APPENDICES

Appendix 1

Descriptions for thin sections of typical rock facies in the Rakah area

Geologic unit : Tectonites
Rock name : Harzburgite (Hz)
Sample number : M008
Texture : Porphyroclastic and mesh textures
Descriptions : Rock consists of olivine and subordinate orthopyroxene and chromite. Olivine is completely altered to serpentine and magnetite, and exhibites mesh texture. Subhedral and anhedral orthopyroxene (enstatite) is 0.4 to 3 m/m in grain size and presents exsolution lamellae of clinopyroxene. Orthopyroxene is mostly altered to serpentine, chlorite and small amounts of magnetite and tremolite.

Geologic unit : Cumulate Sequence (Cg)
Rock name : Clinopyroxene gabbro
Sample number : M017
Texture : Orthocumulus texture
Descriptions : Cumulus phase consists of euhedral to subhedral plagioclase and augite. Augite is 1 to 1.5 m/m in grain size and is slightly altered to amphibole and chlorite. Post-cumulus phase consists of anhedral plagioclase, augite and subordinate olivine, apatite and opaque minerals. Augite exhibites locally poikilitic texture. Plagioclase is altered locally to sericite and calcite. Olivine is decomposed to serpentine and magnetite.

Geologic unit : High-level Gabbro (Hg)
Rock name : Clinopyroxene gabbro
Sample number : N011
Texture : Porphyritic texture
Descriptions : Rock consists of plagioclase, hornblende, augite and subordinate apatite and opaque minerals. Numerous euhedral to subhedral plagioclase grains are 0.2 to 1.5 m/m in size and are marked by sericitization. Green euhedral to subhedral hornblende, 0.3 to 2.5 m/m in grain size, is partially altered to chlorite. The rock is strongly altered and presents chlorite, amphibole, sericite, epidote, sphene, hematite and limonite.

Geologic unit : Sheeted-dyke Complex (Sd)
Rock name : Dolerite (dyke)
Sample number : M016
Texture : Glomeroporphyritic texture
Descriptions : Rock is mainly composed of plagioclase and mafic minerals with minor opaque minerals. Plagioclase is euhedral to subhedral, 0.3 to 1.2 m/m in grain size, and shows zoning structure. Mafic minerals are altered completely to chlorite, epidote and calcite. Alteration minerals are epidote, chlorite, calcite and subordinate sphene.

Geologic unit : Lower Volcanic Rocks (Lower Extrusives I)
Rock name : Pillow lava
Sample number : M032
Texture : Intersertal texture
Descriptions : Rock is altered completely and the original structure is not clear. Phenocrysts consist of plagioclase and mafic minerals. Plagioclase is altered mostly to quartz and epidote. Mafic minerals are mostly replaced with smectite, chlorite, epidote calcite and opaque minerals.

Geologic unit : Lower Volcanic Rocks (Lower Extrusives II)
Rock name : Andesitic pillow lava
Sample number : M015
Texture : Glomeroporphyritic texture
Descriptions : Phenocrysts consist of augite and subordinate plagioclase. Euhedral to subhedral and prismatic augite, 0.4 to 0.6 m/m in grain size, shows undulatory extinction and is altered to chlorite and epidote. Euhedral plagioclase is 0.4 m/m in grain size. Groundmass consists mainly of laths of plagioclase, augite, glass and opaque minerals. Glass is altered to chlorite, epidote, albite and smectite. Opaque minerals are probably iron oxide minerals and are partially oxidized to hematite.

Geologic unit : Middle Volcanic Rocks (M)
Rock name : Doleritic massive lava
Sample number : M005
Texture : Subophitic texture
Descriptions : Phenocrysts consist of euhedral plagioclase, 0.5 to 2.0 m/m in grain size, and subordinate euhedral to subhedral augite, 1.0 m/m in grain size. Plagioclase is altered to calcite and chlorite. Groundmass is composed of lath of plagioclase, augite and subordinate opaque minerals. Carbonetes, smectite, chlorite, sphene and epidote are the secondary minerals.

Geologic unit : Middle Volcanic Rocks (M)
Rock name : Basaltic pillow lava
Sample number : M003
Texture : Intersertal texture
Descriptions : Phenocrysts consist of plagioclase and augite. Euhedral plagioclase, 0.5 to 1.5 m/m in grain size, is prismatic. Small amounts of euhedral to subhedral augite are 0.5 m/m in grain size. Groundmass includes plagioclase, augite and subordinate titan-augite, hyperthene and iron oxide minerals. Carbonates and subordinate chlorite, epidote and smectite are the secondary minerals.

Geologic unit : Intrusive Rocks (I)
Rock name : Dolerite
Sample number : M031
Texture : Ophitic texture
Descriptions : Phenocrysts consist of euhedral plagioclase, 0.2 to 2.0 m/m in grain size, and subhedral augite, 0.4 to 0.6 m/m in grain size. Augite exhibites undulatory extinction. Groundmass is intensely altered and iron minerals are partially oxidized to hematite.

Appendix 2

Results of chemical analyses for petrochemical studies and C. I. P. W. norm calculation

Results of whole rock chemical analyses

Ser. No.	Sample No.	Coodinates		Geol. *1 Unit	Rock Name	MAJOR COMPONENTS (%)														Remarks
		N (km)	E (km)			SiO_2	TiO_2	Al_2O_3	Fe_2O_3*2	MnO	MgO	CaO	Na_2O	K_2O	BaO*3	P_2O_5	LOI*4	CO_2	Total	
1	M003	2,618.723	453.108	Me	basalt	43.82	0.48	14.83	7.28	0.10	4.59	16.36	3.75	0.08	17	0.05	9017	5.09	100.21	calcareous
2	M005	2,619.150	452.857	Me	dolerite	43.68	1.19	14.34	10.19	0.21	5.65	11.70	4.15	0.12	40	0.11	1089	1.09	100.23	
3	M011	2,618.724	454.245	Hg	hb-cpx gabbro	48.23	0.38	14.92	7.35	0.12	10.44	12.12	2.04	0.39	16	0.02	4034	0.43	100.35	
4	M012	2,618.638	454.222	Sd	dolerite	51.75	0.72	15.77	10.54	0.17	3.71	14.14	0.16	0.03	4	0.05	3017	0.10	100.21	
5	M015	2,619.830	453.344	LII	andesite	54.52	0.31	14.91	9.12	0.08	6.80	5.56	5.39	0.19	13	0.01	3.07	0.00	99.96	
6	M016	2,617.975	457.542	Sd	andesite	52.48	0.63	14.73	9.49	0.16	8.20	5.86	3.34	0.29	3	0.06	4.74	0.16	100.18	
7	M017	2,618.985	457.200	Cg	cpx gabbro	48.28	0.15	14.45	4.85	0.10	11.85	15.45	1.42	0.07	3	0.00	3.77	0.23	100.39	
8	M018	2,618.950	457.236	L'	andesite	54.77	0.48	14.57	11.64	0.15	6.04	6.49	1.01	0.05	2	0.05	4.72	0.06	99.97	
9	M020	2,618.365	457.172	LII	basalt	50.16	0.21	10.68	6.64	0.27	6.16	13.29	2.75	0.55	29	0.02	9.12	6.33	99.85	
10	M022	2,618.938	458.642	Me	andesite	55.32	0.72	14.83	9.11	0.10	4.90	6.65	3.32	0.11	8	0.06	4.87	0.15	99.99	
11	M023	2,618.440	458.925	Me	basalt	51.21	0.66	14.80	8.32	0.16	7.40	7.09	4.56	0.29	22	0.05	5.42	1.35	99.96	
12	M024	2,618.314	458.596	LI	basalt	50.11	1.23	16.13	10.29	0.19	5.15	7.57	4.18	0.58	34	0.12	4.34	0.20	99.89	
13	M031	2,618.249	457.534	L'	dolerite	50.32	1.11	15.42	9.91	0.22	4.75	8.97	4.52	0.69	45	0.10	4.48	1.58	100.49	
14	M032	2,617.977	457.502	LI	andesite	52.18	0.84	14.42	10.22	0.18	7.35	6.04	2.13	0.76	18	0.06	5.83	0.17	100.03	
15	M034	2,619.127	453.198	LI	andesite	61.46	0.61	9.92	12.82	0.04	8.06	0.67	0.24	0.07	12	0.01	6.14	0.24	100.04	altered, silicified
16	MJO-A4 44.20	2,618.676	453.458	LII	andesite	52.71	0.50	15.77	7.98	0.09	6.78	5.58	5.61	0.07	14	0.05	4.69	0.36	99.83	
17	MJO-A4 143.70	2,618.676	453.458	LI	basalt	47.12	0.45	16.02	6.75	0.13	9.50	9.03	2.22	1.36	42	0.03	7.16	0.60	99.77	
18	MJO-A1 63.70	2,618.742	453.434	LII	basalt	51.92	0.52	16.91	7.73	0.08	6.10	7.13	5.26	0.41	30	0.06	4.26	0.23	100.38	
19	MJO-A1 172.00	2,618.742	453.434	LI	basalt	46.55	0.26	12.77	8.49	0.09	12.35	11.71	0.49	0.11	6	0.01	7.22	0.62	100.05	
20	MJO-B5 23.50	2,618.700	457.404	LII	basalt	49.01	0.27	14.05	7.84	0.11	8.04	11.43	2.22	0.96	30	0.04	6.01	2.09	99.98	
21	MJO-B5 79.20	3,618.700	457.404	LI	basalt	45.64	0.33	15.49	9.47	0.10	8.97	8.28	1.78	1.22	22	0.03	8.29	0.30	99.60	
22	MJO-B5 136.10	2,618.700	457.404	LI	basalt	50.77	1.09	15.22	9.64	0.26	6.66	6.51	4.84	0.16	18	0.10	4.40	0.36	99.29	
23	MJO-B3 55.20	2,618.784	457.526	LII	basalt	51.91	0.45	15.54	8.33	0.09	4.79	9.83	4.25	0.17	15	0.04	4.39	0.30	99.79	
24	MJO-B3 147.70	2,618.784	457.526	LI	basalt	50.05	1.19	16.08	10.06	0.17	5.21	4.84	3.81	0.92	37	0.11	4.47	0.43	99.91	
25	MJO-B4 101.20	2,618.723	457.358	LI	basalt	49.49	0.30	13.42	8.20	0.09	10.09	8.93	1.50	0.94	22	0.01	6.87	0.39	99.84	
26	MJO-B6 85.90	2,618.631	457.405	LI	basalt	49.22	0.76	16.83	9.27	0.18	5.95	7.64	5.10	0.11	16	0.10	5.09	0.68	100.25	
27	N011	2,618.782	453.194	LII	andesite	57.48	0.21	12.67	8.96	0.07	7.02	6.00	3.61	0.51	18	0.01	3.62	0.50	100.16	
28	MJO-B2 52.20	2,618.772	457.385	LII	andesite	57.07	0.28	12.13	7.22	0.10	6.05	9.66	3.02	0.48	19	0.04	3.90	0.95	99.95	
29	MJO-A2 136.00	2,618.698	4553.296	LI	basalt	51.85	10.64	15.92	10.58	0.17	6.47	3.29	5.81	0.13	38	0.16	4.33	0.16	100.35	
30	MJO-A5 17.50	2,618.792	453.296	LII	basalt	47.60	0.25	11.89	8.36	0.19	15.45	7.81	0.40	0.08	99	0.01	7.91	0.10	99.95	

*1 : Abbreviations are shown in Fig. II-3-1. *2 : Total iron as Fe_2O_3 *3 : PPM *4 : Ignition loss

Results of C. I. P W. norm calclation

Ser. No.	Sample No.	Geol.*1 Unit	q	c	or	ab	an	ne	ac	ns	ks	wo	diwo	dien	difs	hyen	olfo	olfa	mt	hm	il	tn	pf	ru	ap	cc	pr	Total FeO	S.I.*2	F.M.I.*3
1	M003	Me	0.00	0.00	0.47	30.30	22.58	0.77	0.00	0.00	0.00	0.00	9.54	5.43	3.71	0.00	4.21	3.17	2.12	0.00	0.91	0.00	0.00	0.00	0.12	11.58	0.00	6.55	30.65	1.43
2	M005	Me	0.00	0.00	0.71	31.31	20.15	2.06	0.00	0.00	0.00	0.00	12.36	6.88	4.99	0.00	5.04	4.03	2.96	0.00	2.26	0.00	0.00	0.00	0.25	2.48	0.00	9.18	29.59	4.62
3	M011	Hg	0.00	0.00	2.30	17.25	30.40	0.00	0.00	0.00	0.00	0.00	11.11	7.76	2.42	2.94	6.16	2.11	2.13	0.00	0.72	0.00	0.00	0.00	0.05	0.98	0.00	6.61	63.59	0.63
4	M012	Sd	0.00	0.00	0.47	30.30	22.58	0.77	0.00	0.00	0.00	0.00	9.54	5.43	3.71	0.00	4.21	3.17	2.12	0.00	0.91	0.00	0.00	0.00	0.12	11.58	0.00	9.49	27.71	2.56
5	M015	LII	0.00	0.00	1.12	45.61	15.93	0.00	0.00	0.00	0.00	0.00	4.84	2.84	1.73	6.09	2.77	1.84	2.64	0.00	0.59	0.00	0.00	0.00	0.02	0.00	0.00	8.21	33.03	1.21
6	M016	Sd	0.00	0.00	0.71	31.31	20.15	2.06	0.00	0.00	0.00	0.00	12.36	6.88	4.99	0.00	5.04	4.03	2.96	0.00	2.26	0.00	0.00	0.00	0.25	2.48	0.00	8.54	40.26	1.04
7	M017	Cg	0.00	0.00	0.41	12.02	32.85	0.00	0.00	0.00	0.00	0.00	17.62	13.32	2.50	0.99	7.66	1.59	1.41	0.00	0.28	0.00	0.00	0.00	0.00	0.52	0.00	4.36	66.94	0.37
8	M018	L'	0.00	0.00	0.47	30.30	22.58	0.77	0.00	0.00	0.00	0.00	9.54	5.43	3.71	0.00	4.21	3.17	2.12	0.00	0.91	0.00	0.00	0.00	0.12	11.58	0.00	10.48	34.36	1.73
9	M020	LII	0.00	0.00	2.30	17.26	30.40	0.00	0.00	0.00	0.00	0.00	11.11	7.76	2.42	2.94	6.16	2.11	2.13	0.00	0.72	0.00	0.00	0.00	0.05	0.98	0.00	5.98	39.9.	0.97
10	M022	Me	0.00	0.00	0.71	31.31	20.15	0.00	0.00	0.00	0.00	0.00	12.36	6.88	4.99	0.00	5.04	4.03	2.96	0.00	2.26	0.00	0.00	0.00	0.25	2.48	0.00	8.20	29.65	1.67
11	M023	Me	0.00	0.00	0.47	30.30	22.58	0.00	0.00	0.00	0.00	0.00	9.54	5.43	3.71	0.00	4.21	3.17	2.12	0.00	0.91	0.00	0.00	0.00	0.12	11.58	0.00	7.48	37.50	1.01
12	M024	LI	0.00	0.00	0.71	31.31	20.15	0.00	0.00	0.00	0.00	0.00	12.36	6.88	4.99	0.00	5.04	4.03	2.96	0.00	2.26	0.00	0.00	0.00	0.25	2.48	0.00	9.29	26.86	1.80
13	M031	L'	0.00	0.00	2.30	17.26	30.40	0.00	0.00	0.00	0.00	0.00	11.11	7.76	2.42	2.94	6.16	2.11	2.13	0.00	0.72	0.00	0.00	0.00	0.05	0.98	0.00	8.91	25.17	1.88
14	M032	LI	0.00	0.00	0.47	30.30	22.58	0.00	0.00	0.00	0.00	0.00	9.54	5.43	3.71	0.00	4.21	3.17	2.12	0.00	0.91	0.00	0.00	0.00	0.12	11.58	0.00	9.20	37.88	1.25
15	M034	LI	0.00	0.00	1.12	45.31	15.93	0.00	0.00	0.00	0.00	0.00	4.84	2.87	1.73	6.09	2.77	1.84	2.64	0.00	0.59	0.00	0.00	0.00	0.02	0.00	0.00	11.53	40.50	1.43
16	MJO-A4 44.20	LII	0.00	0.00	0.41	47.47	17.64	0.00	0.00	0.00	0.00	0.00	3.10	1.88	0.95	3.49	5.70	3.18	2.32	0.00	0.95	0.00	0.00	0.00	0.12	0.82	0.00	7.18	34.52	1.06
17	MJO-A4 143.70	LI	0.00	0.00	8.04	18.79	29.73	0.00	0.00	0.00	0.00	0.00	4.47	3.13	0.97	3.30	6.90	2.35	1.96	0.00	0.85	0.00	0.00	0.00	0.07	1.36	0.00	6.07	49.60	0.64
18	MJO-A1 63.70	LII	0.00	0.00	2.42	44.51	21.32	0.00	0.00	0.00	0.00	0.00	5.04	3.08	1.67	0.28	8.12	4.84	2.25	0.00	0.99	0.00	0.00	0.00	4.07	0.52	0.00	6.95	32.58	1.14
19	MJO-A1 172.00	LI	1.94	0.00	0.65	4.15	32.32	0.00	0.00	0.00	0.00	0.00	8.93	6.24	1.94	7.75	0.00	0.00	2.46	0.00	0.49	0.00	0.00	0.00	0.02	1.41	0.00	7.64	59.98	0.62
20	MJO-B5 23.50	LII	1.86	0.00	5.67	18.79	25.54	0.00	0.00	0.00	0.00	0.00	6.84	4.42	1.95	7.00	0.00	0.00	2.28	0.00	0.51	0.00	0.00	0.00	0.09	4.75	0.00	7.05	44.00	0.88
21	MJO-B5 79.20	LI	0.00	0.00	7.21	15.06	30.67	0.00	0.00	0.00	0.00	0.00	3.39	2.15	1.02	6.57	4.45	2.33	2.74	0.00	0.63	0.00	0.00	0.00	0.07	0.68	0.00	8.52	43.78	0.95
22	MJO-B5 136.10	LI	0.00	0.00	0.95	40.95	19.33	0.00	0.00	0.00	0.00	0.00	4.10	2.44	1.45	4.47	4.63	3.02	2.80	0.00	2.07	0.00	0.00	0.00	0.23	0.82	0.00	8.68	32.75	1.30
23	MJO-B3 55.20	LII	0.32	0.00	1.00	35.96	22.82	0.00	0.00	0.00	0.00	0.00	9.85	5.40	4.10	5.10	0.00	0.00	2.42	0.00	0.85	0.00	0.00	0.00	0.09	0.68	0.00	7.50	28.66	1.57
24	MJO-B3 147.70	LI	0.00	0.00	5.44	32.24	24.06	0.00	0.00	0.00	0.00	0.00	4.65	2.53	1.95	6.83	1.09	0.93	2.91	0.00	2.26	0.00	0.00	0.00	0.25	0.98	0.00	9.05	27.44	1.74
25	MJO-B4 101.20	LI	3.14	0.00	5.55	12.69	27.11	0.00	0.00	0.00	0.00	0.00	6.02	4.07	1.48	7.80	0.00	0.00	2.38	0.00	0.57	0.00	0.00	0.00	0.02	0.89	0.00	7.38	50.69	0.73
26	MJO-B6 85.90	LI	0.00	0.00	0.65	42.03	22.70	0.00	0.00	0.00	0.00	0.00	4.10	2.36	1.56	0.00	8.73	6.36	2.68	0.00	1.44	0.00	0.00	0.00	0.23	1.55	0.00	8.33	30.52	1.40
27	N011	LII	0.00	0.00	0.41	47.47	17.64	0.00	0.00	0.00	0.00	0.00	6.01	1.88	0.95	3.49	5.70	3.18	2.32	0.00	0.95	0.00	0.00	0.00	0.12	0.82	0.00	8.06	36.56	1.15
28	MJO-B2 52.20	LII	12.19	0.00	2.84	25.55	18.12	0.00	0.00	0.00	0.00	0.00	9.52	5.88	3.15	5.05	0.00	0.00	2.09	0.00	0.53	0.00	0.00	0.00	0.09	2.16	0.00	6.50	37.70	1.07
29	MJO-A2 136.00	LI	0.00	1.03	0.77	49.16	14.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.10	4.30	2.89	3.07	0.00	3.11	0.00	0.00	0.00	0.37	0.36	0.00	9.53	29.49	1.47
30	MJO-A5 17.50	LII	2.79	0.00	0.47	3.38	30.41	0.00	0.00	0.00	0.00	0.00	3.16	2.30	0.57	9.18	0.00	0.00	2.42	0.00	0.47	0.00	0.00	0.00	0.02	0.23	0.00	7.52	65.88	0.49

*1 S.I.: Abbreviations are shown in Fig. II-3-1. *2 S.I.: Solidification Index = $MgO \times 100 / (MgO + Total\ FeO + Na_2O + K_2O)$ *3 F.M.I.: Total FeO – MgO Index = Total FeO / MgO (Fe_2O_3 : FeO was estimated to be 1 : 4.)

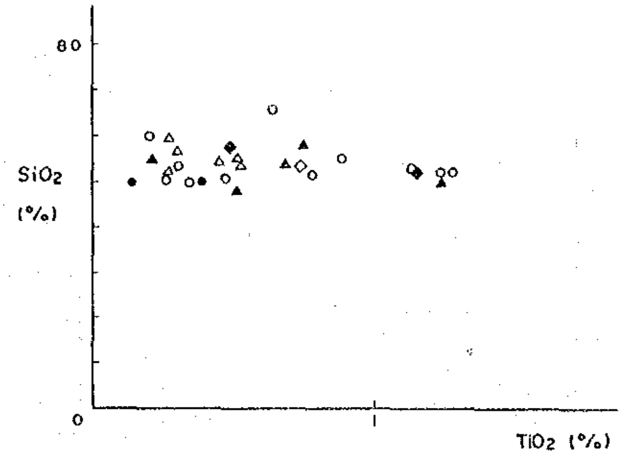
Results of chemical analyses for minor elements

Ser. No.	Sample No.	Geol.[1] Unit	Al	Ba	Be	Bi	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	P	K	Ag	Na	Sr	Ti	W	V	Zn
1	M003	Me	75900	15	1	<3	<1	117000	58	29	67	50900	6	27700	774	<2	37	235	640	2.2	27800	89	2700	<10	214	54
2	M005	Me	45900	35	3	<3	<1	83600	156	45	54	71300	7	34100	1680	<2	78	450	1000	1.0	30800	132	7020	<10	267	71
3	M011	Hg	79000	15	1	<3	<1	86600	322	35	87	51400	6	63000	906	<2	130	76	3200	0.7	15100	134	2290	<10	190	55
4	M012	Sd	83400	3	2	<3	<1	101000	166	22	7	73800	5	22400	1300	<2	25	238	270	0.2	1200	383	4320	33	317	38
5	M015	LII	78900	11	1	<3	<1	39700	322	31	53	63800	5	41000	612	<2	149	58	1550	0.1	40000	151	1850	<10	243	72
6	M016	Sd	78000	3	1	<3	<1	41900	81	35	5	66300	4	49500	1250	<2	45	261	2400	0.1	24800	73	4990	<10	105	28
7	M017	Cg	76500	3	<1	3	<1	110000	463	28	134	33900	4	71500	743	<2	14	12	550	0.6	10500	108	911	27	74	30
8	M018	L'	77100	1	2	<3	<1	46400	127	33	34	81400	5	36400	1140	<2	42	225	450	<0.1	7500	127	2850	<10	190	60
9	M020	LII	56500	26	1	3	<1	95000	359	29	45	46400	9	73100	2070	<2	192	71	4600	1.3	20400	124	1270	34	158	55
10	M022	Me	78500	7	2	<3	<1	47500	98	29	220	63700	<3	29600	805	<2	31	278	910	0.7	24600	55	4330	<10	224	65
11	M023	Me	78200	20	1	<3	<1	50700	43	32	31	58200	7	44600	1240	<2	39	202	2400	0.4	33800	128	3970	<10	220	73
12	M024	LI	85400	30	3	<3	<1	54100	70	35	75	72000	6	31100	1470	<2	42	507	4800	0.6	31000	148	7340	<10	291	83
13	M031	L'	81600	40	3	<3	<1	64100	56	35	27	69300	7	23600	1730	<2	26	418	5800	0.4	33500	197	6660	30	288	76
14	M032	LI	76300	16	2	<3	<1	43200	56	35	46	71500	3	44400	1430	<2	31	257	6300	0.3	15800	253	5040	<10	265	87
15	M034	LI	52500	11	1	<3	<1	4790	93	33	1830	89700	<3	48600	297	<2	35	57	550	0.1	1800	22	3670	35	156	292
16	MJO-A4 44.20	LII	83500	13	2	<3	<1	39800	165	124	13	55800	5	40900	666	<2	46	224	550	0.9	41600	87	2980	<10	196	195
17	MJO-A4 143.70	LI	84800	37	1	<3	<1	64500	263	31	12	47200	8	57300	976	<2	93	128	11300	0.6	16500	186	2690	18	186	58
18	MJO-A1 63.70	LII	89500	27	2	<3	<1	51000	113	34	8	54100	10	36800	602	<2	44	250	3400	0.6	39000	135	3120	20	197	90
19	MJO-A1 172.00	LI	67600	6	1	<3	<1	82700	457	25	22	39400	6	74500	724	<2	211	65	910	0.9	3600	40	1540	54	231	67
20	MJO-B5 23.50	LII	74400	27	1	<3	<1	81700	312	39	37	54800	<3	48500	843	<2	137	166	8000	0.8	16500	86	1610	48	207	71
21	MJO-B5 79.20	LI	82000	20	1	<3	<1	63100	305	30	8	66200	4	54100	805	<2	106	111	10100	0.6	13200	80	1950	<10	244	85
22	MJO-B5 136.10	LI	80600	16	2	<3	<1	46600	76	45	26	67400	3	40200	2000	<2	49	416	1360	0.3	35900	104	6550	<10	249	87
23	MJO-B3 55.20	LII	82200	13	3	<3	<1	70300	127	35	18	58300	5	28900	720	<2	54	179	1450	0.7	31500	67	2710	49	237	59
24	MJO-B3 147.70	LI	85160	33	3	<3	<1	56000	61	28	15	70400	<2	31400	1280	<2	38	485	7600	0.2	28300	154	7150	10	291	83
25	MJO-B4 101.20	LI	71000	20	1	<3	<1	63800	367	33	101	57300	6	60900	685	<2	174	32	7800	0.2	11100	147	1800	29	220	70
26	MJO-B6 85.90	LI	89100	15	3	<3	<1	54600	41	37	25	64800	9	35900	1400	<2	31	413	910	0.6	3800	107	4560	<10	272	72
27	N011	LII	67100	16	1	<3	<1	42800	396	30	34	62700	6	42300	546	<2	137	33	4200	0.1	26800	133	1260	32	228	65
28	MJO-B2 52.20	LII	64200	17	2	<3	<1	69000	464	34	26	50500	6	36500	787	<2	186	154	4000	0.6	22400	85	1690	30	207	54
29	MJO-A2 136.00	LI	84300	34	6	<3	<1	23500	65	45	40	74000	15	39000	1350	<2	25	698	1100	0.2	43100	121	9830	<10	321	540
30	MJO-A5 17.50	LII	62900	88	3	<3	<1	55800	656	100	2310	58500	6	93200	1460	<2	419	<3	700	0.4	3000	89	1500	16	200	472
31	MJO-A1 106.90	LI	63300	2	1	<3	<1	3650	209	128	653	123700	4	54600	349	2	70	68	910	<0.1	7400	16	3260	34	195	601
32	N010[2]	ORE	4380	8	1	<3	<1	4750	769	40	36	38700	<3	2370	84	5	36	45	450	0.6	1700	40	181	28	33	60
33	MJO-B1[3] 40.80	ORE	4340	<1	<1	<3	4	423	94	14	7070	408200	511	2710	1914	2	20	39	180	20.2	500	2	229	35	31	641

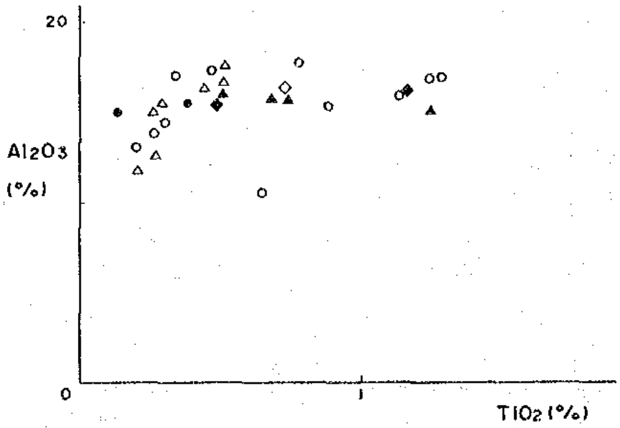
[1] Abbreviations are shown in *Fig. II-3-1.*   [2] *Coodinates:* N 2,618.845, E 453.168   [3] Coodinates: N 2,618.796, E 457.278

Appendix 3

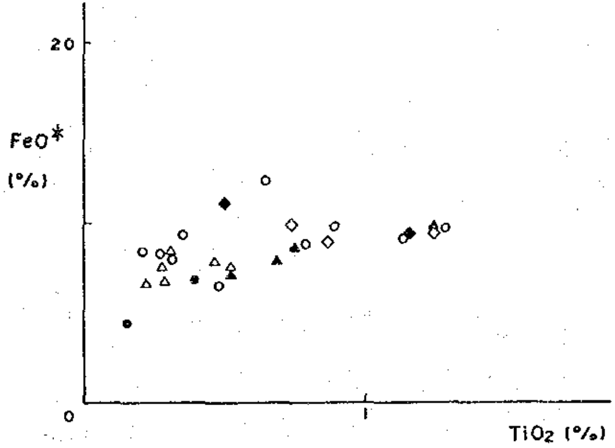
TiO_2 diagrams


80
SiO2
(%)
0
1
TiO2 (%)

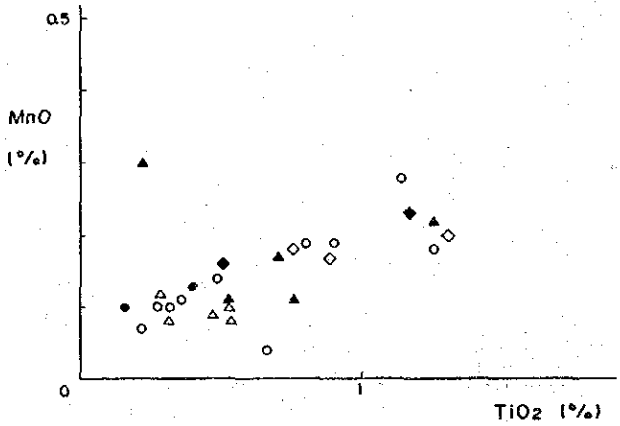
(a)


