## III-6 Withdrawal

The two drilling machines finished drilling work on 3rd and 9th November, 1981, and immediately casing pipes were drawn out and the drilling machines and other fixtures were dismantled.

All these machines and other things were transported to the Geological Survey Department at Lobatse on 5 t trucks. Most part of them were stored provisionally under sheets of waterproof canvas.

## III-7 Records of Work

Such records of work as the analysis of the time of dirlling work and drilling performance are set forth in Table 7, 8, 9, 10, 11 and Fig. 9.

Table 7. Drilling equipment

Item	Model	Quantity	Spec	ification
Drilling Machine	TD-1G (Tone Boring, Co.)	2 sets	Capacity: Dimensions:	AW Rod 150 m
			Height; Length;	1,190 mm 1,250 mm
			Width; Weight:	800 mm 390 kg
	Swivel Head		Spindle speed:	135, 270, 560 r.p.m
	Hoist		Hoisting capacity,	Max. 850 kg
	Oil Pump		Capacity: Max. pressure:	0 ~ 26 l/min. 70 kg/cm²
	NS-110C (YANMER)	2	Diesel engine Revolution:	2,200 r.p.m.
	(THUILI)		Related power:	11 PS
Drilling Pump	NAS-2 (Tone)	2	Cylinder bore dia.: Delivery volume:	63 mm 62 l/min.
	(1010)		Max. pressure: Stroke:	70 kg/cm <sup>2</sup> 160 r.p.m.
	NS-75C	2	Diesel engine	
	(YANMER)		Revolution: Related power:	2,200 r.p.m. 7.5 PS
Derick	Tripod (KYOEI)	2	Steel pipe	
	(KIOEI)		Max. load capacity:	3,000 kg
Drill Rod		80 4	AW - 3 m AW - 1.5 m	
Casing Pipe		10	73 mm – 3 m	:
		4 35	73 mm — 1.5 m 63 mm — 3 m	
		4	63 mm — 1.5 m	
		4	63 mm — 0.5 m	
Double Core Tube	DN-AW	4	DN 65 – 1.5 m	
Double Core Tube	DN-AW	5	DN 55 – 2 m	
Single Core Tube		2	74 mm — 0.3 m	
Single Core Tube		3	74 mm — 1.5 m	

Table 8. Consumables used

	Light oil	Gasoline	Mobil oil	Grease	Cement	Bentonite
	Q	Q.	R	kg	bag	bag
GSJ - 1	236	44	3	1.5	3	3.
GSJ - 2	308	58	2	1	3	4
GSJ - 3	308	58	7	1	5	4
GSJ - 4	254	48	1.5	1.5	3	3
GSJ - 5	236	44	6	1.5	3	2
GSJ - 6	217	41	1.5	2.0	3	3
GSJ - 7	308	58	5	1.5	10	4
GSJ - 8	290	55	5	2	3	3
GSJ - 9	293	55	1	1.5	10	4
GSJ - 10	257	48	1.5	1.5	7	8
GSJ - 11	214	40	5	2	3	4
GSJ - 12	198	37	0.5	1.5	6	4
GSJ - 13	180	34	25	2	3	3
GSJ - 14	210	39	25	2	3	4
GSJ - 15	213	40	2	1.5	3	5
GSJ - 16	272	51	5	1	10	3
GSJ - 17	236	44	7	2.5	3	2
GSJ - 18	254	48	7	2.5	4	2
Total	4,484	842	110	30	85	65

Table 9-1 Operational results of drill hole, GSJ-1

								1. 1.		
				Period		Number of Days	Actual Working Days	Day off		Total umber of Workers
g	Pre	paration	Oct. 22	, '81 ~ Oct.	23, '81	2	2 .			21
Peri	Dri	lling	Oct. 24	, '81 ~ Oct.	30, '81	7	7			73.5
Working Period	Re	moving	Oct. 31	, '81 ~ Oct.	31, '81	1	1			8
ĭ M	То	tal	Oct. 22	, '81 ~ Oct.	31, '81	10	10			102.5
ngth		nned Length		100.00 m		Core I	Recovery for	each 100	m se	ction
Drilling Length		rease in Length	0.20 m	Core Length	99.80 m	Depth m		tion %		Total %
Dril		igth Drilled	100.20 m	Core Recovery	99.6%	0~100.20	) 9!	9.6		99.6
	Dri	lling	78°00′	46.4 %	40 %		Drilling 1	Efficiency	<u> </u>	
		companying Works	90°00′	53.5%	46.1%	100.20/10 Total Ler Drilling Po		ngth Period	10	.02 m/Day
	Re	pairing		%	%	100.20/10	Total Le Working	ngth Days	10	.02 m/Day
Working Time	Tot	al	168°00′	100%	86.1%	100.20/7	Total Le Net Drillin	ngth g Days	14	.31 m/Day
Workin	ying	Preparation	18°00′		9.2%	73.5/100.20 -	Net Drilling Total Le	Workers ngth	0	.73 men/m
•	Removing	Moving	9°00′		4.6%		Drilled Leng	th by Bit S	Size	·. ·
	Otl	ners				Bit Size	75 mr	n 66 n	nm	56 mm
	Gra	nd Total	195°00′		100%	Drilled Leng	th 2.00	m 31.00	) m	67.20 m
Pipe	•	e Size & erted Length	Inserted Drilling	Length Length	Recovery of Casing Pipe	Core Length	2.00	m 31.00	) m	66.80 m
Inserted Casing Pipe	73	mm: 2.00 m	1.9	9 %	100 %	Remarks				
nserted	63	mm: 33,00 m	32.9	3 %	90%					······································

Table 9-2 Operational results of drill hole, GSJ-2

				Period		Number of Days	W	Actual orking Days	Day off		Total umber of Vorkers
g	Pro	eparation	Oct. 15	, '81 ~ Oct.	15, '81	1		1			13
Working Period	Dr	illing	Oct. 16	, '81 ~ Oct.	25, 81	10		10			100
rking	Re	moving	Oct. 26	, '81 ~ Oct.	26, '81	1		1		8	
Wo	То	tal	Oct. 15	, '81 ~ Oct.	26, '81	12		12			121
ngth		nned Length		100,00 m		Core I	Reco	very for	each 100 i	n sec	ction
Drilling Length		rease in Length	0,60 m	Core Length	92.50 m	Depth m			tion %		Total %
Prince	Le	ngth Drilled	100.60 m	Core Recovery	91.9%	0~100.60	0	91	.9		91.9
	Drilling  Accompanying  Works		84°00′	40 %	21 %		]	Drilling I	Efficiency	iency	
	Ac	companying Works	mpanying 108°00' 51.4% 47.3% 100.60/12 Total Le		ngth eriod	ngth eriod 8,38					
	Re	pairing	18°00′	8.5%	7.8%	100.60/12	7	Total Le Working	ngth Days	8	.38 m/Day
Working Time	То	tal	210°00′	100%	92.1%	100.60/10	Ne	Total Le	otal Length Drilling Days		.06 m/Day
Work	Removing	Preparation	9°00′		3.9%	100/100.60	Net	Drilling Total Le	Workers ngth	0	.99 men/m
	Remo	Moving	9°00′		3.9%		Drill	ed Lengt	h by Bit S	ize	
	Otl	ners				Bit Size		75 mm	1 66 m	m	56 mm
	Gra	and Total	228°00′		100%	Drilled Leng	th	6.00 r	n 24.00	m	70.60 m
Tpe		e Size & erted Length	Inserted Drilling	Length Length	Recovery of Casing Pipe	Core Length	l	5.80 n	n 16.10	m	70.60 m
Inserted Casing Pipe	73 mm : 6.00 n		5,9	6%	100 %	Remarks					·
serted	63	mm : 30.00 m	29.8	2 %	100%						:
ц	<b></b>										

Table 9-3 Operational results of drill hole, GSJ-3

				Period		Number of Days	Actual Working Days	Day off		Total umber of Workers
ष्ट	Pre	paration	Oct. 4	, '81 ~ Oct.	5, '81	2	2			21
Peri	Dri	illing	Oct. 6	, '81 ~ Oct.	13, '81	8	8		<b></b>	84
Working Period	Re	moving	Oct. 14	, '81 ~ Oct.	14, '81	1	1			8
Wo	То	tal	Oct. 4	, '81 ~ Oct.	14, '81	11	11			113
igth		nned Length		100.00 m		Core I	Recovery for	each 100	m se	ction
Drilling Length		rease in Length	0,50 m	Core Length	89.55 m	Depth m		ction %		Total %
Drif	Lei	ngth Drilled	100.50 m	Core Recovery	89.1 %	0 ~ 100.50	8	9.1	-	89.1
	Dri	lling	76°00′	39.5 %	34.7 %		Drilling l	Efficiency		
	Ace	companying Works	116°00′	60.4 %	52.9 %	100.50/11	Total Le Drilling I	Total Length Drilling Period  9.1		.14 m/Day
e	Rej	pairing		%	- %	100.50/11	Total Le Working	ngth Days	9	.14 m/Day
Working Time	Tot	tal	192°00′	100 %	87.6 %	100,50/8	Total Le Net Drillin	Total Length let Drilling Days		.56 m/Day
Work	Removing	Preparation	18°00′		8.2 %	84/100,50 -	Net Drilling Total Le	Workers ngth	0	.84 men/m
	Rem	Moving	9°00'	:	4.1 %	]	Orilled Leng	th by Bit S	ize	
	Oth	ners				Bit Size	75 mn	n 66 m	ım	56 mm
	Gra	nd Total	219°00′	n. 4	100 %	Drilled Leng	th 7.50	m 32.50	m	60.50 m
Pipe		e Size & erted Length	Inserted Drilling		Recovery of Casing Pipe	Core Length	2.50	m 31.40	m	55.65 m
Casing	73 1	mm: 7.50 m	7.46	%	60 %	Remarks		<u> </u>		
Inserted Casing Pipe	63 1	mm: 40.00 m	39.8	%	100 %					
							·	_		

Table 9-4 Operational results of drill hole, GSJ-4

			•							To State Like		
				Period		Number of Days	Actual Working Days	Day off	Νι	Total imber of Jorkers		
pq	Pre	paration	Sep. 30	, '81 ~ Oc	t. 1, '81	. 2	2			16		
Peri	Dri	lling	Oct. 2	, '81 ~ Oc	t. 9, '81	8	8			84		
Working Period	Rei	noving	Oct. 10	, '81 ~ Oct.	10, '81	1	1			8		
Wo	Tot	tal	Sep. 30	, '81 ~ Oc	t. 10, '81	11	11			108		
gth		nned Length		100.00 m		Core 1	Recovery for	each 100	m sec	tion		
Drilling Length		rease in Length	0.20 m	Core Length	97.65 m	Depth m		ction %		Total %		
Drill	Ler	igth Drilled	100.20 m	Core Recovery	97.4%	0~100.2	0	97.4 97.4		97.4		
	Dri	lling	106°00′	55.2 %	46.2 %		Drilling	Drilling Efficiency		rilling Efficiency		
		companying Works	86°00′	44.7 %	37.5 %	100.20/11	Total L Drilling	ength Period	9	.11 m/Day		
	Repairing			%	%	100.20/11	Total L Working	ength Days	9	.11 m/Day		
Time	Tot	tal	192°00'	100 %	83.8 %	100,20/8	Total L Net Drilli	Days ngth	Total Length 1:		.55 m/Day	
Working Time	ving	Preparation	18°00'		7.8%	84/100.20	Net Drilling Total L	Workers ength	0	.84 men/m		
	Removing	Moving	9°00'		3.9		Drilled Leng	gth by Bit S	Size			
	Otl	ners				Bit Size	75 m	m 66 n	nm	56 mm		
	Gra	and Total	229		100 %	Drilled Len	gth 2.20	m 37.4	9 m	60.60 m		
,jbe		e Size & erted Length	Inserted Drilling	Length Length	Recovery of Casing Pipe	Core Lengtl	h 2.00	0 m 35.05		60.60 m		
Casing I	73	mm: 2,50 m	2.4	19 %	100 %	Remarks				-		
Inserted Casing Pipe	63	mm : 40.00 m	39.9	02%	92 %							
ij						*. *		·				

