	RT102410	CH	4.7	24.7	4.9
2301	7H	TT102411	CH	14.3	24.1	11.8
2302	7H	TT102412	CH	5.7	27.5	11.5
2303	7H	RT102413	CH	3.1	10.1	1.8
2304	7H	RT102414	CH	4.9	25.9	5.3
2305	7H	RT102415	CH	10.9	32.9	10.6
2306	7H	RT102416	CH	5.8	16.0	6.9
2307	7H	RT102417	CH	6.8	19.1	7.6
2308	7H	TT102418	CH	9.9	24.0	6.9
2309	7H	RT102419	CH	3.8	7.0	3.1
2310	7H	TT102420	CH	5.8	18.3	2.6

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
2311	7H	TT102421	CH	6.9	15.4	9.2
2312	7H	TT102501	CH	10.1	23.6	10.1
2313	7H	TT102502	CH	3.8	12.0	1.7
2314	7H	TT102503	CH	6.8	20.5	10.1
2315	7H	RT102504	CH	2.8	2.0	2.5
2316	7H	TT102505	CH	8.3	58.7	16.4
2317	7H	RT102506	CH	3.2	7.7	2.4
2318	7H	RT102507	CH	11.6	18.9	9.8
2319	7H	RT102508	CH	9.7	19.7	7.5
2320	7H	TT102509	CH	13.9	37.7	17.3
2321	7H	RT102510	CH	11.2	29.6	11.1
2322	7H	TT102511	CH	12.6	33.5	12.9
2323	7H	RT102512	CH	8.9	26.0	11.8
2324	7H	TT102513	CH	10.0	20.4	8.4
2325	7H	TT102514	CH	11.0	22.3	8.5
2326	7H	RT102515	CH	6.7	18.4	5.8
2327	7H	RT102516	CH	6.5	20.1	9.0
2328	7H	RT102517	CH	8.2	17.8	9.7
2329	7H	TT102518	CH	12.5	50.7	22.0
2330	7H	RT102519	CH	10.8	30.5	8.9
2331	7H	TT102520	CH	17.0	37.8	10.4
2332	7H	TT102521	CH	29.3	44.2	22.4
2333	7H	TT102522	CH	7.2	18.8	5.3
2334	7H	TT102523	CH	3.2	22.5	5.9
2335	7H	TT102524	CH	11.9	63.8	19.3
2336	7H	TT102525	CH	4.3	10.2	3.6
2337	7H	TT102526	CH	9.9	24.9	8.1
2338	7H	TT102527	CH	18.0	68.3	10.6
2339	7H	TT102528	CH	8.6	29.8	7.9
2340	7H	TT102529	CH	6.3	50.5	7.3
2341	7H	TT102530	CH	18.1	24.9	7.2
2342	7H	TT102531	CH	15.5	66.7	18.9
2343	7H	RT102532	CH	14.5	50.9	9.3

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
2344	7H	TT102533	CH	8.8	35.4	14.1
2345	7H	TT102534	CH	27.6	74.4	15.3
2346	7H	TT102535	CH	11.3	61.9	10.9
2347	8H	TT102536	CH	19.0	73.9	22.2
2348	8H	TT102537	CH	8.2	69.0	8.4
2349	8H	TT102538	CH	11.4	70.6	23.3
2350	8H	RT102539	CH	14.7	25.4	15.9
2351	8H	TT102540	CH	13.3	29.7	10.2
2352	8H	RT102541	CH	13.7	94.5	10.1
2353	8H	TT102542	CH	20.4	36.9	10.8
2354	8H	TT102543	CH	45.3	80.0	15.7
2355	8H	RT102544	CH	36.5	41.9	11.1
2356	8H	TT102545	CH	20.2	43.9	14.4
2357	8H	RT102546	CH	15.6	30.6	9.9
2358	8H	TT102547	CH	9.9	45.0	12.8
2359	8H	RT102548	CH	14.0	33.0	11.5
2360	8H	RT102549	CH	17.3	23.2	10.8
2361	5G	TT102601	PG	14.9	48.3	11.8
2362	5G	TT102603	PG	3.2	11.1	6.5
2363	5G	TT102604	PG	3.9	20.8	3.8
2364	5G	TT102605	PG	6.6	36.5	6.7
2365	5G	TT102606	PG	3.2	8.9	2.8
2366	5G	TT102607	PG	3.0	11.3	4.4
2367	5H	TT102608	PG	3.5	4.7	2.7
2368	5H	TT102609	PG	1.9	tr	2.6
2369	5H	TT102610	SA	1.6	13.8	2.6
2370	5H	TT102611	SA	4.8	tr	10.7
2371	5H	TT102612	SA	8.9	58.8	47.0
2372	5H	TT102613	SA	21.9	91.0	74.6
2373	5H	RT102614	SA	3.7	26.4	3.7
2374	5H	RT102615	SA	4.4	15.6	5.3
2375	5H	TT102701	SA	4.1	15.9	3.5
2376	5H	TT102702	SA	13.1	38.1	22.2