20
Al2O3
(%)
0
1
TiO2 (%)

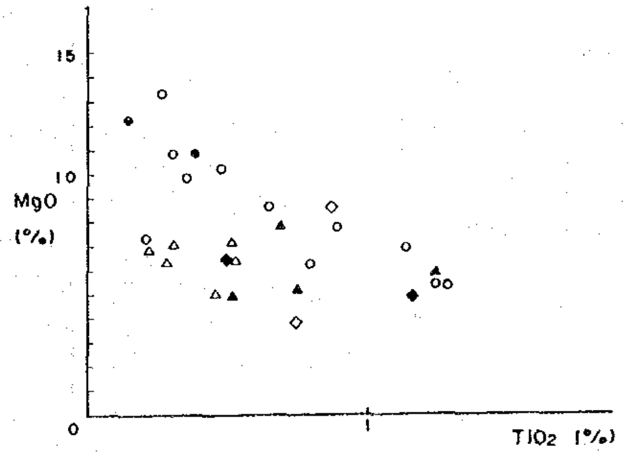
(b)


20
FeO*
(%)
0
1
TiO2 (%)

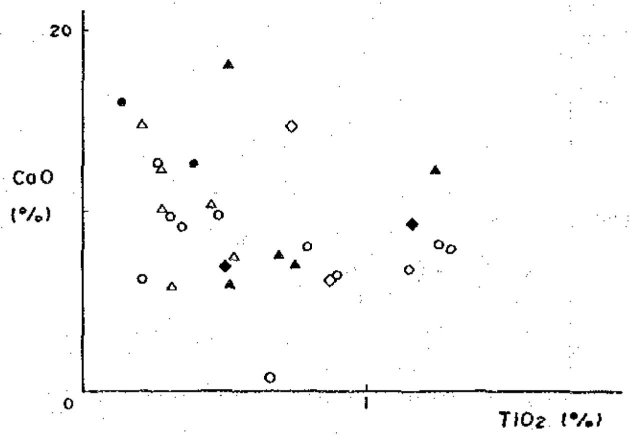
(c)


0.5
MnO
(%)
0
1
TiO2 (%)

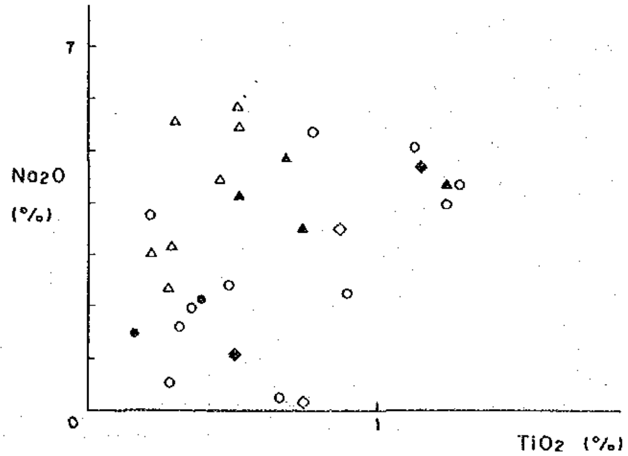
(d)


15
10
MgO
(%)
0
1
TiO2 (%)

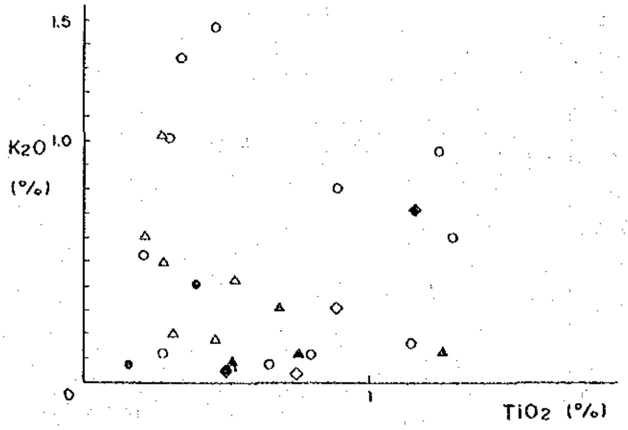
(e)


20
CaO
(%)
0
1
TiO2 (%)

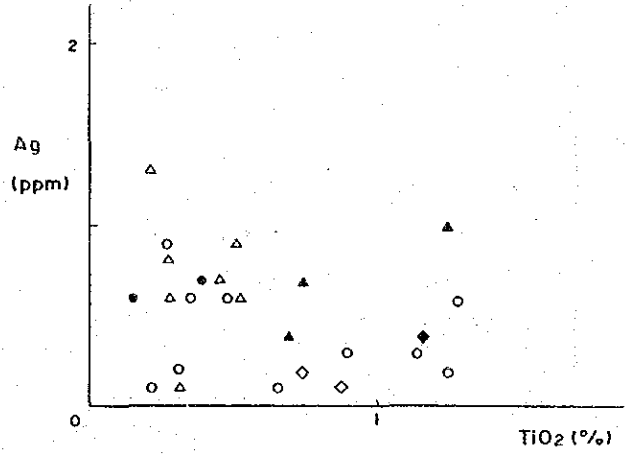
(f)


7
Na2O
(%)
0
1
TiO2 (%)

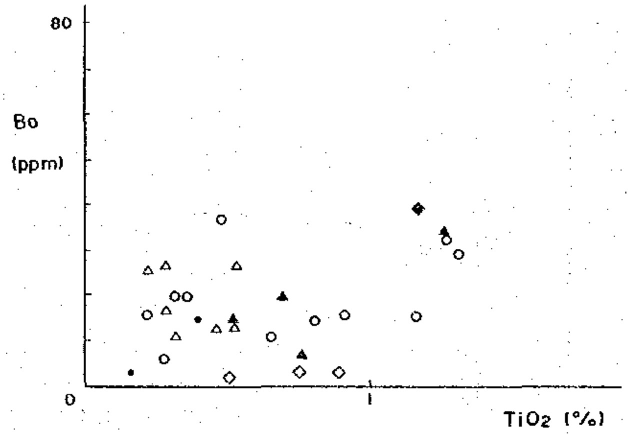
(g)


1.5
1.0
K2O
(%)
0
1
TiO2 (%)

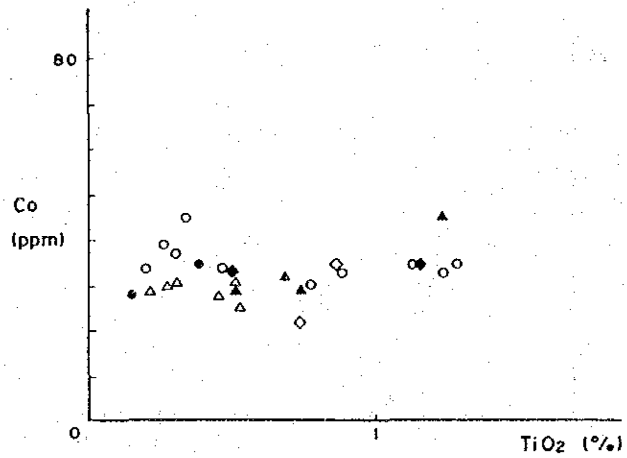
(h)


2
Ag
(ppm)
0
1
TiO2 (%)

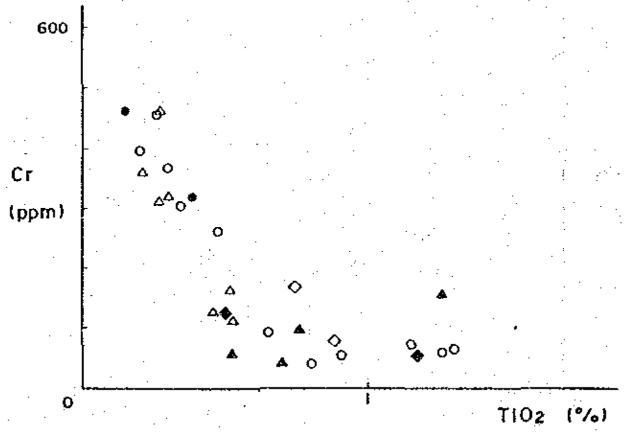
(i)


80
Ba
(ppm)
0
1
TiO2 (%)

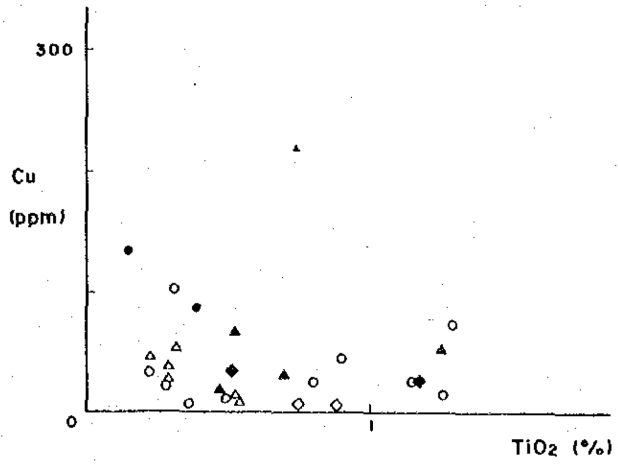
(j)


80
Co
(ppm)
0
1
TiO2 (%)

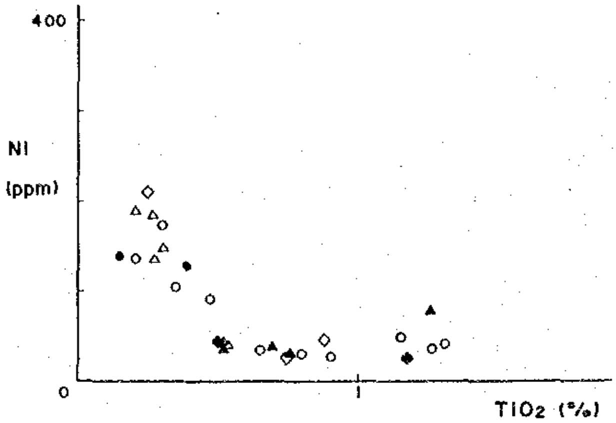
(k)


600
Cr
(ppm)
0
1
TiO2 (%)

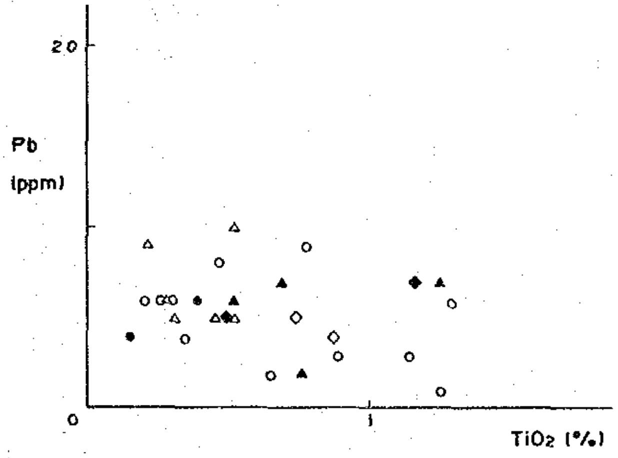
(ℓ)


300
Cu
(ppm)
0
1
TiO2 (%)

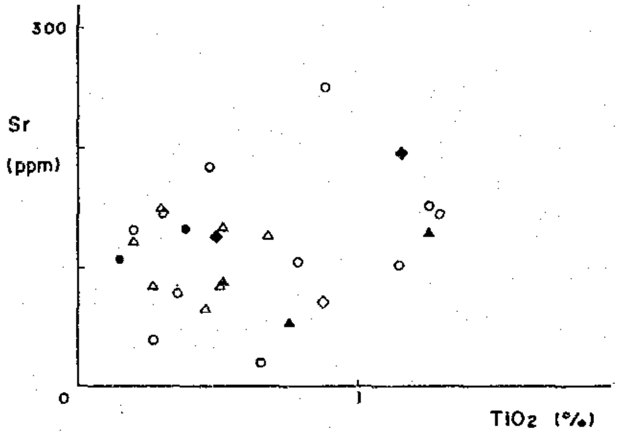
(m)


400
Ni
(ppm)
0
1
TiO2 (%)

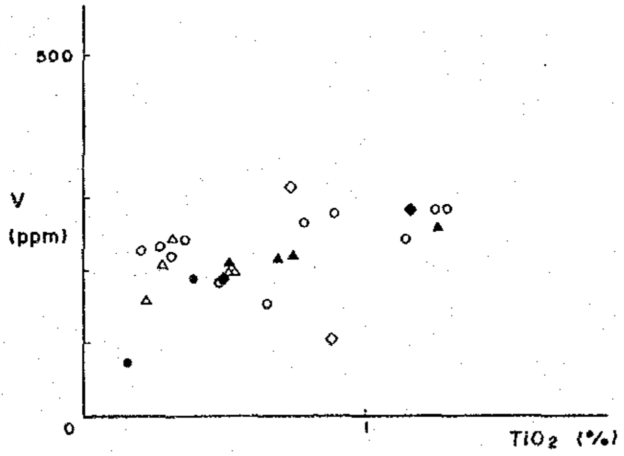
(n)


20
Pb
(ppm)
0
1
TiO2 (%)

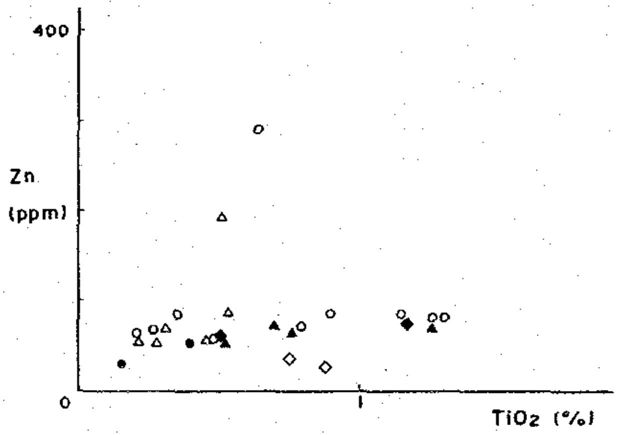
(o)


300
Sr
(ppm)
0
1
TiO2 (%)

(p)


500
V
(ppm)
0
1
TiO2 (%)

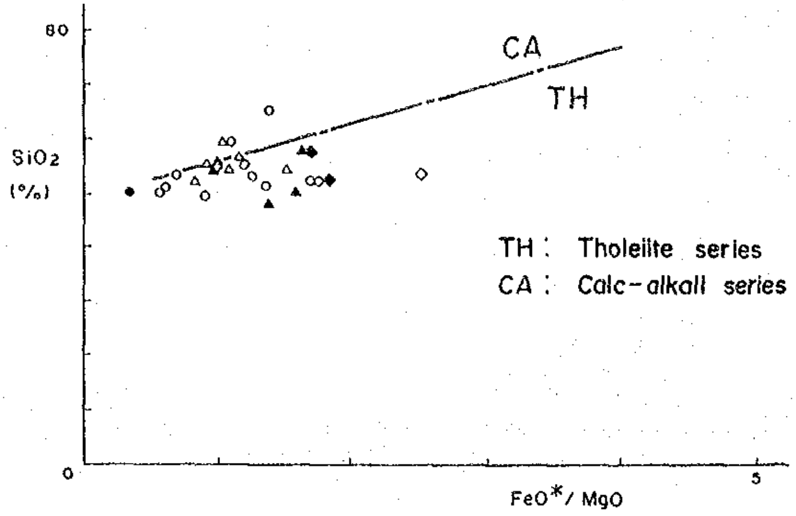
(q)


400
Zn
(ppm)
0
1
TiO2 (%)

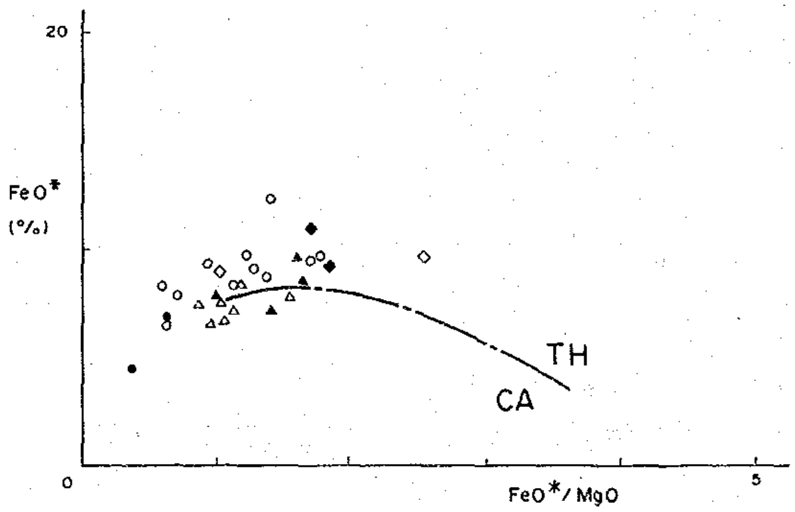
(r)

Appendix 4

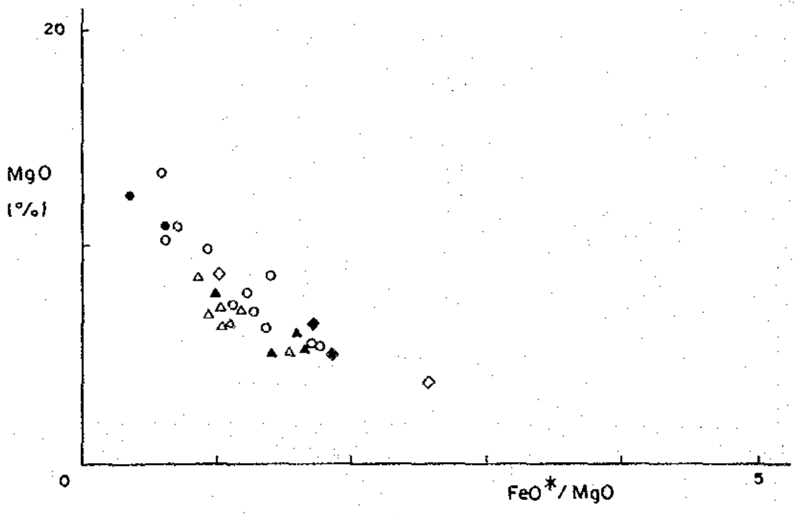
FeO* / MgO diagrams


80
CA
TH
SiO2
(%)
TH : Tholeiite series
CA : Calc-alkali series
0
5
FeO*/ MgO

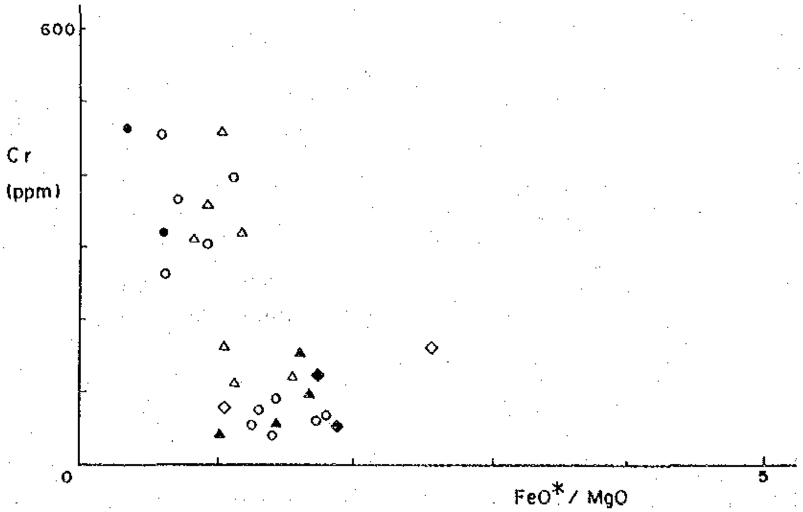
(a)


20
FeO*
(%)
TH
CA
0
5
FeO*/ MgO

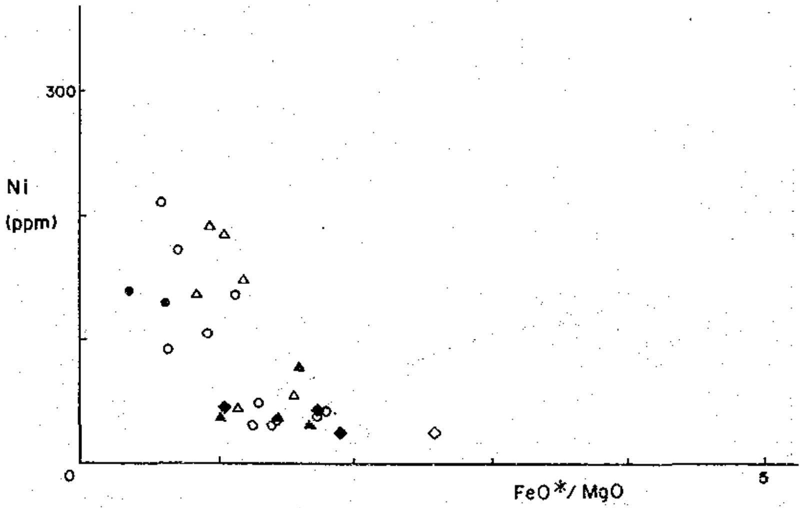
(b)


20
MgO
(%)
0
5
FeO*/ MgO

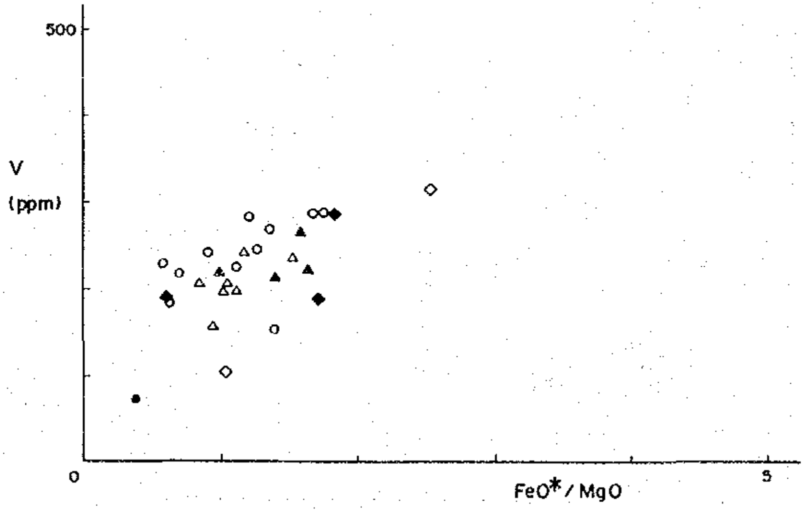
(c)



(d)



(e)



(f)

Appendix 5

Charged potential in area A

X	Y	Potential (mV/A)	
(m)	(m)	HS-14	HS-7
550	300	60.3	11.8
500	300	64.8	12.7
550	250	54.3	13.1
500	250	59.4	13.0
550	200	48.1	13.2
500	200	54.8	14.0
550	150	40.7	13.1
500	150	47.7	13.7
550	100	32.6	15.0
500	100	35.8	14.4
550	50	25.5	15.7
500	50	26.8	15.7
550	0	20.8	17.2
500	0	23.2	21.2
550	-50	16.6	21.7
500	-50	17.6	18.8
550	-100	12.7	22.3
500	-100	13.8	24.3
550	-150	8.9	26.6
500	-150	9.7	26.5
550	-200	7.1	34.4
500	-200	7.1	34.1
650	-200	5.9	20.2
650	-150	8.5	18.8
700	-150	7.1	16.3
600	300	49.4	11.8
650	300	43.3	10.5
700	300	33.5	9.9
750	300	24.1	8.6
550	350	59.9	11.4
500	350	64.9	13.7
600	400	47.5	10.0
650	400	43.1	11.6
700	400	31.7	10.4
550	400	53.4	10.2
500	400	57.5	10.6
600	350	51.5	12.0
650	350	41.5	10.3
700	350	34.4	9.8
750	350	20.7	7.7
750	400	20.0	7.1
400	400	67.3	12.4
450	400	62.7	11.3
400	350	72.9	13.6
450	350	73.0	12.2
450	300	72.4	12.5
400	250	69.9	13.5
450	250	69.3	13.4
350	200	57.6	13.8
400	200	60.1	13.3
450	200	62.0	12.5
450	150	50.4	14.6
400	100	37.8	19.3
350	100	34.5	21.1
450	100	37.3	16.4
400	50	26.1	22.6
350	50	21.9	29.0
450	50	26.5	19.2
400	0	19.6	25.6
450	0	19.5	23.1
400	-50	14.5	27.1
450	-50	13.4	26.9
400	-100	10.8	32.3
400	300	71.2	11.9
300	400	34.1	13.2
350	400	50.2	11.8
250	400	19.0	12.0
300	350	45.1	11.4
250	350	32.0	12.1
350	350	57.1	11.9
300	300	52.6	12.9
250	300	39.3	12.6
350	300	63.2	12.8
300	250	54.3	14.2
250	250	43.9	13.7

X	Y	Potential (mV/A)	
(m)	(m)	HS-14	HS-7
350	250	59.9	13.2
300	200	56.2	14.6
250	200	50.3	14.7
350	150	56.2	15.5
400	150	58.3	13.9
250	450	18.5	11.7
250	500	14.1	8.6
300	500	19.2	7.9
250	550	9.9	6.7
300	450	20.5	10.4
400	450	43.4	10.4
350	450	34.5	10.2
400	500	25.4	7.9
350	500	23.3	8.6
400	550	14.5	7.2
350	550	14.4	7.3
400	600	10.6	6.5
350	600	9.3	6.8
300	600	9.2	7.4
300	550	13.3	7.8
250	600	9.4	6.9
200	600	7.2	8.6
150	600	7.0	7.2
100	600	5.8	7.4
100	500	11.0	8.8
150	500	12.0	8.0
200	500	13.4	8.6
600	450	37.6	8.7
650	450	36.0	8.3
700	450	29.9	7.6
550	450	49.2	9.9
500	450	42.4	9.4
450	450	44.0	9.9
600	500	27.3	6.2
650	500	28.4	7.4
700	500	21.2	6.4
750	500	17.6	5.7
550	500	33.0	7.6
500	500	34.4	8.6
450	500	30.2	8.6
600	550	26.5	7.5
650	550	21.6	6.6
700	550	17.4	5.9
750	550	15.4	5.7
550	550	26.4	7.8
500	550	23.9	7.9
450	550	22.5	8.2
600	600	20.1	6.3
650	600	17.9	5.8
700	600	15.7	5.3
750	600	14.4	5.1
550	600	18.4	6.8
500	600	19.3	7.5
450	600	18.9	7.6
600	650	14.2	5.6
650	650	13.5	4.7
700	650	13.5	5.0
750	650	11.6	4.5
550	650	15.8	7.0
500	650	15.3	6.8
450	650	16.2	7.9
600	700	9.7	4.4
650	700	11.0	4.8
700	700	10.2	4.6
750	700	8.8	3.8
550	700	9.5	4.3
500	700	12.0	6.2
450	700	14.0	6.3
600	750	10.5	5.5
650	750	9.7	4.5
700	750	9.3	4.5
550	750	6.8	3.0
500	750	12.0	6.1
450	750	13.3	5.9
600	800	10.3	4.9

X	Y	Potential (mV/A)	
(m)	(m)	HS-14	HS-7
650	800	8.9	4.3
700	800	9.1	4.3
550	800	10.0	5.5
500	800	10.5	5.8
450	800	10.3	4.9
250	700	13.5	7.2
250	650	14.3	7.6
350	750	10.0	5.5
350	700	8.3	4.9
350	650	16.5	8.4
300	650	15.7	8.0
300	700	14.2	7.8
300	750	10.8	6.1
250	750	11.4	6.1
300	900	7.6	5.0
400	850	8.6	4.3
400	900	7.6	4.6
500	850	7.1	4.1
450	850	9.0	4.2
500	900	7.3	4.2
450	900	6.0	3.3
600	900	7.0	4.0
700	900	5.0	2.6
800	900	5.1	2.5
600	1000	5.1	3.0
700	1000	4.0	2.2
800	1000	3.4	2.4
500	1000	5.7	3.7
400	1000	6.0	4.1
300	1000	5.1	3.6
600	1100	3.4	2.4
700	1100	3.4	2.5
800	1100	3.1	2.3
500	1100	3.8	2.9
400	1100	2.6	2.4
300	1100	2.6	2.1
600	1200	2.3	2.4
500	1200	2.8	2.1
400	1200	3.1	2.4
700	1200	1.9	1.8
800	1200	1.1	1.1
600	1300	1.5	1.3
700	1300	1.3	1.2
800	1300	1.3	1.1
500	1300	1.6	1.7
600	1400	1.1	.9
700	1400	.9	.8
800	1400	.8	.7
700	1500	.6	.5
800	800	8.3	3.8
900	800	6.0	3.1
1000	800	4.2	2.5
1100	800	3.0	1.9
900	900	4.7	2.6
1000	900	2.9	2.0
1100	900	2.6	1.6
900	1000	3.8	2.1
1000	1000	2.7	1.7
1100	1000	2.1	1.4
900	1100	2.3	1.7
1000	1100	1.9	1.3
1100	1100	1.5	.9
900	1200	1.8	1.2
1000	1200	1.5	1.0
900	1300	1.2	1.2
1200	1000	2.7	1.6
1200	900	2.9	1.5
1300	900	2.2	1.2
1200	800	2.5	1.2
1300	800	2.4	1.2
1400	800	2.2	1.1
1200	700	4.8	2.8
1300	700	3.0	2.2
1400	700	2.5	1.4
1500	700	1.3	1.2

