

Table A-2-2 List of Microscopic Observations(Polished Section)

No.	Sample No.	Location	Names of Ore and Formation	Microscopic Observation	Remarks
1.	FR-07a	Paluan, Occ.	Chromite (ultramafic rock)	Aggregates of fine grained chromite crystals (0.05 mm in size) fill cracks of coarse grained crystals (0.5 mm in size).	stockpile see photograph
2.	FR-07b	do	Chromite (ultramafic rock)	Same as 7a. Aggregates of fine grained chromite crystals (0.03 mm in size) cut tabular crystals in the form of veins.	float
3.	FR-31	Mamburao River, Occ.	Hematite (Sablayan G.)	Most of the field consist of hematite after magnetite. Ex-solution lamellae of hematite can be seen in the relic magnetite. Sphalerite-garnet veinlets fill fractures.	float
4.	FR-45	Pagbahian River, Occ.	Magnetite (Sablayan G.)	Ex-solution lamellae of hematite has developed in magnetite. Few fine grains of chalcopyrite (0.1 mm in size) are enclosed by sphalerite.	float see photograph
5.	WR-52	Bugsanga River, Occ.	Pyrite-Quartz (Mansalay F.)	Granular or hydriomorphic grains of pyrite (1 ~ 2 mm in size) occur in the form of rod or glomeration. No other minerals are present.	
6.	WR-130	Siange River, Ori.	Pyrite-Quartz (Mansalay F.)	Aggregates of fine grains of pyrite (<0.1 mm in size) fill cracks of coarse grained pyrite (2 mm in size). Sphalerite has replaced pyrite along cracks.	
7.	WR-142	Rosanna River, Ori.	Chalcopyrite-Pyrrhotite-Quartz (Halcon M.)	A few colloform pyrite (0.5 mm in size) occur in xenomorphiegranular pyrrhotite. Rod-like or irregular shaped chalcopyrite are found on the rim of pyrrhotite. Fine grains of sphalerite (0.25 mm in size) are also associated.	see photograph
8.	WR-183	Bukayao River, Ori.	Chalcopyrite-Pyrite-Quartz (Halcon M.)	String-like or irregular shaped chalcopyrite includes a few sphalerite, some of which have a colloform texture. Fine pyrite grains (0.05 ~ 0.1 mm in size) fill a crack in the quartz vein.	
9.	WR-185	do	Chalcopyrite-Pyrite-Quartz (Halcon M.)	A small amount of chalcopyrite are found in a quartz vein. Chalcopyrite, 3 mm in size, includes some colloform pyrite (0.5 mm in size) and very fine grains (0.1 mm in size) of pyrite and sphalerite.	see photograph

Table A-3 Result of K-Ar Dating

Sample No.	Rock Name	K (%)	Rad ⁴⁰ Ar (%)	Rad ⁴⁰ Ar (sec/gm x 10 ⁻⁵)	Isotopic Age (m.y.)
FR-39	gneiss	1.27	63.5	0.121	24.7 ± 0.8
		1.27	63.8	0.125	
FR-41	granodiorite	0.61	56.9	0.079	40.2 ± 6.8 lowest value 33.0 highest value 49.1
		0.61	59.4	0.084	
		0.61	61.1	0.094	
		0.61	60.9	0.106	
		0.61	59.2	0.118	
FR-103	green schist	1.88	79.6	0.278	37.8 ± 1.1
		1.88	80.9	0.285	
FR-24	quartz diorite	2.47	80.6	0.293	30.4 ± 0.9
		2.47	81.8	0.295	
YR-12	amphibolite	0.73	51.5	0.071	24.6 ± 0.9
		0.73	50.1	0.073	

Remarks: The analyses were performed on whole rock material.

$$\text{Isotopic Age (m.y.)} = \frac{1}{\lambda\epsilon + \lambda\beta} \ln \left[\frac{\lambda\epsilon + \lambda\beta}{\lambda\epsilon} \times \frac{\text{Rad } ^{40}\text{Ar}}{40\text{K}} + 1 \right]$$

$$\lambda\epsilon = 0.581 \times 10^{-10} \text{ yr}^{-1}$$

$$\lambda\beta = 4.962 \times 10^{-10} \text{ yr}^{-1}$$

⁴⁰K = 1.167 x 10⁻⁴ atom per atom of natural potassium

Table A-4 Result of X-ray Diffractive Analysis

Sample No.	Location	Minerals											Remarks					
		Montmorillonite	Sericite/Mont.	Chlorite	Kaolinite	Sericite	Uvarovite	Amphibole	Augite	Plagioclase	Quartz	Calcite		Barite	Cronite	Pyrite		
FR-117	Pagbahan R.					⊙												green mica schist (Mindoro Jade)
SR-48a	Matabang R.	●		●		○	○	●			○	○						skam
SR-48b	do								⊙			●						garnet in skam
WR-18	Taoga deposit		●								⊙						●	altered sandstone
WR-21	do										⊙	○					○	altered sandstone with quartz veinlets
WR-53	Balangan R.		●	●							⊙							pyrite-quartz veinlets
WR-115	Road to Barite Mine		○								⊙							white altered shale
WR-171	Magawangtubig R.			●	●				●	⊙								garnet bearing amphibolite
YR-30	Tributary of Rayusan R.			●	●												●	chromite ore

Remarks; ⊙ : abundant, ○ : common, ● : rare

Table A-5 List of Mineral Showings

No.	Name of Deposit or Prospect	Location	Kind of Ore	Type	Scale	Host Rock	Ore Mineral	Alteration	Occurrence	Remarks
1*	Binaybay	18°22'42"~24'36"N, 120°54'24"~58'24"E Binaybay, Ori upstream of Binaybay R.	Gold	Placer	—	Fluvial dep.	Native Au	—	Placer	
2*	San Jose	12°30'N, 121°07'E San Jose, Occ. upstream of Labangan R.	Gold	Placer	—	Fluvial dep.	Native Au	—	Placer	
3*	San Andres	13°10'N, 121°05'E Naujan, Ori upstream of Bukayao R.	Copper	Vein	3 outcrops within 3.5km W: No.1, 0.5~2.0m No.2, 1.0m No.3, 2.0m	Ser.-qz-mica schist (Halcon M.)	Py-Cp-Bo-Po-Qz	sil, Py	Massive sulphide veins occur along schistosity	Assay (Cu) Luyang R. 5.99% Dacdan C. 1.86% Bukayao Grande R. 0.95~5.95% Bukayao Munti, 4.69~9.92%
4	Mindoro Consol Mining Corp.	13°01'N, 121°15'E Socorro, Ori., 3.5km WSW of Socorro	Copper	Vein	?	Serpentinized peridotite Metavolcanics	Py-Cp-Po-Mc-Chl Py-Cp-Cc-Qz-Epi	—	Massive sulphide lenses are developed along faults and sheared zones.	
5	Zion Expl. Corp.	13°00'N, 121°16'E Socorro, Ori., 4.5km W of Pinamala- yan	Copper	Vein	(1) massive sulphide lens W: 0.1~0.3m (2) Qz lens W: 0.5m	Serpentinized peridotite, Metavolcanics and Sedimentary rocks	Po-Py-Cp-Qz	—	Massive sulphide lenses occur in peridotite, and Qz lenses with Py and Cp dissemination, in volcanics and sediments.	
6*	Acliang & Pajo	12°45'N, 121°18'30"E Bongabong, Ori. Middle courses of Bongabong R.	Copper	Vein	?	Ser-Chl-amph schist (Halcon M.)	Cp-Po-Py	—	Sulphide veins and stringers are along the schistosity. Py and Cp dissemination in biotite quartz diorite	
7	Balao	13°24'~25'N 120°45'E Abra de Ilog, Occ. 5~6km SE of	Copper	Vein	W: 0.02~0.2m	Hb-diorite	Py-Cp	—	Py and rare Cp are in Qz veinlets and stringers. Green hornfels and garnet skarn are produced around diorite body.	Assay: 0.14~0.18% Cu 1.0 g/l Au
8	Buraboy	12°59'27"N, 121°07'24"E Sablayan, Occ. Upstream of Magasawang Tubig R.	Copper	Vein	W: 0.2m Mineralized zone: 2m	Ser. schist (Halcon M.)	Py-Cp-Qz	—	Mineralization along schistosity	
9	Amico Copper Co.	12°28'N, 121°11'E San Jose, Occ. 5.7km E of Hagdaman Peak	Copper	Vein	Very small	Interbedded sandstone, silty shale and mudstone (Sablayan G.)	Py-Cp	—	Sulphide veinlets, pockets and dissemination in the calcareous concretions in the shale.	Assay (Cu) 0.04~0.05%
10	Blueridge Mining Corp.	12°49'30"N, 121°17'30"E Bongabong & Bansud Ori. 18km WSW of Bansud	Nickel	Residual	?	Ultramafic rocks	Nickeliferous laterite	Serp.	Secondary enrichment of Ni (and Co) in the ultramafic rocks	Geochemical samples 0.80~2.95% Ni

No.	Name of Deposit or Prospect	Location	Kind of Ore	Type	Scale	Host Rock	Ore Mineral	Alteration	Occurrence	Remarks
11*	Victoria Mineral and Industrial Corp.	13°25'N, 120°30'E Paluan, Occ. 4km E of Paluan	Chromite Nickel	Residual	Laterite thickness av. 1m (0.24% Ni)	Serpentinite	Cr.	Serp.	Chromite floats of cobble~boulder size are in the laterite soil.	Chromite lens: 0.2x0.5x1.0m
12	San Vicente	13°24'N, 120°40'E Abra de Ilog, Occ. 8km SW of Abra de Ilog	Chromite	Ortho-magmatic	Small lens	Ultramafic rocks	Cr.	Serp.	Not clear	The extension is difficult to trace as saxonite host rock is very limited.
13	Igsoso	13°17'N, 120°30'E Igsoso, Occ.	Nickel	Residual	Very small	Ultramafic rocks	Nickeliferous laterite	Serp.	Secondary enrichment of Ni in the ultramafic rocks	
14*	Aglubang	13°04'N, 121°09'E Sablayan, Occ. Near Villacervera	Nickel	Residual	Ore reserve: 49MT (0.94% Ni) Thickness: 3~11m (av. 5.5m)	Ultramafic rocks	Nickeliferous laterite	Serp.	Laterite covers almost all the slope and float area over the ultramafic rocks	Explored by Anglo Philippine Oil Corp. Eagle Pass & Aglubang prospects are included in this area.
15	Barabon	13°04'00"N, 120°45'30"E Sta. Cruz, Occ. 3km E of Sta Cruz	Chromite	Ortho-magmatic	Lenticular W: 0.3~0.8m L: ?	Ultramafic rocks	Cr.	Serp.	Chromite deposit occurs along thrust faults in the ultramafic rocks in a shape of steeply dipping pad and lens.	
16*	Paragpagan	13°03'N, 120°50'E Sta. Cruz, Occ. 12km east of Sta Cruz	Nickel	Residual	?	Ultramafic rocks	Nickeliferous laterite	Serp.	Secondary enrichment of Ni in the ultramafic rocks	
17*	Sibakoy	12°58'N, 120°58'E Sablayan, Occ. 25km NE of Sablayan	Chromite	Ortho-magmatic	Float	Ultramafic rocks	Cr	?	Not clear	High grade ore float
18	Baletero	13°29'00"N, 120°56'00"E Puerto Galera, Ori. 2.5km SW of Puerto Galera	Iron	Contact	Thickness: 2m	Schist, Marble (Halcon M.)	Mt-Hm-Spec-Mn		Iron body, paralleled to the schistosity, is probably a replacement of marble in the schist.	
19	Batalong Bato	13°28'21"N, 120°55'33"E Puerto Galera, Ori. 4km SW of Puerto Galera	Iron	Contact	Thin layer of Mt. Floats ϕ max. 1m	Marble (Halcon M)	Mt.		Floats are in limited amount.	
20	Savoran	13°27'00"N, 120°54'47"E Puerto Galera, Ori. 8km SW of Puerto Galera	Iron	Contact	No.1, W=1.0m No.2, W=0.01m	Mica schist (Halcon M.)	Hm-Mt-Lm-Mn		Ore bodies tend to parallel to the schistosity	
21	Binaybay	13°21'24"N, 121°00'E Binaybay Baco, Ori. 12km W of Baco	Iron	Contact	Floats (max. 1.5m in size) localized in 15m x 15m	Schist and marble (Halcon M.)	Hm-Mt	Skarn	Floats or blocky concentration	An adit exploration suggested that the block concentration was connected to an orebody underneath. Oxidized ore showed 61.19% Fe.