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
2377	5H	TT102703	SA	6.3	36.5	10.4
2378	5H	TT102704	SA	6.2	16.5	5.3
2379	5H	TT102705	SA	5.8	1.9	7.0
2380	5H	TT102706	SA	36.2	37.5	53.8
2381	5H	TT102707	SA	18.4	40.9	21.5
2382	5H	TT102708	SA	6.6	25.9	5.9
2383	5H	TT104709	SA	12.0	23.9	16.6
2384	5H	TT102710	SA	10.6	15.7	14.4
2385	5H	TT102711	SA	13.1	25.1	20.7
2386	5H	TT102712	SA	10.5	14.4	16.8
2387	5H	TT102713	SA	11.6	42.5	9.0
2388	5H	TT102714	SA	3.0	3.8	4.0
2389	5H	TT102715	SA	15.4	14.7	9.0
2390	5H	RT102716	SA	11.8	5.9	7.7
2391	5H	RT102717	SA	8.7	7.1	6.1
2392	5H	TT102718	SA	6.8	51.5	25.6
2393	5H	TT102719	SA	7.3	3.3	3.9
2394	5H	TT102720	SA	5.3	5.2	7.0
2395	5H	RT102721	SA	5.4	10.9	6.6
2396	5H	TT102722	SA	16.1	72.4	14.5
2397	5H	RT102723	SA	7.7	25.8	14.3
2398	5H	TT102724	SA	14.3	34.0	30.6
2399	5H	TT102725	SA	7.1	41.0	6.7
2400	5H	TT102726	SA	17.2	30.9	24.1
2401	5H	RT102727	SA	10.8	36.8	36.8
2402	5H	TT102728	SA	36.1	12.5	5.9
2403	5H	TT102729	SA	18.8	30.9	4.6
2404	5H	RT102730	SA	6.3	14.6	6.0
2405	5I	TT102731	MD	5.4	7.2	2.2
2406	5I	TT102732	SA	5.4	5.6	2.5
2407	5I	RT102733	SA	4.5	11.0	2.4
2408	5I	RT102734	SA	3.0	6.9	1.5
2409	5I	RT102735	SA	7.7	3.6	3.1