X	Y	Potential (mV/A)	
(m)	(m)	HS-14	HS-7
1100	700	5.8	3.9
1000	700	9.5	5.9
1200	600	6.2	3.6
1300	600	5.2	2.9
1400	600	3.6	2.1
1500	600	2.4	1.5
1100	600	6.9	3.5
1000	600	8.9	4.4
1200	500	6.7	4.4
1300	500	5.1	3.3
1400	500	3.7	2.2
1500	500	2.5	1.9
1100	500	9.5	4.7
1000	500	12.6	5.7
1200	400	7.7	5.1
1300	400	6.0	3.4
1400	400	3.8	2.7
1100	400	9.2	5.0
1200	300	7.8	5.5
1300	300	5.8	4.4
1200	200	8.7	6.3
1100	200	9.8	7.1
900	700	7.4	4.1
800	700	8.0	3.7
900	600	10.8	6.0
800	600	14.0	8.1
800	550	17.2	8.2
900	500	13.4	7.8
850	500	15.5	7.0
800	500	17.3	7.5
900	450	11.7	5.9
800	450	19.1	8.2
750	450	18.8	7.5
900	400	14.6	6.8
850	400	14.6	7.3
950	400	13.3	6.7
1000	400	12.1	6.6
900	350	12.6	6.4
950	350	11.8	8.0
1000	350	10.2	6.6
850	450	16.0	6.9
800	400	19.0	9.0
850	350	16.6	7.9
800	350	19.4	8.3
900	300	13.9	8.6
950	300	12.5	8.0
1000	300	10.6	7.7
1050	300	9.9	6.7
1100	300	8.9	6.1
850	300	17.7	8.9
800	300	19.5	8.4
900	250	15.7	8.7
950	250	13.1	8.3
1000	250	11.8	7.8
850	250	17.6	9.0
800	250	21.2	10.4
900	200	15.2	8.7
950	200	13.3	8.5
1000	200	12.1	8.3
850	200	17.6	8.6
800	200	20.5	10.9
900	150	13.8	9.1
850	150	15.8	9.2
800	150	17.9	11.6
850	100	14.7	10.8
800	100	13.5	11.8
800	50	13.0	11.5
600	-250	7.2	27.3
700	-200	7.8	15.5
600	-200	9.7	28.1
600	-150	11.5	21.0
600	-100	12.7	21.6
650	-100	10.7	15.3
700	-100	10.1	14.3
600	-50	14.6	16.6
650	-50	14.2	15.2
700	-50	10.2	15.3
600	0	18.9	15.0
650	0	13.5	16.0
700	0	12.7	12.3
750	0	9.5	10.9
600	50	22.1	14.6
650	50	20.0	15.4
700	50	16.2	13.9
750	50	11.3	11.8
600	100	28.2	12.8
650	100	24.6	12.4
700	100	21.1	11.2
750	100	14.2	11.8
600	150	34.7	11.4
650	150	28.9	13.0
700	150	26.2	12.3
750	150	16.1	11.0
600	200	41.1	12.4
650	200	32.5	11.8
700	200	28.8	10.9
750	200	15.3	7.1
600	250	45.4	12.4
650	250	36.3	12.2
700	250	30.5	10.2
750	250	25.2	9.4
350	-150	12.1	48.3
350	-100	15.9	41.8
350	-50	17.7	40.1
350	0	23.1	34.3
300	-150	15.0	54.7
300	-100	18.1	45.4
300	-50	19.4	41.2
250	-150	16.1	51.1
250	-100	18.6	43.6
250	-50	19.6	42.1
200	-150	14.7	56.9
150	-150	14.3	76.0
150	-100	17.7	56.1
100	-150	13.2	82.5
100	-100	17.1	54.0
100	-50	18.7	49.6
100	0	22.1	40.9
50	-150	10.8	72.1
50	-100	13.7	64.3
50	-50	15.4	51.6
150	-50	20.0	46.6
250	100	34.2	29.1
0	-150	10.2	79.3
0	-100	11.3	64.3
0	-50	13.4	52.4
-50	-150	8.1	72.4
-50	-100	9.7	64.0
-50	-50	12.1	52.0
-50	0	11.8	36.4
0	0	15.6	39.7
50	0	18.7	39.2
-50	50	13.5	30.8
0	50	18.7	30.7
100	50	27.7	31.1
150	50	30.8	30.8
200	50	33.8	31.3
200	100	32.3	31.3
250	50	29.4	33.2
250	0	22.8	40.0
50	50	23.3	30.7
-50	100	15.1	29.4
0	100	19.4	30.3
50	100	26.2	30.5
100	100	29.7	29.6
-50	150	15.2	24.6
0	150	20.2	24.3
50	150	27.4	25.1
100	150	34.3	27.3
-50	200	16.4	18.3
0	200	20.4	21.8
50	200	25.5	21.9
100	200	31.7	21.9
150	200	42.5	21.6
200	200	40.2	20.5
-50	250	15.8	15.2
0	250	20.0	16.9
50	250	25.2	15.9
100	250	32.8	16.4
150	250	41.3	18.3
200	250	44.3	17.8
-50	300	12.9	12.2
0	300	18.6	14.0
50	300	23.9	13.2
100	300	28.9	13.3
150	300	32.2	15.0
200	300	39.1	14.1
-50	350	12.5	13.4
0	350	16.4	12.7
50	350	21.7	13.7
150	350	29.4	13.9
200	350	33.3	12.5
100	350	23.7	17.6
0	400	13.2	9.9
50	400	17.7	13.4
100	400	21.5	12.9
150	400	23.9	13.1
200	400	28.2	13.2
-50	450	9.5	11.8
0	450	11.1	11.0
50	450	13.0	13.8
100	450	16.6	11.2
150	450	17.3	11.3
200	450	18.9	12.6
50	500	12.4	11.5
0	500	8.1	10.4
-100	600	3.3	6.7
0	600	5.6	6.2
100	550	11.3	8.1
150	550	11.8	7.8
200	550	14.9	8.7
200	650	7.8	6.7
200	700	6.5	6.1
-100	700	1.1	5.6
0	700	3.0	5.2
100	700	4.5	6.2
0	800	1.0	4.9
100	800	1.5	5.2
100	900	1.2	3.4
200	800	3.5	7.4
200	900	2.6	3.6
-200	600	1.6	8.6
200	1000	1.5	3.4
-200	500	2.2	8.1
-300	500	1.9	8.3
-200	400	2.7	10.1
-300	400	1.8	8.5
-200	300	5.4	13.0
-300	300	2.5	9.1
-150	200	8.9	18.4
-150	250	8.9	18.4
-150	300	8.7	12.7
-200	200	6.8	17.7
-200	250	6.4	12.8
-250	200	4.5	14.8
-300	200	2.5	13.1
-150	150	9.3	22.0
-200	150	7.1	21.4
-250	150	5.5	20.9
-300	150	3.2	18.0
-150	100	9.1	26.7
-200	100	7.0	23.2
-250	100	5.3	23.1
-300	100	3.5	18.5
-350	100	.9	13.4

X	Y	Potential (mV/A)	
(m)	(m)	HS-14	HS-7
-150	50	8. 9	32. 6
-200	50	6. 8	29. 6
-250	50	4. 8	27. 1
-300	50	3. 6	30. 8
-350	50	1. 9	27. 6
-150	0	7. 5	34. 2
-200	0	5. 1	35. 1
-250	0	3. 6	32. 4
-300	0	3. 3	29. 8
-350	0	1. 7	30. 8
-150	-50	7. 0	44. 0
-200	-50	4. 5	39. 2
-250	-50	3. 6	38. 8
-300	-50	2. 1	34. 4
-350	-50	1. 8	30. 8
-150	-100	5. 3	53. 1
-200	-100	4. 2	45. 2
-250	-100	3. 1	43. 0
-300	-100	1. 6	40. 3
-150	-150	4. 3	62. 1
-200	-150	3. 1	56. 8
-250	-150	2. 4	51. 9
-150	-200	3. 3	79. 9
-200	-200	3. 8	72. 1
-300	-200	1. 5	53. 5
-400	-100	1. 1	30. 6
-400	0	1. 5	25. 2
-500	0	. 9	17. 4
-400	50	1. 4	16. 3
-400	100	1. 1	10. 6
-500	100	. 9	8. 3
-600	100	. 8	6. 9
-400	200	1. 1	6. 4
-500	200	1. 0	8. 8
-600	200	. 9	4. 7
-400	300	1. 2	5. 6
-500	300	1. 0	4. 9
-400	400	1. 3	4. 8
-300	-300	. 8	62. 3
-200	-300	1. 6	82. 4
-200	-400	3. 4	87. 4
-100	-250	3. 2	94. 0
-150	-250	2. 3	87. 6
-100	-300	2. 4	106. 0
-100	-400	1. 2	139. 4
-100	-500	. 9	117. 2
400	800	10. 7	6. 2
400	700	14. 5	7. 6
400	750	13. 6	6. 9
350	800	11. 0	6. 7
300	800	10. 6	6. 4
450	-200	9. 6	35. 2
400	-200	12. 3	46. 6
350	-200	9. 2	52. 2
300	-200	12. 2	58. 5
250	-200	13. 0	69. 1
200	-200	11. 1	89. 7
150	-200	9. 6	116. 2
100	-200	9. 3	120. 4
50	-200	9. 1	112. 5
0	-200	7. 7	104. 5
-50	-200	6. 0	98. 0
-100	-200	4. 4	87. 7
-100	500	6. 5	8. 8
-100	450	7. 7	10. 7
-100	400	8. 5	10. 0
-100	350	10. 7	11. 3
-100	300	12. 1	11. 4
-100	250	12. 0	15. 0
-100	200	11. 9	17. 7
-100	150	12. 0	20. 4
-100	100	11. 5	26. 6
-100	50	10. 6	32. 0
-100	0	10. 6	37. 7
-100	-50	7. 5	53. 7
-100	-100	6. 1	63. 0
-100	-150	5. 5	67. 3
0	-250	4. 7	143. 9
-50	-250	3. 6	125. 6
0	-300	4. 0	213. 4
-50	-300	3. 0	134. 3
0	-350	2. 7	232. 3
-50	-350	1. 7	151. 4
0	-400	1. 6	220. 8
50	-250	5. 6	136. 5
100	-250	5. 6	200. 1
200	-250	8. 7	114. 9
150	-250	6. 5	152. 7
250	-250	8. 6	83. 0
200	-300	5. 8	106. 3
150	-300	5. 6	203. 3
200	-350	3. 7	118. 1
150	-350	3. 8	213. 2
200	-400	2. 8	157. 8
300	-250	7. 5	62. 4
350	-250	6. 5	55. 0
300	-300	6. 0	68. 3
250	-300	6. 4	109. 0
350	-300	5. 7	61. 6
300	-350	4. 8	79. 6
250	-350	4. 5	88. 8
350	-350	3. 8	68. 0
300	-400	3. 2	76. 8
250	-400	3. 2	98. 0
350	-400	3. 0	65. 0
400	-250	6. 1	44. 4
450	-250	7. 8	38. 1
400	-300	5. 1	46. 2
450	-300	5. 7	41. 9
500	-300	6. 9	36. 1
400	-350	4. 4	50. 3
500	-250	9. 3	35. 4
600	-300	5. 3	24. 2
600	-400	3. 6	29. 4
500	-400	1. 7	29. 8
400	-400	4. 7	58. 0
600	-500	. 6	31. 6
500	-500	. 7	37. 0
500	-600	. 6	33. 8
400	-500	. 8	55. 7
400	-600	. 6	45. 5
400	-700	. 5	33. 5
300	-500	2. 7	75. 5
300	-450	3. 5	75. 5
300	-600	. 8	60. 7
300	-700	. 9	41. 0
300	-800	. 6	30. 4
250	-500	2. 8	87. 2
250	-450	3. 9	85. 8
200	-500	3. 2	109. 5
200	-450	4. 1	107. 0
200	-550	1. 3	88. 5
200	-600	1. 2	63. 8
200	-700	. 7	49. 4
200	-800	. 6	37. 9
150	-500	2. 5	106. 9
150	-450	4. 4	181. 6
150	-400	4. 5	174. 5
100	-500	3. 3	185. 3
100	-600	2. 6	90. 8
100	-700	2. 5	49. 8
100	-450	3. 9	237. 3
100	-400	4. 4	281. 3
100	-350	4. 7	295. 8
100	-300	4. 9	234. 4
50	-450	4. 1	245. 8
50	-400	4. 4	281. 3
50	-350	4. 5	281. 8
50	-300	4. 8	218. 1
0	-500	3. 1	177. 3
0	-600	. 6	80. 8
700	-400	2. 6	11. 2
900	100	12. 8	10. 6
1000	100	9. 6	8. 0
900	0	10. 7	10. 5
1000	0	9. 0	10. 6
800	0	12. 0	13. 3
900	-100	10. 0	14. 1
800	-100	11. 2	12. 4
1000	-100	8. 0	8. 9
900	-200	8. 6	13. 3
800	-200	9. 5	15. 4
800	-300	6. 9	14. 0
700	-300	7. 7	19. 4
400	650	15. 7	7. 6
-50	400	10. 1	13. 9
450	-100	13. 0	29. 4
400	-150	9. 9	38. 8
450	-150	9. 6	36. 4

Appendix 6

Electric field in area A

X	Y	HS-14		HS-7		X	Y	HS-14		HS-7		X	Y	HS-14		HS-7	
(m)	(m)	|E|	φ	|E|	φ	(m)	(m)	|E|	φ	|E|	φ	(m)	(m)	|E|	φ	|E|	φ
325	575	37	92	2	179	275	375	36	288	2	222	850	675	3	198	0	189
325	525	15	89	5	39	225	325	8	218	3	118	850	750	7	168	3	166
275	575	44	62	7	132	225	275	30	222	3	176	850	575	4	195	4	149
275	525	25	44	1	202	175	375	2	182	8	137	825	525	12	171	6	169
225	575	38	57	5	94	175	425	27	77	3	222	825	475	5	188	4	230
225	525	28	55	4	143	475	275	17	204	12	158	725	275	8	197	4	208
175	575	28	28	4	84	525	275	22	231	7	161	675	275	5	239	2	232
175	525	34	45	2	65	525	325	25	215	2	263	775	375	12	286	6	309
125	575	29	18	8	143	575	275	12	262	4	278	725	375	22	286	10	283
125	525	42	15	3	225	475	325	48	265	9	174	675	375	28	175	12	167
75	575	25	16	3	159	475	425	61	182	9	170	675	325	6	207	2	248
75	525	31	9	5	182	475	375	49	218	5	187	725	325	23	120	12	120
25	575	16	9	7	139	525	425	40	204	3	228	775	325	3	103	2	62
25	525	15	34	23	144	525	375	31	193	5	151	825	275	4	151	1	175
-25	575	16	26	23	132	575	425	30	244	4	234	950	350	4	179	2	166
-25	525	20	9	13	309	575	375	17	181	1	173	875	425	4	200	1	11
-75	575	14	359	3	131	625	425	33	302	5	317	950	425	6	117	5	102
-75	525	13	18	20	160	625	375	25	350	6	13	875	550	6	275	1	280
-125	575	15	325	24	128	625	325	22	360	3	45	875	475	12	147	3	174
-125	525	14	11	7	183	575	325	14	195	2	126	950	550	3	172	1	161
-175	575	11	305	34	141	625	275	17	2	3	322	950	475	5	238	3	253
-175	525	9	1	26	182	625	225	8	286	8	137	950	650	5	134	3	126
-175	675	11	324	16	106	650	175	1	213	6	228	950	750	2	183	1	164
-125	675	9	32	15	144	650	125	5	240	2	161	950	850	3	166	0	223
-125	750	11	333	7	184	525	125	3	285	3	133	1050	650	4	146	2	127
325	625	22	71	5	83	525	175	5	262	2	245	1050	750	1	136	1	339
325	675	34	101	2	106	525	225	5	336	0	43	1050	850	1	236	0	100
325	725	32	85	5	95	475	625	35	171	8	172	1050	550	3	162	2	138
325	775	12	162	5	236	475	675	33	141	4	141	1050	450	6	175	3	166
375	575	36	128	4	208	475	725	40	138	6	227	1050	350	5	200	3	196
375	525	30	146	13	143	475	575	68	144	9	153	1150	650	2	177	0	279
425	625	37	156	7	231	475	525	36	220	3	216	1150	750	3	169	1	162
425	675	46	122	12	159	475	475	47	174	5	158	1150	850	4	158	2	155
425	725	40	99	14	131	525	625	5	236	6	318	1150	550	2	159	2	149
425	575	25	126	1	145	525	675	34	133	4	128	1150	450	2	292	1	264
425	525	53	165	4	164	525	725	18	137	3	128	1250	650	2	153	2	149
375	625	37	112	9	140	525	775	8	172	6	267	1250	550	2	158	1	216
375	675	25	77	5	22	525	575	30	139	5	81	1250	750	2	128	2	132
375	725	47	101	7	75	525	525	36	172	4	124	1250	850	1	281	0	280
375	775	8	252	7	254	525	475	30	209	1	188	1350	650	1	155	1	156
425	775	11	312	13	296	575	625	27	143	5	143	1350	750	1	176	1	173
425	425	83	169	8	151	575	675	19	131	4	137	1350	850	1	168	1	190
425	475	66	165	5	152	575	725	9	129	2	158	1450	750	1	161	1	160
375	425	19	181	6	130	575	775	4	221	7	255	850	850	7	145	3	150
375	475	45	142	6	239	575	575	27	181	3	167	850	950	4	128	1	131
325	475	26	86	1	226	575	525	18	207	2	162	850	1050	3	137	1	129
275	425	5	23	6	177	575	475	13	202	2	155	850	1150	1	169	1	119
275	475	35	73	4	157	625	625	22	160	3	145	950	950	3	116	1	131
225	375	11	313	3	140	625	675	17	154	4	155	950	1050	1	117	1	130
225	425	34	349	3	72	625	725	9	149	1	147	950	1150	1	211	0	142
225	475	35	45	6	301	625	775	11	156	9	256	1050	950	3	145	1	130
175	475	41	13	7	157	625	575	11	213	2	74	1050	1050	2	140	1	144
125	425	69	1	20	152	625	525	14	168	3	135	1050	1150	1	228	1	201
125	375	81	352	20	162	625	475	9	188	1	20	1150	950	1	143	1	139
125	475	45	7	10	132	675	625	16	172	5	145	1150	1050	1	132	1	128
75	425	40	358	16	135	675	675	8	180	1	286	1250	950	1	156	0	105
75	375	45	342	35	141	675	725	13	149	2	122	950	1250	1	105	0	59
75	475	37	358	15	128	675	825	10	168	2	182	850	1250	0	100	0	330
25	425	22	1	13	140	675	575	22	165	10	153	850	1350	1	161	0	151
25	475	27	332	15	153	675	525	11	190	2	193	750	1250	6	141	4	159
-25	425	18	13	5	174	675	475	8	156	7	146	750	1350	1	140	3	141
-25	475	25	326	31	115	725	625	6	302	4	338	750	1450	3	103	1	140
-75	425	15	329	20	151	725	675	5	149	1	155	750	1150	7	162	5	155
325	425	7	324	6	341	725	725	6	123	3	102	750	1050	14	148	8	153
425	325	72	230	11	153	750	775	4	110	1	72	650	1250	4	144	2	136
425	375	79	227	6	201	725	575	9	182	4	182	650	1350	5	144	2	132
425	275	51	268	4	259	725	525	8	90	6	94	650	1450	3	133	2	137
375	325	55	228	6	344	725	475	7	111	1	163	650	1150	3	148	1	356
375	275	63	225	2	100	775	625	3	106	4	120	650	1050	4	74	3	28
375	375	59	247	6	267	775	675	3	154	1	177	550	1250	3	107	3	126
325	325	44	234	5	177	775	750	2	111	1	130	550	1350	3	88	2	111
325	275	52	241	2	206	775	575	16	310	12	315	550	1450	2	95	1	100
325	375	34	233	4	134	775	525	18	106	10	96	550	1150	8	133	2	168
275	325	20	254	6	142	775	475	11	157	3	188	550	1050	10	140	3	142
275	275	39	246	4	202	850	625	7	139	3	125	450	1250	4	119	4	113

|E| : Intensity(unit; mV/A·100m) of Electiric Field
φ : Azimuth(unit; Degree) of Electiric Field

X	Y	HS-14		HS-7		X	Y	HS-14		HS-7		X	Y	HS-14		HS-7	
(m)	(m)	|E|	φ	|E|	φ	(m)	(m)	|E|	φ	|E|	φ	(m)	(m)	|E|	φ	|E|	φ
450	1350	5	112	2	100	225	625	31	63	2	91	375	25	21	240	10	199
450	1150	3	77	1	200	225	675	17	43	3	60	375	75	15	206	13	266
350	1250	4	93	2	106	225	725	44	83	12	101	375	175	23	215	5	120
250	1150	3	130	3	141	225	775	46	314	22	289	375	225	18	166	3	29
750	950	7	257	5	255	275	625	37	52	1	43	375	125	21	249	20	141
750	850	2	40	1	314	275	675	36	31	7	118	425	25	17	245	12	287
650	950	5	186	3	163	275	725	23	46	3	66	425	75	20	219	2	49
650	850	11	152	8	155	275	775	4	285	12	266	425	125	18	206	6	184
575	850	11	154	3	94	-125	375	15	31	39	124	425	175	27	214	6	185
550	950	6	203	4	153	-75	375	18	70	33	100	425	225	44	135	5	118
550	875	9	128	5	218	-25	375	25	25	49	114	525	-25	8	228	7	157
525	825	7	122	2	69	25	375	19	118	35	121	475	25	12	212	10	257
475	950	6	338	7	16	-125	325	17	48	47	136	475	75	12	260	12	132
475	825	21	145	9	145	-75	325	12	68	26	126	475	125	19	188	8	183
475	775	15	185	11	195	0	325	12	53	22	148	475	175	19	197	12	200
425	925	19	164	8	174	-125	275	10	26	30	206	475	225	19	176	14	168
425	875	6	2	3	131	-75	275	4	29	8	230	550	75	10	152	10	104
450	975	5	78	2	164	-25	275	7	7	16	168	550	25	15	253	8	208
450	1050	6	81	4	118	-100	225	8	319	26	128	650	-50	5	227	2	157
375	925	9	23	7	286	-125	175	12	354	99	136	650	50	4	185	3	226
375	975	9	47	8	133	-75	200	5	338	49	153	575	125	19	185	3	156
375	1050	10	37	3	90	-125	125	12	326	126	169	575	175	19	213	4	238
475	875	27	115	9	117	-75	125	10	300	32	244	575	225	31	147	7	95
425	825	17	89	7	116	-25	125	13	323	28	180	675	225	23	259	4	230
375	875	18	116	7	111	25	150	26	336	25	181	750	225	24	258	5	300
375	825	11	98	3	25	-125	75	14	312	71	249	750	50	4	218	2	255
325	925	7	132	9	166	-75	75	12	297	52	141	750	150	6	215	2	170
325	975	8	111	1	94	-25	75	18	323	33	168	850	150	3	262	5	233
325	1025	4	122	6	139	0	200	18	356	27	173	850	250	12	263	7	165
350	1075	4	81	3	130	150	300	27	359	28	151	950	250	9	257	2	262
350	1150	2	73	2	150	-125	25	4	3	64	143	550	-150	7	262	2	302
325	875	16	106	4	164	-75	25	9	323	43	162	450	-150	10	265	4	177
325	825	7	95	2	255	-25	25	8	333	45	163	450	-250	2	275	3	263
275	925	12	125	2	106	-125	-25	9	308	37	220	350	-175	12	248	5	168
275	975	6	115	2	115	-75	-25	10	327	41	182	350	-250	5	257	7	261
275	1050	8	126	2	102	-25	-25	4	254	53	182	225	-125	10	272	2	90
275	875	8	88	1	114	25	-25	14	295	22	210	275	-125	11	265	23	149
275	825	16	115	10	144	25	25	15	316	31	176	350	-125	12	250	8	146
225	925	8	75	1	81	25	75	18	335	29	175	225	-175	7	258	17	189
225	975	5	98	1	137	75	-25	18	286	5	176	275	-175	9	249	19	273
225	1050	5	105	3	129	75	25	16	279	1	182	250	-225	8	253	13	231
225	875	10	91	2	343	75	125	12	302	5	170	250	-275	7	269	9	221
225	825	12	78	9	101	100	175	15	317	5	199	175	-125	9	261	13	156
175	950	8	49	2	149	75	225	16	109	7	270	175	-175	7	262	13	188
175	875	11	46	2	169	150	225	15	335	20	158	175	-225	7	241	21	185
175	825	14	38	10	107	75	300	21	38	16	153	175	-275	8	254	19	211
125	875	9	60	6	173	25	300	23	353	25	157	125	-125	8	274	16	178
125	825	18	344	4	97	75	75	18	303	2	241	125	-175	7	273	13	243
75	850	2	32	3	69	125	-25	15	272	17	191	125	-225	6	276	7	183
-225	650	9	21	22	82	125	25	23	276	20	182	125	-275	6	262	16	264
-175	750	6	249	5	301	125	75	13	289	19	171	150	-325	9	260	19	242
-175	625	14	65	36	132	125	150	16	344	8	201	75	-125	6	276	20	174
-125	625	11	68	8	76	175	-25	18	284	22	177	75	-175	7	275	24	205
-75	625	9	47	27	128	175	25	24	272	9	198	75	-225	7	282	16	213
-75	675	12	10	3	95	175	75	24	255	13	215	75	-275	4	261	44	163
-75	750	6	294	7	356	175	150	12	139	19	172	75	-325	7	241	49	193
-25	625	18	5	5	117	225	-25	14	262	16	229	25	-125	12	295	13	246
-25	675	12	88	7	329	225	25	18	265	17	181	25	-175	10	306	19	171
-25	750	9	353	12	202	225	75	21	266	20	180	25	-225	7	310	20	207
25	625	23	59	4	246	225	125	37	276	19	177	25	-275	2	319	9	291
25	675	24	7	13	99	225	175	9	118	12	162	25	-325	5	275	11	163
25	725	17	43	8	42	225	225	37	292	22	115	-25	-125	3	315	47	225
25	775	15	295	14	283	275	-25	17	235	12	211	-25	-175	9	284	22	230
75	625	23	19	7	205	275	25	18	255	11	160	-25	-225	3	269	22	184
75	675	22	40	12	153	275	75	26	261	9	192	-25	-275	7	309	21	224
75	725	25	45	12	142	275	125	32	246	12	211	-25	-325	1	248	12	270
75	775	15	313	4	273	275	175	33	198	11	171	-75	-125	6	334	46	228
125	625	27	29	5	164	275	225	17	176	19	133	-75	-175	4	284	34	233
125	675	16	53	5	99	325	-25	19	266	7	304	-75	-225	4	296	16	207
125	725	26	73	3	306	325	25	20	247	5	149	-75	-275	5	287	22	204
125	775	3	276	9	210	325	75	19	246	2	351	-125	-125	6	310	35	210
175	625	27	76	3	246	325	125	21	212	16	338	-125	-175	6	314	43	205
175	675	16	69	7	162	325	175	26	248	5	140	-125	-225	3	314	35	209
175	725	33	75	10	136	325	225	20	181	7	137	-175	-125	5	311	66	203
175	775	20	263	17	223	375	-25	15	238	3	56	-175	-175	3	145	59	207