No.	Name of Deposit or Prospect	Location	Kind of Ore	Type	Scale	Host Rock	Ore Mineral	Alteration	Occurrence	Remarks
22	Tibano	13°21'00"N, 120°54'24"E Mamburao, Ori. Upstream of Malaylay R.	Iron	Contact	Massive iron blocks: W=3m Floats: av. 1m in 150m x 50m	Skarn (Halcon M.)	Mt-Py-Mn	Skarn	Iron deposit occurs in skarn at the contact between meta quartz diorite and schist.	Assay: 66.74% Fe, 2.06% SiO ₂ 0.41% Al ₂ O ₃ , 0.075% TiO ₂ 0.019% P, 0.068% S
23	Bulos	13°20'N, 120°51'08"E Puerto Galera, Ori. Upstream of Malaylay R.	Iron	Contact	Iron block: av. 1.5m	Marble, schist (Sablayan G.)	Mt-Hm		Iron block	
24	Lagnas	13°19'21"N, 120°52'30"E Puerto Galera, Ori. Upstream of Malaylay R.	Iron	Vein, Dissemination	Extension: 1.3km	Basalt, phyllite, (Sablayan G.)	Mt-Hm	Skarn	Four ore bodies crop out probably along a pre-ore fault of a N70W direction, which has controlled mineralization in this area.	Assay: 30~53% Fe
25	Dayap	13°16'40"N, 120°49'36"E Mamburao, Ori. Upstream of Pagbahan R.	Iron	Contact	Outcrops, thickness No.1 = 6m No.2 = 8m No.3 = 70m	Schist, skarn (Halcon M.)	Ht-Py	Skarn	The biggest orebody (No.3) is composed of five layers of Mt-Skarn.	Assay: Fe SiO ₂ Al ₂ O ₃ TiO ₂ P S % % % % % % BMG data 67.37 2.48 3.52 0.17 0.04 0.22 FR-45 50.48 14.05 0.79 - 0.00 0.24 (float)
26	Camorong	13°27'38"N, 120°50'30"E Abra de Ilog, Occ. Camorong R.	Iron	Contact	Iron blocks (φ 1.5m) along a 2.5m length	Schist in gneiss (Halcon M.)	Mt-Py		Iron floats are found along on N80E direction on the southern slope.	Assay: Fe, SiO ₂ Al ₂ O ₃ TiO ₂ P S 49.21, 15.82, 9.11 0.177 0.23, 0.032
27	Barayao	13°24'12"N, 120°48'58"E Abra de Ilog, Occ. Headwater of Odala R.	Iron	Contact	W: 15m L: 5m	Marble, gneiss, schist (Halcon M.)	Mt	Skarn	Similar to Dayap (25). Mt veins and pockets in garnet-epidote skarn, which is developed near the contact between gneiss and schist.	
28	Little Baguio	13°22'13"N, 120°49'18"E Abra de Ilog, Occ. 15km SE of Abra de Ilog	Iron	Contact	2 float areas: No.1, Cobble size Mt in a small scale No.2, Iron blocks (φ 1m)	Marble, phyllite (Sablayan G.)	Mt-Hm	Skarn	The deposit is composed of two float areas.	Several tunnels were driven.
29	Nasabongan	13°22'12"N, 120°48'36"E Abra de Ilog, Occ. Headwater of Mamburao R.	Iron	Contact	Extention: 92m x 65m Thickness: 35m in the center.	Marble, phyllite (Sablayan G.)	Mt-Hm	Skarn	There are two outcrops.	Shipping grade > 60% Fe
30*	Lasala	13°21'N, 120°47'E Abra de Ilog, Occ. Upstream of Mamburao R.	Iron	Contact	L = 350m	Marble, phyllite (Sablayan G.)	Hm-Mt-Py-Cp	Skarn	The deposits occur underneath the river bed and on the western slope.	Mayorga Mining Corp. explored by means of dip needle, pit, trench, tunnel and diamond drilling,

No.	Name of Deposit or Prospect	Location	Kind of Ore	Type	Scale	Host Rock	Ore Mineral	Alteration	Occurrence	Remarks
31	Aglombogan	13°20'25"N, 120°49'E Abra de Irog, Occ. Headwater of Malaylay R.	Iron	Contact	unknown	Marble, phyllite (Sablayan G.)	Hm-Mt	Skarn	Mt has replaced marble along bedding planes as a lens.	
32	Lapa-Ao	13°18'54"N, 120°47'E Abra de Ilog, Occ.	Iron	Contact	Outcrops: No.1, W=19m, L=25m H=13.5m No.2, W=5m, L=5m H=25m No.3, W=2m, L=16m H=25m No.4, L=20m No.5, W=3m, L=3m	Marble, (Sablayan G.)	Mt		Ore bodies are tabular on lens-shaped and trend with the attitude of the marble. Distance No.1 ~ No.2 = 80m No.2 ~ No.3 = 120m No.3 ~ No.4 = 60m No.4 ~ No.5 = 50m	
33*	Taoga (Filhispano Inc.)	12°38'15"N, 121°19'00E Mansalay Ori 18km NW of Mansalay	Barite	Vein	Outcrops: No.1, W=5m, L=20m No.2, W=2m, L=20m No.3, very small Reserve: 50,000T	Sandstone (Mansalay F.)	Ba-Py-Qz	Py, Sil	Barite veins trend N45E ~ N20E with a	
34	Wigan	12°33'N, 121°25E Mansalay, Ori 4km NW of Mansalay	Barite	Vein	Outcrop: 10mx15m	Sandstone (Mansalay F.)	Ba		Barite is exposed in several pits from 0.5-1.0m deep. Floats (φ: few cm) are scattered around the ridge.	
35	Mansalay Mining Corp.	12°31'43"~12°33'29"N, 121°21'03"~ 121°24'08E Mansalay, Ori 7km WNW of Mansalay	Barite	Vein	W = 0.5~2m H = 3m L = 8m	Sedimentary Rock (Mansalay F.)	Ba		The vein trends N50W dipping 78° SW	Barite and silica prospect
36*	Mansiol Point	12°28'30"N, 121°25'45"E Mansalay, Ori. 6km SSW of Mansalay	Barite	Vein?	Float zone: W = 4m	Sandstone (Mansalay F.)	Ba		Barite floats are scattered in a N25W direction.	No record
37	Ligwayan	13°26'41"N, 120°54'31"E Puerto Galera, Ori. 8.5km SSW of Puerto Galera	Feldspar	Dike, Sill	Outcrops: No.1 L = 25~30m No.2 L = 8m, H = 1.5m No.3, W = 1.5m	Gneiss, schist (Halcon M.)	Fd-clay		Deposit is composed of friable feldspar, clay or quartzo-feldspathic schist.	
38	Wawa	13°27'35"~28'07"N 120°36'06"~37'03"E Abra de Irog, Occ. 12km WNW of Abra de Irog.	Talc	lens	No importance	Talc schist in serpentinite			Talc schist are discontinuous lenses in serpentinite.	
39	Metropolitan Mining Corp.	13°27'30"~13°29'N 120°48'~120°49'E Abra de Irog, Occ. 12km WNW of Abra de Irog.	Talc	?	?	Marble, Schist (Halcon M.)	Tc-Cal		Talc may have been contamination from the interlayered schist and/or developed in the marble.	Stockpile: 130T
40	Amico Copper Co.	12°28'N, 121°11'E San Jose Occ. 19km NE of San Jose	Gypsum	Vein	Very small W: 1~10mm	Calcareous sediments (Sablayan G.)	Gy		Selenite appears to represent minute bedding planes and fracture fillings in the sediments.	

No.	Name of Deposit or Prospect	Location	Kind of Ore	Type	Scale	Host Rock	Ore Mineral	Alteration	Occurrence	Remarks
41	Alitaytayan	12°26'30"N, 121°09'E San Jose, Occ. 13.5km NE of San Jose	Gypsum	Vein	Very small	Shale (Sablayan G.)	Gy		Thin veins of selenite disperse in the weathered shale.	
42	Mansalay Mining Corp.	12°31'43"~33'29"N 121°21'03"~24'08"E Mansalay, Ori. 7km WNW of Mansalay	Silica	Bedded	W = 1~3m 400 ha	Quartzose sandstone (Mansalay F.)	Qz		Silica deposit occurs as quartzose sandstone. Silica is friable with Qz grains easily to separate.	Assay SiO ₂ 81.55% Al ₂ O ₃ 11.81% Fe ₂ O ₃ 0.70%
43	Falcon Mineral Inc.*	12°36'N, 121°25'N Mansalay, Ori. 3km NW of Mansalay	Silica	Bedded	H = 20m+	Quartzose sandstone (Mansalay F.)	Qz		Arkose sandstone bed	
44	Mananao	13°30'30"N, 120°33'20"E Paluan, Occ. 14km NE of Paluan								
45	Maria Cristina Chemical Industries	13°29'30"N, 120°39'40"E Abra de Hog, Occ. 8km NW of Abra de Ilog	Silica	Beach sand	L = 1.5km, W = 20m H = 30cm Positive reserve: 3,600T	Schist (Halcon M.)	Qz		Deposits consist of Qz-sand, pebble, cobble and boulders.	The recoverable Qz is about 20% of whole rock fragments.
46	Mamburao	13°15'N, 120°37'22"E Mamburao, Occ. 4km NE of Mamburao	Silica	Beach sand			Qz		The beach sand is composed of Qz, Sh, Hb, Ser, Chl, Mt, Serp fragments in the order of abundance.	
47	Barahan	13°01'N, 120°46'E Sta. Cruz, Occ. 7.5km SSE of Sta. Cruz.	Silica	Beach			Qz		Same as the above No. 43.	
48	Marblecraft	13°29'N, 120°55'E Puerto Galera Ori. 5km SW of Puerto Galera	Marble	Bedded	Large scale	Schist (Halcon M.)	Marble	Recryst.	Marble occurs in mica schist.	
49*	Dulangan	13°28'N, 120°58'E Dulangan Ori. 1km W of Dulangan	Marble	Bedded	Reserve: 110,070,000T	Schist (Halcon M.)	Marble	Recryst	Marble are interbedded in green schist and mica schist.	Operating: 2m ³ /day
50*	Monte Cristy Mining Co.	13°14'N, 120°49'E Mamburao, Occ. Upstream of Pagbahan R.	Jade	Vein	Some veins W = 2m	Limestone (Mansalay F.)	Jade		Jade veins of 2m wide occur in limestone	Operating, Stockpile: about 10T Workers: 30 persons
51*	Napisian, Bulalacao	12°22'38"N, 121°18'03"E Bulalacao, Ori. 9km NNW of Bulalacao	Coal	Bedded	Thickness: 0.4~2.5m, Coal seams with 0.75 m thick are 4. Reserve: 6,776,000T	Sandstone, shale (Sablayan G.)	Coal		Coal measures consist of a heterogeneous succession of clastic materials, at least 10 coals and a few impure limestone beds, shales and clay.	Recently explored by BMG and CDCP. Coals are classed as high-volatile C bituminous.