Table 9-5 Operational results of drill hole, GSJ-5

	\			Period		Number of Days	Actual Working Days	Day off		Total umber of Vorkers	
8	Pre	paration	Oct. 11	, '81 ~ Oc	et, 12, '81	2	2			21	
Period	Dri	illing	Oct. 13	, '81 ~ Oc	et. 20, '81	8	8			81.5	
Working	Re	moving	Oct. 21	, '81 ~ Oc	et. 21, '81	1	1			8	
W	То	tal	Oct. 11	, '81 ~ Oc	t. 21, '81	11	11			110.5	
ıgth		nned Length		100,00 m	:	Core l	Recovery for	r each 100	m sec	ction	
Drilling Length		rease in Length	0.40 m	Core Length	95,15 m	Depth m	Se	ction %	Total %		
Dri	Lei	ngth Drilled	100.40 m	Core Recovery	94.7 %	0~100.4	0.40 94.7  Drilling Efficience			94.7	
	Dri	lling	95°00′	53.9 %	46.7 %	* .	Drilling	Efficiency	iency		
	Ace	companying Works	81°00′	46,0 %	39.9 %	100.40/11	Total L Drilling	ength Period	gth riod 9.13		
	Rej	pairing		%	%	100.40/11	Total L Working	ength Bays	9.	13 m/Day	
Time	Tot	tal	176°00′	100 %	86.6%	100.40/8	Total L Net Drilli	Total Length t Drilling Days 12.55 m		55 m/Day	
Working Time	Removing	Preparation	18°00′		8.8%	81.5/100.40	Net Drilling Total L	g Workers ength	0,	81 men/m	
	Rem	Moving	9°00′		4.4 %	]	Drilled Leng	gth by Bit S	Size		
	Oth	ners		:		Bit Size	75 m	т 66 п	nm	56 mm	
	Gra	nd Total	203°00′		100 %	Drilled Leng	th 2.30 i	n 25.20	m	72.90 m	
Pipe	1,	e Size & erted Length	Inserted Drilling	Length Length	Recovery of Casing Pipe	Core Length	2.00 1	m 20,60 m		72.55 m	
Casing	73 1	mm: 2.30 m	2.2	9%	100 %	Remarks					
Inserted Casing Pipe	63 1	mm : 27.50 m	27.3	9 %	100 %						
I											

Table 9-6 Operational results of drill hole, GSJ-6

	-		:	Period		Number of Days	Actual Working Days	Day off		Total umber of Vorkers
8	Pre	paration	Sep. 25	, '81 ~ Se <sub>I</sub>	. 26, '81	2	2			16
Peri	Dri	lling	Sep. 27	, '81 ~ Oc	t. 2, '81	6	6			63
Working Period	Re	moving	Oct. 3	,'81 ~ Oc	t. 3, '81	1	1			8
W	To	tal	Sep. 25	, '81 ~ Oct	t. 3, '81	. 9	9.		·	87
ıgth		nned Length		100,00 m		Core I	Recovery for	each 100	m se	ction
Drilling Length		rease in Length	1.50 m	Core Length	98.50 m	Depth m		ction %	Total %	
Dri		ngth Drilled	101.50 m	Core Recovery	97.0 %	0~101.50		97		97
	Dri	Orilling 66°00′ 45.8% 38.5% Drilling Efficiency						<b>-1</b>		
	Ace	ompanying 78°00' 54.1 % 45.6 % 101.50/9 Total Length Drilling Period					11.28 m/Day			
	Rej	pairing		%	%	101.50/9	Total Lo Working	ength Days	11	28 m/Day
Time	Tot	tai	144°00′	100 %	84.2 %	101.00/6	Total Lo	ength ng Days	16.	.92 m/Day
Working Time	Removing	Preparation	18°00′		10.5 %	63/101.50 -	Net Drilling Total L	Workers ength	0.	62 men/m
A	Кет	Moving	9°00'		5.2 %		Drilled Leng	th by Bit S	ize	
	Otl	iers				Bit Size	75 m	m 66 n	ım	56 mm
	Gra	ınd Total	171°00′	:	100 %	Drilled Leng	th 3,00 i	n 27.00	) m	71.50 m
Pipe		Pipe Size & Inserted Length & Recovery of Casing Pipe Core Length 1.50 m 25.7		n 25.70	) m	71.30 m				
Casing	73	mm: 3,00 m	2.95	%	100 %	Remarks	1		•	
Inserted Casing Pipe	63	mnı : 30,00 m	29,55	%	100 %					
								-		

Table 9-7 Operational results of drill hole, GSJ-7

				Period		Number of Days	Actual Working Days	Day off		Total imber of Vorkers	
Þ	Pre	paration	Sep. 17	, '81 ~ Sep	. 18, '81	2 .	2			16	
Peri	Dri	lling	Sep. 19	, '81 ~ Ser	. 28, '81	10	10			100	
Working Period	Rei	moving	Sep. 29	,'81 ~ Ser	. 29, '81	1	1		8		
Wo	Tot	tal	Sep. 17	, '81 ∼ Ser	29, '81	13	13			124	
ıgth		nned Length		100.00 m		Core 1	Recovery for	each 100	n sec	tion	
Drilling Length		rease in Length	0.20 m	Core Length	91.75 m	Depth m		ction %		Total %	
Drill		ngth Drilled	100.20 m	Core Recovery	91.5 %	0 ~ 100.20	) 9	91.5			
	Dri	lling	83°00′	42.3 %	37.2 %		Drilling	Efficiency			
		companying Works	104°00′	53.0 %	46.6 %	100.20/13	Total Le	Total Length Drilling Period		'1 m/Day	
	Rej	pairing	9°00′	4.5 %	4.0 %	100.20/13	Total Le Working	ength Days	7.7	/1 m/Day	
Time	Tot	al	196°00′	100 %	87.8%	100.20/10	Total Le Net Drillin	ength ng Days	10.0	)2 m/Day	
Working Time	ving	Preparation	18°00′		8.0 %	100/100.20	Net Drilling Total L	Workers ength	1.0	00 men/m	
*	Removing	Moving	9°00′		4.0 %		Drilled Leng	th by Bit S	lize		
٠,	Oth	ners				Bit Size	75 m	m 66 n	ım	56 mm	
	Gra	nd Total	223°00′		100 %	Drilled Leng	gth 7.00 i	n 39.65	5 m	53,55 m	
Pipe	1	e Size & erted Length	Inserted Drilling	Length Length	Recovery of Casing Pipe	Core Length	6.50 i	n 34.3	0 m	50.95 m	
Casing	73 1	mm: 7,00 m	6.9	8 %	100 %	Remarks			14		
Inserted Casing Pipe	63 1	mm : 46.80 m	46.	7%	85 %						
T T						Ta .					

Table 9-8 Operational results of drill hole, GSJ-8

				Period		Number of Days	Actual Working Days	Day off		Total lumber of Workers
g	P	reparation	Sep. 14	, '81 ~ Se	p. 15 <b>, '</b> 81	2	2		*****	21
Per:	D	rilling	Sep. 16	, '81 ~ Se <sub>]</sub>	p. 23, '81	8	- 8		•	84
Working Period	R	emoving	Sep. 24	,'81 ∼ Se <sub>l</sub>	o. 24, '81	1	1			8
i s	Т	otal	Sep. 14	, '81 ~ Se <sub>l</sub>	24, '81	11	11			113
ıgth		anned Length		100,00 m		Core l	Recovery for	each 100	0 m section	
Drilling Length	Ir	in Length	0.30 m	Core Length	92.55 m	Depth m		ction %		Total %
Dri	L	ength Drilled	100.30 m	Core Recovery	92.2 %	0 ~ 100.30	) 9	2.2		92.2
	D	rilling	90°00′	46.8 %	41.0 %		Drilling 1	Efficiency		
	A	ccompanying Works	102°00'	53.1 %	46.5 %	100.30/11	Total Le Drilling I	Total Length Drilling Period  9.12 n		12 m/Day
	R	epairing		%	%	100.30/11	Total Le Working	Total Length Working Days Total Length		12 m/Day
g Time	To	otal	192°00′	100%	83.6 %	100.30/8	Total Le Net Drillin			54 m/Day
Working	Removing	Preparation	18°00′		8.2 %	84/100.30	Net Drilling Total Le	Workers ength	0.	84 men/m
	Rem	Moving	9°00′		4.1 %		Drilled Leng	th by Bit S	ize	
	O	thers				Bit Size	75 mm	n 66 n	ım	56 mm
	Gı	and Total	219°00′		100%	Drilled Leng	th 2.00 m	38.00	m	60.30 m
Pipe		pe Size & serted Length	Inserted Drilling		Recovery of Casing Pipe	Core Length	2.00 m	34.20	m	56.35 m
Inserted Casing Pipe	73	mm: 2.00 m	1,99	9 %	100 %	Remarks				:
nserted	63	mm : 40.00 m	39.88	3 %	85 %					
-					·					

Table 9-9 Operational results of drill hole, GSJ-9

				Period		Number of Days	Actual Working Days	Day off	N	Total lumber of Workers		
bo	Pre	paration	Sep. 6	,'81 ~ Se <sub>I</sub>	7, '81	2	. 2			16		
Peri	Dri	illing	Sep. 8	, '81 ~ Se <sub>l</sub>	. 15, '81	8	8			83.5		
Working Period	Re	moving	Sep. 16	,'81 ~ Se <sub>I</sub>	o. 16 <b>, '</b> 81	1	. 1		. 8			
M.	То	tal	Sep. 6	, '81 ~ Sep	. 16, '81	11	11			107.5		
ngth		nned Length		100.00 m		Core I	Recovery for	each 100	m se	ction		
Drilling Length		rease in Length	0.20 m	Core Length	94.20 m	Depth m		ction %		Total %		
Dτί		ngth Drilled	100.20 m	Core Recovery	94.0 %	0~100.20	) 9	94.0		94.0		
	Dri	lling	67°30′	35.1%	30.8%		Drilling	Drilling Efficiency				
		companying Works	124°30′	64.8 %	56.8%	100.20/11	Total Le	ength Period	9.11 m/E			
	Rej	pairing		%	%	100.20/11	Total La Working	Total Length Working Days  9.11		otal Length orking Days 9.11 n		.11 m/Day
Time	Tot	tal	192°00′	100%	87,6%	100.20/8	Total Le Net Drillin			.53 m/Day		
Working Time	Removing	Preparation	18°00′		8.2 %	83.5/100.20	Net Drilling Total Le	Workers ength	0.	.83 men/m		
	Rem	Moving	9°00′		4.1 %		Drilled Leng	th by Bit S	ize			
	Oth	iers				Bit Size	75 m	n 66 m	ım	56 mm		
	Gra	nd Total	219°00′		100 %	Drilled Leng	th 6.00 n	ı 35.85	m	58,35 m		
Pipe	٠,	e Size & erted Length	Inserted Drilling	Length Length	Recovery of Casing Pipe	Core Length	1.70 n	1.70 m 34.25 i		58.25 m		
Casing	73 1	mm: 6,00 m	5.98	3 %	100 %	Remarks			•			
Inserted Casing Pipe	63 1	mm : 36.00 m	35,92	2 %	83 %							

Table 9-10 Operational results of drill hole, GSJ-10

			Period		Number of Days	Actual Working Days	Day off		Total umber of Workers
oď	Preparation	Sep. 4	, '81 ~ Sep	5, '81	2	2			20
g Peri	Drilling	Sep. 6	, '81 ~ Ser	. 12, '81	7	. 7		73.5	
Working Period	Removing	Sep. 13	'81 ~ Ser	, 13, '81	1	. 1 ·			8
W	Total	Sep. 4	, '81 ~ Sep	. 13, '81	10	10			101.5
ngth	Planned Length		100.00 m		Core R	ecovery for	each 100	m se	ction
Drilling Length	Increase in Length	1.00 m	Core Length	84.30 m	Depth m		ction %		Total %
Dril	Length Drilled	101.00 m	Core Recovery	83.4 %	0~101.00	8	33.4	83.4	
	Drilling	71°00′	42.2%	36.4%	Drilling Efficiency				
	Accompanying Works	97°00′	57.7 %	57.7 %	101.00/10	Total Le	ength Period	10.	10 m/Day
	Repairing	ring % % 101.0		101.00/10 Total Length Working Days			10.	10 m/Day	
Working Time	Total	168°00′	100 %	86.1 %	101.00/7	Total Le Net Drillin	ength ig Days	14.	43 m/Day
Workin	Preparation  Moving	18°00′		9.2 %	73.5/101.00	Net Drilling Total Le	Workers ength	0.	73 men/m
	Moving Moving	9°00′		4.6 %	D	rilled Leng	th by Bit S	ize	
	Others				Bit Size	75 mm	n 66 n	ım	56 mm
	Grand Total	195°00′		100 %	Drilled Lengt	h 13.50 r	n 32.50	m	55.00 m
Pipe	Pipe Size & & Inscrted Length	Inserted Drilling		Recovery of Casing Pipe	Core Length	5.40 1	n 28.15	m	50.75 m
Casing	73 mm : 13,50 m	13.3	7 %	77 %	Remarks				
Inserted Casing Pipe	63 num : 46.00 m	45.54	1%	87%					
I							. <u></u>		