|E| : Intensity(unit; mV/A·100m) of Electiric Field

φ : Azimuth(unit; Degree) of Electiric Field

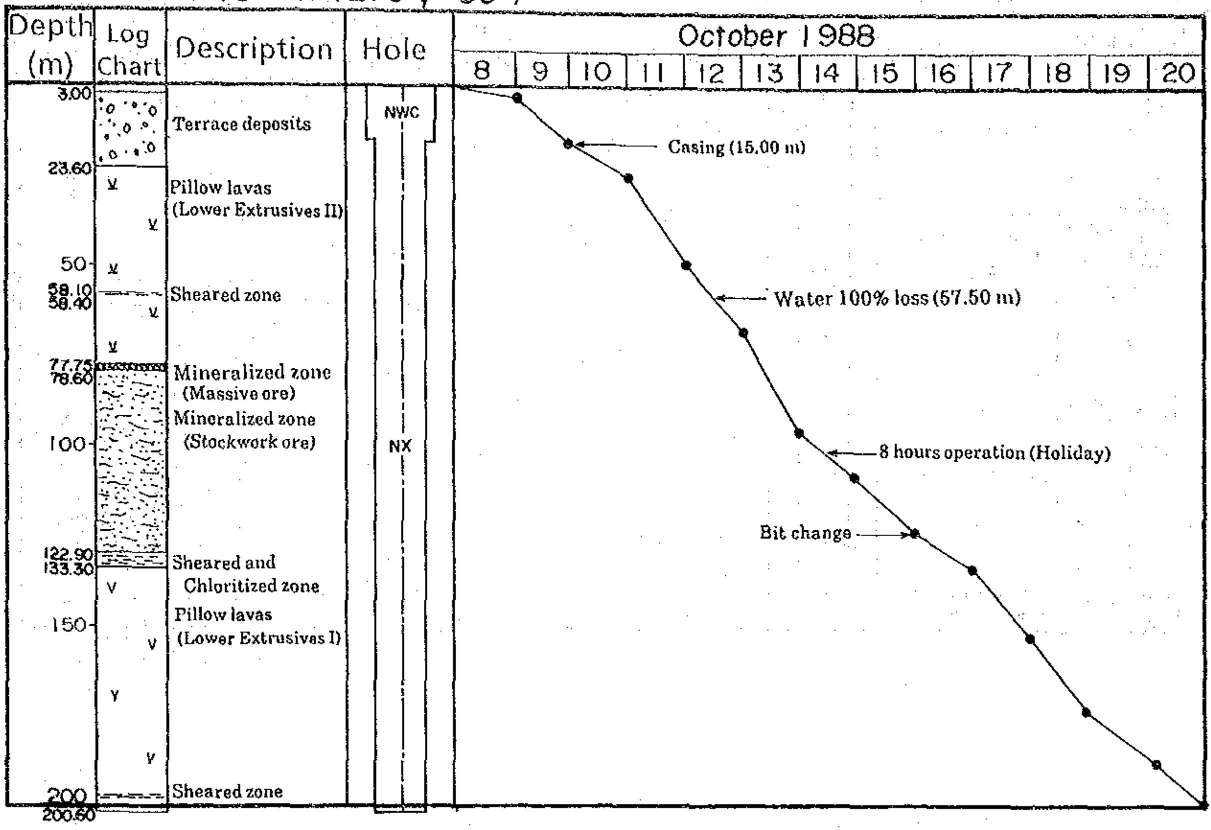
X	Y	HS-14		HS-7	
(m)	(m)	$\lvert E\rvert$	ϕ	$\lvert E\rvert$	ϕ
-150	-250	4	274	39	235
-50	-350	1	306	19	241
25	-375	1	248	36	212
50	-450	1	270	20	220
75	-375	2	239	43	244
150	-375	1	95	12	234
150	-450	1	303	4	282
150	-550	0	321	5	212
250	-350	3	277	11	262
250	-450	□	257	8	149
350	-350	2	274	6	258
-250	-250	2	311	37	246
-250	-150	4	338	44	246
-350	-150	5	130	89	265
-225	-75	5	340	109	259
-225	-125	4	319	34	220
-275	-75	3	320	105	247
-350	-50	2	341	212	255
-450	-50	5	276	160	284
825	425	7	171	8	146
725	425	3	155	5	118
775	425	10	174	4	125
850	375	7	169	4	157
850	325	5	195	3	199
-175	475	8	89	6	42
-175	425	13	131	47	124
-175	375	14	313	23	125
-175	325	16	40	22	95
-175	275	14	10	62	145
-175	225	16	337	122	145
-175	175	20	345	151	143
-175	125	13	356	113	173
-175	75	4	349	154	190
-175	25	10	331	90	198
-175	-25	9	322	90	194
-175	-75	6	305	78	207
550	-50	6	206	4	215
475	-75	7	235	7	213
425	-75	6	246	13	279
375	-75	10	220	8	240
325	-75	6	209	3	261
275	-75	13	271	12	182
225	-75	15	272	9	191
175	-75	11	269	17	237
125	-75	12	277	23	205
75	-75	11	288	19	167
25	-75	4	269	20	167
-25	-75	19	304	55	174
-75	-75	13	291	32	186
-125	-75	9	283	23	230
-225	25	11	342	136	169
-225	-25	9	335	113	214
-275	25	6	294	365	183
-275	-25	4	301	398	266
-325	25	10	297	212	249
-325	-25	6	322	418	262
-375	25	13	287	246	281
-225	75	12	0	231	249
-225	125	13	346	315	149
-225	225	8	3	138	128
-225	175	13	324	179	134
-225	275	15	15	85	124
-275	225	10	350	31	342
-275	175	3	347	539	123
-325	225	8	341	107	112
-325	175	6	1	453	95
-375	225	4	336	376	128
-225	325	17	11	28	118
-225	375	9	8	37	105
-275	325	5	12	30	131
-275	275	8	8	164	123
-275	375	4	38	57	113
-325	325	5	41	55	134
-325	275	6	349	75	24
-325	375	7	343	64	110
-375	325	6	4	41	76
-375	275	4	2	79	114
-375	375	9	287	15	313
-225	425	22	344	23	71
-225	475	8	321	14	137
-275	425	4	330	16	113
-275	475	8	330	24	124
-275	550	8	19	20	97
-325	450	4	307	22	129
-225	550	8	154	15	108
-275	650	9	316	11	12
-350	650	3	33	32	106
-350	550	9	342	10	79
-375	450	7	123	83	137
-450	550	2	3	18	143
-450	450	8	1	38	83
-550	450	0	4	31	49
-475	350	5	50	40	90
-425	350	5	232	43	161
-550	350	4	5	43	46
-650	350	1	95	42	21
-475	275	4	6	47	97
-425	275	5	161	42	103
-475	225	4	25	90	96
-425	225	7	174	220	23
-525	250	8	8	108	39
-575	250	1	73	99	4
-650	250	1	343	33	31
-750	250	0	34	28	33
-475	175	8	339	299	358
-425	175	1	65	300	95
-375	175	10	121	168	23
-475	125	4	52	376	57
-550	150	3	66	197	16
-650	150	4	86	82	0
-425	125	3	316	284	52
-375	125	1	332	431	82
-325	125	6	81	411	127
-275	125	1	135	286	154
-425	75	2	37	146	13
-375	75	0	56	2	0
-325	75	1	327	261	192
-275	75	0	286	413	189
-450	50	3	187	89	349
-550	50	6	320	194	354
125	950	8	59	8	140
150	1100	6	34	2	76
50	950	6	39	0	304
25	850	5	36	9	142
-50	950	4	70	13	125
-50	850	3	56	4	299
-150	850	4	28	7	145
-250	750	3	144	16	139
675	425	5	204	1	268
425	-25	11	258	15	117
-75	475	3	293	19	116
-125	425	3	19	24	159
-125	475	12	359	41	125

|E| : Intensity (unit; mV/A·100m) of Electiric Field
ϕ : Azimuth (unit; Degree) of Electiric Field

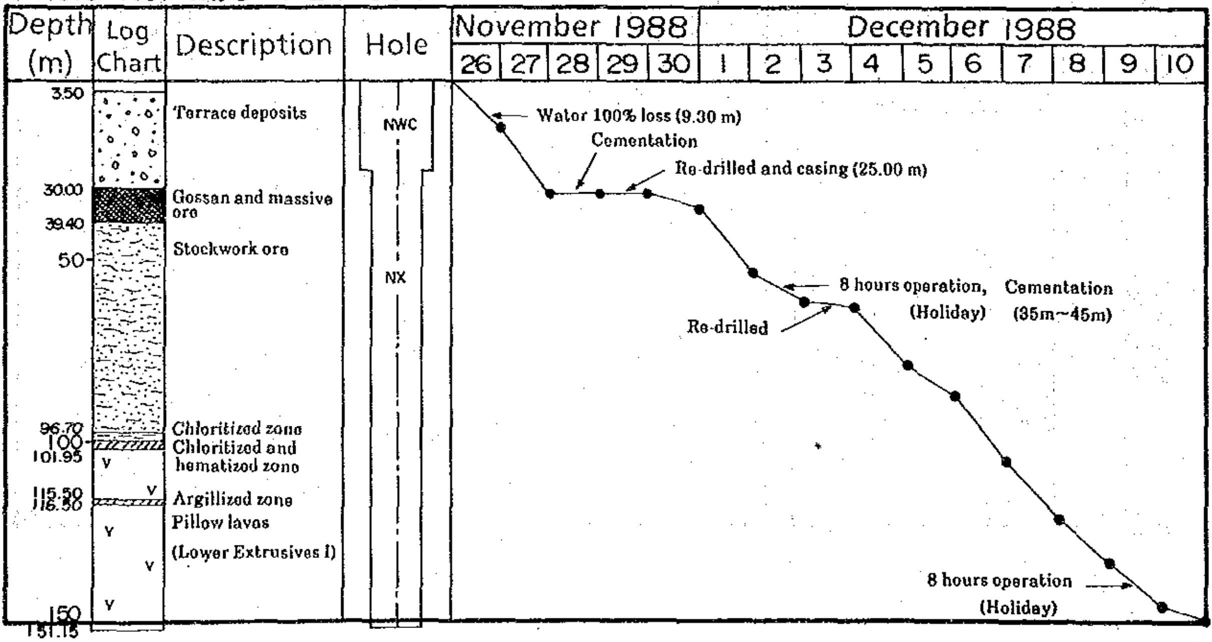
Appendix 7

Progress of the each drill hole in area A

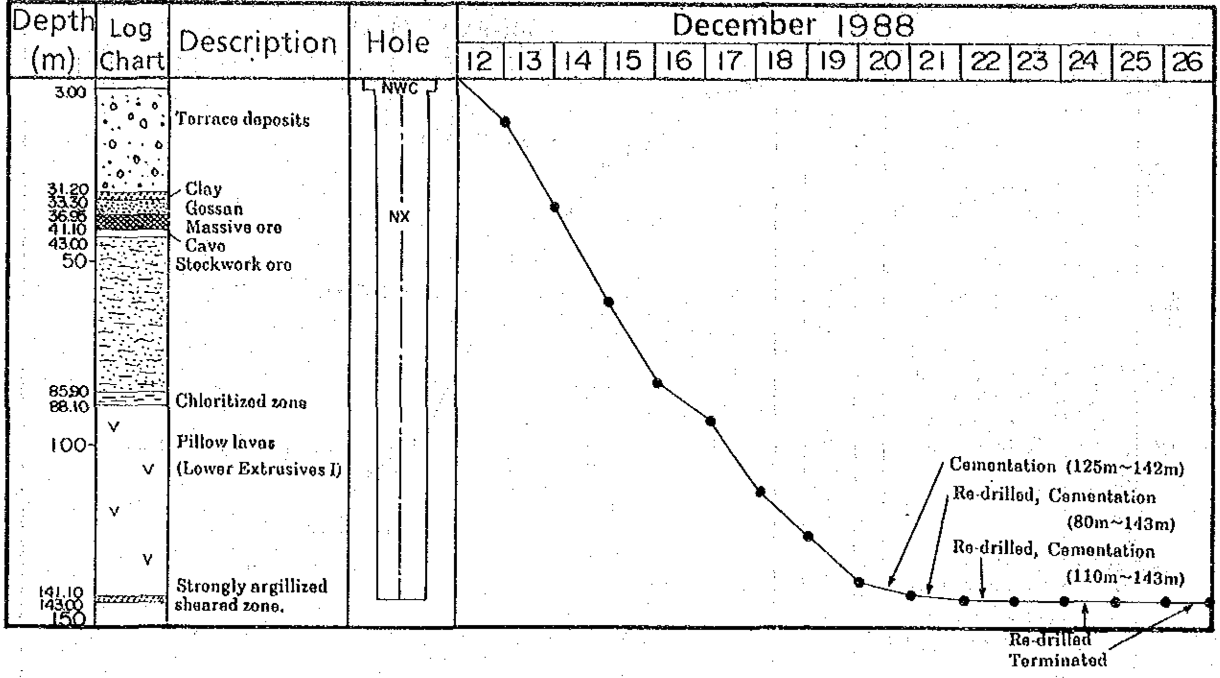
Hole No. MJO-A1 (270°, -50°)



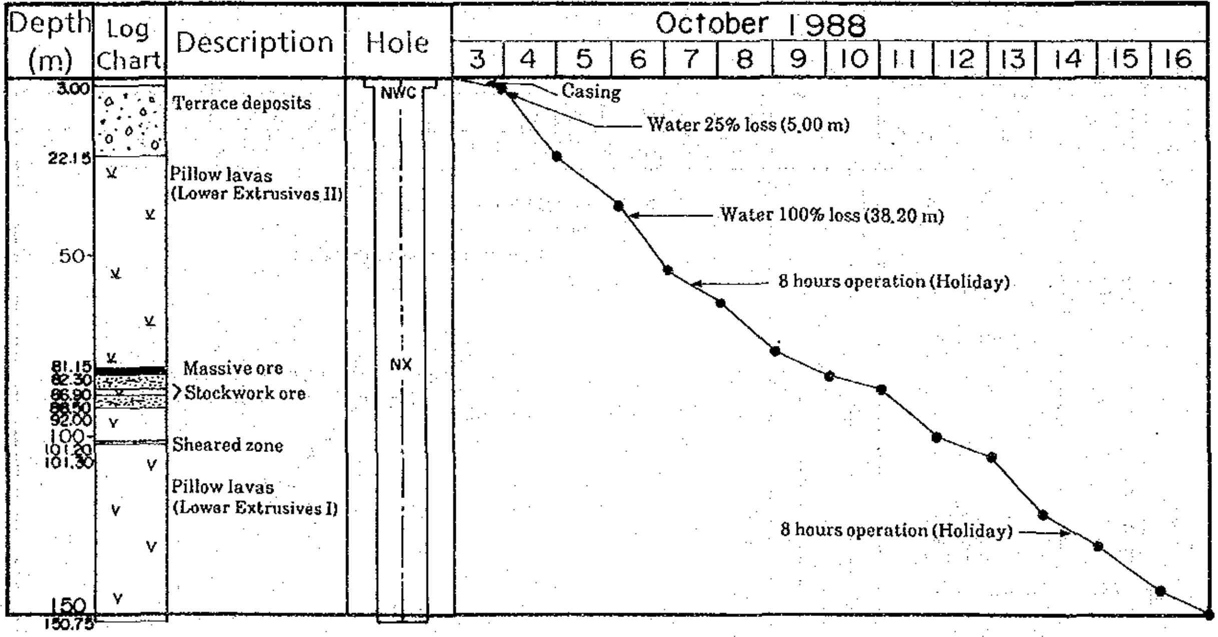
Hole No. MJO-A2 (-90°)



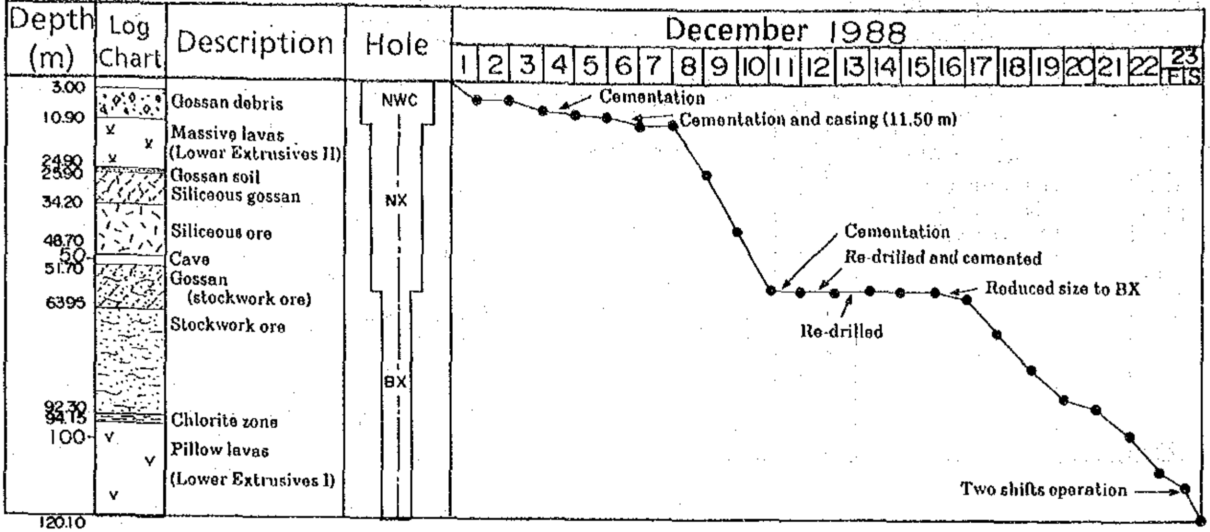
Hole No. MJO - A3 (270°, -50°)



Hole No. MJO - A4 (-90°)

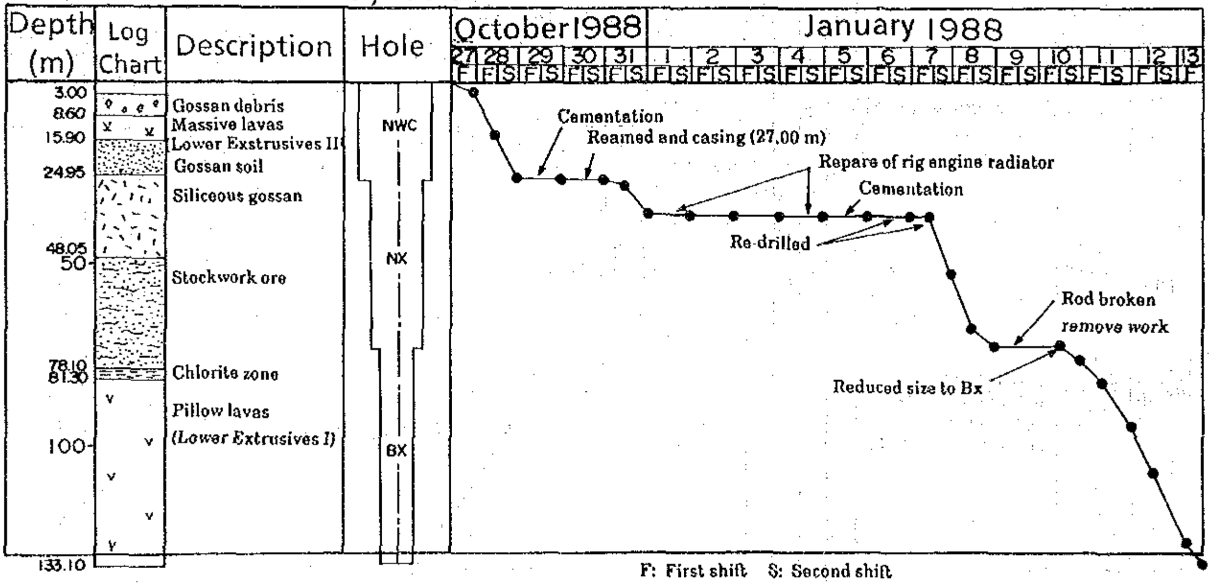


Hole No. MJO－A5(－90°)



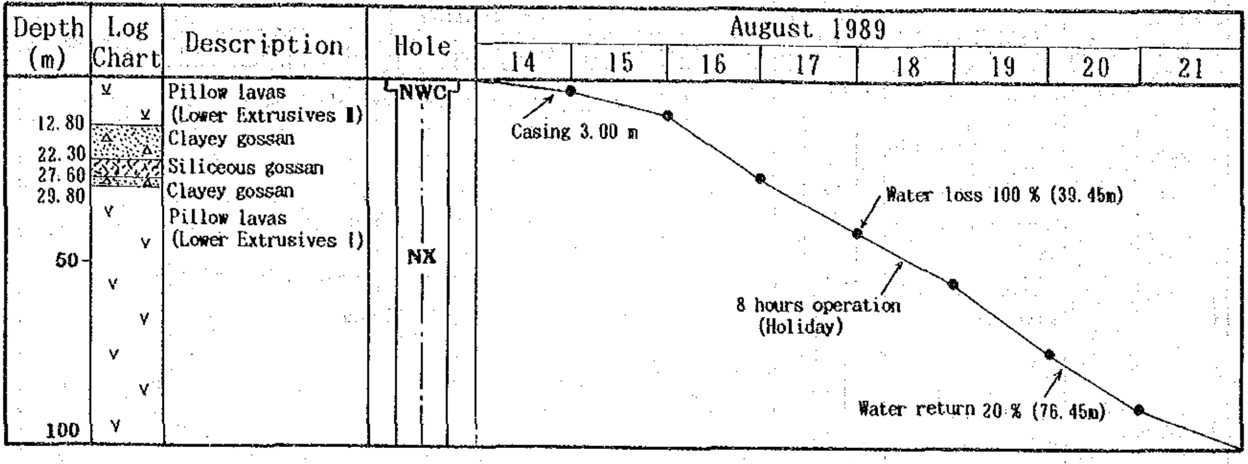
F: First shift S: Second shift

Hole No. MJO－A6(0°, －50°)

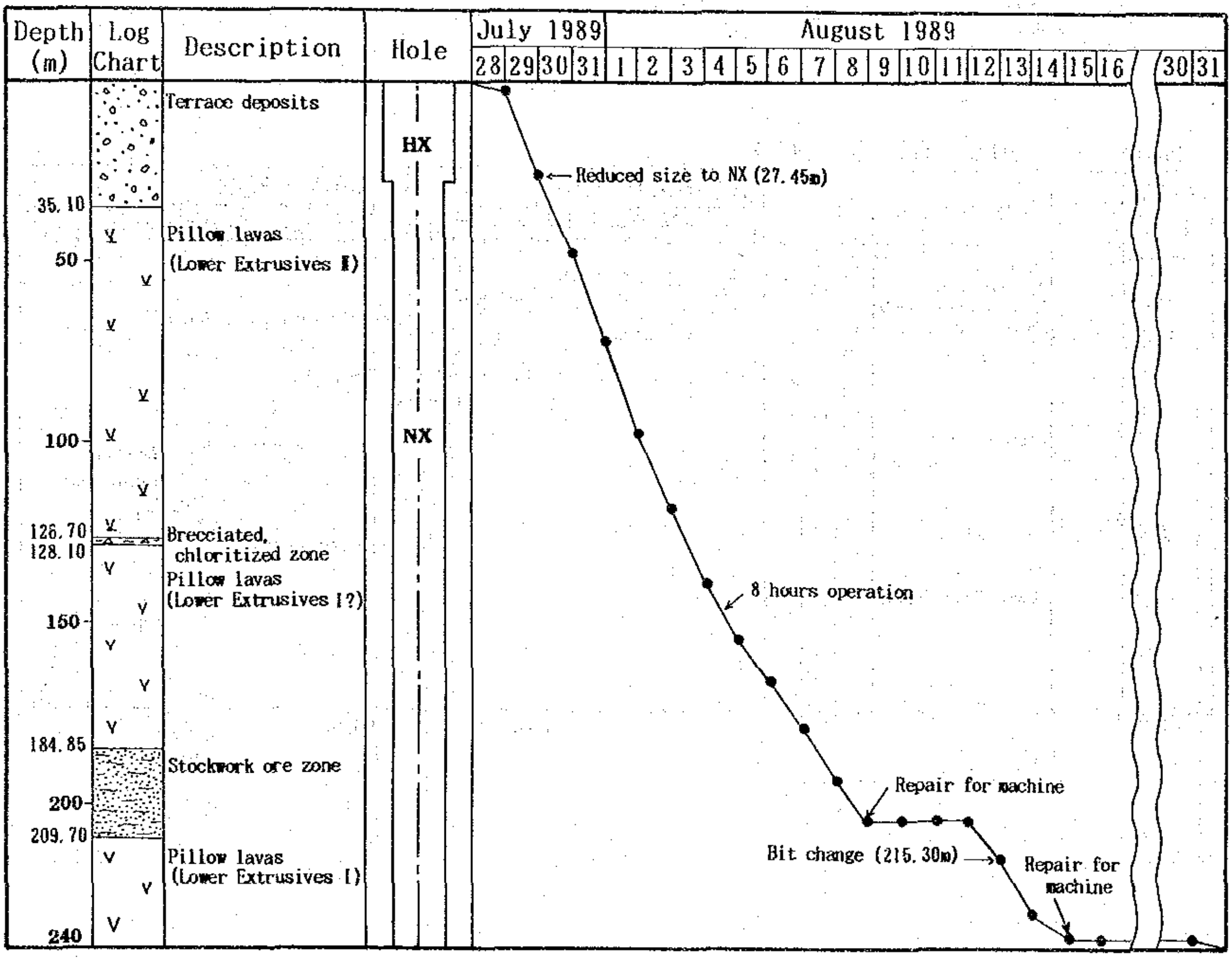


F: First shift S: Second shift

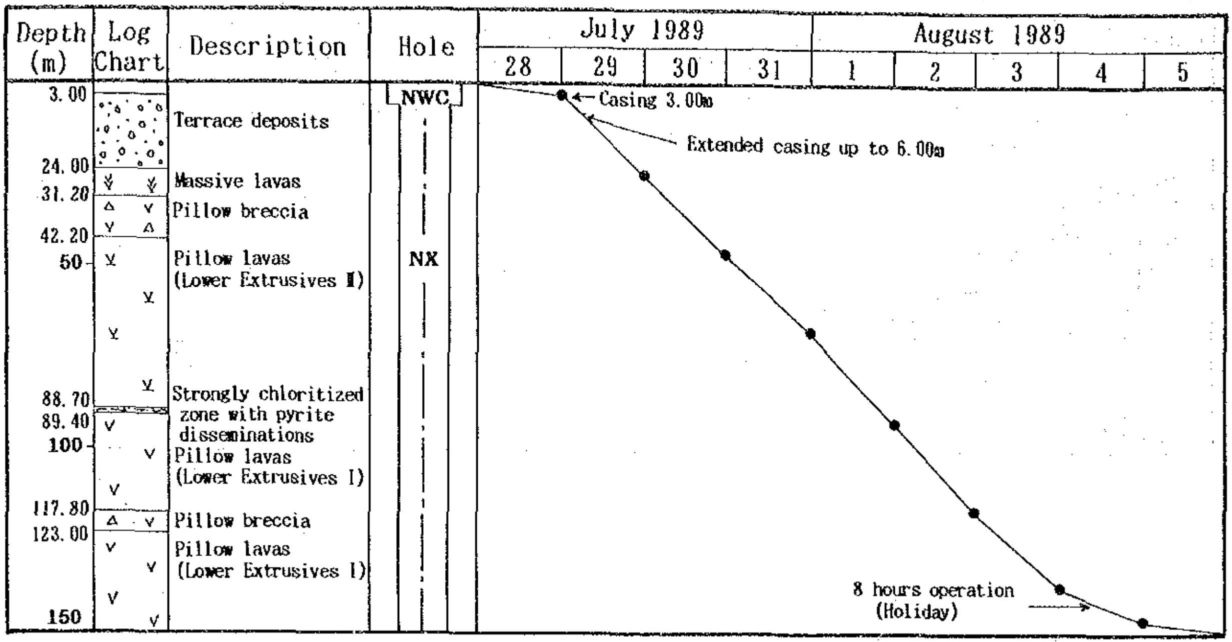
Hole No. MJO-A7 (-90°)



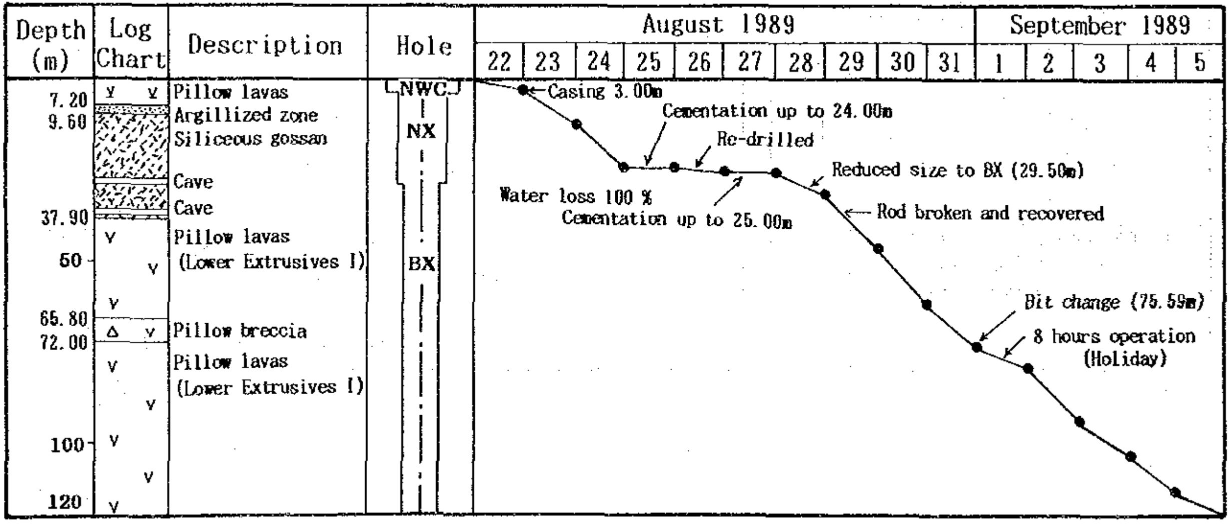
Hole No. MJO-A8 (-90°)



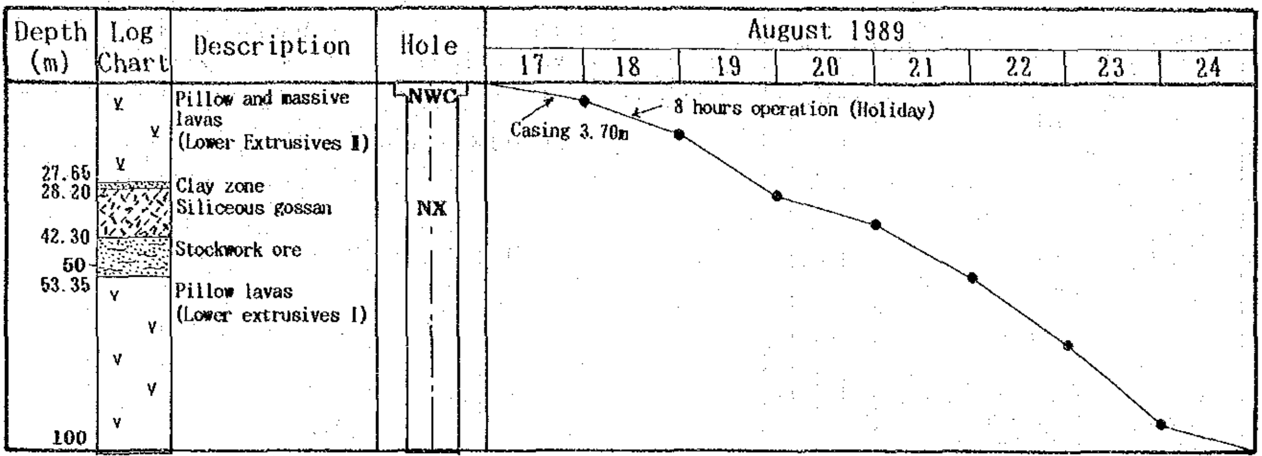
Hole No. MJO-A9 (-90°)