No.	Name of Deposit or Prospect	Location	Kind of Ore	Type	Scale	Host Rock	Ore Mineral	Alteration	Occurrence	Remarks
52	Slay, Bulalacao	12° 21' 57" N, 121° 21' 40" E Bulalacao, Ori. 5km NE of Bulalacao	Coal	Bedded	Much smaller than above 47.	Sandstone, shale (Sabluyan G.)	Coal		Seven or more coal seams with a 10cm ⁺ thickness may present.	
53	Allitaytayan	12° 26' 30" N, 121° 09' E San Jose, Occ. 13.5km NW of San Jose	Coal	Bedded	2 seams: upper: 2' thick lower: 3.5' thick	Sandstone, carbonaceous shale (Sabluyan G.)	Coal		Two seams occur in interbeds of sandstone and carbonaceous silty shale.	

* checked deposit or prospect

Cp : Chalcopyrite, Py : Pyrite, Po : Pyrrhotite, Bo : Bornite, Cc : Chalcocite, Mc : Marcasite, Cr : Chromite, Mt : Magnetite, Hm : Hematite, Spec : Specularite, Lm : Limonite, Chl : Chlorite, Epi : Epidote, Qz : Quartz, Sil : Silicification, Py : Pyritization, Serp : Serpenization

Table A-6 Metal Content of Ore Samples

Sample No.	Location	Occurrence	Au g/t	Ag g/t	Cu %	Cr %	Ni %	Mg %	Fe %	S %	Si %	Al %	P %	Ca %	Ba %	Na %	K %
FR-34	Mamburao R.	mal stained skarn (float)	0.1	1.0	0.75	-	-	-	7.48	0.23	-	-	-	-	-	-	-
WR-18	Taoga dep.	chloritized sandstone	0.2	1.3	0.00	-	-	-	8.95	10.84	-	-	-	-	-	-	-
WR-21	do	argillized sandstone	1.5	2.5	0.00	-	-	-	10.55	10.54	-	-	-	-	-	-	-
WR-52	Bugsanga R.	py-cp vein	0.4	1.5	0.00	-	-	-	6.63	7.87	-	-	-	-	-	-	-
WR-130	Siange R.	py-qz vein	2.9	3.4	0.00	-	-	-	21.26	19.90	-	-	-	-	-	-	-
WR-142	Achlang & Pajo dep.	cp bearing po vein.	0.0	2.2	0.69	-	-	-	37.70	29.81	-	-	-	-	-	-	-
WR-183	San Andres dep.	cp bearing py vein	0.0	1.3	0.37	-	-	-	7.63	1.80	-	-	-	-	-	-	-
WR-185	do	do	0.0	0.9	0.15	-	-	-	18.52	6.66	-	-	-	-	-	-	-
SR-36	Abra de Ilog R.	silicified shale	0.0	0.8	0.00	-	-	-	3.99	2.35	-	-	-	-	-	-	-
SR-46	Matabang R.	mal. stained amphibolite	0.0	1.6	0.13	-	-	-	7.13	0.22	-	-	-	-	-	-	-
FR-114	Binaybay	quartz vein	0.0	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
FR-115	do	do	0.0	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-
FR-116	do	do	0.0	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
FR-07	Paluan dep.	massive chromite (stockpile)	-	-	-	30.71	0.07	6.44	4.59	-	-	2.16	-	-	-	-	-
FR-08	do	peridotite	-	-	-	0.02	0.02	9.65	0.44	-	-	6.42	-	-	-	-	-
YR-30	sibacoi R.	massive chromite	-	-	-	33.88	0.07	4.18	3.14	-	-	1.24	-	-	-	-	-
WR-160	Aglubang dep.	nickeliferous laterite	-	-	-	2.65	0.46	2.15	28.70	-	-	3.79	-	-	-	-	-
SR-39	Annay R.	peridotite	-	-	-	0.26	0.22	26.20	5.43	-	-	0.43	-	-	-	-	-
SR-60	do	peridotite	-	-	-	0.26	0.21	23.16	5.43	-	-	0.68	-	-	-	-	-
SR-91	San Teodoro	limonitized schist	-	-	-	-	0.14	-	4.05	0.15	-	-	-	-	-	-	-
FR-31	Lasala dep.	massive hematite (float)	-	-	-	-	-	-	54.13	0.20	1.14	0.13	0.00	-	-	-	-
FR-43	Obala R.	py dissemination	0.1	1.4	0.12	-	-	-	21.39	18.23	-	-	-	-	-	-	-
FR-45	Dayap dep.	massive magnetite (float)	-	-	-	-	-	-	50.48	0.24	6.57	0.42	0.00	-	-	-	-
WR-22	Taoga dep.	barite vein	-	-	-	-	-	-	0.12	-	1.19	0.00	-	0.01	49.32	-	-
WR-17	Mansalay	silica sand (stockpile)	-	-	-	-	-	-	0.45	-	82.40	2.62	-	-	-	0.35	2.54

Sample No.	Location	Occurrence	Moisture (%)	Volatile matter (%)	Fixed Carbon (%)	Ash (%)	Moisture & Ash Pipe		B.T.U.	
							Moisture & Volatile matter (%)	Fixed Carbon (%)	As a whole	Moisture & Ash Free
HR-204	Alitayayan	coal seam of the Sablayan G.	18.0	39.4	36.0	6.6	52.3	47.7	9452	12624

Abbreviation; mal. malachite, py. pyrite, cp. chalcopyrite, po. pyrrhotite

Table A-7 List of Geochemical Samples(Stream Sediment)

Abbreviation

Geological Unit

- SB : Socorro group and Bongabong group**
- SA : Sablayan group**
- MA : Mamburao group**
- BL : Lumintao formation**
- BM : Mansalay formation**
- HM : Halcon metamorphics**
- UM : Ultramafic rocks**

Ser. No.	Sample No.	Geol. Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ni (ppm)	Fe (%)	Mn (ppm)	Ag (ppm)	Cr (ppm)	W (%)	Mo (ppm)
1	F-02	HM	19	28	77	38	2.91	318	0.0	53	0.000	<1
2	F-03	HM	23	28	85	27	2.91	396	0.0	54	0.000	<1
3	F-04	HM	20	28	78	29	3.09	396	0.0	63	0.000	<1
4	F-06	HM	26	28	75	34	3.12	492	0.0	62	0.000	<1
5	F-08	HM	32	28	79	87	3.75	517	0.0	184	0.001	<1
6	F-09	SB	28	14	71	56	5.08	813	0.0	146	0.001	<1
7	F-11	BM	39	10	54	68	3.34	720	0.0	229	0.000	<1
8	F-13	BM	44	14	59	79	3.44	614	0.0	154	0.000	<1
9	F-15	HM	32	21	79	71	4.58	798	0.3	110	0.000	<1
10	F-17	HM	46	17	78	86	3.96	910	0.0	145	0.000	<1
11	F-19	HM	42	7	73	76	3.43	816	0.0	144	0.000	<1
12	F-21	HM	31	7	47	30	2.13	371	0.1	60	0.000	<1
13	F-22	HM	44	14	97	25	3.55	1252	0.0	46	0.000	<1
14	F-24	HM	51	3	59	70	2.91	542	0.0	176	0.000	<1
15	F-26	BM	41	7	65	96	3.70	1118	0.0	285	0.000	<1
16	F-29	BM	21	17	69	25	2.96	483	0.1	57	0.000	<1
17	F-31	BM	17	10	57	18	2.32	246	0.0	41	0.000	<1
18	F-33	BM	34	14	65	50	3.44	1555	0.1	111	0.000	<1
19	F-35	BM	40	17	101	57	4.30	903	0.1	89	0.000	<1
20	F-36	MA	48	14	76	49	4.26	804	0.2	104	0.000	<1
21	F-37	BL	43	10	67	54	4.31	863	0.1	142	0.000	<1
22	F-39	UM	31	14	63	102	3.30	526	0.0	170	0.000	<1
23	F-40	UM	40	7	57	142	3.58	579	0.0	289	0.000	<1
24	F-41	UM	56	14	62	57	4.39	938	0.0	195	0.000	<1
25	F-42	BL	66	10	81	91	5.57	1424	0.0	238	0.000	<1
26	F-43	UM	28	7	50	32	2.55	467	0.0	94	0.000	<1
27	F-44	UM	28	10	51	53	2.68	483	0.0	132	0.000	<1
28	F-45	UM	29	10	49	43	2.79	460	0.1	197	0.000	<1
29	F-48	BM	20	10	53	35	2.82	352	0.1	414	0.000	<1
30	F-50	BM	20	17	51	21	3.14	377	0.1	64	0.000	<1
31	F-51	SA	23	17	60	23	2.51	290	0.0	54	0.000	<1
32	F-54	HM	40	14	46	31	3.04	349	0.2	73	0.000	<1
33	F-55	HM	66	7	41	43	2.51	430	0.1	109	0.000	<1
34	F-56	HM	48	17	61	36	3.04	492	0.1	89	0.000	<1
35	F-57	HM	87	17	67	71	4.92	785	0.3	169	0.000	1
36	F-58	HM	87	14	48	74	5.34	698	0.4	177	0.000	<1
37	F-59	BM	18	21	50	18	3.66	380	0.4	50	0.000	1
38	F-60	BM	26	21	61	32	2.97	551	0.0	69	0.000	<1
39	F-61	BM	24	24	68	31	2.87	586	0.0	54	0.000	<1
40	F-62	BM	27	24	81	28	3.13	526	0.0	53	0.000	<1
41	F-63	MA	27	14	65	25	2.86	330	0.0	67	0.002	<1
42	F-66	HM	16	1	35	7	1.17	218	0.0	18	0.001	<1
43	F-67	HM	2	3	22	1	0.58	140	0.0	8	0.000	<1
44	F-68	HM	10	3	25	3	0.89	193	0.0	15	0.000	<1
45	F-69	HM	21	3	34	6	1.55	274	0.0	23	0.000	1
46	F-70	HM	24	3	34	30	2.34	327	0.0	292	0.000	<1
47	F-71	HM	7	3	25	2	0.85	190	0.0	10	0.001	<1
48	F-72	HM	36	7	60	17	2.55	421	0.0	38	0.000	<1
49	F-75	HM	44	6	54	44	3.10	502	0.0	39	0.001	<1
50	F-77	HM	47	3	58	26	2.97	486	0.0	53	0.001	1