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
2410	5I	TT102736	SA	12.8	15.9	4.0
2411	5I	TT102737	SA	26.4	8.4	6.1
2412	5I	TT102738	SA	6.2	19.5	6.4
2413	5I	TT102739	TA	9.3	30.1	6.0
2414	5I	RT102740	TA	9.4	3.4	3.4
2415	5I	TT102741	TA	7.9	25.0	11.7
2416	5I	TT102742	TA	8.7	37.7	9.4
2417	5I	RT102743	TA	3.5	tr	2.9
2418	5I	TT102744	TA	12.5	50.5	14.6
2419	5I	TT102745	TA	13.2	44.4	9.1
2420	5I	TT102746	TA	15.0	53.3	12.8
2421	5I	TT102747	TA	13.8	32.3	17.3
2422	5I	TT102748	TA	14.7	42.8	60.8
2423	5I	TT102749	SA	17.4	25.3	27.5
2424	5I	TT102750	SA	24.5	17.7	25.5
2425	5I	TT102751	SA	22.2	19.9	32.0
2426	5I	TT102752	SA	20.5	54.8	14.9
2427	6I	TT102753	SA	21.8	63.7	23.7
2428	6I	TT102754	SA	11.4	15.2	10.2
2429	5H	TT102801	SA	101.6	110.6	67.3
2430	5H	TT102802	SA	21.7	86.9	54.9
2431	5H	TT102803	SA	11.0	80.9	48.7
2432	5H	TT102804	SA	14.9	90.7	43.3
2433	5H	RT102805	SA	7.2	11.8	11.5
2434	5H	TT102806	SA	8.4	31.3	18.8
2435	5H	RT102807	SA	9.1	15.2	17.1
2436	5H	TT102808	SA	7.3	64.5	5.3
2437	5H	RT102809	SA	5.3	7.9	9.5
2438	5H	RT102810	SA	3.0	tr	3.2
2439	5H	RT102811	SA	7.8	12.7	13.7
2440	5H	RT102812	SA	3.3	7.0	4.2
2441	5H	RT102813	SA	5.4	48.5	9.5
2442	5H	TT102814	SA	3.6	tr	4.9

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
2443	5H	RT102815	SA	3.2	19.8	8.7
2444	5H	RT102816	SA	5.0	2.7	8.8
2445	5H	TT102817	SA	5.7	4.8	10.7
2446	5H	TT102818	SA	4.8	5.5	16.5
2447	5H	TT102819	SA	22.2	29.8	58.0
2448	5H	TT102820	SA	3.8	2.2	12.6
2449	5H	TT102821	SA	5.3	16.7	21.4
2450	2E	TH90901	PG	17.4	46.9	15.4
2451	2E	TH90902	PG	43.1	81.5	18.2
2452	2E	TH90903	PG	28.8	53.3	15.4
2453	2E	TH90904	PG	9.4	39.6	17.5
2454	3E	TH90905	PG	33.2	63.1	27.3
2455	3E	TH90906	PG	19.8	55.1	34.3
2456	3E	TH90907	PG	24.3	45.6	18.9
2457	3E	TH90908	PG	24.3	51.3	20.3
2458	3E	TH90909	PG	28.3	69.4	57.3
2459	3E	TH90910	PG	21.3	114.4	23.1
2460	2D	RH90911	BC	64.0	61.7	19.6
2461	2D	RH90912	BC	20.3	50.0	53.8
2462	2E	RH90913	PG	16.4	63.1	27.3
2463	2E	TH90914	PG	7.9	22.9	10.5
2464	2D	RH91001	BC	10.9	37.5	19.6
2465	2D	RH91002	BC	22.3	54.0	23.8
2466	3D	TH91003	BC	67.4	115.0	67.8
2467	3D	TH91004	BC	30.7	59.0	35.0
2468	3D	TH91005	BC	31.2	71.9	37.8
2469	3D	TH91006	BC	66.4	81.2	49.0
2470	3D	RH91007	BC	22.8	53.1	26.6
2471	3D	TH91008	BC	37.7	76.9	39.2
2472	3D	TH91009	BC	42.6	75.5	54.5
2473	3D	RH91010	BC	16.9	50.7	26.6
2474	3D	TH91011	BC	35.7	76.5	40.6
2475	3D	RH91012	BC	28.0	56.7	29.4