Table 9-11 Operational results of drill hole, GSJ-11

				Period		Number of Days	W	Actual 'orking Days	Day off		Total umber of Vorkers
ođ	Pre	paration	Aug, 27	', '81 ~ Au	g. 27, '81	1		1		•	8
Working Period	Dri	lling	Aug. 28	, '81 ~ Se <sub>1</sub>	2, '81	6		6			63
rkin	Rei	moving	Sep. 3	, '81 ~ Ser	o. 3,'81	1		1			8
×	Tot	tal	Aug. 27	, '81 ~ Sep	o. 3,'81	8		8			79
ıgth		nned Length		100.00 m		Core I	Reco	overy for	each 100 i	n sec	ction
Drilling Length		rease in Length	0.05 m	Core Length	76.90 m	Depth m		Sec.			Total %
Dril	Ler	ngth Drilled	100.05 m	Core Recovery	76.8 %	0 ~ 100.05	5	7	6.8		76.8
	Dri	lling	61°00′	42.3 %	37.6%			Drilling E	Efficiency		
1		companying Works	83°00′	57.6 %	51.2 %	100.05/8		Total Le Drilling P	ngth eriod	12.	51 m/Day
	Repairing			%	%	100.05/8	_	Total Le Working	ngth Days	12.	51 m/Day
Working Time	Tot	al	144°00′	100%	88.8 %	100.05/6 To Net I		Total Le et Drillin	ngth g Days	16.	75 m/Day
Workin	Removing	Preparation	9°00′		5.5 %	63/100.05 Net Drilling Total Le		Drilling Total Le	Workers ngth	0.	63 men/m
	Rem	Moving	9°00′	·	5.5 %		Dril	led Lengt	h by Bit S	ize	
	Oth	ners				Bit Size		75 mm	1 66 m	ım	56 mm
	Gra	nd Total	162°00′		100 %	Drilled Leng	th	9.00 m	21.00	m m	70.05 m
Pipe		e Size & erted Length	Inserted Drilling	Length Length	Recovery of Casing Pipe	Core Length	L	2.00 m	11.95	m	62.95 m
Inserted Casing Pipe	73 1	mm: 9,00 m	8,99	)%	66%	Remarks					
Inserted	63 1	mm: 30.00 m	29.98	3 %	100 %						
		:		: -				<u></u>			

Table 9-12 Operational results of drill hole, GSJ-12

							<del> </del>	,		·
				Period		Number of Days	Actual Working Days	Day off		Total umber of Vorkers
od	Pro	eparation	Aug. 19	), '81 ~ Au	g. 20, '81	2	. 2	·		16
Peri	Dr	illing	Aug. 21	, '81 ~ Au	g. 25, '81	5	5.			47.5
Working Period	Re	emoving	Aug. 26	, '81 ~ Au	g. 26, '81	1	1			13
« M	To	otal	Aug. 19	, '81 ~ Au	g. 26, '81	8	8		*******	76.5
igth		nned Length		100.00 m		Core R	ecovery for	each 100	m se	ction
Drilling Length	Inc	crease in Length	0.10 m	Core Length	89.35 m	Depth m		tion %		Total %
Drill	Le	ngth Drilled	100.10 m	Core Recovery	89.2 %	0~100.10	8	9.2		89.2
	Dr	illing	55°00′	45.8 %	37.4%		Drilling l	3fficiency		
	Wo	companying Works	65°00′	54.1 %	44.2 %	100.10/8	Total Le	ngth Period	12.	51 m/Day
	Re	pairing		%	%	100.10/8	Total Le Working	ngth Days	12.	51 m/Day
g Time	То	tal	120°00′	100 %	81.6 %	100.10/5	Total Le Net Drillin	ngth g Days	20.	02 m/Day
Working Time	Removing	Preparation	18°00′		12,2 %	47.5/100.10 Net Drilli Total		Workers_ ngth	0.	47 men/m
	Remo	Moving	9°00′		6.1 %	I.	Orilled Leng	th by Bit S	ize	
	Ot	hers				Bit Size	75 mn	n 66 m	າກາ	56 mm
	Gra	and Total	147°00′		100 %	Drilled Lengt	h 9.00 m	18.00	m.	73.10 m
Pipe	1	e Size & erted Length	Inserted Drilling	Length Length	Recovery of Casing Pipe	Core Length	3.80 m	14.05	m	71.50 m
Casing	73 mm : 9	mm: 9,00 m	8,99	9 %	100 %	Remarks				
Inserted Casing Pipe	63	mm : 27.00 m	26.98	3 %	100%					
							<b>-</b>			

Table 9-13 Operational results of drill hole, GSJ-13

				Period	· · · · ·	Number of Days	Wor	tual king iys	Day off		Total umber of Vorkers
pq	Pre	paration	Aug, 5	, '81 ~ Au	g. 7,'81	3		3			24
, Period	Dri	illing	Aug. 8	, '81 ~ Au	g. 15, '81	. 8		8			81.5
Working	Re	moving	Aug. 16	, '81 ~ Au	g. 16, '81	1		1			8
Wo	То	tal	Aug. 5	, '81 ~ Au	g. 16, '81	12		12			113.5
ngth		nned Length		100.00 m		Core	Recov	ery for 6	each 100	m sec	tion
Drilling Length		rease in Length	0.30 m	Core Length	95.65 m	Depth m		Sect			Total %
Dril		ngth Drilled	100.30 m	Core Recovery	95.3 %	0 ~ 100.30	)	95	5,3		95.3
	Dri	illing	75°00′	40.3 %	33.7 %		Di	rilling E	fficiency	1	
		companying Works	111°00′	59.6%	50.0 %	100,30/12	T Di	otal Ler illing Pe	igth eriod	8.	36 m/Day
	Re	pairing		%	%	100.30/12	_T W	otal Ler orking I	ngth Days	8.	36 m/Day
Working Time	То	tal	186°00′	100 %	83.7 %	100.30/8 Total Net Dril			ngth g Days	12.	54 m/Day
Workin	wing	Preparation	27°00′		12.1 %	81.5/100.30	5/100.30 Net Drilling Workers Total Length  0.			81 mcn/m	
	Removing	Moving	9°00′		4.0 %		Drille	d Lengt	h by Bit S	Size	
	Otl	hers				Bit Size		75 mm	66 п	nm	56 mm
	Gra	and Total	222°00′		100 %	Drilled Len	gth	5.20 m	38.80	) m	56.30 m
Pipe		e Size & erted Length	Inserted Drilling	Length Length	Recovery of Casing Pipe	Core Lengtl	h	2.20 m	37.15	5 m	56.30 m
Casing	73	mm: 5.50 m	5.4	8 %	100 %	Remarks					
Inserted Casing Pipe	63	mm : 44.00 m	43.8	7%	100 %						

Table 9-14 Operational results of drill hole, GSJ-14

	\			Period		Number of Days	Actual Working Days	Day off	N	Total lumber of Workers
po.	P	reparation	Aug. 5	5, '81 ~ Au	ıg. 7, '81	3	3			18
g Per	D	rilling	Aug. 8	3, '81 ~ Au	ig. 17, '81	10	10			73
Working Period	R	emoving	Aug. 18	3, '81 ~ Au	g. 18, '81	1	1			8
M.	Т	otal	Aug. 5	5,'81 ∼ Au	g. 18, '81	14	14			99
ngth	P	lanned Length		100.00 m		Core Re	ecovery for	each 100	m se	ction
Drilling Length	Ir	ncrease in Length	0 m	Core Length	88,25 m	Depth m		tion %		Total %
Dri	L	ength Drilled	100.00 m	Core Recovery	88.2 %	0 ~ 100.00	8	8.2		88,2
	D	rilling	77°00′	52.0 %	42.7 %		Drilling 1	Efficiency		
	A	ccompanying Works	71°00′	47.9 %	39.4 %	100.00/14	Total Le	ngth Period	7.	14 m/Day
	R	epairing		%	%	100.00/14	Total Le Working	ngth Days	7.	14 m/Day
Working Time	Т	otal	148°00′	100 %	82.2 %	100.00/10 Total Length Net Drilling D		ngth g Days	10.	00 m/Day
Workin	Removing	Preparation	24°00′		13.3 %	73/100.00 N	let Drilling Total Le	Workers ngth	- 0.73 men/n	
	Rem	Moving	8°00′		4.4 %	D	rilled Lengt	h by Bit S	ize	
	O	thers	1.			Bit Size	75 mm	1 66 m	m	56 mm
	Gı	rand Total	180°00′		100 %	Drilled Length	3.50 m	26.50	m	70.00 m
g Pipe	-	pe Size & serted Length	Inserted Drilling	Length Length	Recovery of Casing Pipe	Core Length	1.00 m	19.35	m	67.90 m
Inserted Casing Pipe	73	mm: 3,50 m	3.50	) %	100 %	Remarks				
Inserte	63	mm : 30.00 m	30.00	)%	100 %					
										.

Table 9-15 Operational results of drill hole, GSJ-15

				Period		Number of Days	Actual Working Days	Day off		Total lumber of Workers
jog	Pr	reparation	Aug, 17	7, '81 ~ Au	ıg. 18, '81	2	2			16
Working Period	D	rilling	Aug. 19	9,'81 ∼ Au	ig. 24, '81	6	6			63
orkin	R	emoving	Aug. 25	5, '81 ~ Au	g. 25, '81	1	1			8
×	Т	otal	Aug. 17	7,'81 ~ Au	g. 25, '81	9	9			87
ngth	Pl	anned Length		100.00 m		Core R	ecovery for	each 100	m se	ection
Drilling Length	In	crease in Length	0.20 m	Core Length	92.05 m	Depth m		tion %		Total %
Dir	Le	ength Drilled	100.20 m	Core Recovery	91.8%	0~100.20	9	1.8		91.8
	Dı	rilling	66°00′	45.8 %	38.5 %		Drilling F	fficiency		
	Ac	companying Works	78°00′	54.1 %	45.6 %	100,20/9	Total Le	ngth eriod	11	.13 m/Day
	Re	pairing		%	%	100.20/9	Total Le	ngth Days	11	.13 m/Day
g Time	То	otal	144°00′	100 %	84.2 %	100.20/6	Total Le	ngth g Days	16	.70 m/Day
Working Time	Removing	Preparation	18°00′		10.5 %	63/100.20 Net Drillin Total		Workers ngth	0	.63 men/m
	Rem	Moving	9°00′		5.2%	Γ	rilled Lengt	h by Bit S	Size	
	Ot	hers				Bit Size	75 mm	66 n	nm	56 mm
	Gr	and Total	171°00′		100 %	Drilled Lengt	h 5.00 m	40.16	m	55.04 m
Pipe	`	ne Size & serted Length	Inserted Drilling	Length Length	Recovery of Casing Pipe	Core Length	0.70 m	36.31	m	55.04 m
Inserted Casing Pipe	73	mm: 5.00 m	4.99	0%	100 %	Remarks	<u> </u>	÷		
nserted	63	mm: 45.50 m	45.40	)%	100 %			•		
							•			

Table 9-16 Operational results of drill hole, GSJ-16

				Period		Number of Days	Actual Working Days	Day off		Total umber of Workers
ğ	Pr	eparation	Aug. 26	5, '81 ~ Au	g. 27, '81	2	2			16
Working Period	Dr	illing	Aug. 28	3, '81 ~ Se <sub>l</sub>	p. 4, '81	8	8			84
rking	Re	emoving	Sep. 5	,'81 ~ Se <sub>l</sub>	o. 5,'81	1	1			8
W	To	otal	Aug. 26	5, '81 ∼ Se <sub>l</sub>	o. 5,'81	11	11			108
ıgth	Pla	anned Length		100.00 m		Core I	Recovery for	each 100	m se	ction
Drilling Length	In	crease in Length	0.20 m	Core Length	98.55 m	Depth m		ction %		Total %
Dril	Le	ngth Drilled	100.20 m	Core Recovery	98.3 %	0 ~ 100.20	) 9	98.3		98,3
	Dr	illing	75°00′	39.0 %	34.2 %		Drilling 1	Efficiency		
	Ac	companying Works	117°00′	60.9 %	53.4 %	100.20/11	Total Le	ength Period	9.	11 m/Day
	Re	pairing		%	%	100.20/11	Total La Working	ength Days	9.	.11 m/Day
Working Time	To	ital	192°00′	100 %	87.6 %	100.20/8	Total La	ength ng Days	12.	55 m/Day.
Worki	Removing	Preparation	18°00′		8.2 %	84/100.20	Net Drilling Total Le	Workers ength	0.	84 men/m
	Remo	Moving	9°00′		4.1 %	]	Drilled Leng	th by Bit S	lize	
	Ot	hers				Bit Size	75 m	ո 66 ո	ım	56 mm
	Gr	and Total	219°00'		100 %	Drilled Leng	th 8,40 r	n 34.00	) m	57.80 m
Pipe	i ·	pe Size & serted Length	Inserted Drilling	Length Length	Recovery of Casing Pipe	Core Length	6.90 r	n 34.00	) m	57.65 m
l Casing	73	mm: 8.50 m	8.4	8 %	64 %	Remarks	······································	L		· · · · · · · · · · · · · · · · · · ·
Inserted Casing Pipe	63	mm: 42.50 m	42.4	1 %	100 %					:

Table 9-17 Operational results of drill hole, GSJ-17

			Period		Number of Days	Actual Working Days	Day off	Nu	Total mber of orkers
Prep	paration	Oct. 27,	, '81 ~ Oct	. 28, '81	2	2			21
Dril	ling	Oct. 29	, '81 ~ No	v. 3, '81	6	6			63
Ren	noving	Nov. 4	, '81 ~ No	v. <b>4,'</b> 81	1	1			. 8
Tot	al	Oct. 27	, '81 ~ No	v. 4, '81	9	9			92
			100,00 m	٠.	Core R	ecovery for	each 100 i	n sec	tion
		0,80 m	Core Length	97.55 m	Depth m				Total %
l.en	gth Drilled	100.80 m	Core Recovery	96.7 %	0~100.80		96.7		96.7
Dril	lling	85°00′	59.0 %	49.7 %		Drilling	Efficiency		
Acc	ompanying Works	59°00′	40.9 %	34.5 %	100.80/9	Total L Drilling	ength Period	11.	20 m/Day
Rep	airing		%	%	100.80/9	Total Lo Working	ength Days	11.	20 m/Day
Tot	ai	144°00′	100 %	84.2 %	100.80/6	Total L Net Drilli	ength ng Days	16.	8 m/Day
ving	Preparation	18°00'	:	10.5 %	63/100.80 Net Drill Tota		Workers ength	0.	63 men/m
Remo	Moving	9°00′		5.2 %	· · · . I	Orilled Leng	gth by Bit S	lize	
Oth	ers			ji r	Bit Size	75 m	m 66 n	ım	56 mm
Gra	nd Total	171		100 %	Drilled Lengt	h 5.50	m 26.50	) m	68.80 m
	&			Recovery of Casing Pipe	Core Length	5.50	m 23.2	5 m	68.80 m
73 1	mm: 5.50 m	5.4	5 %	100 %	Remarks				
63 1	mm : 32.00 m	31.7	14%	100 %	-			٠.	
	Drill Ren Tot Plan Incr Len Drill Accc Rep Tot Oth Gra Pipe Inse	Preparation Drilling Removing Total Planned Length Increase in Length Drilled Drilling Accompanying Works Repairing Total  Preparation Moving Others  Grand Total Pipe Size & Inserted Length 73 mm: 5.50 m  63 mm: 32.00 m	Drilling         Oct. 29           Removing         Nov. 4           Total         Oct. 27           Planed Length         0.80 m           Increase in Length         100.80 m           Drilling         85°00′           Accompanying Works         59°00′           Repairing         144°00′           Total         18°00′           Moving         9°00′           Others         Inserted Length           73 mm : 5.50 m         5.4	Preparation         Oct. 27, '81 ~ Oct           Drilling         Oct. 29, '81 ~ No           Removing         Nov. 4, '81 ~ No           Total         Oct. 27, '81 ~ No           Planned Length         100.00 m           Increase in Length         0.80 m         Core Length           Length Drilled         100.80 m         Core Recovery           Drilling         85°00′         59.0 %           Accompanying Works         59°00′         40.9 %           Repairing         %           Total         144°00′         100 %           So Preparation         18°00′         00′           Works         9°00′         Inserted Length           Others         Inserted Length           Total         171           Pipe Size & Inserted Length         Inserted Length           To mm: 5.50 m         5.45 %	Preparation         Oct. 27, '81 ~ Oct. 28, '81           Drilling         Oct. 29, '81 ~ Nov. 3, '81           Removing         Nov. 4, '81 ~ Nov. 4, '81           Total         Oct. 27, '81 ~ Nov. 4, '81           Planned Length         100.00 m           Increase in Length         0.80 m         Core Length         97.55 m           Length Drilled         100.80 m         Core Recovery         96.7 %           Accompanying Works         59°00′         40.9 %         34.5 %           Repairing         %         34.5 %           Total         144°00′         100 %         84.2 %           Image: Accompanying Works         9°00′         100 %         84.2 %           Total         144°00′         100 %         84.2 %           Image: Accompanying Works         9°00′         5.2 %           Others         100 %         84.2 %           Image: Accompanying Works         100 %         84.2 %           Image: Accompanying Works         700 %         700 %         84.2 %	Preparation         Oct. 27, '81 ~ Oct. 28, '81         2           Drilling         Oct. 29, '81 ~ Nov. 3, '81         6           Removing         Nov. 4, '81 ~ Nov. 4, '81         1           Total         Oct. 27, '81 ~ Nov. 4, '81         9           Planned Length         100.00 m         Core R           Increase in Length         0.80 m         Core Length         97.55 m         Depth m           Length Drilled         100.80 m         Core Recovery         96.7 %         0 ~ 100.80           Drilling         85°00'         59.0 %         49.7 %         49.7 %           Accompanying Works         59°00'         40.9 %         34.5 %         100.80/9           Repairing         %         100.80/9         100.80/9           Total         144°00'         100 %         84.2 %         100.80/6           Fee Works         18°00'         10.5 %         63/100.80 d           Moving         9°00'         5.2 %         I           Others         Inserted Length         100 %         Drilled Length           Pipe Size & Inserted Length Drilling Length         Ino %         Core Length           73 mm : 5.50 m         5.45 %         100 %         Remarks	Period	Period	Period   Days   Day off   Days   Day off   Days   Day off   Days   Days   Day off   No Marking   Days   Days

Table 9-18 Operational results of drill hole, GSJ-18

	_			Period		Number of Days	W	orking Days	Day off		Total imber of Vorkers		
q	Pre	paration	Nov. 1	, '81 ~ No	 v. 1. '81	1		1			8		
Working Period	<u> </u>	lling		, '81 ~ No	***	8		8			84		
king	<u></u>	moving		, '81 ~ No	· · · · · · · · · · · · · · · · · · ·	1		1			16		
Wor	Tot			, '81 ~ No		10		10			108		
gth		nned Length		100.00 m	-	Core l	Reco	very for	each 100 i	n sec	tion		
Drilling Length		rease in Length	0,20 m	Core Length	86.70 m	Depth m			tion 6		Total %		
Dril	Ler	ngth Drilled	100.20 m	Core Recovery	86.5 %	0~100.20	)	8	6.5		86.5		
		lling	69°00′	35.9 %	32.8 %			Drilling I	Efficiency	l			
	Accompanying Works		123°00′	64.0 %	58,5 %	100.20/10		Total Le Drilling P	l Length ng Period		Length 10.02		02 m/Day
	Rej	pairing		%	%	100.20/10		Total Le Working	ngth Days	10.	02 m/Day		
g Time	Tot	tal	192°00′	100 %	91.4%	100.20/8	N	Total Le et Drillin	ngth g Days	12.	55 m/Day		
Working	ving	Preparation	9°00′		4.2 %	84/100.20 Net Drilling Workers Total Length		Workers ngth	0.	84 men/m			
	Removing	Moving	9°00′		4.2 %		Dril	led Leng	th by Bit S	ize			
	Otl	hers				Bit Size		75 mn	n 66 n	ım	56 mm		
	Gra	and Total	210°00′		100 %	Drilled Leng	gth	2.00 n	29.00	) m	69.20 m		
Pipe	•	e Size & erted Length	Inserted Drilling	Length Length	Recovery of Casing Pipe	Core Length	1	1,80 n	20.45	m	64.45 m		
Casing	73	mm: 2.00 m	1.99 %		100 %	Remarks							
Inserted Casing Pipe	63	mm: 31.00 m	30.9	3 %	70 %								
1								٠			·		

Table 10. Summary operational data of each drill hole

\$ 1. 1. 2.

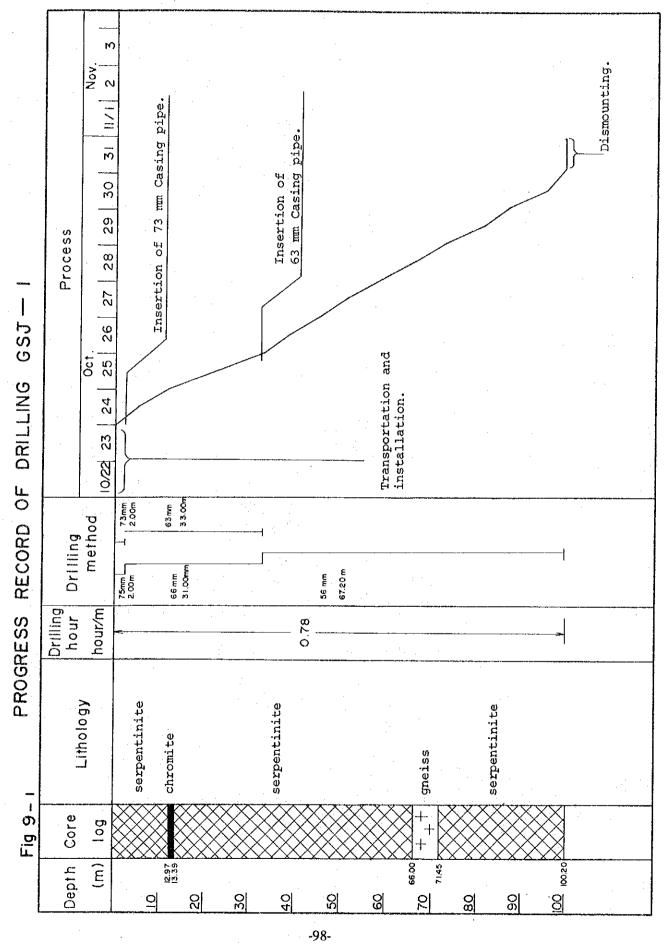
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Demonstra	Remarks						-					:	÷							
Speed	**m/shift	5.89	5.03	5.29	5.27	85.2	22.9	4.77	5.28	5.27	5.94	21.7	01.7	5.02	4.55	89'9	5.27	6.72	5.57	5.65
Drilling Speed	*m/shift	7.16	6.29	87.9	97'9	<i>L</i> 1.7	8.46	68'5	6.27	6.26	7.21	8.34	10.01	6.27	5.88	8.35	89'9	8.40	6.26	6.92
hift	Total	17	20	19	61	18	15	21	19	19	17	14	13	20	22	15	61	15	18	320
No. of Drilling Shift	Others	3	4	ĸ	3	4	3	4	8	ĸ	ε	2	8	4	5	3	4	ю	2	59
No.	Drilling	14	16	16	16	14	12	17	16	16	14	12	10	16	17	12	15	12.	16	261
<u>19</u>	Recovery	9.66	61.6	1.68	97.4	94.7	97.0	91.5	92.2	94.0	83.4	76.8	89.2	95.3	88.2	91.8	98.3	2.96	86.5	91.9
Core	Length	m 99.80	92.50	89.55	97.65	95.15	98.50	91.75	92.55	94.20	84.30	76.90	89.35	95.65	88.25	92.05	98.55	97.55	86.70	1,660.95
Drilling	Length	m 100.20	100.60	100.50	100.20	100.40	101.50	100.20	100.30	100.20	101.00	100.05	100.10	100.30	100.00	100.20	100.20	100.80	100,20	1,806.95
1	Triumg Feriod	Oct. 22, '81 ~ Oct. 31, '81	Oct. 15, '81 ~ Oct. 26, '81	Oct. 4, '81 ~ Oct. 14, '81	Sep. 30, '81 ~ Oct. 10, '81	Oct. 11, '81 ~ Oct. 21, '81	Sep. 25, '81 ~ Oct. 3, '81	Sep. 17, '81 ~ Sep. 29, '81	Sep. 14, '81 ~ Sep. 24, '81	Sep. 6, '81 ~ Sep. 16, '81	Sep. 4, '81 ~ Sep. 13, '81	Aug. 27, '81 ~ Sep. 3, '81	Aug. 19, '81 ~ Aug. 26, '81	Aug. 5, '81 ~ Aug. 16, '81	Aug. 5, '81 ~ Aug. 18, '81	Aug. 17, '81 ~ Aug. 25, '81	Aug. 26, '81 ~ Sep. 5, '81	Oct. 27, '81 ~ Nov. 4, '81	Nov. 1, '81 ~ Nov. 10, '81	Total
Drill hole	No.	GSJ-1	CSJ-2	CSI:3	GSJ4	GSJ-5	6SJ-6	GSJ-7	GSJ-8	GSJ-9	GSJ-10	GSJ-11	GSJ-12	GSJ-13	GSJ-14	GSJ-15	GSJ-16	GSJ-17	GSJ-18	