Ser. No.	Sample No.	Geol. Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ni (ppm)	Fe (%)	Mn (ppm)	Ag (ppm)	Cr (ppm)	W (%)	Mo (ppm)
51	F-79	HM	30	14	74	26	3.44	686	0.1	67	0.000	<1
52	F-80	HM	34	21	43	28	2.96	445	0.0	55	0.000	<1
53	F-81	HM	34	34	79	49	4.35	510	0.6	58	0.000	<1
54	F-82	HM	130	7	70	30	5.78	586	0.4	51	0.000	2
55	F-84	HM	33	17	60	31	3.21	436	0.0	51	0.000	<1
56	F-86	HM	52	17	72	35	3.83	534	0.2	50	0.000	<1
57	F-88	HM	60	17	59	27	2.68	364	0.1	96	0.000	<1
58	F-90	BM	76	34	65	31	5.08	516	0.5	72	0.000	1
59	F-92	BM	53	24	76	42	3.41	549	0.2	63	0.002	1
60	F-93	BM	27	14	46	33	3.85	612	0.1	106	0.002	<1
61	F-94	BM	32	14	48	27	2.44	394	0.1	97	0.001	<1
62	F-96	BM	27	7	40	25	2.45	316	0.0	103	0.000	<1
63	F-98	BM	28	14	62	25	2.76	430	0.0	75	0.000	<1
64	F-99	BM	53	17	77	25	3.10	370	0.0	65	0.000	<1
65	F-101	BM	41	24	102	31	3.19	549	0.0	66	0.001	1
66	F-103	BL	34	21	80	37	3.35	555	0.0	75	0.001	1
67	F-105	BL	66	17	76	156	4.45	1301	0.1	189	0.000	1
68	F-122	HM	44	14	57	20	3.64	412	0.3	58	0.002	<1
69	F-123	HM	66	7	77	25	3.28	460	0.0	77	0.002	<1
70	F-125	HM	25	10	40	20	3.65	331	0.0	59	0.001	<1
71	F-127	HM	28	17	45	24	2.18	358	0.0	177	0.000	<1
72	F-129	HM	77	21	74	46	3.55	373	0.2	48	0.000	<1
73	F-131	HM	32	45	72	22	2.83	588	0.0	56	0.002	<1
74	F-133	HM	58	1277	63	35	2.99	1161	0.0	42	0.000	<1
75	F-135	HM	29	10	51	15	2.17	361	0.0	54	0.000	<1
76	F-137	HM	32	10	66	15	3.21	657	0.0	54	0.000	<1
77	F-139	HM	39	7	69	15	2.27	385	0.0	47	0.000	<1
78	F-141	HM	36	10	64	26	3.45	461	0.0	72	0.000	<1
79	F-143	HM	44	6	39	9	2.34	490	0.0	43	0.000	<1
80	F-148	HM	59	21	72	24	2.88	454	0.0	62	0.000	<1
81	F-149	HM	27	7	57	31	2.66	403	0.0	48	0.000	<1
82	F-150	HM	34	7	47	34	3.96	546	0.1	67	0.000	<1
83	F-152	HM	43	3	54	20	2.54	313	0.0	79	0.000	<1
84	F-154	HM	30	1	47	14	2.21	316	0.0	48	0.000	<1
85	F-155	HM	32	17	66	18	2.75	427	0.0	59	0.001	<1
86	F-156	HM	43	10	75	18	2.80	445	0.0	68	0.002	<1
87	F-157	HM	34	3	33	14	2.52	442	0.0	58	0.001	<1
88	F-158	HM	51	10	75	23	5.64	469	0.0	76	0.001	<1
89	F-161	HM	22	6	24	16	2.10	334	0.0	38	0.000	<1
90	F-163	HM	50	3	59	21	3.51	448	0.0	63	0.000	<1
91	F-165	HM	72	14	84	28	4.02	746	0.0	112	0.000	<1
92	F-167	HM	26	17	42	10	1.69	331	0.0	42	0.001	<1
93	F-168	HM	40	17	69	32	3.29	516	0.0	133	0.001	<1
94	F-169	HM	48	14	96	64	2.90	436	0.0	166	0.001	<1
95	F-170	HM	48	10	70	29	2.21	469	0.0	59	0.002	<1
96	F-171	HM	30	6	88	30	2.74	364	0.0	119	0.002	<1
97	F-173	HM	29	14	59	14	1.81	389	0.0	47	0.000	<1
98	F-175	HM	62	3	83	22	1.81	355	0.0	50	0.001	<1
99	F-176	SB	42	6	88	46	3.62	608	0.0	141	0.001	<1
100	F-178	SB	94	10	73	36	7.45	394	0.0	215	0.000	<1

Ser. No.	Sample No.	Geol. Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ni (ppm)	Fe (%)	Mn (ppm)	Ag (ppm)	Cr (ppm)	W (%)	Mo (ppm)
101	W-02	SA	35	38	38	16	1.00	140	0.8	45	0.000	<1
102	W-03	SA	21	38	4	13	0.73	69	0.3	35	0.000	<1
103	W-04	SA	20	27	27	12	0.85	60	0.3	22	0.000	<1
104	W-05	SA	20	28	48	40	2.44	644	1.2	65	0.000	<1
105	W-06	SA	94	34	106	46	2.40	472	1.2	67	0.000	<1
106	W-08	SA	62	14	94	70	3.76	890	0.8	107	0.000	<1
107	W-10	SA	15	17	59	53	3.26	624	0.1	77	0.000	<1
108	W-11	SA	18	79	47	34	2.01	313	0.8	62	0.000	<1
109	W-12	SA	25	21	56	19	1.86	233	3.2	35	0.000	<1
110	W-13	SA	16	41	56	20	1.97	260	0.5	34	0.000	<1
111	W-17	SA	7	7	21	17	0.96	57	0.0	33	0.000	<1
112	W-18	SA	12	3	21	16	0.96	84	0.3	35	0.000	<1
113	W-24	BM	20	28	74	18	2.56	334	0.0	36	0.000	<1
114	W-25	BM	20	20	54	28	1.89	502	1.8	40	0.000	<1
115	W-27	SA	46	28	86	34	1.84	388	0.6	53	0.000	<1
116	W-28	SA	29	17	62	17	1.64	591	1.1	49	0.000	1
117	W-30	SA	64	20	124	24	2.78	304	0.1	35	0.000	<1
118	W-32	SA	40	15	105	25	3.35	270	0.0	40	0.000	<1
119	W-33	SA	20	28	98	34	3.04	310	0.2	44	0.000	<1
120	W-35a	SA	17	35	120	20	3.20	360	0.0	40	0.000	<1
121	W-35b	SA	26	28	80	28	4.06	322	0.2	31	0.000	<1
122	W-36	BM	23	20	110	20	2.80	114	0.0	26	0.000	<1
123	W-38	BM	23	20	85	35	3.05	345	0.0	40	0.000	<1
124	W-39	BM	16	20	54	18	3.38	298	0.0	25	0.000	<1
125	W-40	BM	16	14	70	18	2.28	186	0.0	38	0.000	<1
126	W-41	BM	32	51	53	17	2.13	325	0.0	35	0.000	<1
127	W-42	BM	46	30	84	32	3.47	478	0.0	51	0.000	<1
128	W-43	BM	21	20	49	19	2.40	421	0.0	42	0.000	<1
129	W-45	BM	60	57	99	30	2.94	457	0.0	59	0.000	<1
130	W-46	BM	39	41	104	27	2.84	296	0.0	53	0.000	<1
131	W-47	BM	14	30	55	11	2.09	340	0.0	30	0.000	<1
132	W-48	BM	10	28	62	14	1.86	394	0.0	21	0.000	<1
133	W-49	BM	22	30	53	19	2.61	349	0.0	39	0.000	<1
134	W-50	BM	36	20	63	6	1.89	442	0.0	23	0.002	<1
135	W-51	BM	56	28	122	10	2.18	364	0.0	30	0.000	<1
136	W-52	BM	26	40	92	12	3.28	424	0.0	49	0.001	<1
137	W-53	BM	21	108	62	16	2.59	328	0.0	32	0.000	1
138	W-54	BM	32	46	86	84	4.52	298	0.0	32	0.002	1
139	W-56	BM	54	82	114	6	2.30	424	0.0	26	0.000	<1
140	W-57	BM	28	27	64	22	2.26	382	0.0	30	0.000	<1
141	W-58	BM	451	35	520	15	1.80	270	0.0	15	0.000	<1
142	W-59	BM	60	88	72	26	3.50	286	0.1	28	0.001	<1
143	W-60	BM	14	20	80	14	2.04	328	0.3	31	0.000	<1
144	W-61a	BM	23	24	79	22	2.48	299	0.0	40	0.000	<1
145	W-61b	BM	20	238	96	26	2.88	316	0.0	32	0.001	<1
146	W-62	BM	78	60	140	24	3.48	292	0.1	29	0.000	1
147	W-63	BM	72	20	98	22	2.36	376	0.0	29	0.001	1
148	W-64	BM	72	27	78	20	3.04	272	0.0	36	0.000	<1
149	W-65	BM	19	27	49	19	2.46	278	0.0	30	0.000	<1
150	W-66	BM	20	15	161	25	2.20	170	0.0	50	0.000	<1