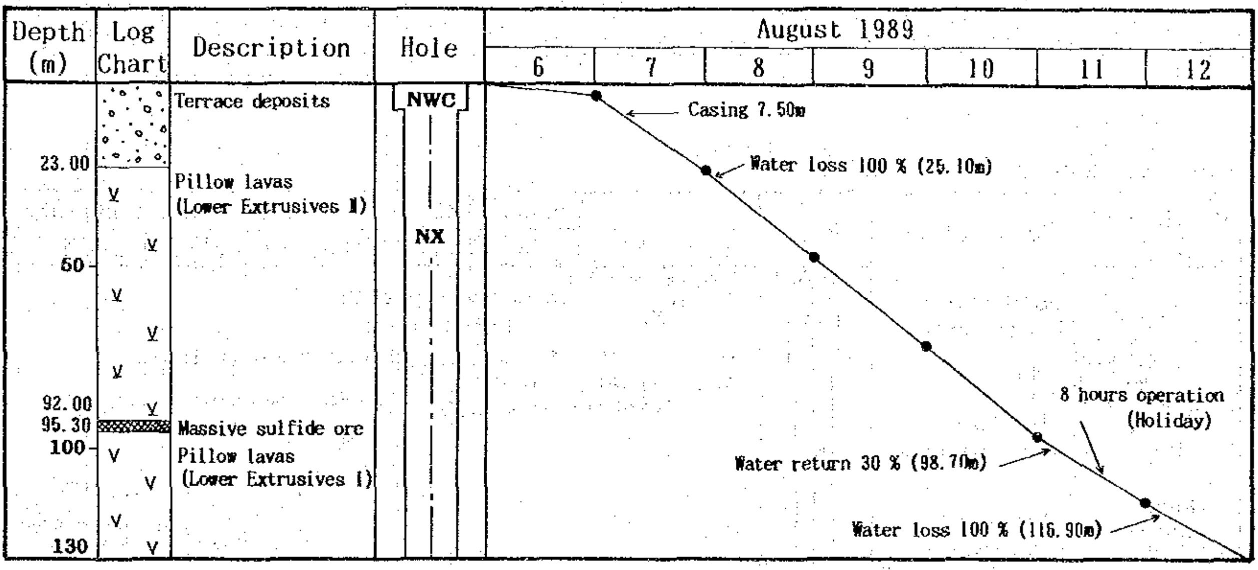
Hole No. MJO-A10 (0° ,-50°)



Hole No. MJO-A11 (-90°)



Hole No. MJO-A12 (-90°)



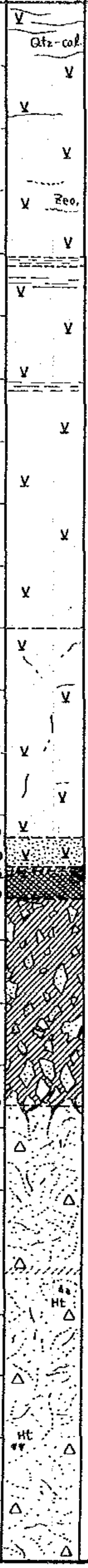
Appendix 8

Geologic core log for the drill holes in area A

Hole No. MJO－A 1 (From 0.00 m to 50.00 m)

Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
		Casing. No recovery.								
3.00		Terrace deposits. Gravel and sand Rounded to subrounded Pebble to granule in size.								
10		Locally cemented with calcite.								
		Completely cemented with calcite.								
20										
23.60		Light brownish green brecciated Poillow lava. Fractures filled with hematite and calcite. Weakly weathered.								
27.40		Light green pillow breccia. Hematite dominant in matrix.								
28.60		Light brownish green pillow lava weakly brecciated. Vesicles filled with calcite.								
30										
		34.70~35.00 Sheared zone with calcite, hematite and clay 38.40~39.40 Dominant hematite zone								
39.40		Green chloritized massicve lava with calcite stringers.								
40										
43.15		Green~dark green chloritized pillow breccia with dominant hematite in matrix.								
45.70		Dark green and light green pillow lava. Chloritized. 47.60~48.70 Brecciated								
50										

Hole No. MJO - A I (From 50.00 m to 100.00 m)



Depth (m)	Lithology and Alteration	Mineralization
58.10 58.40	Sheared zone with quartz and hematite veinlets. Chloritized .	
60	Dark green chloritized pillow lava. 58.70 Sheared 3 cm 58.90 Sheared 2 cm 62.10~70.00 Green in color	
70	Dark green~dark brownish green brecciated strongly chloritized pillow lava. Hematite in matrix and along fractures.	
76.70	Light yellowish green brecciated strongly argillized pillow lava.	
77.60	Hematite-clay zone.	
77.75	Massive sulfide zone.	Pyrite≫chalcopyrite massive ore with angular hematite and silicified rocks fragment.
78.60	Stockwork zone with sulfides. Fragment : strongly silicified.	Stockwork ore. Sulfide 30~80 Vol. % in strongly silicified rocks.
85.30	Light green strongly silicified and brecciated zone with stockwork mineralization. Argillized in part. 90.50~90.70 Clay zone	Pyrite > chalcopyrite with quartz veinlets and disseminations. Stockwork zone. Minor hematite fragment in places.
100		

Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
77.75	0.85	2.0	2.6	1.08	<0.01	0.06
78.60	2.00	2.2	5.1	0.68	<0.01	0.07
80.60	2.00	1.9	8.0	0.64	<0.01	0.29
82.60	2.00	1.1	8.5	0.76	<0.01	0.50
84.60	2.00	1.0	3.1	0.33	<0.01	0.27
86.60	2.00	0.1	0.7	0.40	<0.01	0.06
88.60	2.00	Tr	1.1	0.53	<0.01	0.40
90.60	2.00	0.1	1.2	0.90	<0.01	0.27
92.60	2.00	Tr	Tr	0.89	<0.01	0.15
94.60	2.00	Tr	Tr	0.69	<0.01	0.13
96.60	2.00	Tr	Tr	0.36	<0.01	0.18
98.60	2.00	Tr	Tr	0.38	<0.01	0.10

Hole No. MJO－ A1 (From 100.00 m to 150.00 m)

Depth (m)	Chart	Lithology and Alteration	Mineralization
110 120			
125.00 125.15		125.00~125.15 Dark brown brecciated clay zone	
126.60 127.20		126.60~127.20 Brecciated strongly clhloritized zone.	126.00~127.20 Pyrite disseminations
129.90 130 130.15		Sheared zone with hematite, chlorite and gray clay. Strongly chloritized phyllitic zone.	Pyrite disseminations. 132.30~133.20 Siliceous stockwork ore
133.30		Dark green chloritized, weakly brecciated pillow lava.	Quartz-hematite stringers No sulfide minerals.
136.70		Light green aphanitic pillow lava. Weakly chloritized. Fractures filled with hematite and calcite.	
139.70 140		Same as 133.30~136.70 Hematite in fractures	Calcite-quartz stringers.
149.20 150		Dark brownish green pillow lava and pillow breccia. Hematite and chlorite.	Calcite stringers.

Depth (m)	D.L. (m)	Au. (g/t)	Au (g/t)	Cu (%)	Pb (%)	Zn (%)
100.60 102.60	2.00	Tr	Tr	0.51	<0.01	0.11
102.60 104.60	2.00	Tr	Tr	0.66	<0.01	0.14
104.60 106.60	2.00	Tr	0.3	0.36	<0.01	0.18
106.60 108.60	2.00	Tr	Tr	0.41	<0.01	0.16
108.60 110.60	2.00	0.8	1.6	0.52	<0.01	0.30
110.60 112.60	2.00	0.2	4.1	0.29	<0.01	0.68
112.60 114.60	2.00	0.9	2.3	0.51	<0.01	0.66
114.60 116.60	2.00	0.6	3.1	1.38	<0.01	0.69
116.60 118.60	2.00	0.3	3.3	0.37	<0.01	1.20
118.60 120.60	2.00	0.3	1.6	0.41	<0.01	0.14
120.60 122.60	2.00	0.1	1.8	0.64	<0.01	0.21
122.60 124.60	2.00	0.5	1.7	0.75	<0.01	0.56
124.60 126.60	2.00	0.6	3.5	0.69	<0.01	0.73
126.60 128.60	2.00	1.1	3.0	0.63	<0.01	1.36
128.60 130.15	1.55	0.8	4.3	1.00	<0.01	1.08
130.15 132.30						
132.30 133.20	0.90	1.9	3.2	0.49	<0.01	0.95

Hole No. MJO - A 1 (From 150.00 m to 200.60 m)

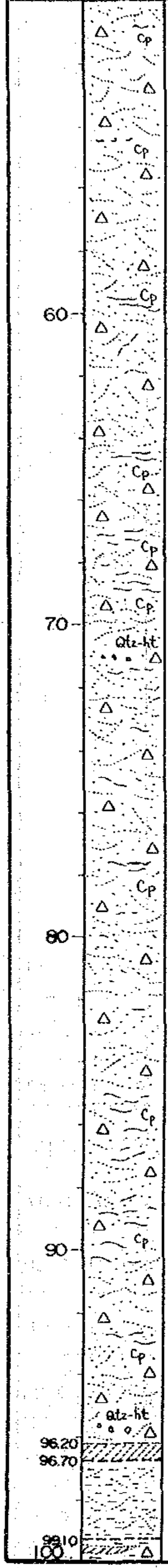
Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
										
155.70		Gray clay zone								
155.75		Light green (fragment) and reddish-brown (matrix) brecciated pillow lava. Chloritized, hematized and weakly sheared.								
160										
161.60		Light green weakly chloritized pillow lava. Fractures and matrix filled with hematite.								
170										
180										
182.80		Green chloritized and weakly brecciated pillow lava. Fractures filled with hematite 185.40~185.70 Weakly sheared								
187.00		Dark green strongly chloritized pillow lava. Fractures filled with hematite. Vesicles filled with chlorite and zeolites.								
190										
		196.70~197.30 Sheared and brecciated zone Chloritized and argillized 198.20~198.50 Brecciated zone								
200		200.60 End of hole								
200.60										

Hole No. MJO－A2 (From 0.00 m to 50.00 m)

Depth (m)	Lithology and Alteration	Mineralization
	Casing. No recovery.	
3.50	Gravel and sand (terrace deposits) Gravel :gabbro dominant (boulder to pebble)	
10		
19.20	Gravel and sand. Gravel :gabbro dominant Cemented with calcite.	
20		
25.30	Gravel and sand. Cemented with calcite in part	
30	Reddish brown gossan soil.	Mostly hematite
30.70	Siliceous ore. Intensoly silicified and brecciated rock.	Matrix : coarse-grained pyrite with minor cholcopyrite and homatile.
32.45	Reddish-brown weathered ore zone.	Hematite and gathite with angular silicoous fragments.
34.80	Massive ore zone.	
35.50	Weathered massive ore zone.	Massive sulfide and hematite-gathite with minor siliceous fragments.
38.20	More sulfides.	
39.40	Strongly silicified and brecciated zone with sulfide mineralization (stockwork ore). 39.40~81.50 Matrix of breccia filled with hematite in places	Pyrite > chalcopyrite stringers, spots and disseminations Quartz veinlet network and brecciated quartz fragments. Fructures filled with quartz.
40		
50		

Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
30.00						
	2.00	1.5	8.4	0.55	<0.01	0.04
32.00						
	2.00	2.9	7.7	1.13	<0.01	0.03
34.00						
	1.50	2.0	8.8	0.17	<0.01	0.02
35.50						
	2.00	1.1	4.3	0.42	<0.01	0.02
37.50						
	1.90	2.5	10.5	1.11	0.01	0.07
39.40						
	2.00	1.2	11.0	0.77	<0.01	0.38
41.40						
	2.00	0.6	4.0	0.33	<0.01	0.28
43.40						
	2.00	Tr	Tr	0.24	<0.01	0.29
45.40						
	2.00	0.7	3.5	0.25	<0.01	0.21
47.40						
	2.00	0.7	2.0	0.63	<0.01	0.21
49.40						

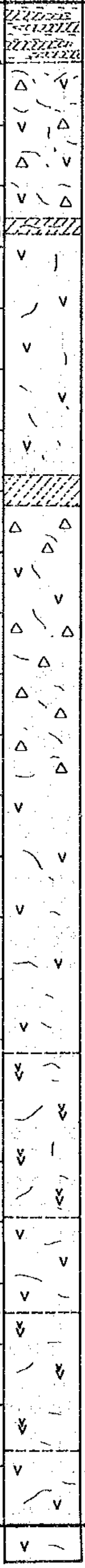
Hole No. MJO-A2 (From 50.00 m to 100.00 m)



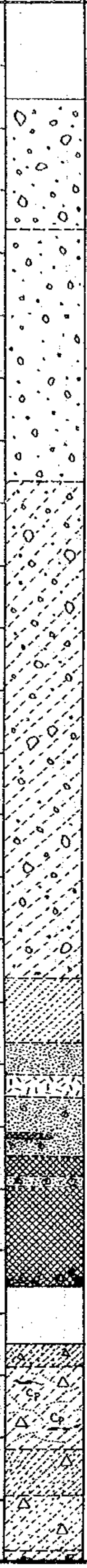
Depth (m)	Lithology and Alteration	Mineralization
	50.40~62.30 Hematite dominant in matrix	51.70 Sphalerite in spots
96.20	Light green clay zone.	Pyrite disseminations
96.70	Dark green strongly chloritized rock.	Pirite stringers and disseminations.
98.10	Mixture of chloritized and hematized zones.	

Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
	2.00	0.5	1.8	1.03	<0.01	0.06
51.40	2.00	Tr	Tr	1.09	<0.01	0.13
53.40	2.00	0.2	1.0	1.36	<0.01	0.18
55.40	2.00	0.4	0.7	0.72	<0.01	0.09
57.40	2.00	0.4	1.8	2.12	<0.01	0.14
59.40	2.00	0.1	1.3	0.97	<0.01	0.09
61.40	2.00	0.2	1.5	0.77	<0.01	0.26
63.40	2.00	0.2	2.0	0.67	<0.01	0.35
65.40	2.00	0.1	1.5	0.60	<0.01	0.18
67.40	2.00	0.3	1.2	0.77	<0.01	0.28
69.40	2.00	0.1	1.5	0.46	<0.01	0.15
71.40	2.00	Tr	Tr	0.33	<0.01	0.11
73.40	2.00	0.2	0.9	0.38	<0.01	0.07
75.40	2.00	Tr	Tr	0.35	<0.01	0.05
77.40	2.00	0.2	0.6	0.56	<0.01	0.20
79.40	2.00	0.3	0.6	0.40	<0.01	0.06
81.40	2.00	Tr	Tr	0.42	<0.01	0.08
83.40	2.00	0.5	2.1	0.76	<0.01	0.19
85.40	2.00	0.6	3.6	4.92	<0.01	0.33
87.40	2.00	0.3	2.6	1.08	<0.01	0.50
89.40	2.00	0.3	1.8	0.71	<0.01	0.65
91.40	2.00	0.2	1.8	1.15	<0.01	0.43
93.40	2.00	Tr	Tr	0.24	<0.01	0.17
95.40	0.80	Tr	Tr	0.08	<0.01	0.10
96.20						

Hole No. MJO-A2 (From 100.00 m to 151.15 m)

Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
										
101.95		Light green~green strongly chloritized and brecciated pillow lava. Minor hematite in places. Quartz in matrix and stringers.								
107.00 107.50		Reddish brown hematite zone with quartz stringers.								
110		Green chloritized and weakly brecciated pillow lava. with quartz stringers. Hematite in matrix.								
115.50 116.50		Light green argillized zone.								
		Dark green~dark brown hematized and chloritized pillow lava to pillow breccia with quartz stringers.								
120		116.50~117.90 Strongly brecciated zone 120.00~125.30 Pillow breccia strongly hematized								
130										
134.40		Green chloritized doleritic massive lava. Hematite and quartz stringers and veinlets.								
139.90 140		Dark green~dark brown chloritized pillow lava with quartz stringers.								
143.00		Green massive lava with quartz and calcite stringers. Vesicles filled with calcite.								
147.55		Same as 139.90~143.00								
150		151.15 End of hole								
151.15										

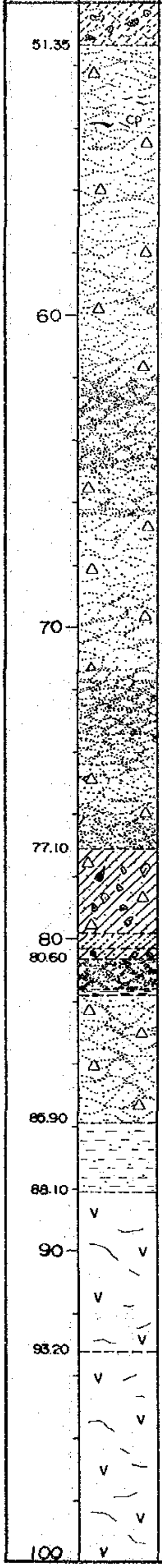
Hole No. MJO-A3 (From 0.00 m to 50.00 m)



Depth (m)	Lithology and Alteration	Mineralization
	Casing. No recovery	
3.00	Terrace deposits. Gravel and sand. Gabbro boulder dominant.	
7.20	Gravel and sand. Locally cemented with calcite. Mostly cobble to granule in size	
13.25	Gravel and sand. Cemented with calcite. Gabbro boulder in places.	
31.20	Clay zone. Light yellowish gray and locally reddish brown.	
33.30	Dark reddish brown gossan soil.	
34.30	Red siliceous gossan with hematite.	Brecciated with siliceous fragment.
35.00	Reddish brown gossan, possible massive ore	36.20~36.40 Fine-grained massive ore
36.95	Massive ore.	36.95~37.60 Pyrite ≫ chalcopyrite brecciated. Fine-grained.
37.60	Brecciated zone with siliceous fragments.	
37.90	Brecciated massive ore. Lower part: siliceous fragments	37.90~41.10 Pyrite > chalcopyrite. Fine grained.
41.10	Cave. No recovery	
43.00	Gray brecciated clay zone.	Pyrite disseminations.
43.70	Light argillized, brecciated zone. Silicified in part. Hematite in matrix locally. 46.40~47.90 Strongly argillized and brecciated	Pyrite disseminations. Chalcopyrite:pyrite fragments in matrix.
49.70		
50		

Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
36.20	1.70	5.2	18.2	1.89	0.01	0.06
37.90	1.60	1.8	20.3	9.44	0.01	0.03
39.50	1.60	1.1	17.1	12.44	<0.01	0.05
41.10						
43.00	2.00	1.0	8.1	2.37	<0.01	0.04
45.00	2.00	0.3	8.5	2.24	<0.01	0.04
47.00	2.00	0.9	11.1	2.80	0.01	0.04
49.00	2.00	2.4	12.1	2.43	<0.01	0.04

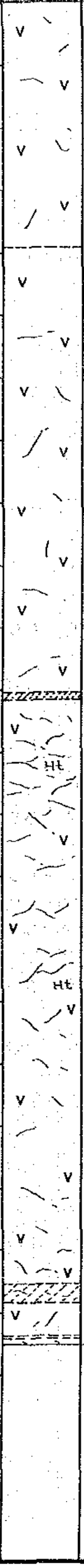
Hole No. MJO-A3 (From 50.00m to 100.00m)



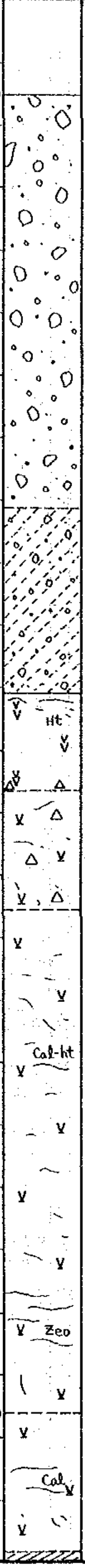
Depth (m)	Lithology and Alteration	Mineralization
	Light gray argillized and hematized zone with siliceous and sulfides fragments.	Sulfide fragment: Pyrite Sulfides: 35 vol%
51.35	Light green silicified and brecciated zone with mineralization. Locally argillized. Quartz-hematite fragments in places.	Chalcopyrite-pyrite quartz stockwork zone 53.00 Bornite-chalcopyrite spots 52.60~53.80 Chalcopyrite rich Pyrite: 20 vol% Chalcopyrite: 6 vol% 62.10~64.90 Sulfides (pyrite): 50 vol% 66.10~66.30 Sulfides (pyrite): 70 vol% 71.60~74.40 Sulfides (pyrite): 50~60 vol% 76.10~77.10 Sulfides (pyrite and chalcopyrite): 75 vol%
77.10	reddish brown strongly hematized and brecciated zone with sulfides and siliceous fragments. Matrix: Mostly hematite 79.80~80.30 Hematitic clay	
80.60	Light green brecciated and strongly silicified zone. Lower part: Strongly brecciated and weakly chloritized 81.60~81.80 Strongly chloritized zone	80.60~81.40 Sulfides (pyrite): 60 vol% 81.60~81.80 Pyrite disseminations
85.90	Sttrongly chloritized zone with hematite bands. Dark green	Weak pyrite disseminations
88.10	Light green~green pillow lavas chloritized with quartz-hematite veinlets and calcite stringers weakly brecciated. Variole like texture visible.	
93.20	Dark green and dark brown weakly brecciated pillow lavas chloritized. Variole-like texture visible. Hematite in fracture and calcite stringers.	

Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
51.00	2.00	1.1	17.4	3.39	<0.01	0.05
53.00	2.00	0.4	10.6	3.04	<0.01	0.06
55.00	2.00	0.5	8.9	1.69	<0.01	0.05
57.00	2.00	0.3	4.9	1.58	<0.01	0.06
59.00	2.00	0.5	6.5	1.26	<0.01	0.14
61.00	2.00	0.4	8.5	0.33	<0.01	0.21
63.00	2.00	0.2	8.8	3.26	<0.01	0.09
65.00	2.00	0.8	8.6	2.97	<0.01	0.08
67.00	2.00	0.6	5.6	1.61	<0.01	0.12
69.00	2.00	0.3	4.8	1.75	<0.01	0.19
71.00	2.00	0.4	6.0	1.00	<0.01	0.42
73.00	2.00	2.1	7.7	1.14	<0.01	0.79
75.00	2.10	1.0	20.7	4.37	0.01	0.18
77.10	1.80	2.4	12.4	0.43	<0.01	0.02
78.90	1.70	2.8	4.4	0.82	<0.01	0.01
80.60	2.00	0.7	11.5	1.98	0.01	0.29
82.60	2.00	1.0	3.4	0.65	<0.01	0.11
84.60	1.30	0.7	4.8	0.34	<0.01	0.14
85.90						

Hole No. MJO-A3 (From 100.00 m to 143.00 m)

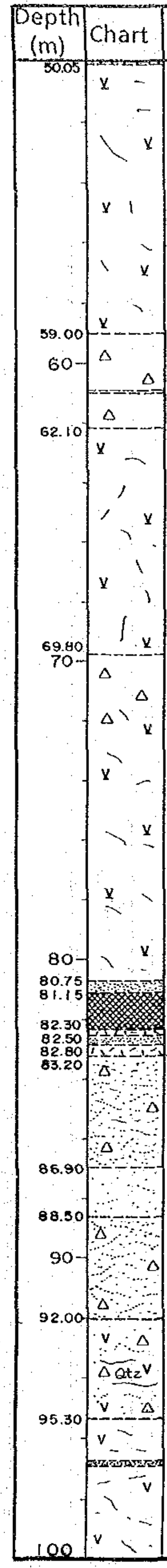
Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
107.80		Light green chloritized pillow lavas. Hematite in matrix and fractures. Calcite stringers variole-like texture in places.								
110										
120										
122.10 122.30		Strongly argillized sheared zone.								
		Light green and locally dark green pillow lavas. Hematite dominant in fractures variole-like texture visible.								
130										
140										
141.10 141.70		141.10~141.70 Strongly argillized sheared zone. 141.70~143.00 Weakly argillized. 142.70~142.80 Sheared and fractured.								
143.00		143.00 m End of hole								
150										

Hole No. MJO - A4 (From 0.00 m to 50.00 m)



Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
		Casing. No recovery.								
3.00		Gravel and sand (terrace deposits) Gravel : peridotite > gabbro Matrix : sand and calcite.								
10										
16.20		Terrace deposits. Rounded to subangular pebble to granule. Matrix : completely cemented with calcite								
20										
22.15		Dark green medium-grained basaltic massive lava with epidote. Calcite-hematite stringers. Bottom : argillized and brecciated								
25.30		Light brownish-green argillized and weathered pillow lava. Weakly brecciated.								
29.10		Light green~green pillow lava with closely packed pillows. Zeolite and epidote spots and in vesicles. Weakly weathered								
30										
40										
45.20		Dark bluish-green weakly chloritized and brecciated pillow lava 49.60~49.80 Sheared zone with calcite 49.85~50.05 Hyaloclastite with dominant hematite								
50										

Hole No. MJO－A4 (From 50.00 m to 100.00 m)



Depth (m)	Lithology and Alteration
59.00	Light bluish-green chloritized pillow breccia. Vesicles filled with zeolite. Calcite stringers. 60.80~60.85 Sheared zone with chlorite, calcite
62.10	Light green weakly chloritized and weakly brecciated pillow lava. (same as 45.20~59.00)
69.80	Dark green weakly brecciated and strongly chloritized pillow lava. Upper part : brecciated Lower part : comparatively massive Quartz, hematite and zeolites stringers. Vesicles filled with zeolites. Bottom part : weakly argillized
80.75	Pyrite-clay zone.
81.15	Massive ore.
82.30	Siliceous ore
82.50	Pyrite-clay zone
82.80	Silicious ore
83.20	Stockwork zone: Green~light green brecciated and weakly silicified zone (pillow lava)
86.90	Poor mineralized zone.
88.50	Same as 83.20~86.90.
92.00	Green~light green brecciated Chloritized and weakly silicified pillow lava.
95.30	Brownish-green weakly chloritized and brecciated pillow lava with hematite in matrix. 96.70~96.80 Quartz and clay zone.

Mineralization

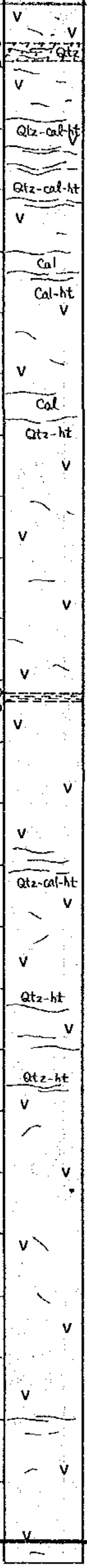
80.75~81.15
Pyrite in gray clay with hematite
81.15~82.20
Massive medium to fine-grained pyrite ≫ chalcopyrite zone with minor clay
82.30~82.50
Dense pyrite and chalco pyrite in siliceous fragment
82.50~82.80
Dense pyrite dissemination in gray clay sheared.
82.50~83.20
Same as 82.30~82.50
83.20~86.90 and 88.50~92.00
Pyrite > chalcopyrite stockwork zone with quartz-hematite
92.00~95.30
Pyrite disseminations

No sulfide minerals.