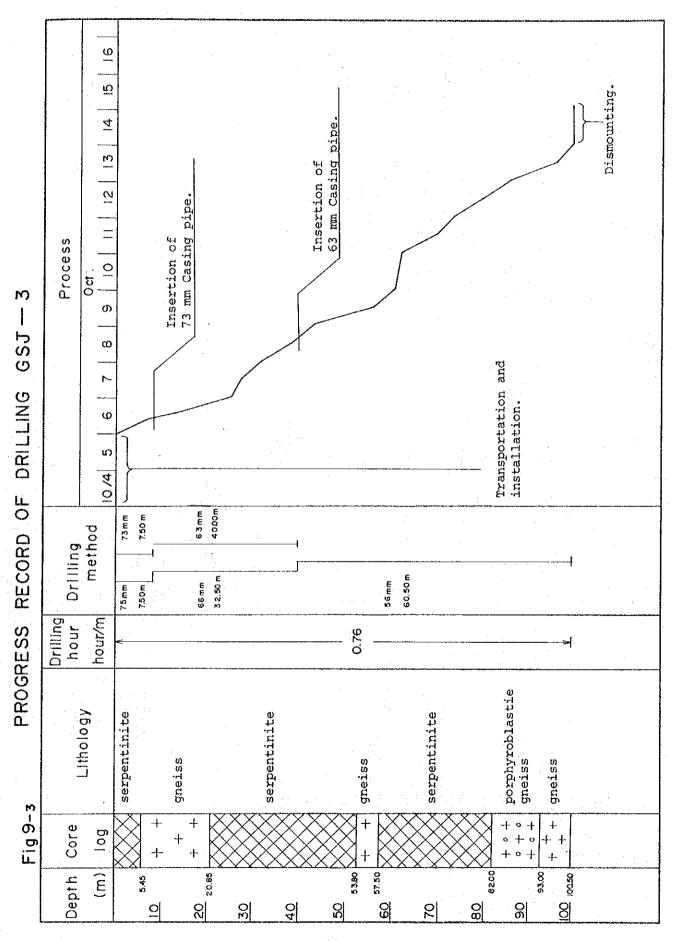
Drilled per one shift covering net drilling operations.
\*\* Drilled per one shift covering total works conducted.

Table 11. Consumed bits

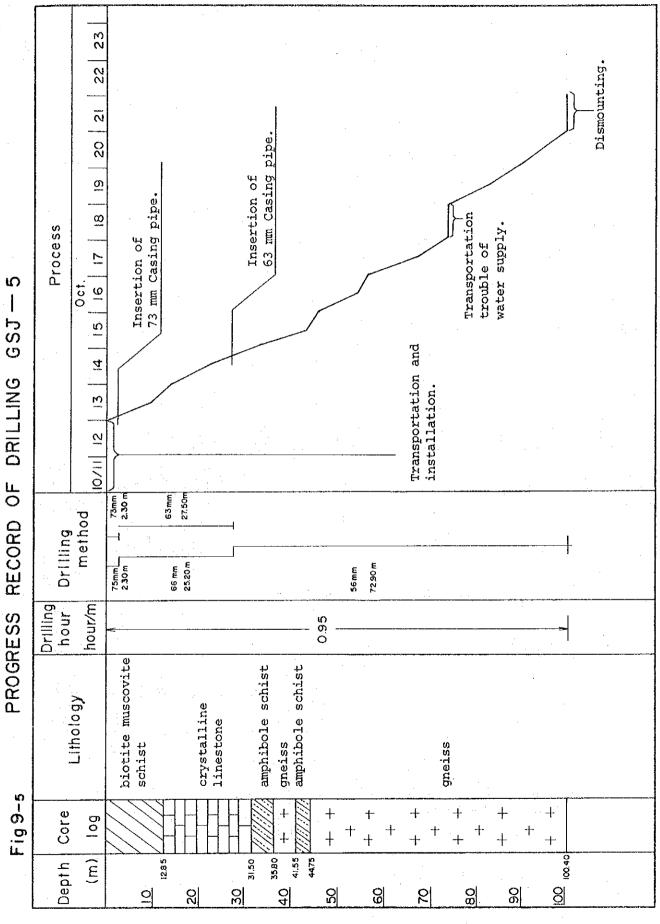
	Bit Type	75	mm	66	mm	56	mm	Remarks
Hole No.		Metal		Bit	Reamer	Bit	Reamer	**************************************
GSJ-1	Length Quantity	2.00 1		31.00 3	31.00 1	67.20 8.5	67.20 2	
GSJ-2	Length Quantity	6.00 0.5		24.00 2	24.00 1.5	70.60 9	70.60 2.5	
GSJ-3	Length Quantity	7.50 1		32.50 2	32.50 1	60.50 7	60.50 2	
GSJ-4	Length Quantity	2.20 1.5	·	37.40 3.5	37.40 1	60.60 12	60.60	
GSJ-5	Length Quantity	2.30 1.5		25.20 3	25.20 1	72.90 20	72.90 2	
GSJ-6	Length Quantity	3.00 1		27.00 2	27.00 1	71.50 6	71.50 1.5	
GSJ-7	Length Quantity	7.00 0.5		39.65 2.5	39.65 1	53,55 5	53.55 1	
GSJ-8	Lenght Quantity	2.00		38.00 2	38.00 1	60.30 4.5	60.30 2	
GSJ-9	Length Quantity	6.00 1		35.85 2	35.85 0.5	58.35 6	58.35 2	
GSJ-10	Length Quantity	13.50 1		32,50 2	32.50 1	55.00 4.5	55.00 2	
GSJ-11	Length Quantity	9.00 0.5		21.00	21.00 0.5	70.05 5.5	70.05 2	
GSJ-12	Length Quantity	9.00 1		18.00 3	18.00 1	73,10 6	73.10 2.5	
GSJ-13	Length Quantity	5,20		38.80 2	38.80 1	56.30 4.5	56.30 1.5	
GSJ-14	Length Quantity	3,50 1,50		26.50 3	26.50 1	70.00 6	70,00 1	٠
GSJ-15	Length Quantity	5.00		40.16 3	40.16 1	55.04 6	55.04 1.5	
GSJ-16	Length Quantity	8.40 1		34.00 3	34.00 1,5	57.80 6.5	57.80 1	
GSJ-17	Length Quantity	5,50 1		26,50 3	26.50 1	68.80 6	68,80 1	
GSJ-18	Length Quantity	2.00		29.00 2	29.00 1	69,20 17	69.20 1.5	
Total	Length Quantity	99.10 18		557.06 45	557.06 18	1150.79 130	1150.79 30	
Lengt	h/Bit	5.51		12.38	30.95	8,85	38.36	
Bits/F		1		2.5	1	7.2	1,67	



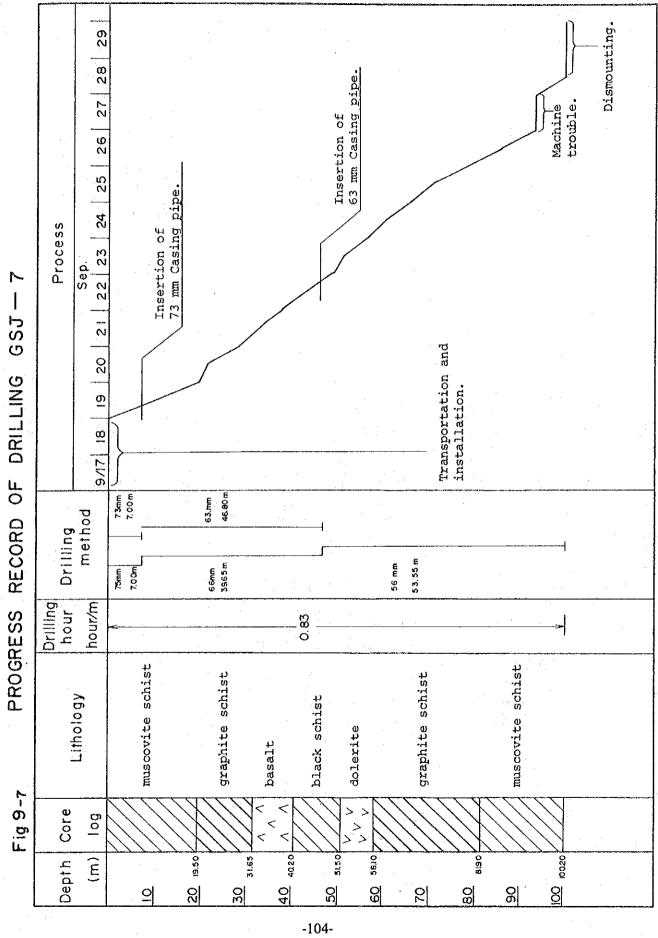
23 Dismounting. 24 | 25 | 26 Machine trouble. 63 mm Casing pipe. 23 Insertion of 22 Process 73 mm Casing pipe. trouble of watersupply.  $\tilde{a}$ S Oct. Insertion of 20 **GSJ** — Transportation თ Transportation and installation. <u></u> DRILLING \_ φ 10/15 PROGRESS RECORD OF 63 am 73mm 6.00m method Drilling 66mm 24.00m 70.60 m 75mm 6.00m 56 mm Drilling hour hour/m 0.83 porphyroblastie Lithology Serpentinite serpentinite serpentinite serpentinite chromite chromite gneiss Fig 9 – 2 Core • + log ) (2,4%) (00) Ê 89.50 86.80 20.45 21.75 23.38 24.10 Depth 4450 90 ଧ 04 00 80 의 30 ပ္တ 2



 $\tilde{\alpha}$ Dismounting. 63 mm Casing pipe. თ Insertion of ω Insertion of 73 mm Casing pipe. Process 0ct. 6 PROGRESS RECORD OF DRILLING GSJ-4 ഗ 4 Transportation and M installation. Ŋ Sep. 9/30|0/1 40.00m 63 mm 73mm 2.50m method Drilling 75mm 2.20 m 60.60m E 9 0 37.40 m 66 mm Drilling hour hour/m 90.1 biotite muscovite biotite muscovite graphite schist Lithology crystalline limestone schist gneiss schist Fig9-4 Depth | Core log 02001 48.50 49.45 52.60 Ê လ္တ 2 80 ရွ 9 9 8 က္က 의



ω Insertion of 63 mm Casing pipe. Dismounting. 0ct. 3 Insertion of 73 mm Casing pipe. N Process 30 1071 Ø GSJ — 8 Transportation and installation. 28 PROGRESS RECORD OF DRILLING Sep. 972 26 63 m m 30.00m 73 mm method Drilling 7.5mm 3.00 m 66.mm 27.00.m 56 mm 71.50m Drilling hour hour/m 0.65 amphibole schist Py, Cp mineralization Lithology Fig 9-6 Core 00 i 100 101.50 F Depth Œ စ္တ 40 က္ထ 9 2 8 잆 있 의



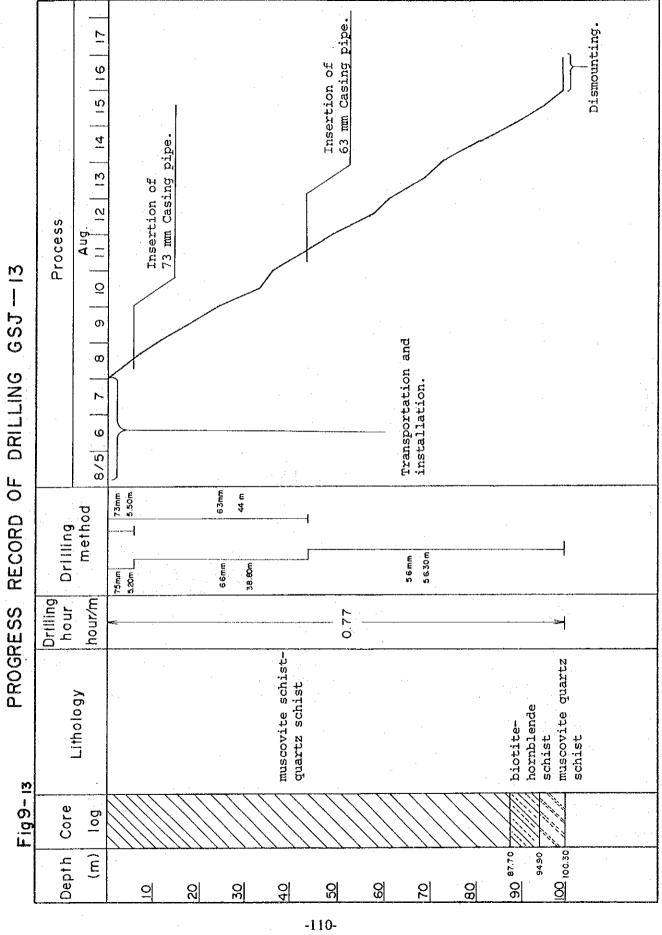
F DRILLING GSJ — 8	Process Sep.   Sep.   S	Transportation and installation.
RECORD OF	Illing method	2.00 m 6.3mm 40.00 m
REC	٥	7.5mm 200m 66.30m 56.30m
RESS	Drilling hour hour/m	O 6 0 7
PROGRESS	Lithology	feldspar quartzite green schist aplite rock talc-carbonate rock basalt aplitized basic rock-aplite
Fig 9-8	Core	* * * * * * * * * * * * * * * * * * *
h-B-o	Depth (m)	10 00 00 00 00 00 00 00 00 00 00 00 00 0