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
2476	3D	TH91013	BC	16.9	52.3	30.1
2477	3D	TH91014	BC	6.4	57.0	23.8
2478	3D	TH91015	BC	28.8	57.5	36.4
2479	3D	TH91016	BC	59.5	93.4	68.5
2480	3D	RH91017	BC	16.4	47.7	25.2
2481	3D	RH91101	BC	12.4	54.0	19.6
2482	3D	TH91102	BC	15.4	78.3	35.7
2483	3D	RH91103	BC	23.3	782.9	14.0
2484	3D	TH91104	BC	43.1	103.8	58.7
2485	3D	RH91105	BC	13.4	43.3	21.0
2486	3D	RH91106	BC	13.9	58.8	17.5
2487	3D	TH91107	BC	21.3	58.0	25.2
2488	3D	RH91108	BC	12.9	60.5	21.7
2489	3D	TH91109	BC	18.3	47.3	18.2
2490	3D	TH91110	BC	31.2	61.5	37.1
2491	3D	RH91111	BC	20.8	53.3	26.6
2492	3D	RH91112	BC	52.6	80.1	37.8
2493	3D	TH91113	BC	20.3	64.4	26.6
2494	3D	TH91114	BC	43.1	88.2	37.8
2495	3D	RH91115	BC	11.4	74.2	19.6
2496	3D	RH91116	BC	6.4	49.0	13.3
2497	3D	TH91117	BC	43.1	106.8	49.0
2498	3D	TH91118	BC	37.7	95.7	40.6
2499	2E	TH91201	BC	81.8	87.3	8.4
2500	2E	TH91202	BC	131.4	79.8	81.8
2501	2E	RH91203	BC	18.8	63.7	26.6
2502	2E	TH91204	BC	48.6	68.4	93.0
2503	2E	RH91205	BC	7.9	55.0	28.0
2504	2E	RH91206	BC	15.4	62.0	56.6
2505	2E	RH91207	BC	40.2	60.3	55.9
2506	2E	TH91208	BC	71.4	111.4	139.2
2507	2E	RH91209	BC	31.2	66.0	55.9
2508	2E	TH91210	BC	51.6	87.9	130.8

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
2509	2B	RH91211	BC	42.1	56.6	53.8
2510	2B	TH91212	BC	55.0	67.1	65.0
2511	2B	RH91213	BC	76.4	57.7	74.1
2512	2D	TH91301	BC	11.9	40.5	25.9
2513	2D	TH91302	BC	167.1	97.9	63.6
2514	2D	TH91303	BC	296.5	84.9	49.0
2515	2D	TH91304	BC	31.7	63.5	32.2
2516	2D	TH91305	BC	48.1	88.3	54.5
2517	3D	RH91306	BC	8.9	29.2	18.9
2518	3D	RH91307	BC	7.9	27.6	14.7
2519	2D	TH91308	BC	38.2	120.5	37.8
2520	2D	TH91309	BC	59.5	78.3	57.3
2521	3D	TH91310	BC	29.8	66.4	39.2
2522	3D	TH91311	BC	23.3	63.1	35.0
2523	3D	RH91312	BC	12.9	41.2	35.0
2524	3D	TH91313	BC	31.2	65.8	28.7
2525	3D	TH91314	BC	86.8	93.7	49.0
2526	3D	TH91315	BC	42.1	56.7	39.2
2527	3D	TH91316	BC	27.3	51.1	79.0
2528	3D	TH91317	TV	8.4	27.1	7.7
2529	3D	TH91318	TV	17.9	32.2	16.1
2530	3D	TH91319	PG	42.6	925.7	53.8
2531	3D	TH91501	PG	10.4	23.8	9.8
2532	3D	TH91502	TV	24.3	44.7	43.3
2533	3D	TH91503	TV	21.3	24.2	8.4
2534	3D	RH91504	TV	3.5	24.8	8.4
2535	3D	RH91505	PG	3.5	23.8	9.1
2536	3D	TH91506	PG	18.3	50.4	18.9
2537	3D	TH91507	PG	49.1	85.5	16.8
2538	3D	TH91508	PG	37.2	48.1	62.2
2539	3D	RH91509	PG	5.0	29.3	10.5
2540	3D	TH91510	PG	40.7	58.1	36.4
2541	3D	TH91511	PG	28.3	54.3	28.0