Ser. No.	Sample No.	Geol. Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ni (ppm)	Fe (%)	Mn (ppm)	Ag (ppm)	Cr (ppm)	W (%)	Mo (ppm)
151	W-68	BM	94	30	171	40	2.75	215	0.0	38	0.000	<1
152	W-69	BM	15	30	176	45	1.20	170	0.0	24	0.000	<1
153	W-70	BM	26	94	76	30	3.68	906	0.1	48	0.000	1
154	W-71	BM	95	15	227	35	3.45	305	0.0	44	0.000	<1
155	W-73	BM	10	20	73	22	2.46	262	0.0	40	0.000	<1
156	W-74	BM	11	48	46	19	2.14	300	0.0	27	0.000	<1
157	W-75	BM	12	26	89	20	2.74	432	0.0	32	0.000	<1
158	W-76	BM	26	12	77	24	2.48	310	0.0	36	0.000	<1
159	W-77	BM	120	15	264	25	2.25	245	0.0	30	0.000	<1
160	W-79	BM	390	15	500	50	3.20	260	0.0	38	0.000	<1
161	W-81	BM	19	6	54	4	0.76	64	0.0	10	0.000	<1
162	W-82	BM	34	25	97	26	2.73	387	0.3	44	0.000	<1
163	W-83	BM	20	16	60	14	1.80	332	0.0	24	0.000	<1
164	W-84	BM	16	16	67	22	2.47	351	0.0	75	0.000	1
165	W-85	BM	33	22	74	46	2.94	710	1.7	45	0.000	<1
166	W-90	BM	56	13	73	15	1.24	98	0.0	19	0.000	<1
167	W-94	BM	36	82	102	44	3.64	336	0.1	83	0.000	<1
168	W-95	BM	52	12	92	134	4.00	446	0.0	300	0.000	<1
169	W-97	BM	32	12	82	712	5.28	866	0.0	1192	0.000	<1
170	W-98	BM	46	10	70	59	4.49	762	0.0	163	0.000	<1
171	W-99	SB	37	13	88	349	5.47	716	0.1	961	0.000	<1
172	W-100	SB	24	13	72	329	3.37	512	0.0	467	0.000	<1
173	W-102	SB	47	10	81	457	2.99	421	0.0	718	0.000	<1
174	W-105	BM	26	20	102	24	2.70	250	0.0	32	0.000	<1
175	W-106	BM	22	20	88	28	3.12	470	0.0	44	0.000	<1
176	W-107	BM	36	38	96	44	4.66	470	0.0	56	0.000	1
177	W-108	BM	66	6	132	54	2.78	354	0.0	44	0.000	<1
178	W-110	SB	35	19	75	16	2.67	561	0.0	55	0.000	1
179	W-111	BM	23	13	70	22	1.60	143	0.0	59	0.000	<1
180	W-112	BM	25	13	69	14	1.81	202	0.0	31	0.000	<1
181	W-113	BM	16	13	77	20	1.76	225	0.0	31	0.000	<1
182	W-114	BM	16	12	82	20	2.08	270	0.0	30	0.000	<1
183	W-115	SB	63	13	83	68	5.91	1155	0.2	200	0.000	<1
184	W-117	SB	34	16	52	47	3.71	553	0.0	165	0.000	<1
185	W-118	SB	49	10	67	71	4.06	1012	0.1	152	0.000	<1
186	W-119	BM	34	12	80	22	3.02	298	0.0	64	0.000	<1
187	W-121	SB	36	13	42	45	4.61	439	0.2	219	0.000	<1
188	W-122	SB	25	10	37	42	3.29	380	0.1	341	0.000	<1
189	W-123	SB	46	12	86	76	2.60	486	0.0	89	0.000	<1
190	W-124	SA	4	3	27	13	0.65	99	0.3	51	0.000	<1
191	W-125	SA	7	127	26	17	1.21	231	0.3	180	0.000	<1
192	W-126	SA	30	32	39	68	3.98	1178	1.6	84	0.000	<1
193	W-127	SA	22	32	31	72	3.26	1012	2.3	80	0.000	<1
194	W-128	SA	24	12	27	24	2.38	550	1.4	45	0.000	<1
195	W-129	SB	12	20	32	14	2.30	246	0.0	27	0.000	<1
196	W-131	UM	24	12	26	1722	5.68	784	0.1	6466	0.000	<1
197	W-133	HM	73	51	96	665	5.61	491	0.1	551	0.000	<1
198	W-135	HM	36	22	74	37	3.01	664	0.0	70	0.000	<1
199	W-136	BM	50	13	92	94	3.51	538	0.0	28	0.000	<1
200	W-140	UM	52	25	69	665	4.69	665	0.0	836	0.000	<1

Ser. No.	Sample No.	Geol. Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ni (ppm)	Fe (%)	Mn (ppm)	Ag (ppm)	Cr (ppm)	W (%)	Mo (ppm)
201	W-142	UM	40	16	60	449	3.28	403	0.1	455	0.000	<1
202	W-144	SA	39	10	37	260	3.67	603	0.0	501	0.000	<1
203	W-146	HM	32	20	86	46	3.74	520	0.0	94	0.000	<1
204	W-150	HM	33	25	77	35	3.08	472	0.0	76	0.000	<1
205	W-151	HM	53	29	76	40	3.32	630	0.0	80	0.000	<1
206	W-152	HM	48	25	91	36	2.94	466	0.0	68	0.000	<1
207	W-153	SB	33	10	69	151	5.78	487	0.0	766	0.000	<1
208	W-154	UM	62	25	86	763	4.69	887	0.0	1962	0.000	<1
209	H-01	SA	535	50	860	70	14.95	1465	0.0	1000	0.000	<1
210	H-02	SA	315	115	335	110	16.10	376	0.1	94	0.000	<1
211	H-04	SA	131	16	105	57	4.92	854	0.0	237	0.000	<1
212	H-06	SA	32	13	60	29	3.14	1915	0.5	115	0.000	1
213	H-08	SA	42	13	83	27	2.21	573	0.4	53	0.000	1
214	H-12	SB	130	6	90	150	2.12	322	1.1	724	0.000	<1
215	H-13	SB	125	12	108	144	4.82	722	0.0	558	0.000	<1
216	H-15	SA	90	12	82	48	3.44	746	0.1	80	0.000	<1
217	H-16	SB	210	6	106	36	3.08	824	0.1	94	0.000	<1
218	H-18	SA	27	6	67	32	2.26	496	0.3	45	0.000	1
219	H-19	SB	32	13	69	44	3.19	579	0.0	88	0.000	1
220	H-22	BL	54	20	122	126	4.30	698	0.0	269	0.000	<1
221	H-23	SA	51	19	78	68	3.90	675	0.1	158	0.000	<1
222	H-24	BL	158	20	170	54	3.78	556	0.1	128	0.000	<1
223	H-25	BL	44	6	87	44	4.39	743	0.1	535	0.000	<1
224	H-26	BL	36	16	82	48	3.57	555	0.2	118	0.000	<1
225	H-27	BL	66	29	104	77	4.56	8087	0.2	229	0.000	<1
226	H-29	BL	57	10	86	141	4.90	636	0.0	168	0.000	<1
227	H-30	BL	44	22	92	66	3.97	812	0.2	156	0.000	<1
228	H-31	BL	52	23	81	67	4.39	857	0.2	191	0.000	<1
229	H-32	BL	45	16	80	6	3.92	675	0.2	158	0.000	<1
230	H-33	BL	73	10	59	93	4.01	756	0.0	314	0.000	<1
231	H-34	BM	92	20	110	70	4.26	994	0.0	185	0.000	<1
232	H-35	BM	68	29	72	57	4.16	712	0.1	205	0.000	<1
233	H-36	BM	52	13	108	47	4.08	576	0.0	134	0.000	<1
234	H-37	BM	54	38	116	50	4.74	558	0.2	130	0.000	<1
235	H-38	BM	76	44	152	50	4.72	594	0.1	144	0.000	<1
236	H-39	BM	94	64	120	168	3.64	826	0.0	226	0.000	<1
237	H-40	BM	44	58	144	36	4.06	372	0.0	56	0.000	<1
238	H-42	BM	86	29	153	66	3.75	1424	0.0	128	0.001	<1
239	H-43	BM	39	26	83	45	3.81	619	0.1	121	0.000	<1
240	H-44	BM	101	32	114	53	3.97	1592	0.0	98	0.000	<1
241	H-45	BL	49	13	102	33	5.79	884	0.1	140	0.000	<1
242	H-46	BL	42	23	111	40	3.92	445	0.0	119	0.000	<1
243	H-47	BL	61	19	97	43	5.93	863	0.2	210	0.000	<1
244	H-48	BL	96	16	102	49	4.96	779	0.2	418	0.000	<1
245	H-49	BL	63	16	73	62	4.85	770	0.0	232	0.000	<1
246	H-50	BL	60	64	110	58	5.52	610	0.1	173	0.000	<1
247	H-51	BL	57	61	123	52	4.85	520	0.1	149	0.000	1
248	H-52	BL	52	38	93	43	4.04	462	0.1	118	0.000	1
249	H-53	BL	74	20	138	48	4.41	476	0.0	116	0.000	<1
250	H-54	BM	51	9	64	45	4.36	746	0.2	200	0.000	<1

Ser. No.	Sample No.	Geol. Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ni (ppm)	Fe (%)	Mn (ppm)	Ag (ppm)	Cr (ppm)	W (%)	Mo (ppm)
251	H-55	BM	32	28	87	33	3.67	410	0.1	85	0.002	<1
252	H-56	BM	45	41	129	40	4.23	461	0.2	85	0.000	1
253	H-57	BM	37	38	138	43	4.08	441	0.2	96	0.000	<1
254	H-58	BM	68	18	106	48	4.26	706	0.2	164	0.000	<1
255	H-59	BM	66	26	144	48	4.32	400	0.2	101	0.000	<1
256	H-60	BM	44	50	140	32	4.02	258	0.2	69	0.000	<1
257	H-61	BM	65	51	204	43	3.66	217	0.2	57	0.000	<1
258	H-62	BM	44	41	133	38	4.52	258	0.3	59	0.000	<1
259	H-64	BM	39	38	162	32	3.87	356	0.2	62	0.002	<1
260	H-65	BM	80	26	86	32	3.62	298	0.2	51	0.000	<1
261	H-66	BM	16	32	116	34	3.58	244	0.0	56	0.000	<1
262	H-67	BM	18	28	108	26	3.51	264	0.0	62	0.000	<1
263	H-68	BM	33	35	96	30	3.26	285	0.2	58	0.000	<1
264	H-69	BM	22	16	73	30	3.18	390	0.0	56	0.000	1
265	H-70	BM	21	16	57	18	2.00	312	0.1	39	0.000	<1
266	H-71	SA	24	3	90	38	2.64	692	0.3	92	0.000	<1
267	H-73	SA	22	16	61	39	2.45	488	0.6	53	0.001	1
268	H-74	SA	34	12	76	76	3.90	820	0.6	112	0.001	1
269	H-75	SA	36	13	85	66	4.78	600	0.6	55	0.000	<1
270	H-76	SA	24	6	92	48	2.86	506	0.5	55	0.000	<1
271	H-77	SA	28	16	89	34	2.09	476	0.3	44	0.000	<1
272	H-78	SA	33	16	59	31	1.96	408	0.3	49	0.000	<1
273	H-79	SA	41	19	84	51	3.21	551	0.6	78	0.001	1
274	H-80	SA	26	19	69	43	2.64	616	0.6	78	0.001	<1
275	H-81	SA	30	19	60	54	2.76	644	0.6	84	0.002	<1
276	H-82	SA	25	19	58	45	2.49	503	0.6	70	0.002	<1
277	H-83	SA	48	13	104	34	1.86	510	0.4	50	0.000	<1
278	H-85	SA	60	19	68	47	2.57	558	0.6	67	0.000	<1
279	H-86	SA	44	16	91	41	3.09	1264	0.4	130	0.000	<1
280	H-87	BL	42	19	101	50	3.76	1151	0.0	164	0.000	<1
281	H-88	SA	33	16	86	47	2.78	771	0.8	82	0.000	<1
282	H-89	SA	65	25	71	38	2.34	442	0.0	61	0.001	<1
283	H-90	SA	59	19	99	54	2.95	702	0.0	80	0.000	<1
284	H-91	SA	30	18	82	36	2.48	446	1.3	62	0.000	1
285	H-93	SB	63	16	81	43	3.82	1116	0.2	148	0.000	<1
286	H-95	SB	32	3	62	24	2.16	524	0.2	73	0.000	<1
287	H-96	SB	14	9	50	20	1.71	453	0.6	33	0.000	<1
288	H-97	SB	16	9	36	23	2.01	818	0.0	45	0.000	<1
289	H-98	SB	21	9	47	27	3.01	551	0.0	82	0.000	<1
290	H-99	SA	77	9	44	30	2.97	1356	0.2	117	0.000	<1
291	H-100	SB	26	19	72	26	2.74	411	0.3	58	0.000	<1
292	H-102	SB	17	6	48	81	3.47	373	0.1	158	0.000	<1
293	H-103	SB	24	6	48	46	2.66	692	0.6	137	0.000	<1
294	H-104	SA	15	1	44	135	2.92	329	0.0	376	0.000	<1
295	H-105	SA	35	9	57	47	1.89	551	0.7	90	0.000	<1
296	H-106	UM	48	3	66	204	2.90	780	0.5	193	0.000	<1
297	H-107	UM	49	13	65	355	3.24	997	0.7	408	0.000	<1
298	H-108	SB	32	3	60	289	5.00	610	0.2	796	0.002	<1
299	H-109	SB	38	3	66	608	4.08	726	0.0	574	0.000	<1
300	H-110	SB	44	6	82	460	5.36	658	0.0	1179	0.000	<1