Dismounting. φ Insertion of 63 mm Casing pipe. S Insertion of 73 mm Casing pipe. 4 ы Process Sep. ഗ **GSJ** — 0 Transportation and ത DRILLING installation. ω 9/6 PROGRESS RECORD OF 63.mm 36.00m 7.3 mm 6.00 m method Drilling 56 m m : 58.35 m 66am 35.85m 75mm 600m Drilling hour hour/m 0.67 amphibole schist amphibole schist quartze schist Lithology amphibole schist amphibole schist aplite basalt basalt Fig 9-9 Core 00 50 48.50 K 84.00 84.70 90 88.50 90.50 Depth (E) 52.25 8 8 9 20 2 80 8 9 의

 $\underline{\omega}$ Ŋ 63 mm Casing pipe. Dismounting 4 Insertion of M Sep. Insertion of 73 mm Casing pipe. Process GSJ-10 თ ω Transportation and installation. ~ PROGRESS RECORD OF DRILLING Ø ß 9/4 73 mm 13.50m 8 E 46.00m method Drilling 55.00m 32.50m 26 m m 66mm 75 mm 13. 50 Drilling hour hour/m 0.7 graphite schist biotite schist quartz schist Lithology green schist black schist dolerite dolerite Fig 9-10 < < < < < < < < < < ~ < Core <u>|0</u> 100 101 00 70 7005 82.90 Œ 44.65 Depth | 53.00 12.20 40 3995 8 80 9 က္ထ 의 2 30

ω φ ഗ ω σ σ 4 Dismounting. 63 mm Casing pipe. Process Insertion of 73 mm Casing pipe. Insertion of N DRILLING GSJ-11 6 <u>~</u> Transportation and 30 Aug. 29 installation. 28 8727 PROGRESS RECORD OF 30.00m 63mm 73mm 900m method Drilling 70.05 m 21.00m 36 mm 66 mm 75 mm 9.00 e Drilling hour hour/m 0.61 biolite schist biotite schist biotite quartz Lithology muscovite amphibole muscovite quartzite muscovite quartzite feldspar feldspar schist schist Fig 9-11 Depth | Core (m) log 50 47.10 00 97.35 82.25 73.95 8 9 읾 8 40 8 80

F DRILLING GSJ-12	Process	8/19  20   21   22   23   24   25   26   27   28   29   30   31		Insertion of 73 mm Casing pipe.	Insertion of 63 mm Casing pipe.					Transportation and installation.		)	Dismounting.	
RECORD OF	llling method	)	73## 9.00#	63mm 27,00m				E			- F			
REC	٦Or		75 mm 900 m	66mm 18.00m				56.mm 73.10 m						
(ESS	Drilling hour	nour/m			·			0.55				<b>&gt;</b>	·	
IZ PROGRESS	Lithology		muscovite quartz schist aplite	muscovite biotite	schist	apiite	muscovite quartz schist			green schist				
Fig 9-12	Core	501	+	+	+	+								
<del></del>	Depth	Œ)	% % 0	20.	30	40 38.90	20	600	8	80	8	00		
							100							



														n		
	W	12   13   14   15   16   17   18		Insertion of 73 mm Casing pipe.	muselangu garas cum		Insertion of						Machine trouble.		Dismounting.	
DRILLING GSJ-14	Process	Aug. Aug. 8/5 6 7 8 9 10 11		Transportation 73 m and installation.												
PROGRESS RECORD OF	Drilling	DC -	75mm 73mm 3.50m 3.50m	669 663 663 663					E E 90	70.00m		- 1 ,				
ESS I	Drilling hour		K .			· .		0.77						->		
		Lithology		muscovite	quartz schist			biotite muscovite schist			muscovite quartz schist Pv impregnated				·	
Fig 9-14	Core	log														
	Depth			의		8	37.5	)	\$4.35	3	22	80	06	<u>S</u>		
								-111-								

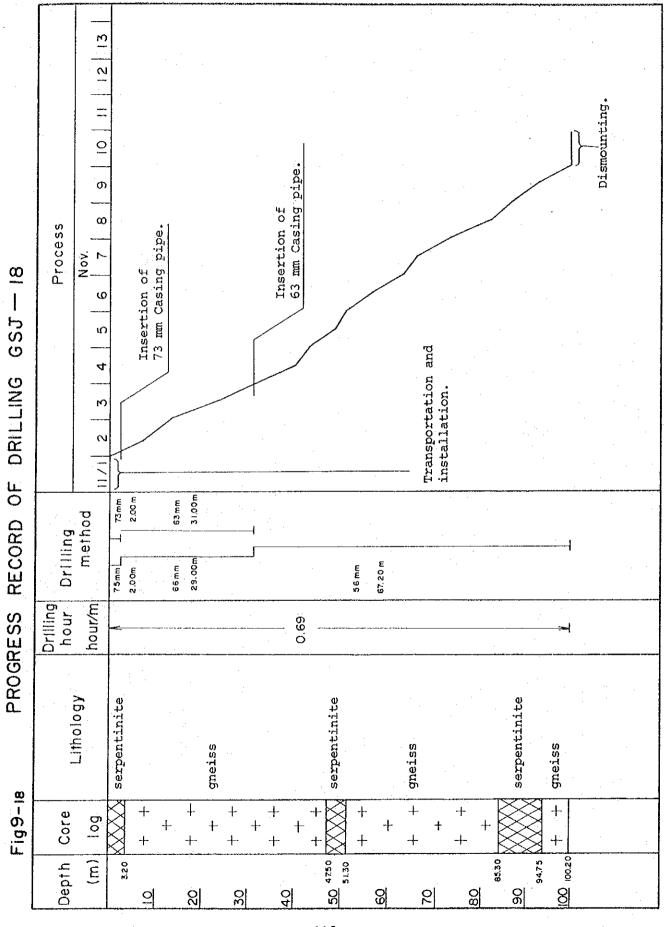
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8 27 28 Insertion of 63 mm Casing pipe. 24 25 26 Dismounting. Insertion of 73 mm Casing pipe. Process Aug. | 23 | GSJ-15 22 19 20 21 Transportation and PROGRESS RECORD OF DRILLING installation. 8/17 18 48.50m 63 mm 7.3mm 5.00m method Drilling 56 83 55.04m 40.16m 66mm 75mm 5.00m Drilling hour |hour/m| 99.0 Lithology muscovite schist biotite Fig 9-15 Core 00 Depth | Ê 100 100.20 Z 8 30 4 0 က္ထ ၀ 2 80 80 의

)

ဖ Dismounting. Insertion of 63 mm Casing ß Sep. 4 Insertion of 73 mm Casing pipe. 10) N Process 1/6 68J-16 <u>~</u> 30 Transportation and installation. 53 Aug. DRILLING 28 27 8/38 RECORD OF 63mm 42.50m 73mm 850m method Drilling 57.80 m 3400m 66mm 36 mm 75mm 8.40m Drilling hour hour/m PROGRESS 0.75 Cu mineralization talc-carbonate talc-carbonate talc-carbonate Lithology muscovite muscovite calcrete dolerite schist schist rock rock rock Fig 9 - 16 Core log < (E) 100 38.20 Depth 41.75 70.50 92.20 50 49.70 22 8 40 9 80 읾 8 2 의

 $\infty$ ဖ Insertion of 63 mm Casing pipe. Dismounting. ιΩ Insertion of 73 mm Casing pipe. 4 Nov. M Process GSJ-17 = = 30 31 Transportation and installation. DRILLING 53 00.1 28 10/27 PROGRESS RECORD OF 63mm 32.00m 73mm 550m method Drilling 26.50 m 66mm 68.80 m 75mm 5.50m 56 am Drilling hour hour/m 0.84 talc-carbonate biotite schist talc-carbonate biotite schist talc-carbonate biotite schist altered basic altered basic Lithology dolerite dolerite basalt rock rock rock rock rock Fig 9-17 < < Core log < 90 88.00 \$2.20 4 00 19 09 09 09 09 30 29.70 -100 100.80 4 (E 24.35 34.30 66.00 74.00 Depth 80 7980 9 2 ଯ 20 9



## Part IV. Synthetic Analysis

Out of the copper mineral indication area and chromite deposits area as the objects of the 1981 survey, the former is the one that was selected as one of the areas with the highest possibility of occurrence of deposits as the results of the 2nd year survey, particularly those of the geophysical and geochemical prospecting. While the chromite deposits area is the one where outcrops, though in a small extent, were confirmed by the surveys of two years. Both of these are borne in a particular geological horizon.

Out of the copper mineral indication areas, an area that has similar geological conditions to those of the Matsitama deposits group lying about 5 km to the south of the present survey area, as its extension, and also has some indications, was selected and surveyed principally by means of drilling.

The result of the survey for each of the subdivided areas is described as follows. Table 12 summarizes the result.

- Area I: As the result of the geological survey and drilling, the remarkable mineralization was not confirmed. The indications by the geophysical prospecting are presumed to be attributable to graphite schist and sulfide.
- Area II: As the result of drilling that was made for an anomaly area of class A picked up by the geochemical survey, extensive dissemination of chalcopyrite and pyrite was confirmed. As for the lighology the country rock is amphibole schist of the Matsitama schist and metasedimentary group, and belongs to the same group and has the same lithology as the country rock of the Matsitama deposits group. This is considered the most promising area, as copper indications are observed in the neighborhood in addition to the above facts.
- Area III: Four holes were drilled, weak mineral indications were found in one of them; rocks are graphite schist, dykes of basalt, and rock altered from basalt, which are presumed to be the source of the indications by the geophysical prospecting.
- Area IV: As the result of drilling aimed at anomaly areas by the geophysical prospecting and geochemical anomaly areas, compratively extensive dissemination

of pyrite and also copper indications, though little, were found. Since over an area on the west side of this drilling area floats containing copper minerals are scattered and also this year's geochemical anomalies tend to extend toward west, one can see hope for occurrence of the Matsitama type of ore deposit.

Drilling by the former trench where there is a copper mineral outcrop which is only rarely seen in this area, disclosed mineral indications similar to the copper indications observed in the trench. In the geology as observed in the trench and drill cores, intrusions of basalt, strong aplitization, alteration, and weathering have made geology so complicated. The copper mineralization is surmised to be attributable to basalt. There being no anomalies as the results of geophysical and geochemical prospecting.

Chromite deposits are found in ultrabasic rocks. These rocks are not distributed in a sizable manner, excluding the areas of deposits A to D and the surroundings of the area of deposits E and F. Concealed rock bodies are presumed to be of a small size from the condition of floats.

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and the second

Chromite ore bodies are all of a small size, lenticular or pod-shaped, and lack definite trend. This is accounted for by the assumption that they have been controlled by the minor structure of their country rock.

The drilling, which was aimed at the lower extension of the ore bodies, failed to seize the extension, reaching different ore body.

Generally speaking from the results of the drilling and trenching, the size of an ore body is judged to be 0.5 to 1.0 m in thickness, 5 to 10 m in length, and several meters in the dip direction. Such small-size ore bodies are scattered in ultrabasic rock. Exploration in 1981 was directed mainly to the north side of ore bodies, but there is the possibility of ore bodies occurring on the south side, considering the above-mentioned fact. However, since the ore bodies are small and show no clear structural characteristics, it would be appropriate to extend exploration ranges while confirming the ore body by trenching from the outcrop.

As for the area of deposits A to D, if they could be regarded as an aggregate of small ore bodies, some amount of ore reserves would be anticipated.