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
2542	3D	TH91512	PG	9.4	70.5	25.2
2543	3D	TH91513	PG	61.5	55.4	31.5
2544	3D	RH91514	PG	10.4	36.2	25.2
2545	3G	TH91701	QU	7.9	62.5	17.5
2456	3G	RH91702	QU	8.9	44.2	14.7
2547	3G	RH91901	PG	7.9	119.7	14.0
2548	3G	RH91902	PG	6.9	49.9	16.1
2549	3G	RH91903	PG	10.9	54.1	16.8
2550	3G	TH92401	PG	4.0	90.3	5.6
2551	3G	RH92402	PG	3.5	43.4	8.4
2552	3G	RH92403	MI	6.4	29.9	13.3
2553	3G	RH92404	MI	11.9	34.5	16.1
2554	3G	RH92405	MI	4.5	29.2	4.9
2555	3G	TH92406	MI	19.8	1,162.9	31.5
2556	2G	TH93001	PG	21.3	67.9	13.3
2557	2G	TH93002	PG	8.9	88.3	7.7
2558	2G	TH93011	PG	9.4	59.1	17.5
2559	2G	TH93012	PG	9.9	46.9	18.9
2560	2G	TH93013	MI	1.5	22.8	4.2
2561	2G	TH93014	MI	6.0	37.6	9.8
2562	2G	TH93015	MI	20.3	51.6	28.0
2563	3F	RH102601	MI	10.4	53.8	7.7
2564	3F	RH102602	MI	6.9	36.5	7.0
2565	4F	RH102603	PU	3.5	45.7	6.3
2566	4F	RH102604	MI	6.4	43.3	5.6
2567	4F	RH102605	MI	25.3	65.7	21.0
2568	4F	RH102606	MI	26.8	54.7	16.1
2569	4F	RH102607	MI	49.6	93.4	17.5
2570	4F	RH102608	MI	47.1	81.3	15.4
2571	4F	RH102609	MI	10.9	42.0	6.3
2572	4F	RH102610	MI	3.5	32.3	4.9
2573	4F	RH102611	MI	4.5	36.6	4.9
2574	3F	RH102612	MI	15.9	56.1	10.5

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Cu content (ppm)	Zn content (ppm)	Ni content (ppm)
2575	5F	RH103001	MI	14.4	55.1	20.3
2576	5F	RH103002	MI	10.4	79.1	21.0
2577	5F	RH103003	MI	10.9	58.1	20.3
2578	5F	RH103004	MI	9.4	43.3	18.2
2579	5F	RH103005	MI	10.9	75.2	19.6
2580	5F	RH103006	MI	3.0	22.8	18.2
2581	5F	RH103007	PU	10.4	35.6	18.2
2582	5F	RH103008	PU	13.9	41.5	16.1
2583	5F	RH103009	PU	9.4	49.9	19.6
2584	5F	RH103101	MI	18.3	47.6	23.8
2585	5F	RH103102	MI	35.2	41.2	19.6
2586	5F	RH103103	MI	12.4	54.3	19.6
2587	5F	RH103104	PU	2.5	54.4	14.7
2588	3G	TV100601	QU	3.0	73.1	7.0
2589	3G	TV100617	QU	22.8	120.9	23.1
2590	3G	TV101410	QU	27.3	79.1	15.4
2591	3G	TV101412	PG	4.0	32.3	8.4
2592	3G	RV101413	PG	3.5	35.2	9.1
2593	3G	TV101414	PG	10.4	57.4	9.8
2594	3G	RV101415	PG	10.4	82.3	12.6
2595	3G	RV101416	PG	9.4	84.5	10.5

Table 19. 4-Elemental Chemical Analysis of Soil & Stream sediments

Geological Index

Sedimentary rocks

Quaternary (gravel & sand)	QU
Contamana Group	CO
Lourdes Formation	PA
Chonta Group	CH
Oriente Group	OR
Sarayaquillo Formation	SA
Pucara Group	PU
Mitu Group	MI
Copacabana - Tarma Group	TA
Ambo Group	AM
Excelcior Group	EX
Basement Complex (gneiss & schist)	BC