Ser. No.	Sample No.	Geol. Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ni (ppm)	Fe (%)	Mn (ppm)	Ag (ppm)	Cr (ppm)	W (%)	Mo (ppm)
301	H-111	SB	20	6	212	358	15.27	1555	0.0	10565	0.000	<1
302	H-112	SB	22	6	44	868	3.50	562	0.2	500	0.000	<1
303	H-113	SA	38	3	46	270	4.42	432	0.0	454	0.000	<1
304	H-114	UM	80	9	73	597	3.50	524	0.0	416	0.000	<1
305	H-115	UM	51	6	40	123	2.92	387	0.0	326	0.000	<1
306	H-116	UM	46	6	58	417	4.01	610	0.0	524	0.000	<1
307	H-117	SA	30	6	54	264	3.74	500	0.1	254	0.000	<1
308	H-119	SA	30	12	78	124	5.82	562	0.0	374	0.000	<1
309	H-120	SA	48	6	84	36	5.26	610	0.0	158	0.000	<1
310	H-121	SA	35	13	58	39	3.63	432	0.3	99	0.000	<1
311	H-122	SA	28	6	80	39	5.93	517	0.1	214	0.000	<1
312	H-123	SA	35	9	48	73	4.25	408	0.0	407	0.000	<1
313	H-124	SA	29	9	76	36	4.89	610	0.0	136	0.000	<1
314	H-125	SA	66	6	38	80	3.86	364	0.1	455	0.001	<1
315	H-126	SA	55	6	26	129	3.36	312	0.1	586	0.001	<1
316	H-128	SB	30	3	66	34	1.96	322	0.0	96	0.000	<1
317	H-129	SB	16	3	32	18	1.39	199	0.0	49	0.000	<1
318	H-130	SB	45	13	83	339	4.97	620	0.0	938	0.000	<1
319	H-131	SB	32	12	56	24	4.52	402	0.0	99	0.000	<1
320	H-132	SB	22	18	82	140	3.36	544	0.0	268	0.000	<1
321	H-133	SB	16	6	64	132	0.03	422	0.0	185	0.000	<1
322	S-02	BM	52	12	96	42	4.22	1790	0.0	106	0.000	<1
323	S-03	BM	66	9	77	31	4.46	772	0.0	104	0.000	<1
324	S-04	BM	43	9	63	31	5.45	524	0.0	117	0.000	<1
325	S-05	BM	53	6	68	47	5.70	779	0.0	255	0.000	<1
326	S-06	BM	21	9	57	22	2.18	207	0.0	48	0.000	<1
327	S-07	BM	66	3	76	54	4.08	836	0.0	190	0.000	<1
328	S-08	BL	79	6	75	35	4.43	830	0.0	135	0.000	<1
329	S-09	BL	42	16	76	27	2.91	435	0.0	57	0.000	<1
330	S-10	HM	61	3	64	30	3.30	524	0.0	106	0.000	<1
331	S-12	BM	41	13	58	38	3.53	463	0.0	143	0.000	<1
332	S-13	BM	37	9	47	39	2.70	333	0.0	225	0.000	<1
333	S-14	MA	42	13	61	41	3.31	463	0.0	124	0.000	<1
334	S-15	MA	47	16	74	92	4.80	1381	0.1	255	0.000	<1
335	S-16	MA	38	6	54	58	4.04	731	0.0	256	0.000	<1
336	S-19	BM	128	28	106	58	6.43	575	0.1	79	0.000	<1
337	S-20	BM	49	9	67	37	5.51	643	0.0	79	0.000	<1
338	S-21	BM	68	9	68	39	3.99	551	0.1	88	0.000	<1
339	S-22	HM	40	9	59	48	3.04	565	0.0	125	0.000	<1
340	S-23	HM	40	9	105	43	2.64	456	0.0	130	0.000	<1
341	S-24	HM	32	13	59	35	2.58	381	0.1	55	0.000	<1
342	S-26	HM	55	6	53	123	3.96	449	0.0	434	0.000	<1
343	S-27	HM	39	9	44	51	3.68	510	0.0	156	0.002	<1
344	S-28	HM	70	12	86	46	3.72	682	0.0	290	0.000	<1
345	S-29	HM	34	9	54	33	2.53	486	0.0	88	0.000	<1
346	S-30	HM	16	2	74	20	2.20	269	0.1	39	0.000	<1
347	S-31	BL	33	22	80	169	3.45	656	0.0	198	0.000	<1
348	S-32	BM	19	6	64	27	2.68	197	0.1	324	0.000	<1
349	S-33	BM	19	12	35	28	2.22	289	0.0	251	0.000	<1
350	S-34	HM	18	6	37	20	1.75	160	0.0	192	0.000	<1

Ser. No.	Sample No.	Geol. Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ni (ppm)	Fe (%)	Mn (ppm)	Ag (ppm)	Cr (ppm)	W (%)	Mo (ppm)
351	S-35	BM	33	12	46	40	2.83	354	0.1	355	0.000	<1
352	S-36	BM	23	12	39	38	2.48	287	0.1	393	0.000	<1
353	S-38	BM	38	26	81	40	3.74	556	0.8	140	0.000	<1
354	S-39	BM	16	15	54	28	2.79	281	0.1	95	0.000	<1
355	S-40	BM	36	20	63	36	3.13	357	0.1	99	0.000	<1
356	S-41	BM	38	6	59	29	6.58	421	0.0	124	0.000	<1
357	S-43	BL	23	20	77	54	3.04	379	0.1	90	0.000	<1
358	S-44	BL	38	26	106	60	3.29	346	0.1	100	0.000	<1
359	S-45	BL	95	26	85	46	3.68	587	0.1	135	0.000	<1
360	S-47	BM	53	20	82	25	2.71	267	0.0	60	0.000	1
361	S-48	BM	49	20	95	163	2.71	716	0.2	250	0.000	<1
362	S-49	BM	30	20	89	32	2.89	402	0.0	64	0.000	1
363	S-51	BM	52	15	75	86	3.30	489	0.0	269	0.000	<1
364	S-52	BM	44	15	69	302	4.46	640	0.0	728	0.000	<1
365	S-53	HM	23	3	28	35	2.67	272	0.0	390	0.000	<1
366	S-55	UM	35	12	60	309	3.61	621	0.0	403	0.000	<1
367	S-57	UM	48	15	56	722	4.34	1174	0.0	151	0.000	<1
368	S-58	UM	71	9	66	634	4.42	910	0.0	531	0.000	<1
369	S-59	UM	69	17	76	838	6.16	1078	0.0	762	0.000	<1
370	S-61	UM	29	15	62	48	2.92	422	0.0	105	0.000	1
371	S-62	BM	21	23	120	286	3.81	397	0.1	202	0.000	<1
372	S-63	UM	23	15	51	1920	6.11	994	0.0	2086	0.000	<1
373	S-64	UM	39	17	97	183	3.81	758	0.0	445	0.002	<1
374	S-65	UM	60	41	89	166	4.35	722	0.4	224	0.000	1
375	S-66	HM	70	26	107	69	3.79	697	0.2	93	0.001	<1
376	S-67	UM	40	18	86	732	5.32	716	0.0	1143	0.000	<1
377	S-68	HM	36	32	97	130	3.52	417	0.0	159	0.002	<1
378	S-69	UM	32	24	92	244	4.04	544	0.0	249	0.000	<1
379	S-71	SB	21	11	46	609	4.27	564	0.1	552	0.000	<1
380	S-73	SB	12	6	48	273	3.20	461	0.0	755	0.000	<1
381	S-74	SB	18	12	22	598	3.40	572	0.2	545	0.000	<1
382	S-77	SB	52	6	80	30	5.94	594	0.0	131	0.000	<1
383	S-78	SB	18	12	68	196	4.60	434	0.0	414	0.000	<1
384	S-79	SB	12	6	53	250	3.68	419	0.1	603	0.000	<1
385	S-80	SB	16	12	62	1094	4.38	572	0.0	794	0.000	<1
386	S-83	UM	14	17	45	1370	4.79	639	0.2	2731	0.000	<1
387	S-84	UM	12	20	39	1986	4.93	728	0.3	2301	0.000	<1
388	S-85	UM	22	17	42	1703	4.82	683	0.3	1034	0.000	<1
389	S-86	UM	21	15	45	1761	4.79	719	0.2	2301	0.000	<1
390	S-87	UM	18	82	60	1568	5.14	700	0.0	1876	0.000	<1
391	S-88	UM	18	9	56	181	3.79	386	0.0	200	0.000	<1
392	S-90	SB	22	6	236	462	9.34	922	0.0	11120	0.000	<1
393	S-92	SB	26	12	126	202	8.00	884	0.1	1052	0.000	<1
394	S-93	SB	16	12	80	286	5.78	594	0.0	1403	0.000	<1
395	S-94	SB	13	12	49	2288	4.81	589	0.0	1055	0.000	<1
396	S-95	SB	14	12	44	1072	4.13	669	0.0	976	0.000	<1
397	S-96	SB	22	9	61	988	4.47	619	0.0	1366	0.000	<1
398	S-98	SB	24	36	80	700	5.46	934	0.0	2976	0.000	<1
399	S-100	SB	27	9	46	359	3.67	614	0.0	1034	0.000	<1
400	S-101	SB	21	6	64	327	4.61	556	0.0	2426	0.000	<1