98.50~101.20
Very weak pyrite disseminations

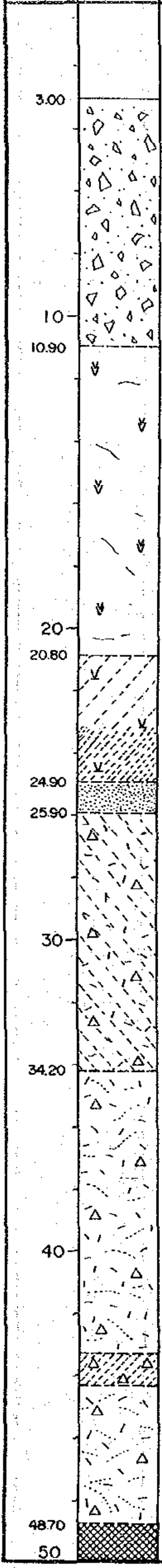
Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
80.75	1.55	1.2	4.5	3.24	0.01	0.34
82.30	0.90	2.2	11.6	3.81	<0.01	0.54
83.20	1.80	0.1	2.6	0.60	<0.01	0.55
85.00	1.90	0.4	5.8	1.67	<0.01	0.27
86.90						
88.50	1.80	0.2	5.2	1.19	<0.01	0.28
90.30	1.70	0.1	2.8	1.17	<0.01	0.09
92.00						

Hole No. MJO – A4 (From 100.00 m to 150.75 m)



Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
101.20 101.60		Strongly chloritized sheared and argillized zone.								
		Dark green chloritized and weakly silicified pillow lava. Weakly brecciated. Many quartz, calcite and hematite vein to stringers. Hematite in matrix.								
110										
120										
122.40 122.60		Strongly chloritized sheared and argillized zone.								
		Dark green~green chloritized and weakly silicitied pillow lava. Weakly brecciated. Calcite-quartz with minor hematite veins, veinlets and stringers.								
130										
		136.60~126.90 Hematite dominant zone in matrix								
140										
		145.90 Hematite-quartz vein 4 cm								
150		150.75 End of hole								
150.75										

Hole No. MJO - A5 (From 0.00 m to 50.00 m)



Depth (m)	Lithology and Alteration	Mineralization
	Casing. No recovery.	
3.00	Gossan debris (Overburden)	
10.90	Light green doleritic massive lavas. Weakly brecciated locally. Hematite band and in fractures. Calcite stringers. 19.90~20.80 Weathered	
20.80	Light green argillized and chloritized pillow lavas. Weakly sheared and weathered. 23.00~24.90 Strongly argillized and weathered	Weak pyrite disseminations.
24.90	Reddish brown gossan soil. Hematite, limonite and clay.	
25.90	Siliceous gossan. Brecciated siliceous fragments with gray clay. Cemented with hematite. Dominant limonite and hematite.	
34.20	Light green~white strongly brecciated, silicified and argillized zone. Quartz stringers and fragments. Hematite dominant in matrix. Weakly weathered. 43.30~44.30 Strongly brecciated and argillized zone	Pyrite disseminations. Pyrite and chalcopyrite disseminated breccia.
48.70	Massive sulfides with siliceous fragments.	Pyrite > Chalcopyrite
50		

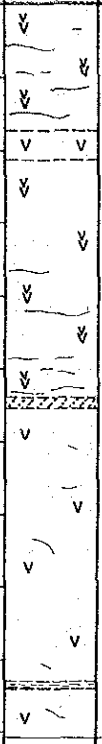
Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
34.20	2.00	0.3	3.7	0.78	<0.01	0.01
36.20	2.00	0.4	1.4	0.68	<0.01	<0.01
38.20	2.00	0.3	1.6	0.51	<0.01	0.06
40.20	2.00	2.2	1.8	0.19	<0.01	0.35
42.20	2.00	Tr	Tr	0.83	<0.01	0.19
44.20	2.00	1.9	2.6	2.23	<0.01	0.01
46.20	2.50	1.8	6.9	5.37	<0.01	0.01
48.70	1.50	1.8	14.1	10.53	<0.01	0.06

Hole No. MJO－A5 (From: 50.00 m to 100.00 m)

Depth (m)	Chart	Lithology and Alteration	Mineralization
			
51.70		White strongly brecciated siliceous zone with quartz-hematite veins and stringers. Weakly weathered.	Pyrite disseminations. Quartz-pyrite veins
53.40		Cave	
56.70 60		Brecciated silicified zone Weathered. Hematite and limonite in matrix.	Siliceous gossan. Pyrite disseminations and veins.
63.95 70 80		Strongly silicified brecciated zone. Quartz-hematite breccia in places.	Pyrite disseminations and breccia. (Stockwork ore zone) Sulfides: 15~35 vol% 70.00~73.50 Sulfides (pyrite): 30~60 vol%
83.90		Dark green strongly brecciated and chloritized zone.	Pyrite disseminations and stringers.
84.90		Same as 63.95~83.90	
89.70 90		Light green strongly silicified and brecciated volcanics.	Pyrite disseminations. Pyrite-chalcopyrite-quartz boxwork.
92.30		Dark brown (upper) and dark green (lower) hematized and chloritized zone with quartz stringers.	
94.15		Dark green chloritized pillow lavas with quartz-hematite and calcite stringers.	
98.70 100			

Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
50.20–51.70	1.50	1.3	8.9	9.56	<0.01	0.04
51.70–53.40	1.70	1.5	4.6	2.08	<0.01	0.02
53.40–56.70						
56.70–60.20	3.50	0.8	1.1	0.29	<0.01	0.01
60.20–63.95	3.75	1.6	4.5	0.64	<0.01	0.01
63.95–66.00	2.05	1.1	17.0	3.06	<0.01	0.01
66.00–68.00	2.00	1.4	37.2	3.90	0.01	0.04
68.00–70.00	2.00	0.6	12.9	0.98	<0.01	0.03
70.00–72.00	2.00	1.5	10.0	0.36	<0.01	0.06
72.00–74.00	2.00	2.2	11.8	0.79	0.01	0.05
74.00–76.00	2.00	2.9	16.1	0.65	<0.01	0.12
76.00–78.00	2.00	0.4	2.6	0.44	<0.01	0.09
78.00–80.00	2.00	0.3	2.2	0.16	<0.01	0.08
80.00–82.00	2.00	0.1	2.0	0.98	<0.01	0.48
82.00–84.00	2.00	0.4	3.3	0.13	<0.01	0.67
84.00–86.00	2.00	0.2	3.1	0.66	<0.01	0.53
86.00–88.00	2.00	0.4	4.5	0.68	<0.01	0.99
88.00–90.00	2.00	0.4	1.6	0.31	<0.01	0.43
90.00–92.30	2.30	0.4	0.8	0.10	<0.01	0.07

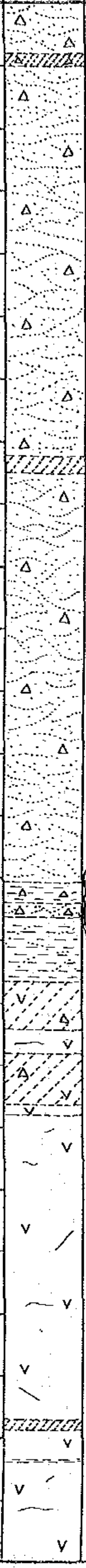
Hole No. MJO-A5 (From 100.00m to 120.10m)

Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
		Light green~green massive lavas with quartz-calcite stringers and veinlets. 101.00, 102.80 Quartz-calcite veinlets 103.40~104.20 Pillow lavas weakly brecciated 107.25, 108.40 Quartz-calcite veinlets								
110										
110.70 111.00		Green argillized, chloritized and brecciated zone with hematite in matrix.								
		Green~brownish green weakly chloritized pillow lavas. Hematite in fractures and matrix. Variole-like structure in part. 118.60~118.75 Strongly chloritized								
120										
120.10		120.10 m End of hole								

Hole No. MJO-A6 (From 0.00 m to 50.00m)

Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
		Casing. No recovery.								
3.00		Gossan debris. (Overburden)								
8.60		Green~yellowish green doleritic mossive lavas. Weathered and argillized. 10.80 Hematite-calcite vein. 10.60~11.20 Hematized. 11.20~12.60 Strongly argillized, chloritized and sheared.								
10										
11.20										
12.60										
15.90										
20										
24.95		Brecciated siliceous gossan.	Limonite and hematite.							
25.50										
26.00		Many cavities. Poor core recovery. 25.50~26.00 Cave.								
30										
36.70		Light brown and dark brown gossan soil with angular siliceous breccia.	Limonite and goethite							
37.70		Brecciated siliceous gossan. Many cavities 39.20~40.70 Cave.	Limonite.							
39.20										
40										
40.70										
43.10		Light brown gossan soil with siliceous breccia.	Goethite and limonite.							
45.30		Dark brown~reddish brown silicified, brecciated gossan.	Limonite and hematite.							
48.05		Strongly silicified, chloritized and brecciated zone. (stockwork ore)	Pyrite disseminations and veinlets. Pyrite: 10 vol.%							
50										

Hole No. MJO-A6 (From 50.00m to 100.00m)



Depth (m)	Lithology and Alteration	Mineralization
51.60 52.00	Gray brecciated and strongly argillized zone.	
	Light green silicified, chloritized and brecciated zone. (Stockwork ore) Hematite in matrix.	Pyrite disseminations. Pyrite-chalcopyrite disseminated breccia. Pyrite: 6~7 vol.%
	54.50~57.10 Hematite dominant in matrix.	
60		
64.50 65.00	64.50~65.00 Argillized zone.	
70		
	72.65 Reduced the size to BX.	
78.10 78.80 79.30	Dark green strongly chloritized and brecciated zone with quartz and hematite breccia.	Pyrite disseminations.
80	Silicified stockwork ore.	Pyrite disseminations and stringers.
81.30	Dark reddish brown strongly hematized volcanics. 81.30~82.80 and 83.60~85.30 Brecciated and argillized. Dark green strongly chloritized zone.	
85.60	Dark brownish green hematized pillow lavas. Matrix: strongly chloritized. A few calcite and quartz stringers.	
90		
95.40 95.70	Gray clay zone. 96.70 Sheared zone 5 cm. 97.70~104.60 Quartz-calcite veinlets and stringers. Hematite stringers.	
100		

Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
52.00						
	2.00	0.7	2.3	0.54	<0.01	0.41
54.00						
	2.00	0.3	3.7	0.44	<0.01	0.22
56.00						
	2.00	0.3	2.1	0.42	<0.01	0.24
58.00						
	2.00	0.4	1.8	0.44	<0.01	0.38
60.00						
	2.00	0.3	1.9	0.37	<0.01	0.37
62.00						
	2.00	0.7	2.2	1.14	<0.01	0.15
64.00						
	2.00	0.8	2.3	0.91	<0.01	0.31
66.00						
	2.00	0.1	1.7	0.74	<0.01	0.13
68.00						
	2.00	Tr	Tr	0.58	<0.01	0.11
70.00						
	2.65	Tr	Tr	0.36	<0.01	0.08
72.65						
	2.00	0.1	1.0	0.43	<0.01	0.05
74.65						
	2.00	0.1	0.7	0.31	<0.01	0.06
76.65						
	2.65	Tr	Tr	0.37	<0.01	0.06
79.30						

Hole No. MJO-A6 (From 100.00m to 133.10m)

Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
										
104.60		Light green~light greenish blue massive lava with quartz and calcite stringers. 104.80 Quartz veins. 109.30 Quartz vein.								
110										
119.00										
120		Dark green~dark brownish green chloritized pillow lava. Hematite in matrix and fractures. Quartz-calcite-hematite stringers and veinlets. 124.90~125.35 Brecciated weakly argillized zone.								
130		130.20 Quartz-hematite vein.								
133.10		133.10m End of hole.								
140										
150										

Hole No. MJO－A 7 (From 0.00 m to 50.00 m)

Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
10		Pillow lavas, light green to light yellowish green, weakly brecciated. Weathered and weakly argillized. Calcite stringers. 6.50 - 7.10 Strongly brecciated zone. Calcite stringers and hematite in matrix. 9.20 - 9.80 Strongly argillized. 10.50 - 12.80 Enrichment of copper oxide minerals.		10.50	2.30	Tr	Tr	3.28	—	0.41
12.80		Gossan zone, clayey, reddish brown. Fragment: light yellowish green argillized pillow lava.	Limonite-hematite-clay.	12.80	2.00	Tr	Tr	1.30	—	0.21
				14.80	2.00	Tr	Tr	1.03	—	0.16
				16.80	2.00	Tr	Tr	0.51	—	0.05
20				18.80	2.00	Tr	Tr	0.11	—	0.02
				20.80	1.50	Tr	Tr	0.05	—	0.02
22.30		Siliceous gossan, reddish brown, intensely brecciated.	Limonite-hematite-quartz.	22.30	2.00	0.1	0.8	0.01	—	0.02
				24.30	2.00	Tr	Tr	<0.01	—	<0.01
				26.30	1.30	1.5	5.6	0.01	—	0.01
27.60		Gossan zone, strongly argillized, reddish brown.	Hematite-limonite-clay.	27.60	2.20	0.3	2.6	0.23	—	0.10
29.80 30		Pillow lavas, light yellowish green to yellowish brown, chloritized and weakly silicified. Brecciated and fractured. Quartz-calcite-hematite veinlets and stringers dominant. 29.80 - 32.20 Enrichment of copper oxide minerals along fractures. 33.20 Quartz-calcite-hematite veinlet 0.03m. 33.80 Quartz-hematite veinlet 0.02m (vertical). 34.90 - 36.10 Argillized and sheared zone with copper oxide minerals along fractures. 38.40 - 40.00 Strongly brecciated. 41.60 Quartz-hematite vein 0.06m.		29.80	2.40	Tr	Tr	1.02	—	0.16
				32.20						
				34.90	1.20	0.1	1.4	0.38	—	0.05
40				36.10						
48.90 50		Pillow lavas, dark green to green, weakly brecciated.								

Hole No. MJO－Λ7 (From 50.00 m to 100.30 m)

Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
		Hematite in matrix. Quartz stringers.								
53.00		Pillow lavas, light yellowish to brownish green. Alternation of aphanitic and medium-grained lavas. Brecciated in places. Fractures and matrix are filled with hematite. Variole like texture in places 57.60 - 57.90 Pillow breccia. 58.00								
60		Sheared zone with chlorite 0.05m. 60.30 - 62.80 Pillow breccia, chlorite in matrix. 62.75 - 62.90 Fractured zone with quartz-calcite-hematite veinlets. 64.35 - 65.40 Quartz-hematite veinlets and later stage calcite veins.								
70		70.20, 72.80, 73.30, 74.30, 77.40 Quartz-hematite veinlets 0.01 - 0.03m.								
80		80.30 - 80.50 Fractures filled with quartz stringers. 82.10 - 82.50 Several quartz-hematite veinlets. 86.30 Quartz stringers. 87.90 - 100.30 Poor veinlets								
90										
100		100.30 m End of hole.								

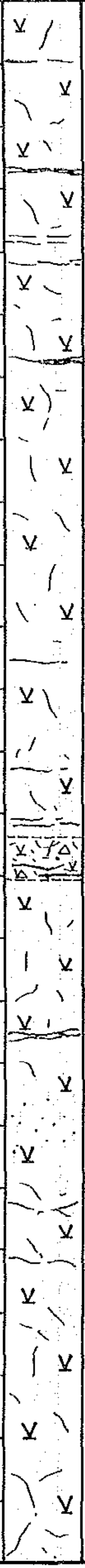
Hole No. MJO - A8 (From 0.00 m to 50.00 m)

Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
		Gravel and sand (terrace deposits). Gravel: boulder of harzburgite ≫ gabbro. 0 - 27.50 Poor core recovery.								
10										
20										
27.50		Gravel and sand, white to whitish brown, cemented with calcite. Gravel: subrounded pebble to granule.								
30										
30.25		Gravel and sand, light greenish brown, cemented with calcite. Gravel: angular to subrounded cobble to granule.								
35.10		Doleritic massive lavas, green, with calcite stringers. Weakly fractured.								
37.50		Pillow lavas, green to dark green, weakly brecciated. Amigdal filled with zeolites and calcite. Fractures filled with thin hematite and calcite stringers. 37.80 - 37.90 Hematite-white clay vein.								
40										
50										

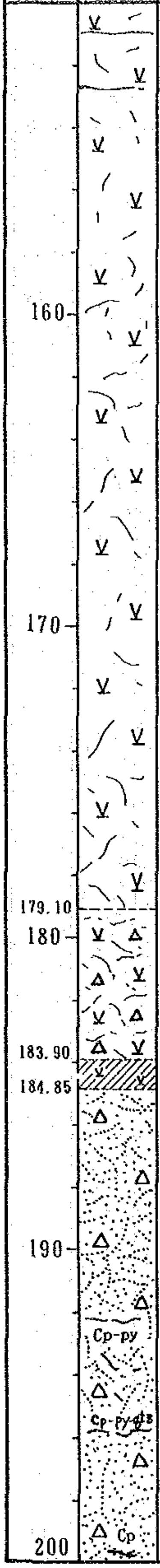
Hole No. MJO-A8 (From 50.00 m to 100.00m)

Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
53.80 60 70 80 90 100		Pillow lavas, dark green and dark brownish green in part. Brecciated to weakly brecciated. Chloritized and hematized in part. Fractures filled with quartz, hematite and calcite. Matrix of pillows: green clay minerals in places. 54.70 - 54.90 Sheared and argillized zone with hematite. 59.50 - 59.55 Hematite. 62.65-62.80, 65.60-65.70 Quartz veins. 63.30 - 70.60 Amigdal in places filled with quartz and zeolite. 66.10 Quartz vein 0.02m. 72.70 - 72.90 Brecciated zone filled with calcite. 76.80 - 77.70 Pillow breccia. 78.95 Quartz-hematite veinlet. 84.60 - 84.70 Quartz-hematite vein 0.07m. 88.00(±) - 126.70 More closely packed pillow lavas.								

Hole No. MJO-A8 (From 100.00m to 150.00m)

Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
110 120 126.70 128.10 130 140 150		101.95 Quartz veinlet 0.02m. 105.20 - 105.30 Quartz-hematite vein. 107.40, 107.55 Quartz-hematite veinlets. 107.60(±) - 126.70 More deep green in color. 108.20 Quartz-hematite veinlets. 111.30 - 111.35 Quartz-hematite vein. 121.00 Quartz-hematite veinlet. 124.40, 126.05, 126.20 Quartz-hematite veinlets (0.02 - 0.03m). Pillow lavas, dark green. Strongly brecciated and chloritized 127.70, 128.10 Quartz-hematite veinlets. Pillow lavas, dark green and dark brownish green in part. Chloritized and hematized. Fractures filled with quartz, calcite and hematite. 132.90 - 133.00 Quartz-hematite zone. 136.60 - 138.40 Amigdal texture. 138.40-138.50, 140.10-140.40 Quartz-calcite veins (vertical).								

Hole No. MJO-A8 (From 150.00m to 200.00m)



Lithology and Alteration

150.90, 162.70
Hematite veinlets.

155.00(±) - 179.10
Pillow margin: hematized.

179.10 - 183.90
Brecciated pillow lavas, dark green to brown. Chloritized, hematized and brecciated. More intense alteration than upper pillow lavas.

183.90 - 184.85
Hematite zone (hematized pillow lavas). Reddish brown brecciated.

184.85 - 200
Silicified, strongly chloritized and brecciated zone with stockwork mineralization. Green.

Mineralization

Pyrite disseminations. Chalcopyrite-pyrite-quartz stringers in places.

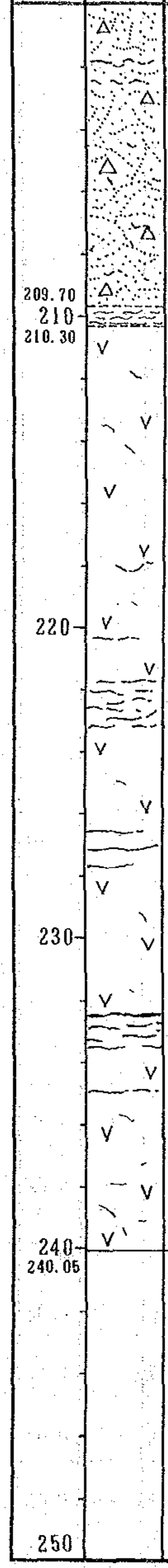
192.20
Chalcopyrite-pyrite-quartz stringers and veinlets.

196.00
Chalcopyrite-pyrite-quartz in matrix.

Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
184.85	2.00	Tr	Tr	0.07	—	0.05
186.85	2.00	Tr	Tr	0.24	—	0.02
188.85	2.00	Tr	Tr	0.12	—	0.02
190.85	2.00	Tr	Tr	0.20	—	0.02
192.85	2.00	0.2	1.2	0.67	—	0.05
194.85	2.00	0.2	0.5	0.68	—	0.02
196.85	2.00	1.0	0.7	0.61	—	0.16
198.85	2.00	0.2	1.0	1.15	—	0.10

Hole No. MJO-A8 (From 200.00 m to 240.05m)

Depth (m) / Chart



Lithology and Alteration

209.70 – 210.30 Strongly chloritized and sheared zone.

Pillow lavas, dark green at the top and green, weakly brecciated. Chloritized and hematized. Hematite in matrix. A few quartz and quartz-hematite stringers.

221.70 - 223.20
Quartz, quartz-hematite and quartz-calcite stringers and veinlets dominant zone.

226.50
Quartz-calcite veunlet 0.01m.

227.10
Quartz-hematite veinlet 0.03m.

227.60
Quartz-calcite-hematite veinlet 0.04m.

232.40 - 233.50
Quartz veinlets dominant zone More strongly chloritized and weakly sheared.

232.40 - 232.60
Silicified-quartz vein.

234.90
Quartz-veinlet 0.01m.

240.05 m End of hole.

Mineralization

201.80
Chalcopyrite-pyrite in matrix.

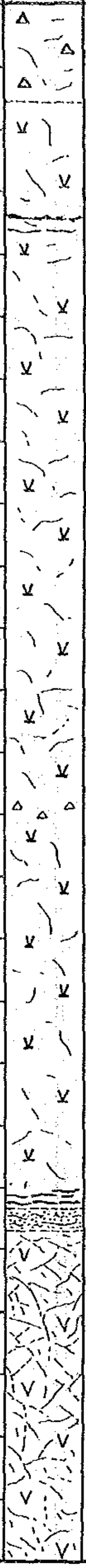
202.40
Chalcopyrite-pyrite.

Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
200.85						
	2.00	0.1	1.0	1.03	—	0.03
202.85						
	2.00	Tr	Tr	0.65	—	0.02
204.85						
	2.00	Tr	Tr	0.50	—	0.26
206.85						
	2.00	Tr	Tr	0.67	—	0.10
208.85						
	0.85	Tr	Tr	0.08	—	0.05
209.70						

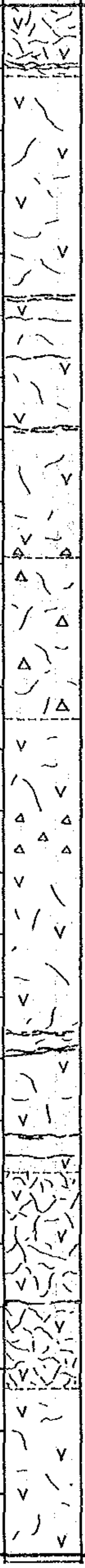
Hole No. MJO－A9 (From 0.00 m to 50.00 m)

Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
		Casing. No recovery.								
3.00		Gravel and sand (terrace deposits), light green to brown. Gravel: harzburgite and gabbro (boulder to cobble). Matrix: sand and white clay								
10										
18.95		Gravel, sand and soil. Light brownish gray. Gravel: angular pebble to granule.								
20										
21.00		Gravel and sand. Rounded cobble to pebble. Cemented with calcite.								
24.00		Doleritic massive lavas, light green. Fractures filled with dominant calcite and hematite. Weakly hematized and chloritized.								
30		Bottom: strongly brecciated (0.15m).								
31.20		Pillow breccia, dark brownish green. Epidotized and chloritized. Dominant calcite and hematite in matrix.								
		38.90 Calcite vein.								
40		40.10 Calcite and white clay vein.								
42.20		Pillow lavas, yellowish green. Brecciated and fractured. Weakly epidotized. Fractures filled with hematite and calcite.								
		Bottom 0.70m: strongly brecciated.								
49.10										
50										

Hole No. MJO-A9 (From 50.00 m to 100.00m)

Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
		Pillow breccia, dark brownish green. Strongly hematized and weakly chloritized. Fractures with hematite and calcite.								
53.10		Pillow lavas and pillow breccia in part. Brecciated and weakly chloritized. Fractures filled with quartz, calcite and hematite. Calcite and zeolites spots in places.								
60		56.85 - 56.90 Hematite-calcite vein. 57.15 (0.04m) Calcite-hematite vainlet								
70										
		75.50 - 76.10 Pillow breccia.								
80										
		86.20 - 88.70 More chloritized 88.30, 88.50 - 88.60 Zeolites-quartz-hematite vein								
88.70 89.40		Strongly chloritized sheared zone with quartz stringers. Argillized.	Pyrite disseminations.	88.70 89.40	0.70	Tr	Tr	0.06	—	0.21
90		Pillow lavas, brecciated, dark green to dark brownish green. Chloritized and silicified. Quartz-hematite stockwork with no sulfides								
100										

Hole No. MJO－A9 (From 100.00 m to 150.20m)

Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
		101.90 - 102.20 Quartz-hematite network vein.								
102.30		Pillow lavas, brownish green Chloritized, hematized and weakly silicified. Quartz stringers.								
110		109.50 - 109.60 Quartz-hematite vein. 110.10 Quartz veinlet 0.03m. 111.30 Quartz veinlet 0.02m.								
		113.70 - 113.85 Quartz-hematite vein.								
		Weakly brecciated at the bottom.								
117.80		Pillow breccia, brownish green. Hematized, chloritized and silicified. Quartz stringers along fractures and in matrix.								
120										
123.00		Pillow lavas, brownish green, weakly brecciated. Chloritized, hematized and weakly silicified. Quartz-hematite and quartz stringers. 126.00 - 127.40 Pillow breccia.								
130										
		133.20 - 133.25, 133.60 - 133.65 Quartz-hematite vein.								
		136.60 - 136.75 Quartz-hematite vein. 137.10 Quartz veinlet 0.02m.								
137.70		Same pillow lavas with more intense quartz-hematite stockwork veins and veinlets. Chloritized and strongly silicified. Light brown. 141.90 Calcite vein 0.03m.								
140										
144.60		Pillow lavas, dark green to dark brownish green. Fractures filled with quartz and hematite veinlets and stringers. Chloritized and weakly silicified.								
150		150.20 m End of hole.								

Hole No. MJO－A 1 0 (From 0.00 m to 50.00m)

Depth (m)	Lithology and Alteration	Mineralization
	Pillow lavas, light green. weakly brecciated. Weathered. Fractures filled with hematite and calcite. 6.65 - 6.80 Hematite veins. 6.80 - 7.20 Enrichment of copper oxide minerals along fractures.	
7.20	Strongly argillized and weathered zone, white to brown with limonite and hematite.	
9.60 10	Siliceous gossan, reddish brown and white, intensely brecciated.	Limonite and hematite.
20		
26.50	Cave zone.	
28.50 30		
36.00	Cave zone.	
37.50 37.90	Pillow breccia, brownish green. Argillized and weathered.	
39.10 40	Pillow lavas, yellowish green, strongly chloritized and fractured. Fractures filled with dominant quartz-hematite-calcite veinlets and stringers. Hematite and dark green clay minerals in matrix. Variole like texture. 39.10 - 41.85 Weathered with limonite along fractures. 42.30 Quartz-hematite veinlet.	
50		

Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
7.20						
	2.40	Tr	Tr	0.65	—	0.01
9.60						
	2.00	0.6	1.9	0.01	—	<0.01
11.60						
	2.00	0.1	0.9	0.01	—	<0.01
13.60						
	2.00	0.3	1.3	0.03	—	<0.01
15.60						
	2.00	0.2	2.5	0.02	—	<0.01
17.60						
	2.00	0.5	3.2	0.03	—	<0.01
19.60						
	2.00	0.3	5.9	0.01	—	<0.01
21.60						
	2.00	0.1	2.2	0.03	—	<0.01
23.60						
	2.00	1.8	5.7	0.06	—	<0.01
25.60						
	0.90	5.4	12.9	0.03	—	<0.01
26.50						
28.50						
	2.00	3.7	16.0	0.05	—	<0.01
30.50						
	2.00	1.2	7.7	0.05	—	<0.01
32.50						
	2.00	0.7	3.9	0.09	—	<0.01
34.50						
	1.50	0.2	5.6	0.06	—	<0.01
36.00						
37.50						
37.90	0.40	Tr	Tr	0.15	—	<0.01

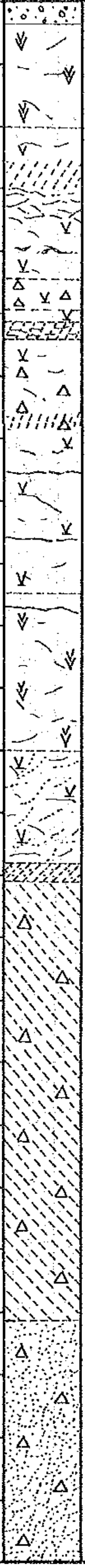
Hole No. MJO－A 1 0 (From 50.00 m to 100.00m)

Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
		50.10 Quartz-hematite-calcite veinlet 0.03 m.								
		56.60 Quartz-hematite veinlet 0.04 m.								
		58.00 Quartz-hematite veinlet 0.02 m.								
60										
		64.40 Quartz-hematite calcite veinlet 0.03 m.								
65.80		Pillow breccia, yellowish green to dark green, chloritized and hematized (same lava flows as above). Variole like texture. Many quartz-hematite stringers. Hematite in matrix. Fractures filled with calcite.								
70										
71.75		Light green aphanitic rock (pillow margin ?).	71.60 - 72.00 Calcite veinlets with native copper.							
72.00		Pillow lavas, green to dark green, chloritized and hematized. Fractures filled with quartz, hematite and calcite. Hematite in matrix.								
		77.30 Quartz-hematite veinlet 0.01 m.								
80										
		Thick hematite in matrix.								
90										
		91.85 Calcite stringer 0.01 m.								
		94.40 - 94.65 Hematite dominant in matrix.								
100										

Hole No. MJO－A 1 0 (From 100.00 m to 120.55 m)

Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
		101.20 - 102.20 Pillow breccia. Hematite in matrix.								
104.55		104.35 - 104.55 Quartz-hematite vein (fault?)								
		Pillow lavas, dark green, weakly brecciated. Chloritized and silicified. Fractures filled with quartz, hematite and calcite. Hematite in matrix.								
110		110.30 - 110.50 Strongly brecciated and sheared zone. Matrix filled with quartz, hematite and green clay minerals.								
		115.10 Quartz-hematite stringer 0.01 m. 114.20 - 120.55 Vesicles filled with quartz. 118.60 Quartz-hematite stringer 0.01 m.								
120 120.55		120.55 m End of hole.								
130										
140										
150										

Hole No. MJO-A11 (From 0.00 m to 50.00m)



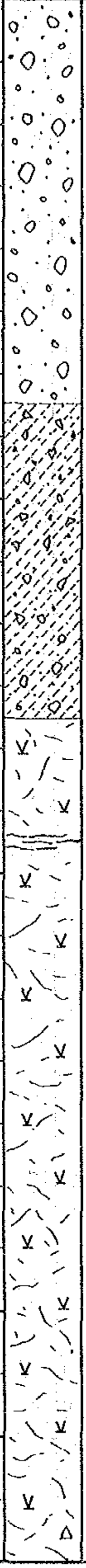
Depth (m)	Lithology and Alteration	Mineralization
0.75	Soil and gravel, overburden. Doleritic massive lavas, yellowish green. Weakly brecciated.	
4.00	Pillow lavas, light yellowish green. Calcite and hematite stringers, Brecciated and epidotized in places. 5.10 - 6.00 Weakly argillized. 6.00 - 6.95 Strongly fractured with calcite veinlets and stringers. 7.95 - 8.15 Hematite and calcite in matrix. 8.90 - 9.90 Pillow breccia. Calcite fills fractures in matrix. 10.25 - 10.80 Sheared and argillized zone. 11.70 - 13.30 Strongly brecciated zone. Hematite/calcite in matrix. 13.30 - 13.70 Brecciated/argillized zone.	15.15 Quartz-hematite veinlet 0.02m. 17.20 Quartz-calcite veinlet 0.01m.
18.95	Doleritic massive lavas, light green to yellowish green, brecciated in places. Fractures filled with calcite and limonite. 19.40 Quartz-calcite veinlet 0.02m.	
24.00	Pillow lavas, light green, brecciated. Fractures filled with limonite. Copper oxide minerals along fractures.	
27.65	Argillized zone, bleached, whitish green.	
28.20	Siliceous gossan zone, reddish brown, intensely brecciated.	Limonite- hematite-goethite.
42.30	Stockwork zone, intensely brecciated and strongly silicified. Hematite in matrix	Fine-grained pyrite disseminations and stringers.
50		

Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
24.00	2.00	0.1	1.5	3.60	—	0.10
26.00	1.65	Tr	Tr	3.98	—	0.05
27.65						
28.20	2.00	0.1	0.8	0.14	—	0.01
30.20	2.00	0.1	6.4	0.12	—	0.01
32.20	2.00	Tr	1.0	0.04	—	0.01
34.20	2.00	5.6	8.7	0.21	—	0.03
36.20	2.00	1.1	5.4	0.07	—	0.01
38.20	2.00	0.2	3.7	0.10	—	0.01
40.20	2.10	0.4	19.0	0.43	—	0.01
42.30	2.00	Tr	Tr	3.10	—	0.01
44.30	2.00	0.3	2.7	0.66	—	0.01
46.30	2.00	0.3	12.7	1.06	—	0.01
48.30	2.00	0.4	5.8	1.19	—	0.03

Hole No. MJO－A 11 (From 50.00 m to 100.65m)

Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
		50.00 - 53.35 Hematite dominant.		50.30						
					2.00	0.1	3.3	0.89	—	0.01
				52.30						
					1.05	0.1	3.2	1.39	—	0.01
53.35		Argillized clay zone, whitish green, with hematite.	Weak pyrite disseminations.	53.35						
53.70		Pillow lavas, medium to coarse-grained, dark green, brecciated and chloritized. Fractures filled with quartz, calcite and hematite. Matrix filled with hematite in places 54.60 - 54.65 Quartz-hematite vein 0.05m.								
60										
		67.50, 67.70 Quartz-hematite veinlets 0.01m. 68.00 Quartz-hematite veinlet 0.01m.								
68.00		Pillow lavas, aphanitic to fine-grained, light green to light greenish gray. Quartz, calcite and zeolites stringers. Hematite in matrix. Weakly brecciated in part. 74.60 Quartz-hematite veinlet 0.03m.								
70										
		77.65 Zeolites veinlets 0.01m.								
80										
		84.40 - 87.50 Brecciated in part. Matrix: calcite.								
		88.20 Hematite in matrix 0.05m.								
90										
		91.60 Calcite stringer.								
91.60		Pillow lavas, green to light green, medium to coarse-grained. Weakly brecciated. Matrix filled with hematite. Fractures filled with hematite and calcite.								
97.20		Pillow breccia, dark green, chloritized. Matrix filled with hematite. 97.20 - 97.60 Quartz-hematite veinlets zone.								
100										
		100.65 m End of hole.								