Igneous rocks

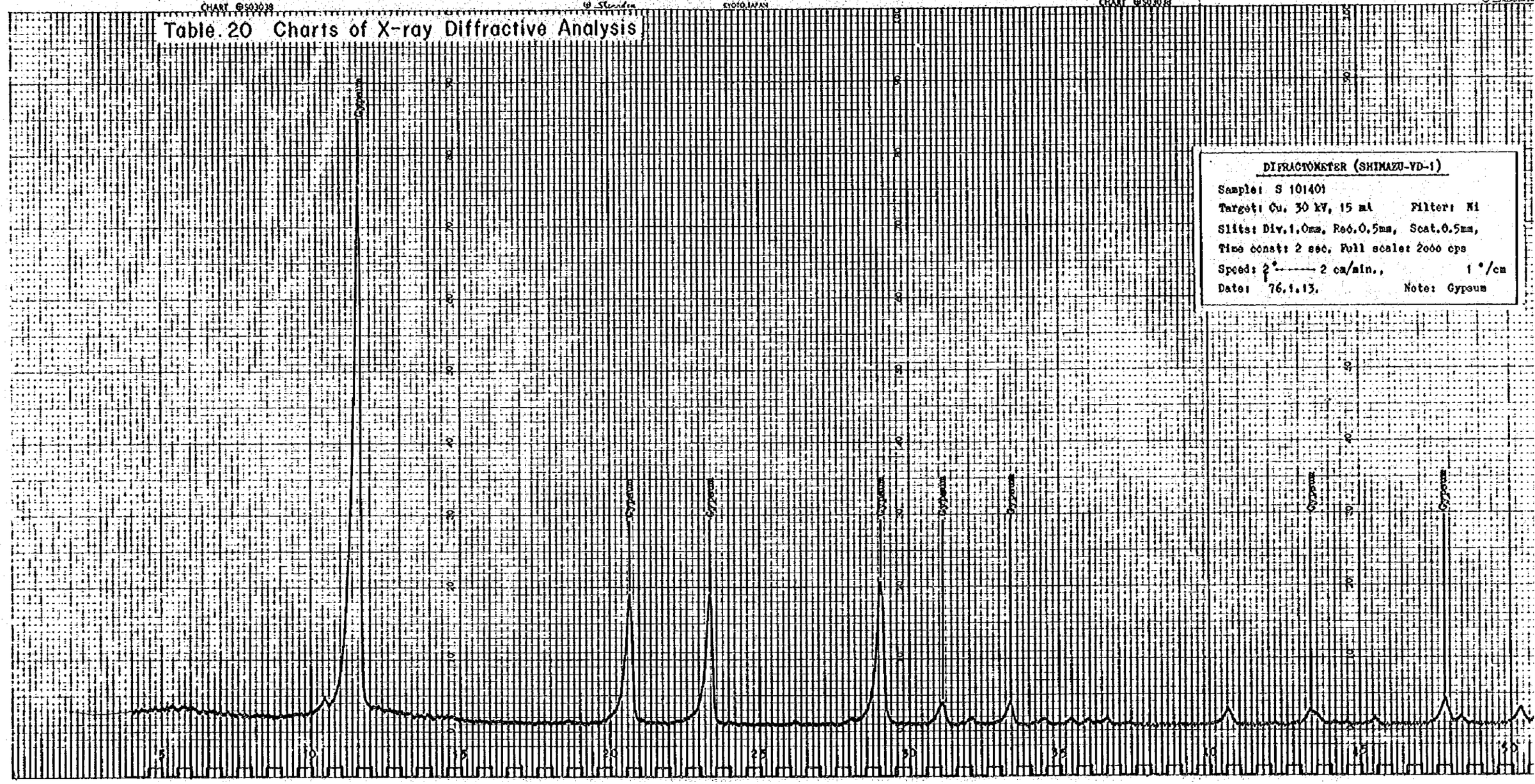
Tertiary (Neogene)	Volcanics	TV
Tertiary (Palaeogene)	Andesite, Rhyolite & Dacite	TR
	Diorite-porphyrite, Quartz-porphyry, Aplite & Granite-porphyry	MP
Jurassic	Diorite complex	MD
Permian ~ Triassic	Granite & Granodiorite	PG
	Granodiorite complex	PC