Table 12 Result of prospecting, Phase III

			 			<u> </u>	·				1				<u> </u>			
						Phase I, II (197	9, 1980)									Phase	III (1981)	
	Area	No. o					G	round follow-u	p geophysical surve	эу		7- 1-		Ţ				Drilling
	nica	holo	Geology	Mineralization	Geochemical anomaly  Z <sub>1</sub> score  (A, B class)	Air-borne anomaly	Conductor	Potarizable	Magnetic	Probable primary	Geology	Geochem, anomaly Z <sub>1</sub> scores	Magnetic anomaly	No. of drill	Rock		Mineralizatio	n (m)
									ussociation	source				hole		Copper	Pyrite	Chromite
	I	4	В		_	M-23A	Bed rock	Yes	Yes	Graphite	amp sch, calcrete, gn mica sch, is	_	_	4	mica sch, gn. ls, graph sch, quartzite, amp sch	_	52.60-70.25 (17.65)	
		5	В	-		M-23A	Bed rock	Yes	Yes	Graphite				5	mica sch, gn, ls, graph sch quartzite, amp sch	-	38.83-30.85 (0.02)	-
	II	6	Α	Copper showing	A			_	_	-	amp sch, mica sch, quartzite	–		6	amp sch	20.00-1	01.50 (81.50)	- '
	m	7	A	-	В	M-7A	Multiple bed rock	Yes	Yes	Graphite			P AN THE CHARLE SELECTION OF THE CHARLES	7	mica sch, graph sch, dolerite, green sch	-	-	
		8	A	<del>-</del>	(B)	M-10, (M-7B)	Multiple bed rock	Yes	Yes	Sulf + Graph	amp sch, mica sch, calcrete, black turf soil covers widely	<u></u>		8	aplitized basic rock, aplite tale-carb rock, doterite	<del>-</del>	-	
Copper area	-	9	Α ·	-		М-7В	Bed rock	Yes	No	Sulf + Graph				9	amp sch, basalt, quartzite, tale-carb rock	69.60-75,00 (5.40)	69.60-82.00 (12.40)	-
		- 10	Α .		(B)	M-7C	Bed rock	Yes	No	Sulf + Graph				10	dolerite, graph sch, mica sch, q sch, green sch.	=	70.60-79.00 (8.40)	<del></del>
	IV-(1	) 11	A	- · · · · · · · · · · · · · · · · · · ·		M-4	Bed rock	Yes	No	Sulfide				13	mica sch, q sch, amp sch, quartzite	79.35-81.20 (1.85)	.ann	_
		12	A <sub>.</sub>	<del>-</del> .	A	M-4	_	-	-	<del>-</del>	quartzite, mica sch amp sch. ls,	At the western part of Area IV-(1)		12	mica sch, q sch, green sch, quartzite	-	79.70-83.40 (3.70)	<u> </u>
-		13	Α	<del></del>		M-3	Red rock	Yes	No	Sulfide	dolerite, floats of quartzite with green copper	A, B class of anomalies were detected		13	mica sch. q sch hb sch.	_	55.45-87.70 (32.25) 95.10-100.30 (5.20)	_
		14	A	. = .		М-3	Bed rock	Yes	No	Sulfide				14	q sch, mica sch, quartzite	-	54.35-100.00 (45.65)	-
		. 15	Λ		A			-	-					15	mica sch			
	1V-(2	) 16	 A	Copper occurrence	-	_ :	=	-	-, ·	-	quartzite, mica sch,		dolerite	16	Dolerite, tale-carb rock, mica sch, aplite, some	41.75-47.50 (5.75)	: .	-
		17	A	Copper occurrence	_	-	-	_	-	<u>-</u> . :	dolerite,	_	NW direction	17	skarn minerals	30-50-34.80 (4.30) 64.00-66.00 (2.00)	· –	_
	٠	1	В	Chromite occurrence	<del>.</del> .			-	-				Most of scrp	_	serp, gn, chromite		<del>-</del>	12.97-13.39 (0.4
Chrom area	e	2	В	Chromite occurrence	<del>.</del>		_				seip, gn, amp sch S deposits, many showings and floats of chromite were found. Each serp body is small in scale	-	bodies are less than 30 m, in width, Dolerite dykes were catched	2	scrp, chromite, gn	_		20.45-21.75 (1.36 23.38-24.10 (0.73 38.10-38.45 (0.33 40.10-40.33 (0.23
		3	 R	Chromite occurrence				- ·	-		Pingm in Scare		were catched clearly.	3	serp, gn	-		-
· · .		18	 В	Chromite occurrence	_	-		_		_				18	gn, scrp		· -	

Geology A: Matsitama schist and metasedimentary group

B: Mosetse river gneiss group

					Phase	IH (1981)									
	0. 1.						Drilling		1			Source of	Source of Conclusion		
Geology	Geochem, anomaly Z <sub>1</sub> scores	Magnetic anomaly	No. of drill	Rock	Rock		n (m)		Note	Assay max. %		anomalies for Phase III	Guillon	future	
	L <sub>1</sub> scores		hole		Copper	Pyrite	Chromite	Graphite	Note	Cu	Cr <sub>3</sub> O <sub>3</sub>				
amp sch, calcrete, gn mica sch, ls	- -		4	mica seh, gn, ls, graph seh, quartzite, amp seh	. –	52.60-70.25 (17.65)	_	45.80-49.45 (3.65) 53.70-54.10 (0.40)	Graphite: only a little	-		sulfide (?) graphite (?)	No copper mineralization		
			5	mica sch, gn, ls, graph sch quartzite, amp sch	-	38.83-30.85 (0.02)	_	14,60-14.70 (0.10)	Graphite: only a little	-		?			
amp sch, mica sch, quartzite			6	amp sch	20.00-1	01.50 (81.50)	_	-	py, cp, hm: imp, or in q vein	0.228	_	sulfide	Copper mineralization is weak, but wide. Biggest potentiality for copper deposit.	1	
			7	mica sch, graph sch, dolerite, green sch	-		-	9.05-25.30 (6.25) 28.90-31.65 (2.75) 40.20-51-50 (11.30) 58.15-81.90 (23.75)	_	. <del>-</del>	-	graphite			
amp sch, mica sch, calcrete, black turf soil covers widely	<u></u>	_	8	aplitized basic rock, aplite tale-carb rock, dolerite	-	-	-	_	strong aplitization	-	_	,	Sulfide mineralization and graphite schist was confirmed		
	·		9	amp sch, basalt, quartzite, talc-carb rock	69.60-75.00 (5.40)	69.60-82.00 (12.40)	_		py.cp imp. and in q vein	0.113	-	sulfide (?)			
			10	dolorite, graph sch, mica sch, q sch, green sch.	-	70.60-79.00 (8.40)	-	49.35-70.05 (20.70)	py: weak imp	<del>-</del>		graphite			
			11	mica sch, q sch, amp sch, quartzite	79.35-81.20 (1.85)	-	_	_	native copper	0.022	-	,		į	
quartzite, mica sch amp sch. Is,	At the western part of Area IV-(1)		12	mica seh, q sch, green sch, quartzite		79,70-83,40 (3,70)	_		py: weak imp.	-	-	?	No copper mineralization except native copper was found, but wide pyritization are observed. Results of geological,	2	
dolerite, floats of quartzite with green copper	A, B class of anomalies were detected	-	13	mica sch. q sch hb sch.		55.45-87.70 (32.25) 95.10-100.30 (5.20)	-	-	py: weak imp.	_	-	?	geochemical and geophysical surveys show suitable environ- ments for copper mineralization. Further explorations are preferable for this area		
	·		14	q sch, mica sch, quartzite	⊒: i	54.35-100.00 (45.65)	_		py: imp > in q vein	-	_	sulfide		į.	
			15	mica sch	÷*.	-	_	<u> </u>			-	,			
quartzite, mica sch,			16	Dolorite, tale-carb rock,	41.75-47.50 (5.75)			<del></del>	bo, cc, cp, malachite	0.172		sulfide	Copper inineralization seems to be related with leaching		
dolerite,	<del>-</del>	dolerite NW direction	17	mica seh, aplite, some skarn minerals	30-50-34.80 (4.30) 64.00-66.00 (2.00)				bo, cc, cp, malachite	0.620	- <del>-</del> .	sulfide	of basalt and it seems to be small scale.		
		Most of serp	1	serp, gn, chromite		-	12.97-13.39 (0.42)		massive chromite, with some magnetite	: '=	27.30	-			
erp, gn, amp sch i deposits, many showings nd floats of chromite were		bodies are less than 30 m, in width,	2	serp, chromite, gn	-	-	20.45-21.75 (1.30) 23.38-24.10 (0.72)		massive chromite, with some magnetite	-	31.70		Surface scale of unit deposit 10 m x 1 m (max.)	4	
found. Each scrp body is		Dolerite dykes were catched					38.10-38.45 (0.35) 40.10-40.33 (0.23)						Chromite layers hit by drilling seem to be accessory ones, but not the main ore bodies.		
		clearly.	3	serp, gn	· –	_	÷		<u>.</u>		- '				
			18	gn, serp	_	-			-	_	_		, which is the state of the sta		

## Part V. Conclusion and Proposition

For this year, the survey was conducted on the area that had been selected as an area with high potentialities of occurrence of copper ore deposits and the area where outcrops of chromite had been confirmed and an increase in chromite reserves was expected. The survey consisted of primarily drilling, and in addition geological survey, handy magnetic prospecting, and geochemical survey over the surroundings of the drilling points.

The purpose of this year's survey over the copper mineral indication area consisted in confirmation of the indications and finding their size, ore grade and other properties by conducting geophysical and geochemical prospecting, drilling and other activities, to make comprehensive evaluation of this area and to find the principle for future prospecting work.

On the other hand, the purpose on the chromite deposits area consisted inf inding the conditions of the mineral occurrence and confirming the indications in surroundings of outcrops by making a geological survey, trenching, drilling, handy magnetic prospecting and other activities centering on outcrops.

The conclusion from the results of this year's survey is set forth as follows:

- 1. As for the geology in the survey area, new facts which should lead to a change in the past view were not found because the survey area for this year was limited and also there are few outcrops.
  - 2. The copper mineral indication area was divided into four, Area I to IV.

Area I is located on the fold of the strata of the Mosetse river gneiss group. Drilling (GSJ-4 and 5) was made for geophysical indications, pyritization was found, but copper mineralization was not confirmed.

In Area II, drilling (GSJ-6) was made to probe a geochemical anomaly. As a result, mineralization of pyrite, chalcopyrite and hematite was found in amphibole schist in the Matsitama schist and metasedimentary group. The mineralization was weak but extensive; on the surface too, copper indications were observed near the drilling point.

In Area III, drilling (GSJ-7 to 10) was made for indications by the geophysical prospecting, principally. Weak mineralization of pyrite and chalcopyrite was confirmed in GSJ-9 and the existence of graphite schist was confirmed in GSJ-7 and 10.

The work in Area IV included the drilling (GSJ-11 to 15) made for geochemical and geophysical anomalies which had been picked up in an area extending from the middle to the west and the drilling (GSJ-16 and 17) made by the side of the former trench on the east side.

In the former drilling (GSJ-14) relatively wide dissemination of pyrite was revealed, and native copper too was found, though in a very small quantity (GSJ-11). Geochemical survey was carried out as a continuation of the 2nd year survey over an area of 12 km<sup>2</sup> at the southwest end of the survey area, resulting in the finding that anomalies of class B which include those of class A extend westward. On the surface too copper indications were confirmed at several places.

On the other hand, as the result of drilling (GSJ-16 and 17) to follow up the mineral indications in the trench made by A.A.C. in the southeast of the survey area, the indication were confirmed but the rock was found to be an complication of weathered rock, intrusive rock and altered rock, not allowing determination of the geology. The original rock of the altered rock where mineral indications were observed is considered basalt, and if the mineralization originates from basalt it should be of a small scale.

3. In this year's survey the greater part of drilling was intended for the indications detected by the ground geophysical prospecting which was conducted overlapping with anomaly areas picked up by airborne geophysical prospecting.

As the result, graphite was found in GSJ-4, 7, 10 and 13, which is judged to be the cause of the said indications by the geophysical prospecting. The other anomalies are presumed to be the reflection of geology including dykes or the like or a difference in lithofacies, but it cannot be definitely said. Remarkable mineral indications were not found in any of these drill holes. The geophysical indications are inferred to be mainly attributable to geological units.

Drilling made for the target of geochemical anomalies resulted in finding mineral indications in all the drill holes, though they are weak;

4. Chromite is borne in ultrabasic rock presumably in a lenticular or pod-like form. The scale of the ore bodies is 0.5 to 1.0 m in width and 5 to 10 m in length. The ore grade is: 32 to 36% in Cr<sub>2</sub>O<sub>3</sub>, 17 to 19% in T.Fe, 11 to 13% in Al<sub>2</sub>O<sub>3</sub>, 11 to 15% in MgO and 7 to 11%

in SiO<sub>2</sub>. These small ore bodies occur in a scattered manner. The individual ore bodies lack definite trend, making one assume that they have been controlled by the local structure of the country rock, ultrabasic rock.

5. From the above-mentioned result of the survey, in the copper mineral indication areas, Area II and the western part of Area IV are considered promising.

As for Area II, the facts that the drilling revealed copper mineralization ranging widely, that copper mineral indications on the surface as well as geochemical anomalies have been found, and that such mineralization and indications are within the Matsitama sheist and metasedimentary group, on whose horizon the Matsitama deposit is borne, suggest the following work:

Geochemical survey on fine grid pattern centering on GSJ-6 should be made to narrow down the prospecting area, and an horizontal and vertical extent of the mineralization areas should be confirmed by drilling holes about 100 m in depth.