Hole No. MJO-A12 (From 0.00 m to 50.00 m)

Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
10		Gravel, sand and soil (terrace deposits). Gravel: harzburgite≫ gabbro, rounded boulder to pebble.								
12.90 20		Gravel and sand, harzburgite≫ gabbro, cobble to granule. Cemented with calcite. Upper part: subangular pebble to granule dominant.								
23.00 30 40 50		Pillow lavas and pillow breccia in places, light brown to light brownish green. Brecciated and dominant fractures filled with calcite and quartz stringers. 26.75, 26.95, 27.10 Calcite veinlets 0.01 - 0.02m 26.10-26.50, 28.10-28.60, 31.60-34.20 Variole texture.								

Hole No. MJO-A12 (From 50.00 m to 100.00 m)

Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
										
52.70 60		Pillow lavas, green. Brecciated chloritized and hematized in part. Fractures and matrix are filled with hematite, quartz and calcite. 57.20 - 57.35 Metalliferous sedimentary layer. 59.80, 60.40, 62.20 Metalliferous sediments in matrix.								
63.20		Pillow lavas, rather massive and aphanitic, light green. Hematized in part. Few quartz and calcite stringers.								
69.40 70 80 90		Pillow lavas, dark green and medium grained. Chloritized and weakly hematized. Hematite, quartz and calcite are in fractures and matrix of pillows. Bright green clay minerals in pillow matrix. 73.20, 74.40 Quartz veinlets 0.03m. 76.10 - 77.10 Vesicles filled with zeolites, quartz and calcite. 78.20 - 80.70 Pillow breccia. 79.30 Quartz-hematite veinlet 0.03m. 82.80 Metalliferous sediments 0.03m. 83.60-86.40, 88.50-90.40 Vesicles filled with zeolites and calcite. 91.40, 91.45 Quartz-hematite-calcite veinlets. 91.95 - 92.00 Green clay zone with hematite veinlet.								
92.00		Massive sulfide ore zone, brecciated.	Chalcopyrite ore breccia filled with pyrite and minor quartz.	92.00 93.00	1.00	3.9	26.1	2.95	—	0.26
				93.00 94.00	1.00	3.7	21.4	4.79	—	0.36
				94.00 95.30	1.30	3.3	42.6	6.29	—	2.28
95.30		Hematite zone, brecciated.		95.30 95.70	0.40	0.3	2.3	0.26	—	0.41
95.70 100		Pillow lavas, dark green. Vesicles filled with calcite. Matrix and fractures are filled with calcite and quartz, and partly with hematite.								

Hole No. MJO－A12 (From 100.00 m to 130.35 m)

Depth (m)	Chart	Lithology and Alteration	Mineralization	Depth (m)	D.L. (m)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
		101.60 Calcite-quartz-(hematite) veinlet 0.02m.								
103.90		Pillow lavas with dominant quartz-hematite veinlets and stringers, green to dark green. Vesicles filled with quartz. 103.90 - 104.74 Brecciated zone with quartz-hematite veins. 105.20, 109.40								
110		Quartz veinlets (0.01 - 0.02m).								
		113.40 - 113.80 Hematite dominant zone.								
		118.25 - 118.30 Quartz vein 0.05m. 119.20 - 119.60 Quartz-hematite veinlet zone.								
120										
		129.20 - 129.60 Quartz veins and veinlets. 130.25 Quartz veinlet 0.01m.								
130										
130.35		130.35 m End of hole.								
140										
150										

Appendix 9

Assay results for gossan and gossan dump samples in area B

Sample number	Descriptions	Assay results			
		Au(g/t)	Ag(g/t)	Cu (%)	Zn (%)
N501	Gossan dump. Light brown gossan soil with siliceous fragments. Limonite rich.	3.6	4.3	0.38	0.02
N502	Gossan dump. Reddish brown gossan soil with minor siliceous fragments. Hematite rich.	12.8	13.2	0.86	0.01
N503	Gossan dump. Light yellowish brown gossan soil. Limonite rich.	0.5	1.4	0.25	0.01
N504	Gossan dump. Purplish red porous gossan soil with minor siliceous fragments. Hematite & goethite rich.	7.4	21.1	0.68	0.01
N505	Gossan dump. Light yellowish brown gossan soil with siliceous fragments. Limonite rich.	2.5	6.9	0.30	0.01
N506	Gossan dump. Light yellowish brown gossan soil with volcanic fragments.	5.8	11.2	0.35	0.01
N507	Gossan dump. Mixture of red and light yellowish brown gossan soil with siliceous fragments.	3.3	8.0	0.40	0.01
N508	Gossan dump. Reddish brown gossan soil with siliceous fragments. Hematite > limonite.	1.0	2.5	0.10	0.01
N509	Gossan dump. Brown and reddish brown in part gossan soil with minor siliceous fragments.	4.4	3.8	0.20	0.02
N510	Gossan dump. Red to reddish brown gossan soil with minor siliceous fragments.	2.2	2.3	0.12	0.01
N511	Gossan dump. Light reddish brown gossan soil with siliceous fragments.	0.6	1.7	0.26	0.10
N512	Siliceous gossan. Strongly brecciated. Hematite>limonite>goethite with green copper speck.	0.5	0.4	0.25	0.05
N513	Siliceous gossan. Intensely silicified and brecciated. Goethite rich.	Tr	Tr	0.21	0.05
N514	Siliceous gossan. Strongly silicified and brecciated . Hematite>limonite>goethite.	4.6	8.4	0.09	0.10
N515	Siliceous gossan. Strongly silicified and brecciated . Green copper along fractures. Limonite rich.	2.1	6.3	0.18	0.01
N516	Siliceous gossan. Chart origin ?. Brecciated. Goethite rich.	13.7	13.5	0.28	0.10
N517	Siliceous gossan. Strongly silicified and brecciated . Goethite rich.	Tr	Tr	0.10	0.03
N518	Siliceous gossan. Intensely silicified. Limonite>goethite>hematite.	0.6	4.1	0.08	0.02
N519	Gossan dump. Brown porous gossan soil with siliceous volcanic fragments.	Tr	Tr	0.03	0.01
N520	Gossan dump. Yellowish brown and reddish brown gossan soil with siliceous fragments.	0.8	4.6	0.08	0.01

Sample number	Descriptions	Assay results			
		Au(g/t)	Ag(g/t)	Cu (%)	Zn (%)
N521	Gossan dump. Reddish brown gossan soil with silicified volcanics.	2.2	4.3	0.26	0.01
N522	Gossan dump. Reddish brown gossan soil with silicified volcanics. Hematite rich.	2.3	2.3	0.32	0.01
N523	Gossan dump. Reddish brown gossan soil with silicified volcanics.	2.2	3.1	0.19	0.01
N524	Siliceous gossan. Dark brown, strongly silicified. Limonite with green copper speck.	Tr	Tr	0.16	0.01
N525	Siliceous gossan. Brown and black. Limonite and goethite.	Tr	Tr	0.32	0.03
N526	Siliceous gossan. Brown , brecciated. Limonite rich.	Tr	Tr	0.23	0.01
N527	Siliceous gossan. Brown, limonite>hematite. Brecciated.	Tr	Tr	0.28	0.01
N528	Gossan dump. Reddish brown gossan soil with siliceous fragments.	1.0	1.4	0.32	0.01
N529	Gossan dump. Reddish brown gossan soil with siliceous fragments.	1.1	1.8	0.37	0.01
N530	Gossan dump. Reddish brown gossan soil with siliceous & volcanic fragments. Limonite & hematite.	2.1	2.9	0.71	0.10
N531	Gossan dump. Reddish brown gossan soil. Limonite & hematite.	0.9	3.4	0.60	0.05
N532	Gossan dump. Reddish brown gossan soil. Hematite rich.	Tr	Tr	0.42	0.02
N533	Gossan dump. Brownish gray soil with volcanic fragments.	0.9	1.8	1.13	0.16
N534	Gossan dump. Reddish brown gossan soil. Hematite rich.	1.8	3.5	0.53	0.10
N535	Gossan dump. Reddish brown gossan soil. Hematite rich.	4.5	3.1	0.11	0.01
N536	Gossan dump. Light reddish brown gossan soil with fragments.	Tr	Tr	0.55	0.05
N537	Gossan dump. Reddish brown gossan soil. Hematite rich.	0.6	1.7	0.62	0.10
N538	Siliceous gossan. Dark purplish brown, strongly silicified and brecciated.	Tr	Tr	0.32	0.01
N539	Siliceous gossan. Red and yellowish brown. Hematite rich.	0.7	1.3	0.11	0.01
N540	Gossan. Dark brown silicified and argillized in part.	Tr	Tr	0.40	0.01

Sample number	Descriptions	Assay results			
		Au(g/t)	Ag(g/t)	Cu (%)	Zn (%)
N541	Siliceous gossan. Gray and brownish gray. Limonite rich.	0.8	1.9	0.08	0.01
N542	Siliceous gossan. Dark purplish brown. Hematite > goethite>limonite.	Tr	Tr	0.24	0.03
N543	Siliceous gossan. Dark reddish brown gossan with green copper speck. Hematite rich.	Tr	Tr	0.10	0.02
N544	Gossan dump. Light yellowish brown weathered volcanics with limonite.	0.4	1.5	0.35	0.10
N545	Gossan dump. Reddish brown gossan soil. Porous soil in part.	1.5	1.7	0.32	0.01
N546	Gossan dump. Reddish brown gossan soil with siliceous fragments.	1.9	2.3	0.47	0.01
N547	Gossan dump. Dark brown gossan soil with fragments. Limonite rich.	1.6	3.3	0.28	0.03
N548	Siliceous gossan. Dark purplish gray, strongly silicified and brecciated.	1.0	1.3	0.12	<0.01
N549	Gossan dump. Red gossan soil with volcanic fragments.	5.8	6.5	0.23	<0.01
N550	Siliceous gossan. Dark purplish brown, silicified and brecciated.	0.7	1.9	0.31	0.01
N551	Siliceous gossan. Dark brown. Goethite and limonite.	0.8	2.6	0.45	0.10
N552	Siliceous gossan. Brownish gray silicified and rusty volcanics with green copper speck.	Tr	Tr	0.28	0.02
N553	Slag with green copper speck.	0.5	2.0	1.98	0.01
N554	Slag.	0.7	2.0	1.52	0.03
N555	Slag.	0.3	1.5	0.99	0.05

Appendix 10

Charged potential in area B

X	Y	Potential (mV/A)	
(m)	(m)	MJO-B1	MJO-B5
0	1000	22.7	23.2
-100	1000	21.8	22.4
100	1000	23.7	24.8
0	1100	19.2	19.7
100	1100	20.0	20.6
200	1000	23.9	24.8
300	1000	22.4	23.4
200	900	26.8	28.0
100	900	27.4	28.3
300	900	26.7	28.1
300	800	30.5	32.5
200	800	31.2	32.9
100	800	31.8	33.1
200	700	35.9	37.9
100	700	35.5	37.4
300	700	36.7	39.4
400	700	34.0	36.3
400	800	30.2	32.4
400	900	27.0	28.7
500	700	32.5	34.8
500	800	28.7	30.5
500	900	25.5	27.7
600	700	30.1	32.5
600	800	26.9	28.8
700	700	29.1	31.3
700	800	26.2	28.1
800	700	27.5	29.3
800	800	24.7	26.5
900	600	26.8	28.8
800	600	29.6	32.2
900	700	24.5	26.4
1000	700	23.1	24.9
1100	600	22.2	23.8
1000	600	24.1	25.9
1200	600	21.0	22.3
1000	500	25.8	27.9
1100	500	23.8	25.4
1200	500	22.1	23.8
1100	400	25.3	27.2
1100	300	26.9	28.9
1000	400	28.4	30.8
1000	300	30.5	32.7
200	600	46.1	49.3
100	600	47.9	50.4
300	600	42.2	44.7
400	600	39.4	42.5
200	500	52.8	56.5
100	500	58.9	62.3
300	500	50.5	55.1
300	400	54.4	59.1
400	500	47.9	52.5
400	400	51.5	56.4
500	600	37.4	40.5
500	500	44.4	47.9
500	400	48.5	52.8
600	500	42.4	46.0
600	400	45.0	49.2
600	600	33.9	36.5
700	600	32.0	34.5
700	500	38.2	41.7
700	400	40.9	44.8
800	500	34.1	37.1
800	400	37.5	41.0
900	500	29.1	31.2
200	450	58.3	62.4
150	450	61.7	65.7
100	450	64.9	68.5
200	400	63.4	68.2
150	400	66.1	70.4
100	400	71.3	75.1
250	400	58.9	63.1
200	350	66.7	71.8
250	350	62.3	67.7
300	350	59.3	64.5
350	350	55.0	60.1

X	Y	Potential (mV/A)	
(m)	(m)	MJO-B1	MJO-B5
250	300	67.9	74.1
300	300	64.6	70.3
350	300	60.0	65.7
400	300	53.2	58.7
500	300	50.8	55.3
300	250	65.9	73.1
350	250	63.1	69.8
400	250	58.4	64.4
450	250	55.5	60.9
500	250	51.9	56.9
350	200	65.7	72.8
400	200	59.6	65.4
450	200	56.7	62.1
500	200	58.1	59.3
550	200	51.6	56.2
600	200	50.5	55.0
400	150	63.7	70.2
450	150	60.8	66.8
500	150	56.2	61.7
550	150	54.4	59.6
600	150	51.8	56.3
400	100	74.0	82.2
450	100	64.2	70.6
400	50	76.7	85.3
450	50	67.7	74.5
500	50	62.2	68.7
550	50	58.7	64.2
500	100	60.1	66.3
550	100	56.2	61.9
600	50	55.1	60.1
600	0	54.7	59.9
550	0	58.2	63.9
500	0	61.1	67.3
450	0	69.6	76.9
400	0	77.5	86.3
600	-50	57.1	62.8
550	-50	60.7	66.4
500	-50	65.4	71.7
450	-50	73.0	79.8
400	-50	80.8	89.3
600	-100	57.4	62.2
550	-100	62.1	67.7
500	-100	65.9	71.9
450	-100	72.7	79.6
400	-100	81.6	89.6
600	-150	57.1	61.3
550	-150	60.9	66.6
500	-150	65.7	71.5
450	-150	72.1	78.0
400	-150	81.7	89.3
600	-200	57.6	61.9
550	-200	59.7	64.5
500	-200	66.3	71.1
450	-200	71.5	77.8
400	-200	83.1	90.5
550	-250	60.1	64.3
500	-250	66.2	70.8
450	-250	71.5	76.6
400	-250	80.3	86.3
600	-300	55.6	59.4
500	-300	62.8	67.0
400	-300	74.8	79.8
500	-400	55.4	58.6
400	-400	65.7	68.6
600	-500	46.9	49.1
500	-500	51.4	53.3
400	-500	58.1	60.0
600	-600	43.1	44.9
700	-600	39.5	40.8
700	-500	43.2	44.9
600	-400	47.7	50.0
700	-400	45.5	47.5
800	-400	40.5	42.3
700	-300	48.6	51.5
800	-300	41.7	43.9

X	Y	Potential (mV/A)	
(m)	(m)	MJO-B1	MJO-B5
700	-200	50.9	54.4
800	-200	42.3	44.5
700	-100	49.7	53.5
800	-100	44.8	48.1
600	100	53.2	58.3
700	100	46.8	51.0
700	0	48.8	52.6
800	0	44.1	47.7
800	100	44.1	47.6
700	200	45.8	49.7
600	300	46.7	50.7
800	300	41.0	44.4
800	200	42.6	46.0
900	100	40.5	43.7
1000	200	34.7	37.2
700	300	43.9	48.0
900	300	35.6	38.4
900	400	33.6	36.2
900	200	36.1	38.7
1000	100	35.1	38.0
1000	0	35.9	38.5
900	0	40.2	43.5
900	-100	41.2	43.9
900	-200	38.6	40.9
300	200	70.6	77.7
250	200	78.8	87.3
250	250	74.7	82.1
200	200	88.2	98.0
200	250	79.1	87.0
200	300	74.3	80.6
150	200	95.6	105.3
150	250	86.7	94.1
150	300	77.4	83.4
100	200	104.5	113.1
100	250	92.7	99.1
100	300	80.0	85.8
100	350	75.1	80.0
150	350	70.7	75.5
50	300	85.3	89.6
50	450	70.7	73.3
50	-100	154.7	165.6
50	-150	152.8	159.5
0	-150	167.7	162.7
-50	-150	182.1	161.7
-100	-150	196.9	160.4
-150	-150	202.7	159.0
-200	-150	192.7	152.3
-250	-150	157.1	130.3
-300	-150	147.8	123.6
-350	-150	119.3	103.2
-500	-100	82.5	74.7
-400	-100	101.5	90.9
-400	-50	102.5	92.3
-350	-100	117.1	102.4
-350	-50	117.3	104.1
-400	-200	97.3	86.3
-300	-100	145.8	123.2
-300	-50	138.7	118.7
-300	-200	142.1	120.0
-250	-100	151.5	124.3
-250	-50	151.8	128.8
-250	-200	148.8	124.2
-200	-100	184.7	147.9
-200	-50	169.7	143.9
-150	-50	183.8	155.8
-150	-100	196.9	162.5
-200	-200	169.7	138.2
-200	-250	155.9	129.3
-200	-300	129.7	112.3
-150	-200	192.1	152.1
-150	-250	169.0	139.7
-100	-200	194.5	157.3
-100	-250	166.5	141.5
-100	-300	141.5	125.1
-100	-100	195.1	165.9

X	Y	Potential (mV/A)	
(m)	(m)	MJO-B1	MJO-B5
-100	-50	183.5	166.5
-50	-200	164.3	146.5
-50	-250	153.0	138.9
-50	-300	138.2	126.5
-50	-100	183.8	166.1
-50	-50	181.7	166.7
0	-200	157.5	151.6
0	-250	147.3	140.3
0	-300	136.3	130.4
0	-100	176.6	170.3
0	-50	171.2	171.6
50	-50	156.9	166.8
50	-200	145.6	148.4
50	-250	139.1	139.9
50	-300	129.1	128.2
100	-200	132.1	140.4
100	-250	128.3	134.3
100	-300	119.4	123.8
100	-400	98.1	98.8
100	-150	140.8	154.8
100	-100	145.4	161.2
100	-50	144.2	160.2
150	-200	120.5	130.4
150	-250	115.9	124.5
150	-300	113.1	119.7
150	-150	131.5	145.9
150	-100	132.0	147.5
150	-50	129.3	145.3
200	-200	112.2	121.5
200	-250	111.4	119.1
200	-300	107.9	114.9
200	-400	87.1	89.8
200	-150	113.5	124.5
200	-100	118.5	132.0
200	-50	115.9	130.4
250	-200	105.5	115.1
250	-150	102.5	112.3
250	-100	106.8	119.1
250	-50	104.9	118.1
250	-250	103.1	111.1
250	-300	96.9	102.9
300	-300	87.3	92.4
300	-400	73.5	76.4
300	-500	65.6	66.8
350	-250	86.9	93.5
300	-250	95.4	102.5
300	-200	98.0	106.2
300	-150	96.6	106.3
300	-50	96.3	107.4
350	-200	92.0	99.7
350	-150	92.3	100.9
350	-100	93.1	102.4
350	-50	89.7	99.4
50	0	157.3	167.3
0	0	166.6	170.8
-50	0	171.7	165.7
-100	0	173.0	162.2
-150	0	159.3	145.3
-200	0	148.1	132.1
-250	0	135.5	119.3
-300	0	128.0	112.8
-350	0	112.7	101.1
-400	0	104.5	94.1
-500	0	82.0	75.3
-400	50	96.7	88.8
-400	100	86.3	80.6
-400	150	80.4	75.7
-350	50	104.7	95.5
-350	100	97.9	91.2
-350	150	90.3	84.7
-300	50	114.1	104.1
-300	100	106.9	99.5
-300	150	98.8	92.5
-250	50	120.2	109.5
-250	100	105.3	98.5

X	Y	Potential (mV/A)	
(m)	(m)	MJO-B1	MJO-B5
-250	150	102.6	98.4
-200	50	123.2	114.9
-200	100	113.1	108.9
-200	150	106.8	103.3
-150	50	140.3	133.4
-150	100	122.8	120.0
-150	150	110.4	110.3
-100	50	153.7	151.3
-100	100	133.5	133.1
-100	150	117.3	117.5
-50	50	149.2	152.4
-50	100	133.4	137.1
-50	150	118.1	121.3
0	50	153.4	158.3
0	100	129.0	139.4
0	150	114.7	121.7
50	50	138.5	149.5
50	100	127.9	138.7
50	150	116.5	125.1
100	0	137.0	150.5
150	0	120.8	135.9
200	0	110.4	124.2
250	0	102.9	115.5
300	0	93.6	104.0
350	0	85.4	95.5
350	50	83.8	93.5
350	100	79.2	88.1
350	150	69.8	77.3
300	50	91.9	103.1
300	100	89.7	100.5
300	150	81.8	91.1
300	-100	97.2	106.8
250	50	99.0	111.6
250	100	100.4	112.9
250	150	86.7	96.7
200	50	107.6	121.3
200	100	105.0	118.0
200	150	99.4	111.2
150	150	104.6	116.2
150	50	110.7	124.5
150	100	107.4	120.3
100	50	125.2	138.1
100	100	115.8	128.1
100	150	108.6	119.6
0	200	106.7	111.6
-50	200	105.3	107.7
-100	200	105.2	105.9
-150	200	104.2	102.9
-200	200	103.5	100.9
-250	200	94.4	90.9
-300	200	85.9	81.3
-350	200	80.6	75.9
-400	200	78.1	73.3
-350	250	75.4	72.1
-300	250	81.7	78.1
-300	300	73.3	71.0
-250	250	87.2	84.9
-250	300	77.8	76.3
-250	350	71.1	69.1
-200	250	93.5	92.4
-200	300	83.7	82.7
-200	350	77.6	76.8
-150	250	97.2	96.7
-150	300	86.2	86.1
-150	350	81.1	81.2
-100	250	95.2	96.3
-100	300	88.4	90.5
-100	350	83.6	84.8
-50	250	93.5	96.6
-50	300	86.2	89.1
-50	350	83.6	85.6
0	250	93.3	97.5
0	300	85.9	88.7
0	350	82.7	85.9
60	200	107.7	115.0

X	Y	Potential (mV/A)	
(m)	(m)	MJO-B1	MJO-B5
50	250	94.4	100.5
0	900	26.3	27.1
-100	900	25.9	26.2
0	800	31.3	32.3
-100	800	31.3	31.6
0	700	38.7	39.5
-100	700	40.6	40.8
-200	700	40.3	40.2
0	600	50.7	51.9
-100	600	51.8	52.4
-200	600	50.0	49.8
0	500	64.8	67.2
-100	500	64.0	64.7
-200	500	58.7	58.1
-300	500	55.2	54.4
0	450	75.1	77.3
-50	450	71.8	73.7
-100	450	71.9	73.0
-150	450	65.1	65.1
0	400	78.7	81.2
-50	400	77.9	80.3
-100	400	75.3	76.5
-150	400	74.4	74.8
-200	400	73.0	72.4
-300	400	67.8	66.6
50	350	79.7	83.5
50	400	77.4	80.5

Appendix 11

Electric field in area B

X	Y	MJO-B1		MJO-B5		X	Y	MJO-B1		MJO-B5		X	Y	MJO-B1		MJO-B5	
(m)	(m)	|E|	φ	|E|	φ	(m)	(m)	|E|	φ	|E|	φ	(m)	(m)	|E|	φ	|E|	φ
1050	50	9	196	10	205	175	475	37	132	34	133	275	275	67	128	60	131
1050	150	9	183	11	180	175	525	16	43	16	138	225	225	79	134	77	136
950	250	7	177	8	182	175	575	23	137	24	136	275	225	39	137	40	142
950	150	9	171	9	176	175	650	21	113	18	112	325	225	60	140	55	144
950	350	11	184	12	186	125	425	85	136	83	136	225	175	69	140	67	147
850	350	10	175	11	179	125	475	32	130	29	131	275	175	72	141	64	146
850	250	11	171	12	175	75	425	56	107	56	106	325	175	44	156	42	161
850	150	11	172	12	177	75	475	39	123	35	124	225	125	89	143	80	151
750	250	12	190	13	197	75	525	25	122	25	118	275	125	84	155	71	159
750	150	9	186	11	186	75	575	27	125	24	119	325	125	34	152	31	158
750	350	17	156	19	156	125	525	33	135	32	136	375	125	35	131	33	137
750	450	10	159	11	159	125	575	20	120	21	122	375	175	37	139	31	144
850	450	9	154	11	153	75	650	22	120	20	116	325	75	47	137	36	148
750	550	11	148	12	152	25	650	18	81	18	87	625	75	61	145	38	142
850	550	9	152	8	149	25	575	22	82	20	85	-75	75	48	76	23	75
750	650	8	162	10	162	25	525	19	69	19	69	-125	75	61	81	39	37
750	750	8	152	9	148	25	475	52	103	49	104	-125	25	87	59	41	23
750	850	10	133	10	134	25	425	48	96	47	96	-125	-25	73	83	23	347
650	950	9	130	9	129	-25	650	33	116	34	116	-125	-75	75	97	28	347
650	850	9	126	11	130	-25	575	26	125	22	125	-125	-125	41	135	19	338
650	1050	5	118	6	114	-25	525	38	132	35	130	-125	-175	64	231	40	237
550	1050	7	131	8	129	-25	475	50	114	43	110	-125	-225	180	261	114	255
550	1150	6	134	6	135	-25	425	51	113	50	108	-125	-275	47	258	33	267
450	1050	10	130	12	129	-75	650	23	94	22	82	-125	-325	143	266	102	268
350	1050	10	120	11	117	-75	575	30	107	28	104	-50	-450	62	310	41	272
650	250	27	159	31	158	-75	525	23	98	21	93	-75	-375	78	274	58	277
650	150	31	172	33	175	-75	475	41	88	38	89	-25	-375	136	327	60	279
650	350	15	153	14	158	-75	425	53	95	50	92	-75	-325	143	270	104	275
650	450	14	160	16	162	-125	650	17	83	16	74	-25	-325	140	310	74	258
550	250	18	161	18	169	-125	575	24	72	27	78	-150	-350	112	275	85	278
550	150	32	151	33	154	-125	525	29	87	25	85	-75	-275	46	219	23	194
550	350	22	162	27	166	-125	475	39	85	33	76	-25	-275	99	319	59	240
450	350	12	143	12	146	-125	425	57	91	57	89	-175	-275	44	310	28	311
550	450	23	158	27	155	-175	650	20	99	19	98	-75	-225	166	270	120	281
450	450	12	140	13	138	-175	575	14	61	17	51	-25	-225	105	301	89	238
650	550	15	144	18	145	-175	525	40	96	33	87	-175	-225	113	292	76	293
550	550	18	164	19	166	-175	475	31	83	33	88	-75	-175	96	219	75	255
450	550	13	140	15	144	-175	425	70	97	64	95	-25	-175	81	300	84	225
550	650	24	154	26	156	-225	625	24	95	21	87	-25	-125	37	2	75	225
450	650	12	123	14	126	-225	525	37	88	33	87	-75	-125	66	172	37	207
650	650	10	153	11	153	-225	475	32	90	30	78	-175	-175	161	316	99	315
650	750	9	141	10	144	-225	425	55	72	53	67	-225	-175	95	317	68	310
550	750	19	146	21	147	-250	650	22	74	21	73	-275	-150	134	347	91	339
450	750	11	128	12	130	-275	550	30	47	27	45	-175	-125	54	348	43	323
550	850	17	132	19	130	-275	450	49	47	45	45	-225	-125	116	6	63	352
450	850	11	220	16	129	-350	550	32	47	30	46	-175	-75	152	85	56	74
550	950	10	125	10	126	-350	450	41	48	38	42	-225	-75	155	26	80	9
475	250	86	176	30	174	-450	650	12	79	11	77	-275	-75	126	7	82	355
525	175	45	152	27	143	-450	550	18	48	17	39	-75	-75	81	136	3	336
475	125	97	169	34	155	-450	450	30	41	27	38	-25	-75	121	4	21	184
425	225	41	139	39	139	-550	650	16	43	15	45	-175	-25	95	21	80	341
425	175	30	149	26	155	-350	650	25	15	24	15	-225	-25	63	27	39	350
425	125	50	141	41	144	-350	750	18	59	16	52	-275	-25	75	7	65	343
450	275	118	136	33	143	-250	750	22	71	20	69	-75	-25	37	106	21	278
375	225	33	126	27	131	-150	750	26	98	25	95	-25	-25	133	23	25	258
375	275	27	138	28	145	-150	850	13	56	9	352	-175	25	78	50	58	16
375	325	88	163	35	140	-50	750	15	100	14	100	-225	25	65	39	57	2
425	425	37	150	14	143	-50	850	11	100	1	203	-275	25	66	33	51	13
325	275	39	150	38	150	125	650	21	113	21	118	-75	25	113	104	25	75
325	325	42	139	37	142	150	750	9	109	9	110	-25	25	160	26	24	99
325	375	51	126	45	129	50	750	15	114	13	108	-25	75	172	22	33	85
350	450	32	167	10	124	50	850	12	91	0	243	-175	75	77	62	68	36
350	550	34	158	13	119	150	850	12	113	11	112	-225	75	63	59	51	34
275	325	18	115	21	130	250	750	11	120	10	115	-275	75	70	44	63	21
275	375	34	124	34	127	350	650	29	163	8	119	-175	125	72	53	88	35
275	425	36	151	34	148	350	850	34	151	17	120	-225	125	65	73	58	58
325	475	39	147	24	125	250	850	20	103	19	102	-275	125	55	35	56	22
275	550	11	132	12	133	150	950	21	130	13	159	-350	150	60	27	66	20
225	375	40	113	40	112	350	750	31	163	12	132	-125	125	52	64	55	54
225	425	19	111	17	107	350	950	31	101	15	111	-75	125	67	95	69	94
225	475	11	231	15	114	450	950	41	133	18	133	-25	125	126	36	89	123
225	525	54	133	20	128	250	950	4	110	4	102	-175	175	69	37	89	30
250	575	9	131	8	132	50	950	13	85	17	127	-225	175	32	44	40	43
250	650	18	129	17	129	225	325	40	134	33	133	-275	175	30	63	34	44
175	425	31	145	29	145	225	275	56	117	55	118	-125	175	90	89	107	86

|E| : Intensity(unit; mV/A·100m) of Electiric Field
φ : Azimuth(unit; Degree) of Electiric Field