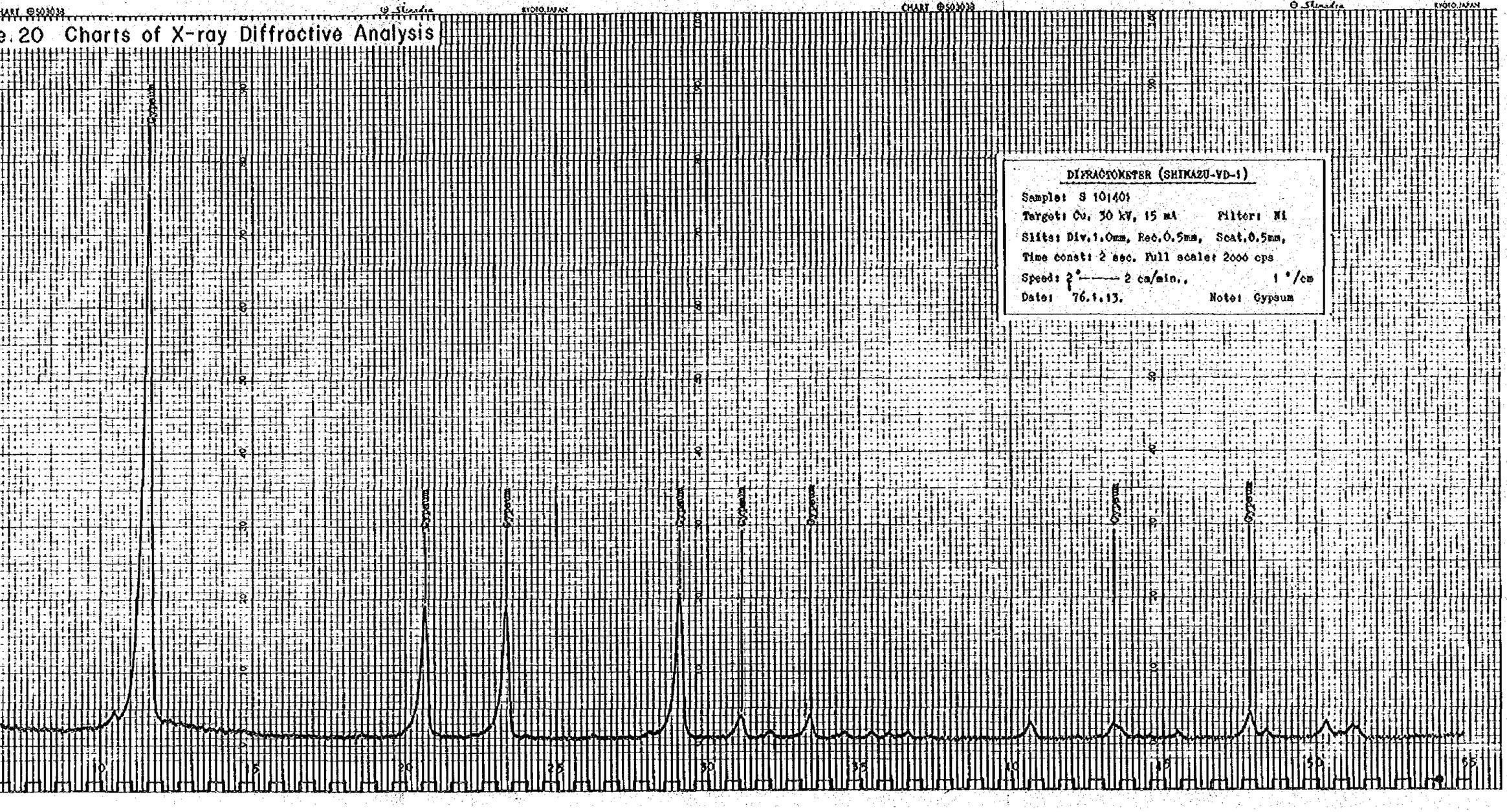
Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Pb Content (ppm)	Cr Content (ppm)	Co Content (ppm)	Mn Content (ppm)
144	6G	T	PA	11	10	8	384.9
246	8P	R	QU	11	7	5	292.5
299	8P	T	MP	11	8	7	303.8
335	7P	T	PG	11	2	12	669.8
441	11E	T	PU	39	15	10	500.0
514	9E	T	TR	42	1	5	228.3
534	9D	T	MP	0	0	10	971.7
628	6G	R	CH	0	1	8	264.2
633	6G	T	CH	3	2	8	386.8
720	6I	T	CH	0	2	6	339.6
755	6I	R	SA	7	4	10	341.5
806	6G	R	PU	0	5	5	141.5
913	7G	R	MP	0	3	6	401.9
933	8G	T	OR	0	2	4	22.6
1102	12E	T	CH	11	7	15	416.9
1142	10E	T	CH	14	5	10	469.8
1156	9E	R	MP	0	5	5	366.0
1189	9F	R	MI	0	19	24	781.0
1206	8D	R	PC	0	2	8	341.5
1390	7H	T	CH	0	4	8	81.1
1538	5G	R	PA	0	3	5	486.9
1558	2G	T	PU	77	17	20	1109.4
1566	1G	R	PG	3	25	17	550.9
1602	1G	T	PG	149	18	4	713.2
1666	11H	R	CO	0	0	4	198.1
1690	10G	R	CH	0	3	8	213.2