Ser. No.	Sample No.	Geol. Unit	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ni (ppm)	Fe (%)	Mn (ppm)	Ag (ppm)	Cr (ppm)	W (%)	Mo (ppm)
401	S-102	SB	18	6	98	79	6.45	625	0.0	301	0.000	<1
402	S-103	SB	25	6	89	209	4.79	631	0.0	883	0.001	<1
403	S-104	SB	26	9	87	211	4.85	600	0.0	893	0.002	<1
404	S-105	SB	23	9	87	170	5.91	647	0.0	1266	0.002	<1
405	S-108	SB	26	9	94	79	7.24	681	0.1	328	0.007	<1
406	S-109	SB	27	9	40	497	3.25	439	0.1	455	0.004	<1
407	S-111	HM	37	18	47	27	2.67	464	0.0	56	0.002	<1
408	S-113	HM	26	9	41	31	2.15	394	0.0	47	0.002	<1
409	S-114	HM	46	6	68	36	3.70	606	0.0	128	0.002	<1
410	Y-01	UM	32	12	82	92	3.90	634	0.0	170	0.000	<1
411	Y-02	UM	46	21	74	900	5.16	1353	0.0	1448	0.002	<1
412	Y-03	BL	33	18	75	55	3.66	631	0.0	95	0.001	<1
413	Y-04	BL	31	18	75	49	3.55	647	0.0	88	0.001	<1
414	Y-05	BM	34	18	84	56	3.90	612	0.0	89	0.001	<1
415	Y-06	BM	26	9	59	48	2.64	522	0.0	78	0.002	<1
416	Y-07	BM	38	21	79	56	3.69	608	0.0	90	0.001	<1
417	Y-08	BM	28	15	55	36	2.45	578	0.0	70	0.001	<1
418	Y-09	BM	28	15	64	50	3.30	575	0.0	87	0.000	<1
419	Y-10	BM	28	12	67	50	3.22	597	0.1	97	0.000	<1
420	Y-11	BM	36	24	94	60	4.24	644	0.1	82	0.000	<1
421	Y-12	BM	37	21	76	57	3.77	764	0.2	124	0.000	<1
422	Y-13	BM	30	12	68	53	3.14	542	0.0	78	0.000	<1

Table A-8 List of Heavy Mineral Samples

Abbreviations

Cr : Chromite
Mt : Magnetite
Py : Pyrite
Hm: Hematite

Ga : Garnet
Px : Pyroxene
Ser : Sericite
Qz : Quartz

Megascopic Features

Group -1. black with luster
-2. black without luster
-3. iron-black, magnetic
-4. brass-yellow, granular
-5. black, xenomorphic
-6. brown, xenomorphic
-7. white, transparent

Group -8. pink, transparent
-9. green ~ brown, transparent
-10. greenish grey, brown, opaque
-11. silver white, flake
-12. colorless, transparent
-13. brown, transparent

in gram

Sample No.	1	2	3	4	5	6	7	8	9	10	11	12	13
	Cr		Mt	Py-Hm			Ga		Px		Se	Qz	
F-01H	0.00	0.17	0.06	0.02	0.18	0.13	0.64	0.00	0.31	0.15	0.00	0.00	0.40
F-05H	0.00	0.19	0.24	0.00	0.09	0.57	0.43	0.00	0.38	0.28	0.00	0.00	1.38
F-07H	0.27	0.67	1.21	0.00	1.62	1.35	0.81	0.00	1.35	0.94	0.13	0.66	3.23
F-12H	0.00	0.68	1.58	0.45	0.68	0.23	2.71	0.00	3.16	1.58	0.20	0.14	2.93
F-16H	0.00	0.00	0.74	0.00	0.74	2.22	2.96	0.00	0.74	1.48	0.44	0.74	7.40
F-18H	0.00	0.00	1.27	0.00	0.64	2.54	3.18	0.00	1.91	1.27	0.50	0.50	3.81
F-23H	0.00	0.00	0.00	0.00	1.34	2.68	8.03	0.00	0.00	0.00	0.49	0.99	2.68
F-27H	0.16	1.12	3.05	0.00	0.80	0.32	0.64	0.00	0.80	0.80	0.64	0.64	0.80
F-28H	0.00	0.42	0.00	0.00	1.67	2.09	6.27	0.00	0.42	0.84	0.24	0.46	2.93
F-30H	0.00	0.00	0.36	0.00	2.16	1.08	3.95	0.00	1.08	0.36	0.41	0.93	2.88
F-32H	0.00	0.38	1.14	0.00	2.27	3.03	6.06	0.00	0.00	1.89	0.29	0.85	3.79
F-34H	0.00	0.00	0.00	0.00	0.69	7.59	3.45	0.00	0.00	2.07	0.30	0.34	6.90
F-38H	0.00	0.00	0.00	0.00	1.49	2.13	2.13	0.00	1.71	0.21	0.10	0.39	6.61
F-46H	0.26	1.30	1.30	0.00	1.56	0.78	3.13	0.00	1.30	2.09	0.25	0.21	2.35
F-47H	0.00	1.53	0.00	0.00	1.53	2.45	2.76	0.00	3.07	0.31	0.31	0.36	6.44
F-52H	0.00	1.25	0.47	0.00	0.31	0.63	4.84	0.00	2.66	1.56	0.30	0.46	3.12
F-53H	0.00	0.00	0.68	0.00	0.34	1.01	2.37	0.00	2.37	3.04	0.12	0.48	5.07
F-65H	0.00	0.00	0.20	0.40	0.79	0.00	9.87	0.20	2.17	0.00	0.48	0.84	1.78
F-73H	0.13	0.13	0.50	0.13	1.26	1.01	4.40	0.25	3.64	0.25	0.32	0.40	1.76
F-78H	0.00	0.00	0.00	0.12	0.59	1.07	0.95	0.00	0.83	0.36	0.00	0.34	0.36
F-91H	0.39	0.00	0.39	0.00	2.34	0.78	4.29	0.39	3.90	1.95	0.27	0.37	4.29
F-95H	0.00	0.00	0.00	0.00	2.20	0.00	4.77	0.00	1.10	2.57	0.30	0.45	4.40
F-97H	0.00	0.00	0.38	0.19	2.44	0.75	3.56	0.00	1.69	0.19	0.40	0.88	3.56
F-102H	0.00	1.19	0.30	0.89	2.68	1.79	3.87	0.00	1.49	2.08	0.28	0.53	3.87
F-124H	0.56	0.28	1.13	0.28	1.41	1.41	3.67	0.00	1.13	0.28	0.14	0.57	2.26
F-126H	0.21	0.42	0.00	0.21	0.21	0.21	1.47	0.00	1.05	1.47	0.10	0.26	4.40
F-130H	0.00	0.39	1.16	0.58	0.97	0.39	6.00	0.00	1.94	1.16	0.29	0.24	3.87
F-140H	0.00	0.46	0.46	0.26	0.26	0.26	2.38	0.00	0.86	0.40	0.00	0.00	1.06
F-142H	0.15	0.30	0.00	0.00	0.15	0.30	0.90	0.00	1.35	1.50	0.09	0.00	2.70
F-147H	0.16	0.53	0.32	0.11	0.32	0.26	0.85	0.00	1.48	0.11	0.00	0.00	0.95
F-151H	0.05	0.16	1.14	0.47	0.47	0.31	0.88	0.00	1.09	0.52	0.00	0.00	0.67
F-153H	0.09	0.09	0.18	0.18	0.00	0.18	1.86	0.00	1.33	0.18	0.00	0.00	1.06

in gram

Sample No.	1	2	3	4	5	6	7	8	9	10	11	12	13
	Cr		Mt	Py-Hm			Ga		Px		Se	Qz	
H-01H	0.00	0.02	0.02	0.00	0.04	0.01	0.41	0.00	0.02	0.12	0.00	0.00	0.06
H-03H	0.01	0.00	0.02	0.00	0.03	0.02	0.02	0.00	0.03	0.05	0.00	0.00	0.00
H-05H	0.01	0.00	0.06	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
H-08H	0.00	0.02	0.14	0.01	0.01	0.01	0.02	0.00	0.05	0.00	0.00	0.00	0.00
H-09H	0.03	0.02	0.09	0.00	0.01	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00
H-14H	0.03	0.02	0.13	0.00	0.01	0.03	0.08	0.01	0.04	0.00	0.00	0.00	0.00
H-16H	0.06	0.04	0.18	0.00	0.00	0.07	0.05	0.03	0.04	0.00	0.00	0.00	0.00
H-18H	0.01	0.01	0.11	0.00	0.03	0.03	0.05	0.00	0.07	0.07	0.00	0.00	0.00
H-19H	0.08	0.08	0.78	0.00	0.05	0.05	0.13	0.00	0.06	0.00	0.00	0.03	0.05
H-20H	0.05	0.02	0.17	0.00	0.19	0.08	0.06	0.00	0.03	0.00	0.00	0.00	0.00
H-22H	0.04	0.01	0.08	0.00	0.01	0.03	0.10	0.00	0.09	0.02	0.00	0.00	0.00
H-23H	0.00	0.00	0.02	0.01	0.08	0.05	0.05	0.00	0.03	0.04	0.00	0.00	0.00
H-24H	0.00	0.00	0.00	0.05	0.06	0.02	0.09	0.00	0.02	0.03	0.01	0.00	0.01
H-26H	0.00	0.00	0.02	0.02	0.03	0.01	0.00	0.00	0.04	0.00	0.00	0.00	0.00
H-27H	0.00	0.01	0.00	0.06	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H-30H	0.03	0.06	0.16	0.00	0.08	0.05	0.09	0.01	0.05	0.00	0.00	0.00	0.03
H-31H	0.03	0.00	0.00	0.00	0.13	0.11	0.27	0.00	0.13	0.05	0.00	0.00	0.00
H-37H	0.06	0.00	0.15	0.00	0.27	0.11	0.08	0.00	0.26	0.00	0.00	0.00	0.00
H-40H	0.01	0.01	0.11	0.03	0.20	0.06	0.07	0.00	0.10	0.00	0.00	0.00	0.26
H-41H	0.32	0.14	0.22	0.00	0.00	0.00	0.10	0.00	0.06	0.00	0.00	0.00	0.00
H-42H	0.44	0.11	0.51	0.00	0.15	0.15	0.22	0.00	0.62	0.00	0.00	0.13	0.11
H-44H	0.13	0.00	0.25	0.00	0.03	0.00	0.32	0.00	0.16	0.00	0.22	0.00	0.00
H-45H	0.38	0.19	0.85	0.00	0.00	0.00	0.11	0.00	0.22	0.11	0.00	0.08	0.05
H-46H	0.03	0.07	0.59	0.00	0.29	0.07	0.16	0.00	0.07	0.33	0.06	0.00	0.10
H-47H	0.74	0.19	2.78	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
H-48H	0.50	0.17	2.02	0.00	0.17	0.04	0.21	0.00	0.25	0.08	0.00	0.13	0.12
H-49H	0.20	0.20	2.80	0.05	0.00	0.00	0.10	0.00	0.43	0.00	0.00	0.10	0.00
H-52H	0.00	0.00	0.00	0.02	0.12	0.02	0.26	0.02	0.38	0.05	0.00	0.00	0.00
H-53H	0.11	0.15	0.22	0.00	0.29	0.11	0.63	0.04	0.67	0.00	0.00	0.14	0.00
H-54H	0.46	0.10	0.21	0.01	0.18	0.07	0.09	0.01	0.24	0.06	0.00	0.09	0.00
H-55H	0.07	0.56	0.11	0.00	0.22	0.07	0.30	0.00	0.26	0.22	0.07	0.11	0.00