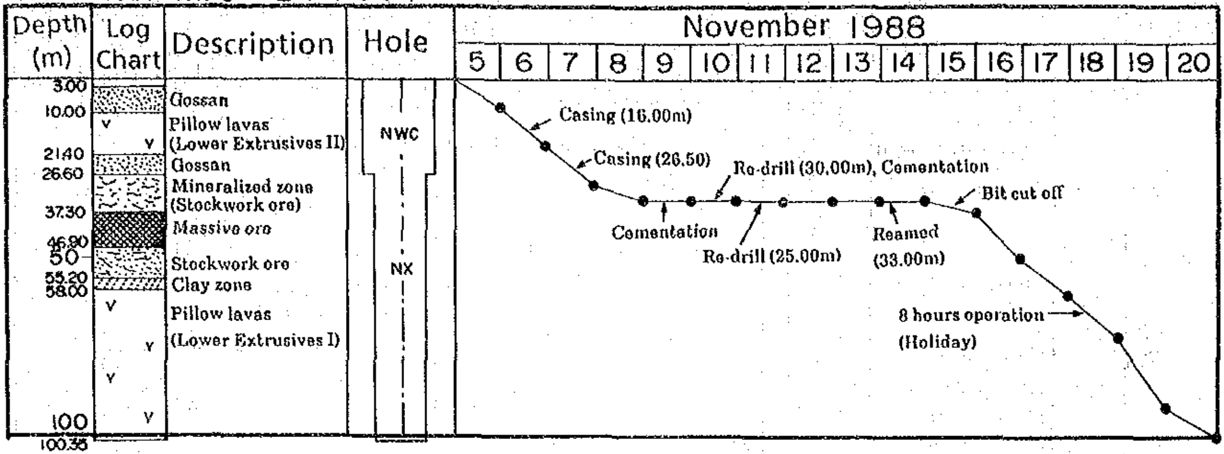
X	Y	MJO-B1		MJO-B5	
(m)	(m)	|E|	φ	|E|	φ
-75	175	69	101	78	98
-25	175	103	40	88	122
-175	225	34	79	35	65
-225	225	62	274	42	73
-275	225	46	293	64	71
-350	250	52	357	71	28
-125	225	61	65	71	58
-75	225	60	102	65	97
-25	225	100	34	69	117
-175	275	62	256	47	107
-125	275	70	288	45	42
-75	275	50	259	62	95
-25	275	107	330	55	104
-225	275	102	153	47	65
-275	275	69	57	66	52
-275	350	62	38	60	32
-350	350	48	30	45	26
-450	350	33	44	29	35
-225	375	50	52	48	49
-225	325	54	73	49	68
-175	325	37	104	33	89
-125	325	26	81	27	84
-25	325	43	113	43	113
-175	375	53	88	46	83
-125	375	64	86	58	82
-75	375	72	106	66	103
-25	375	59	116	54	111
25	75	166	133	123	137
25	25	96	145	65	165
25	-25	139	167	71	201
25	-75	116	176	57	198
25	-125	141	216	103	235
25	-175	164	204	108	217
25	-225	119	220	81	232
25	-275	95	208	54	217
25	-325	104	242	65	244
25	-375	68	226	44	232
75	-450	83	234	56	237
75	-375	79	217	53	219
125	-375	78	243	58	245
175	-375	61	257	47	255
75	-325	70	234	48	244
125	-325	71	230	53	232
175	-325	77	221	59	222
75	-275	57	220	35	229
125	-275	50	169	35	172
175	-275	81	196	63	208
75	-225	91	191	61	206
125	-225	49	250	52	269
175	-225	55	207	45	213
75	-175	119	239	97	252
125	-175	69	237	62	243
175	-175	29	228	37	252
75	-125	132	218	112	233
125	-125	98	221	82	233
175	-125	56	228	52	224
75	-75	124	167	91	184
125	-75	97	180	81	194
175	-75	73	183	61	198
75	-25	98	195	82	201
125	-25	96	164	80	188
175	-25	79	165	68	182
75	25	171	149	104	155
125	25	86	176	89	178
175	25	49	193	53	199
75	75	102	128	79	133
125	75	100	133	86	142
175	75	71	138	58	151
25	125	120	126	96	130
25	175	87	134	82	134
25	225	49	111	46	108
25	275	61	113	61	109
25	325	50	102	43	96
25	375	48	101	47	102
75	375	51	123	49	124
125	375	65	151	61	151
175	375	44	124	42	122
75	325	50	105	50	105
125	325	78	127	78	127
175	325	99	133	96	134
-75	325	26	102	22	82
75	275	44	79	43	81
125	275	105	142	102	142
175	275	56	148	55	149
75	225	54	107	51	109
125	225	43	141	43	143
175	225	101	131	98	132
175	175	62	150	60	155
75	175	27	136	26	143
125	175	23	140	24	151
75	125	104	123	84	126
125	125	66	131	57	138
175	125	35	135	37	152
225	25	80	185	72	194
225	-25	71	187	59	199
225	-75	60	181	49	191
225	-125	42	188	34	206
225	-175	60	184	44	193
225	-225	70	232	59	239
225	-275	57	244	50	251
225	-325	44	226	33	236
300	-375	27	213	20	221
325	-325	47	234	35	237
275	-275	60	213	49	224
350	-275	31	238	29	248
275	-225	68	214	57	221
325	-225	53	221	48	221
425	-225	54	226	44	241
275	-175	63	200	53	204
325	-175	39	203	34	209
375	-175	35	217	31	225
275	-125	67	170	53	178
325	-125	34	203	33	222
375	-125	42	201	37	209
275	-75	42	166	29	183
325	-75	32	155	29	167
375	-75	49	180	42	185
275	-25	44	179	38	187
325	-25	15	175	18	174
375	-25	35	171	27	183
275	25	45	188	46	199
325	25	20	169	15	197
375	25	30	143	26	153
225	75	82	166	73	173
275	75	55	170	55	172
950	50	25	155	17	167
950	-50	23	183	16	189
850	50	21	136	16	157
850	-50	16	180	15	187
750	50	35	129	25	143
750	-50	28	168	25	172
800	-150	22	182	20	185
650	50	48	138	38	154
650	-50	34	174	32	178
650	-150	30	191	27	195
550	50	63	132	51	145
550	-50	37	184	35	191
550	-150	31	212	29	219
600	-250	29	201	27	202
475	25	67	157	26	130
525	-25	53	202	38	208
475	-75	48	179	10	200
525	-125	57	226	47	237
425	25	23	160	20	169
425	-25	37	187	33	188
425	-75	25	217	26	228
425	-125	56	185	49	190
450	-175	44	191	24	209
450	-250	41	202	22	220
375	75	31	116	23	131
425	75	55	138	45	143

|E| : Intensity(unit; mV/A·100m) of Electiric Field
φ : Azimuth(unit; Degree) of Electiric Field

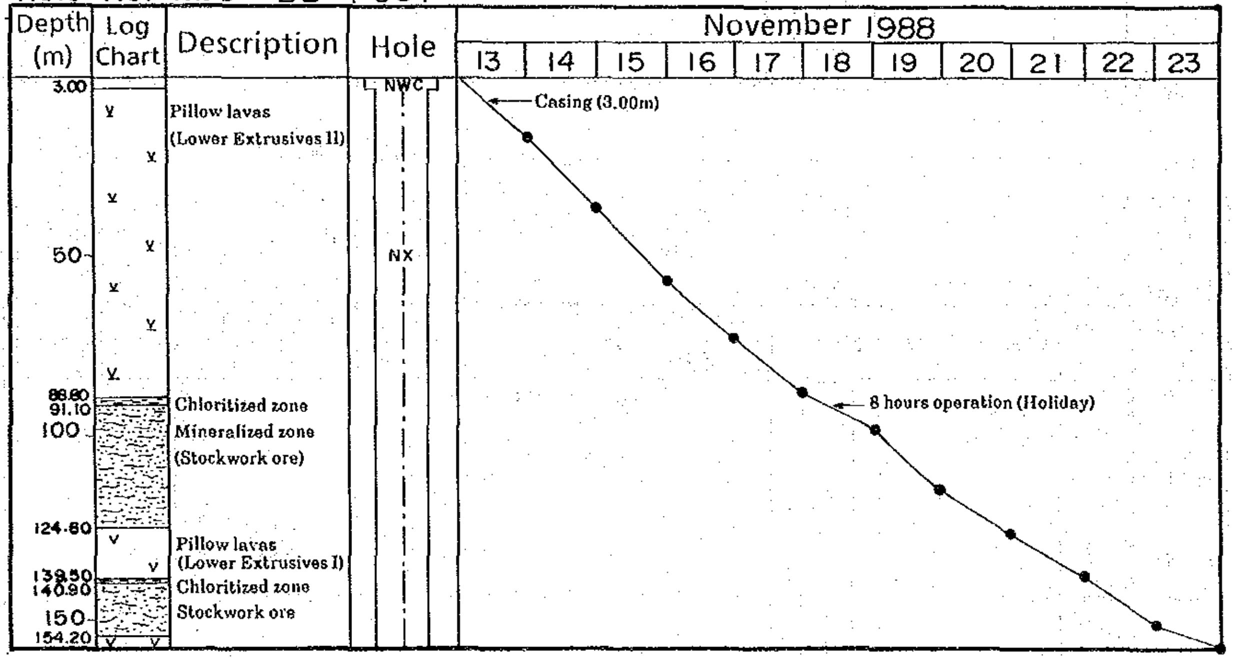
Appendix 12

Progress of the each drill hole in area B

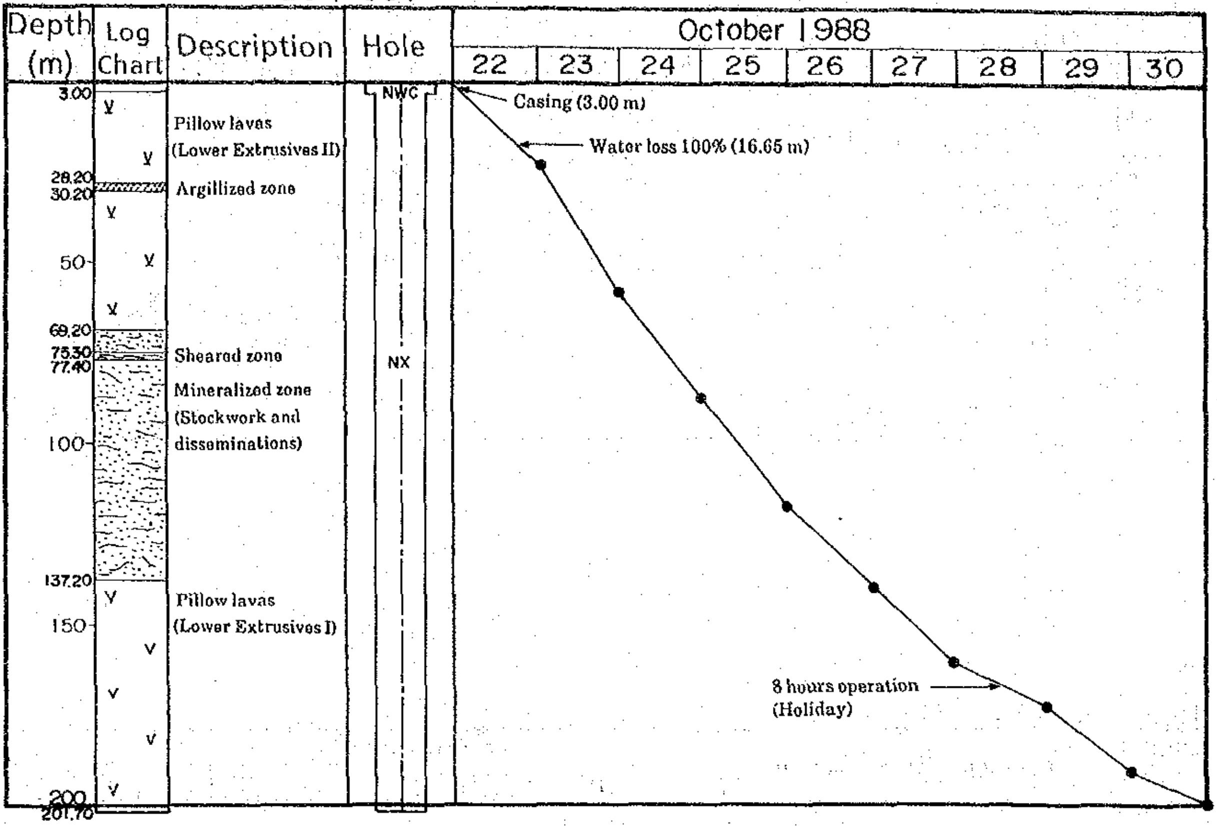
Hole No. MJO – B1 (-90°)



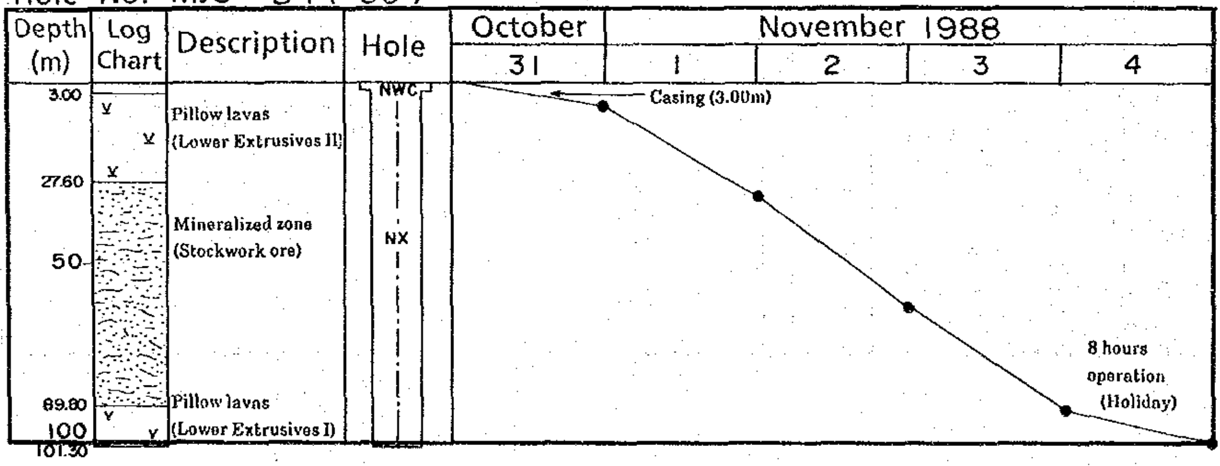
Hole No. MJO – B2 (-90°)



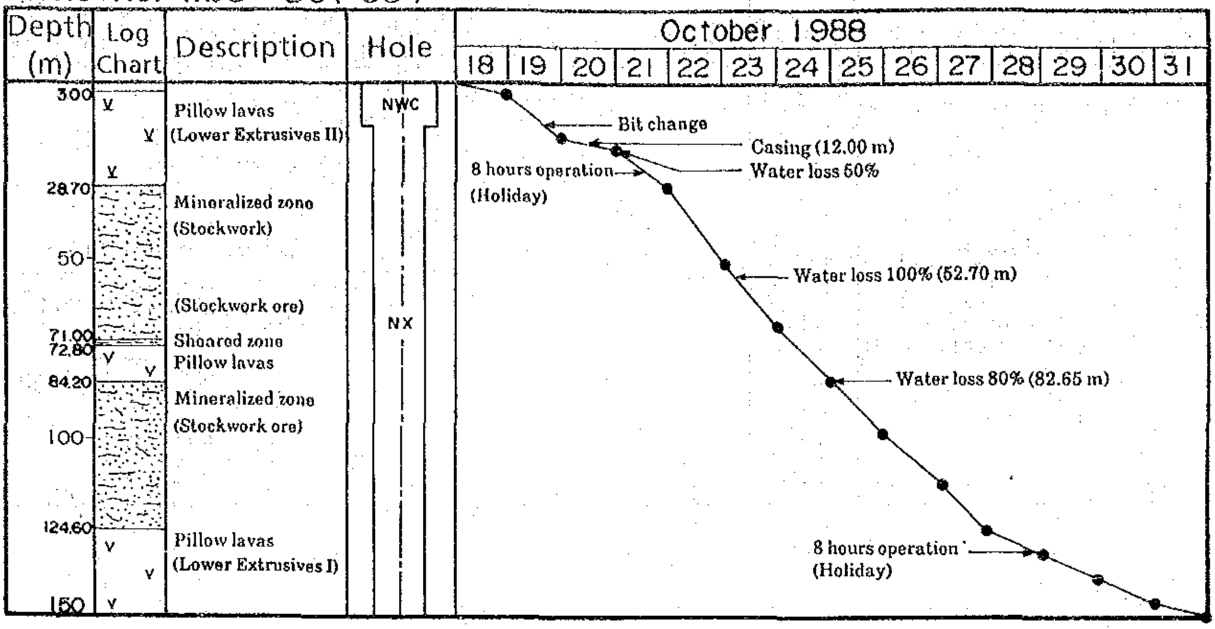
Hole No. MJO-B3 (-90°)



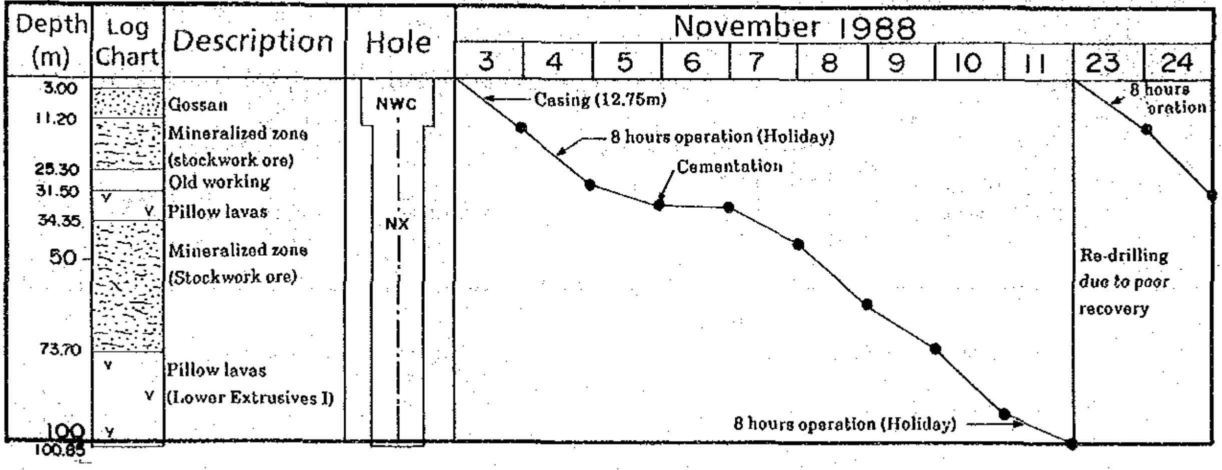
Hole No. MJO- B4 (-90°)



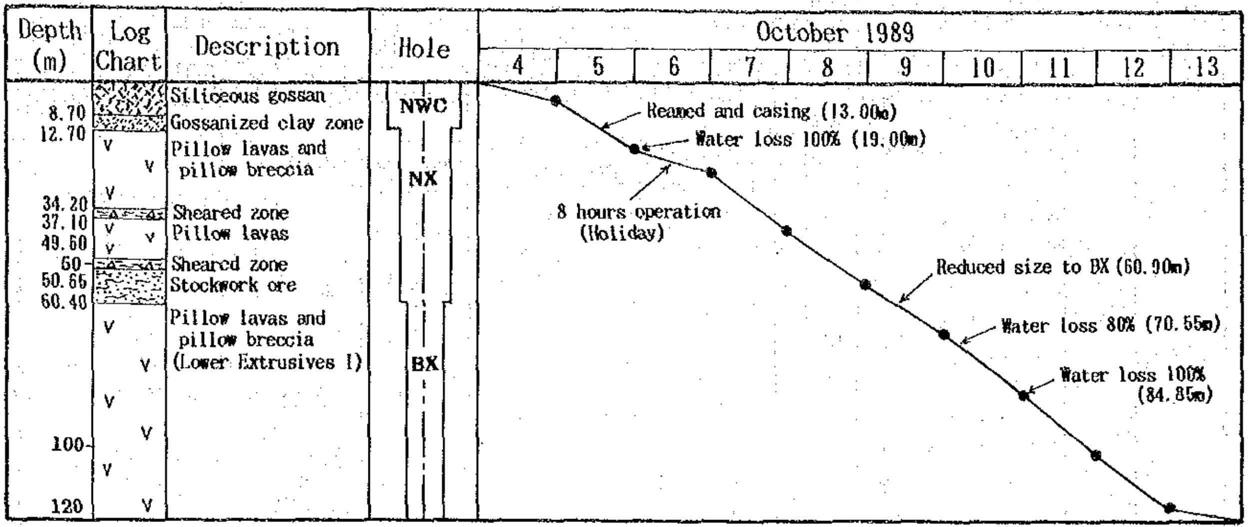
Hole No. MJO - B5(-90°)



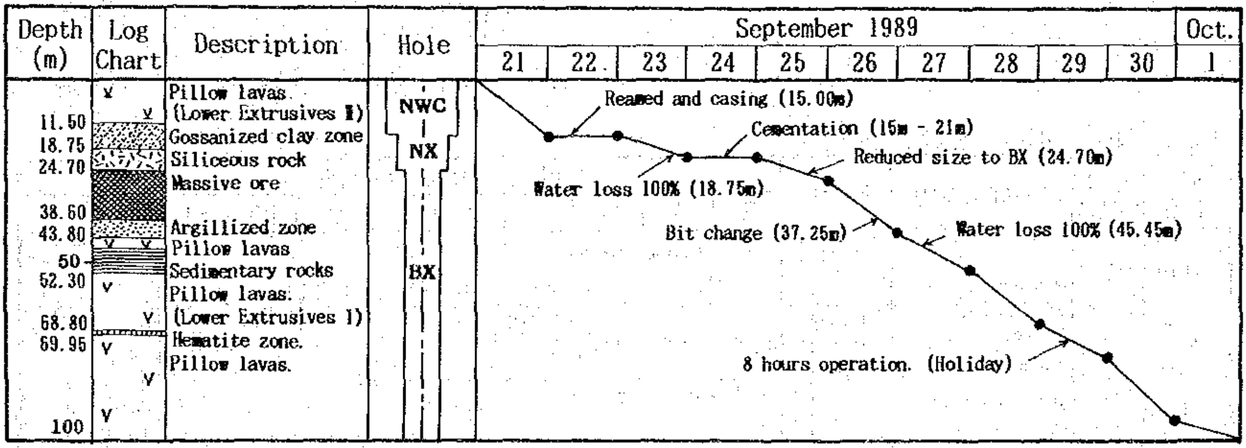
Hole No. MJO - B6 (-90°)



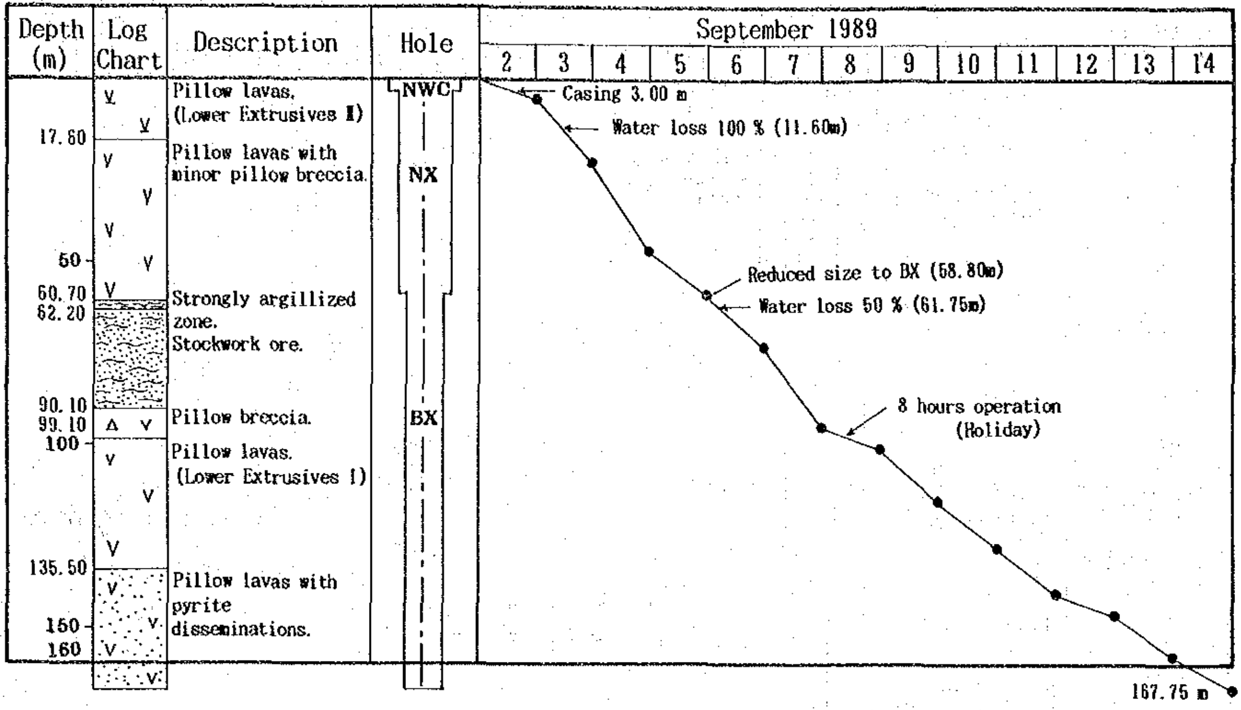
Hole No. MJO-B7 (-90°)



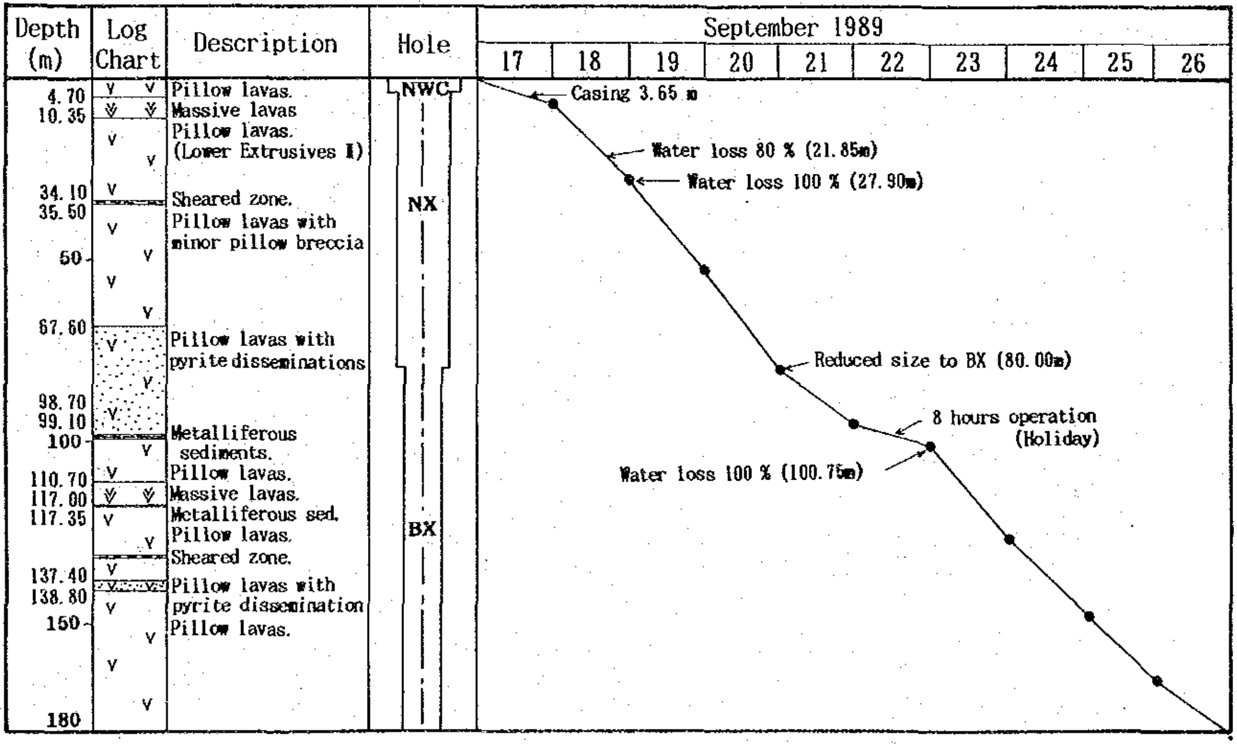
Hole No. MJO-B8 (-90°)



Hole No. MJO-B9 (-90°)



Hole No. MJO-B10 (-90°)



Hole No. MJO-B11 (-90°)