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Pb Content (ppm)	Cr Content (ppm)	Co Content (ppm)	Mn Content (ppm)
1730	10I	T	CO	0	0	4	54.7
1739	10I	R	CO	0	2	5	215.1
1760	12H	R	CO	0	1	7	252.8
1763	12H	R	CO	0	1	3	226.4
1806	4D	R	PC	0	5	4	230.2
1814	5C	R	PC	134	26	17	398.1
1816	4E	R	PC	0	4	7	230.1
1830	6F	R	PU	14	4	12	496.2
1842	6E	T	TR	0	2	19	2867.9
1907	6D	T	PC	0	56	33	522.6
1971	7E	T	PC	42	0	6	615.1
1987	4G	R	PG	0	2	10	562.3
1999	5G	T	PG	0	0	5	1522.6
2013	3F	T	PU	32	13	19	833.9
2018	3F	T	PG	39	23	38	954.7
2020	3F	T	BC	35	26	56	1113.2
2034	3F	R	MD	28	8	13	424.5
2060	2D	R	TA	77	5	16	703.8
2069	2D	T	BC	3	9	20	805.7
2090	1D	T	MI	7	12	17	192.5
2092	1C	R	PU	306	12	13	256.6
2095	1D	T	TA	32	17	36	1639.6
2129	2D	R	TA	70	2	82	309.4
2142	2D	R	TA	14	7	13	337.7
2223	1D	T	TA	14	12	11	1064.1
2252	2F	R	BC	0	15	9	343.4

Sample No.	Location	Stream Sediment (R) or Soil (T)	Geological Index	Pb Content (ppm)	Cr Content (ppm)	Co Content (ppm)	Mn Content (ppm)
2291	7G	R	CH	7	4	10	390.6
2360	8H	R	CH	0	1	10	471.6
2371	5H	T	SA	18	107	17	454.7
2418	5I	T	TA	3	8	8	679.2
2450	2E	T	PG	0	1	7	586.8
2496	3D	R	BC	0	2	7	360.4
2529	3D	T	TV	7	7	40	964.2
2571	4F	R	MI	0	2	6	590.6

Table. 20 Charts of X-ray Diffractive Analysis




Gypsum
Gypsum
Gypsum
Gypsum
Gypsum
Gypsum
Gypsum
DIFRACTOMETER (SHIMAZU-VD-1)
Sample: S 10140
Target: Cu, 30 kV, 15 mA Filter: Ni
Slits: Div.1.0mm, Rec.0.5mm, Scat.0.5mm,
Time const: 2 sec. Full scale: 2000 cps
Speed: 2°——— 2 cm/min., 1 °/cm
Date: 76.1.13. Note: Gypsum