in gram

Sample No.	1	2	3	4	5	6	7	8	9	10	11	12	13
	Cr		Mt	Py-Hm			Ga		Px		Sc	Qz	
S-01H	0.04	0.06	0.37	0.01	0.05	0.02	0.05	0.00	0.16	0.01	0.00	0.00	0.07
S-11H	0.30	0.38	0.98	0.98	0.53	0.53	1.20	0.00	1.80	0.23	0.15	0.44	0.90
S-17H	0.31	0.31	0.31	0.00	1.26	0.63	2.83	0.00	2.83	1.26	0.31	0.78	1.57
S-18H	0.48	1.92	1.68	1.92	0.72	1.44	0.72	0.00	1.68	0.24	0.00	0.64	0.48
S-25H	0.00	0.00	0.11	0.00	0.00	0.11	0.34	0.00	0.56	0.00	0.00	0.28	0.79
S-37H	0.00	0.40	1.60	0.60	1.40	0.60	2.19	0.00	1.60	1.00	0.53	1.38	1.40
S-42H	0.00	0.10	0.00	0.00	0.42	0.31	1.04	0.00	0.63	0.00	0.00	0.14	0.31
S-46H	0.00	0.00	0.00	0.00	1.72	0.29	0.86	0.00	0.57	1.15	0.40	0.96	0.57
S-50H	0.35	0.17	2.09	0.09	0.26	0.52	1.22	0.00	0.87	1.04	0.17	0.44	0.09
S-60H	0.00	0.00	0.00	0.00	1.00	1.20	2.00	0.00	1.60	0.60	0.21	0.56	1.80
S-70H	0.48	0.24	0.71	0.00	0.95	1.19	1.90	0.00	0.95	2.86	0.10	0.60	1.19
S-72H	0.05	0.04	0.10	0.00	0.02	0.02	0.05	0.00	0.07	0.06	0.00	0.00	0.02
S-75H	0.09	0.04	0.08	0.00	0.02	0.02	0.10	0.00	0.11	0.02	0.00	0.00	0.03
S-76H	0.73	0.18	0.55	0.00	0.09	0.09	0.18	0.00	0.41	0.04	0.00	0.00	0.02
S-81H	0.08	0.00	0.11	0.00	0.16	0.11	0.29	0.00	0.32	0.16	0.00	0.00	0.29
S-82H	0.65	0.08	1.65	0.00	0.04	0.04	0.23	0.00	0.65	0.04	0.00	0.24	0.27
S-89H	0.12	0.03	0.28	0.00	0.01	0.00	0.02	0.00	0.16	0.02	0.00	0.00	0.03
S-97H	0.41	0.72	1.64	0.00	1.02	0.20	2.05	0.00	4.50	1.64	0.51	0.89	2.25
W-01H	0.02	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.01
W-07H	0.10	0.01	0.03	0.03	0.04	0.10	0.03	0.00	0.02	0.00	0.00	0.00	0.00
W-19H	0.04	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W-21H	0.10	0.04	0.05	0.02	0.01	0.01	0.08	0.00	0.01	0.03	0.00	0.00	0.02
W-22H	0.04	0.03	0.03	0.00	0.00	0.01	0.03	0.01	0.01	0.01	0.00	0.00	0.00
W-31H	0.00	0.00	0.00	0.01	0.02	0.02	0.03	0.00	0.01	0.00	0.00	0.00	0.00
W-37H	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
W-55H	0.00	0.02	0.00	0.02	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00
W-67H	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.01
W-80H	0.00	0.00	0.00	0.02	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00
W-86H	0.00	0.00	0.01	0.04	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
W-89H	0.11	0.06	0.36	0.05	0.00	0.02	0.02	0.00	0.05	0.00	0.00	0.00	0.01

in gram

Sample No.	1	2	3	4	5	6	7	8	9	10	11	12	13
	Cr		Mt	Py-Hm			Ga		Px		Se	Qz	
W-91H	0.01	0.01	0.01	0.00	0.01	0.01	0.21	0.00	0.07	0.00	0.00	0.00	0.00
W-109H	0.05	0.04	0.04	0.04	0.16	0.02	0.04	0.00	0.06	0.03	0.00	0.00	0.02
W-120H	0.02	0.01	0.27	0.06	0.07	0.04	0.22	0.03	0.22	0.02	0.00	0.00	0.00
W-132H	0.15	0.09	0.22	0.00	0.04	0.00	0.00	0.00	0.13	0.03	0.00	0.00	0.04
W-134H	0.10	0.04	0.09	0.06	0.06	0.03	0.06	0.06	0.09	0.01	0.00	0.07	0.01
W-137H	0.25	0.07	0.62	0.01	0.04	0.03	1.08	0.01	0.13	0.02	0.00	0.00	0.00
W-141H	0.12	0.06	0.24	0.00	0.13	0.07	0.03	0.00	0.22	0.00	0.06	0.00	0.03
W-143H	0.03	0.02	0.05	0.00	0.01	0.00	0.01	0.01	0.03	0.00	0.00	0.00	0.00
W-149H	0.06	0.04	0.05	0.00	0.03	0.05	0.06	0.01	0.03	0.02	0.04	0.00	2.07
Y-01H	0.00	0.19	0.10	0.00	0.68	0.58	0.68	0.00	1.07	0.10	0.14	0.39	0.97
Y-02H	0.00	0.18	0.24	0.00	0.30	0.36	0.66	0.00	0.60	0.30	0.00	0.00	0.78
Y-03H	0.00	0.18	0.10	0.10	0.45	0.18	1.35	0.00	0.72	0.00	0.00	0.32	0.63

Identification of Heavy Minerals

Group	X-Ray Diffractive Analysis														Polished Section					Thin Section									
	G	Mt	Py	Hm	Ge	Le	Sp	Ga	Px	Hb	Se	Pl	Qz	Ch	Ca	Cr	Mt	Py	Hm	Sp	Ga	Px	Se	Pl	Qz	Ch	Ca	R	
1	○	•	•	•						•		•			○	•													
2	○		•	•								•			○		•	•											
3		○		•			•					•			•	○													
4			○	•	•	•						•					•	○											
5		•	○	○			•			•	•	•				•	○	○											
6			○									•					○	•											
7							○			•	•									○	•		•	•					
8							○					•				○	•												
9								○				•									○		•	•					
10								○				•	•	•							○		•	•				•	
11										○		•	•									○		•	•				
12												•	○											○					
13												•	○		•							•	•	○		•			
14*															○	•	•	○											

* Whole heavy minerals of the sample No. S-89H.

○ : abundant, • : rare

Abbreviation

Cr: Chromite

Sp: Spinel

Qz: Quartz

Mt: Magnetite

Ga: Garnet

Ch: Chlorite

Py: Pyrite

Px: Pyroxene

Ca: Calcite

Hm: Hematite

Hb: Hornblend

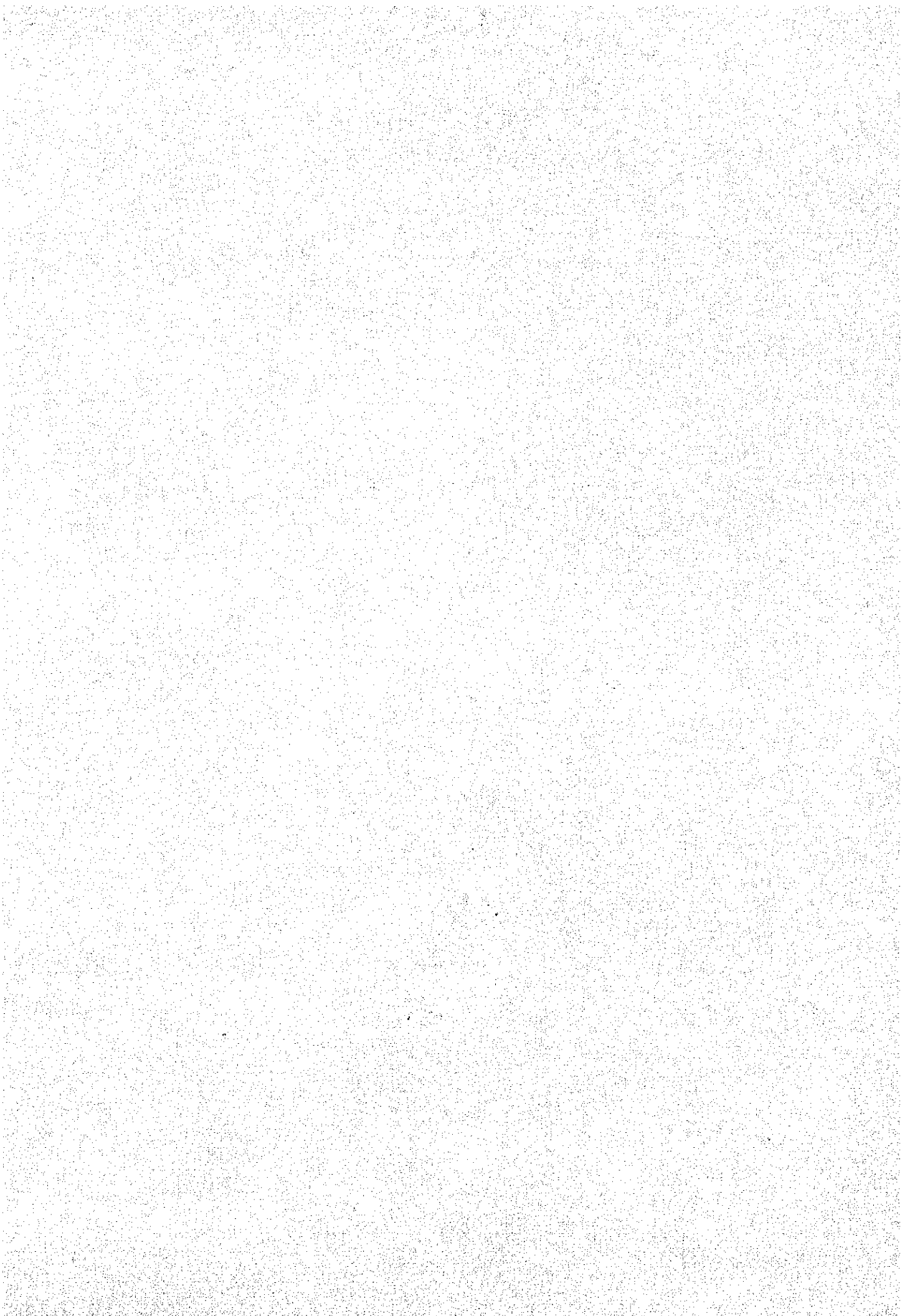
R: Rock fragments

Ge: Geothite

Se: Sericite

Le: Lepidocrocite

Pl: Plagioclase



JICA