About Area IV, the facts that some anomaly areas have been picked up by the geochemical survey, that copper mineral indications have been found on the surface too, and that the Matsitama schist and metasedimentary group is distributed there, suggest: prospecting should be made on these indications by means of drilling holes about 100 m in depth for the purpose of confirming mineral occurrences.

6. As for the chromite deposit area, since the strike of ore bodies varies and their extension is difficult to presume, the prospecting extent should be expanded by making trenching to confirm the size, shape and ore grade of ore bodies, which is to be advanced together with shallow drilling combined for the purpose.

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# APPENDICES

#### Apex. 1. Legend

		quartzite		quartz vein
		quartz schist	<u> </u>	aplite pegmatite
		black schist muscovite schist	·.	granite
		biotite schist	V V	basalt
	(°//°//;	biotite schist (porphyroblastic)	^ ^	dolerite
÷		graphite schist	LL	altered basic rock
		limestone		serpentinite
		amphibole schist		
		green schist		talc-carbonate rock
	+ +	gneiss	LAL	aplitized basic rock with skarn
	+ • +	gneiss (porphyroblastic)		chromite
	4.	÷	<40°	dip of schistosity

Abbreviation of mineral is same as that of Apex. 4 and 5.

<40°

and gneissosity

CORE LOG

GSJ - I

S=1/200

Depth (m)	Core	Bounda- ry (m) Dip	Samp No	Width (m)	Assay % (Pt g/t) Cr203 TF8 Al203 Mg0 S:02 Pt	Rock name	Altera tion	Minerali zation	Remarks
:	, , ,	1,20				overburden			brown soil, floats of serpentinite.
						serpentinite	pentinization		same as 13.97-66.00 m
10		-					serpe		
	$\langle \chi \rangle$	12.97				chromite			massive chromite
			S-47	0.42	27.3 22.9 8.7 14,5 H.6/	CITOMITE	·	chr	massive ciromite
	$\Longrightarrow$					•			
	X								serpentinite greyish green - dark green massive - foliated
20								-	generally rich in magnetite generally strongly
		·				serpentinite		·	serpentinized, talcosed, some carbonated, weakly epidotized. secondary actinolite
30							lization		or/and biotite formation at places 44.50-45.20m, 50.60-51.75m 54.50-55.80m, 56.70-58.60m 59.00-66.00m, 78.95-81.05m
		< 50°					serpentinization	·	82.65-84.90m bi-mus Granite 58.60-59.00m replacing serpentinite
40									aplite 64.60-64.80m replacing serpentinite
X		44.50 45.20					act,bi		
50									

<u> </u>	1	Γ	1	l ———	Accay 9/ /D1 = 413		Τ	T	
Depth (m)	Core	Bounda- ry (m) Dip 50,60	Samp, No	Width (m)	Assay % (Pt g/t) Craos TFe Alaos Mgo Stor Pt	Rock name	Altero	Mineral zation	Remarks
}	$\times$				·		act.bí		
	$\times$	51,75					8		
	$\times$					·	و 0		
	$\times$	54.50				. •	"		
	$\times$						ة ا		
	$\times$	55.80				•	tion Tion		
	$\times$	56.70				- ' -	5 2	1 1	
	X	58.60 59.00					1 id		
	ŹŻ	59.00	·				serpentinization bi tour		
60	$\left  \times \right\rangle$					i	<u>a</u>		
	$ \rangle\rangle$			. ,			8		•
	$\times$		٠.				ءَ ا		
	$ \!\!\!\!\!>$						1 1		
1.	XX	64.60					act.		
		64.80 66.00							
	+ • +					:	<b></b>	-	
	0+0	(40			·				porphyroblastic gneiss granitic composition
	+ 0 +					hb gneiss			graniforo compositoron
70	ه + ه		٠.						porphyroblast: fs
	+ 0 +	(60° 71.45							
	X	71.45							same as 13.97-66.00 m
	$\times$								3 13.37 00.00 m
		73.85 74.25					‡ <del>0</del>		Control
	$\times$		.						
	$\times$	<50°				· ·			
	$\times \times$		İ	.					
	$\times$	P.	-		·				
	$\langle X \rangle$	78.95					Ą		
80	$\langle X \rangle$		.	.			ح أم		
	$\langle X \rangle$	81.05		I			9		
	X	82.65		*			izo epizo		
ľ	X		.			serpentinite			
. [	KX	84.90					g		
Ì	$\sim$ $\sim$	86.00		ŀ			serpentinízation ep act.bi ep		
Ì	KX	00.00					Y		
ļ	$\langle \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \!$								·
k	$\propto$								
90	$\times$	l	ŀ		·				
	$\mathbb{K}_{X}^{X}$								
	$\mathbb{K}$		1						
	$\langle \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \!$		1						
ŀ	$\langle \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \!$		·	1					
k	$\Diamond \langle 1$	Ī							
k	$\searrow 1$		-						
K	$\mathbb{X}$			1					ľ
K				-					
	X			-					1
100	X	00.20							

Apex. 1 - 2

Depth (m)	Core log	Bounda- ry (m) Dip	Samp No	Width (m)	Assay % (Pt g/t) Crz0s T.Fe Al2Os MgO S:02 Pt	Rock name	1 .	Minerall zation	1 Cholks
	0 9	i.20				overburden			light brownish grey soil,
	$\bowtie$	,							calcretized, floats of chr
									serpentinite brownish grey - greenish grey, massive - foliated generally rich in magnetite
10						serpentinite	ation		generally strongly surpentinized, talcosed, subordinately carbonated secondary actinolite or/and biotite formation
				·			serpentinizat		at places. 43.45-44.50m 86.80-89.50m 96.45-98.20m 100.00-100.60m
20		20.45							/massive chromite. 2cm at the upper contact, magne-
		21,75	S - 48	1.30	31.7 19.7 11.4 14.1 10.4 0.0	chromite		cr	tism is strong, while 5cm
		23.38				serpentinite	serp		at the lower contact, it is weak. Middle part has no magnetism
		24.10	S-49	0.72	302 200 9.7 139 115 0.0	chromite		cr	massive chromite
					·				2cm at upper and lower contact, magnetism is strong, but the rest is non-magnetic
30						serpentinite	serpe n.tini za tlo n		
							serpe		
	$\times$	38.10 38.45							massive chromite magnetism is strong at
40	$\bigotimes$	40.10	\$-50	0.35	267 21.9 8.2 14.7 12.3/ serpentinite	chromite serpentinite	<del>2</del>	cr	upper and lower contact, the rest is non-magnetic.
ſ	$\langle X \rangle$	10.33	S-51	0.23	17.0 20.0 10.8 19.3 18.0/	Chromite			massive chromite
	XX	43,45 44,50				serpentinite	serp b:		
	+ 0 + 0 + 0 + 0								
50	+ , +								

epth m \	Core	Bounda- ry(m) Dip	Samp.	Width	Assay % (Pt g/t) Cr203 T.Fe Alaos MgO Siga Pt	Rock name	Altera tion	Mineral zation	Remarks
10.)	+ 0 +	Ĭ	110	1)				~ 411011	
	0 + 0					,			porphyroblastic gneiss
	+ 0 +		}						granitic composition mafic
	0 + 0	ł							hb>bi
	+0+								44.50 - 55.20m
	0+.0								63.20 - 86.80m
	+0+								bi>hb
	0+0					e.			55.20 - 63.20m
	+0+	ŀ			,				77.45 - 86.80
)	0 + 0	•							porphyroblast: fs
	+0+								gneissosity very clear
	0+0								
	40+				•				
	+0+				•				
	0+0					hb-bi gneiss			
	+0+				·				
	0+0	•		:					•
	+0+								
	0+0	÷							
	+•+			·	!		!		
	0 + 0								
	+0+								
	0+0				,				
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	0+0								.* 
	+0+					+ 1	<i>:</i>		
	0+0								
	+0+								**
	0 +0	86.80							
		39.00			<u> </u>		1		
K	XX			.		serpentinite	Serp oct. bi	ļ	
		89.50					ဖ∫၀		
-	+ • +	(65°							gamo ng 44 E0 06 00-
	0 + 0		•		Į			ļ	same as 44.50-86.80m
- 1	+ 0 +		İ					1	bi>hb 89.50-95.10m
- 1	c + 0		. [					ļ	hb>bi 95.10-96.45m
- 1	+	70*				bi-hb gneiss		1	
[	. 1	96.45	ł					İ	
	xxl	50.43					مَام		
K	$\not \bowtie$	98.20		.		serpentinite	serp act.b		
, K	$\mathbb{X}$			1		nor policalia ce			
	XXI	100.60					<u>ā</u>		Apex3

Apex. | -3

CORE LOG

GSJ - 3 S=1/200

Depth (m)	Core log	Bounda- ry (m) Dip	Samp. No	Width (m)	Assay % Cr20) T.Fe Al20)	(Pt g/t)	Rock name		Minerali zation	Remarks
	0.0	}					overburden			brown soil floats of Q, ch
į							serpentinite			brown soil
	$\overset{\times}{\underset{\times}{\times}}$	4,90						ļ	ļ	
-		5.45					aplite	ļ		
	+				•					granitic composition mafic
	·+· ·+									mafic hb > bi > gt
io	+									fine-coarse grained
					·					color index: 10-15%
	+ +							]		gt: transparent
	+							<u> </u>		pale brown
	+ +						gt-bi-hb gneiss			0.3-0.5 mm
	+ +									
	+									
20	-+ -+	< 35° ·				:				
		20.85						<u> </u>		· · · · · · · · · · · · · · · · · · ·
	XX	3						serpentiniza - tion act		
	$\langle \mathcal{X} \rangle$	23.00	.				serpentinite	penti		
	$\langle X \rangle$	25.00			·			ser - tiol		
				•			·			peridotite origin
	$\mathbb{K}$						. *			serpentinite
	$\times$		. }							
so	XX	i.								
	$\bigotimes$	9.7							ĺ	
	$\times\!$									
	$\langle \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \!$		. :							
k	$\langle \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \!$	: :					serpentinite	פי		
K	$\bigotimes$							2 a 1 i		
k	$\otimes$	:						serpentinization		
	$\bigotimes$							D e l		
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	$\langle \chi \rangle$						·			
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Denth	Core	Baumiaa	Samp.		Assay % (Pt g/t)	restruction de la company de la company de la company de la company de la company de la company de la company	Altera	Mineroil	
(m)	log	Boundar ry (m) Dip	No	(m)	Cra0s T.Fe AlaOs MgO SiOz Pt	Rock name		zation	Remarks
		53.80				serpentinite	serpenti-		
	+ 0 + 0 + 0 + 0 + 0 + 0 + 0 + 0 + 0 + 0	54.75 55.20 56.00 56.40 4 40° 57.50				hb gneiss			porphyroblast: feldspar 54.75-55.02m aplite 56.00-56.40m serpentinite
60									· •
		64.75							peridotite origin serpentinite
		69.50					lq		
70						serpentinite	erpentinization		
							S S		
во		79.50 81.45					actbi		porphyroblastic gneiss
	+ 0 + 0				14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 1				granitic composition bi > hb
	0 † 0 † 0 † 0 † 0					hb-bi gneiss			porphyroblast: fs generally 3-5 mm max. 10 mm
	+ 0 +	92.50							gneissosity very clear
	+ + + + + + + + + + + + + + + + + + + +					gneiss		1	light grey, felsitic composition gneissosity is not clear, it looks like aplite,
00	+ + * - X +	65° 00.50							some thin layers of biotite 98.70-99.00 aplite

CORE LOG

GSJ-4

Depth	Core	Bounda-	Samp	Width	Assay % (Au,Agg/1)	Rock name	Altera	Minerali	Remorks
(m)	log	ry (m) Dip	No	(m)	Assay % (Au,Agg/t) Cu Pb Zn Au Ag	Mock name		zation	
	00	2.20				overburden			brown soil floats of Q.
							:		light grey very rich in mica schistosity: very clear
10		< 25°				bi-mus schist			
		. t.							
		17.60				quartzite			18.60-19.60m
20	7//	19.00 19.75 19.80				quartzite			some wollastonite
	0/0								dark grey q > fs > bi > mus schistosity very clear
	0/0								porphyroblast pale brown-grey
		27.25		Ŧ,					less than lcm garnet, feldspar
	69/6/	27.45 28.60 29.10							
30	797	29.85 29.90 < 30°				mus-bi			q veins: barren
						schist			
	770	35.60 35.70							
	19/	37.40 37.45 39.28							
40	790/	39.42 39.85 39.90 40.35	-1 ::1 :-1			t e yt			
		< 30°							
		45.80				graphite			black
		49,45				schist			amount of grahoite is only a little.
50	VIII	<b>/</b>	1			bi schist		1	

r					· · · · · ·	r	*********			γ	· · · · · · · · · · · · · · · · · · ·	
		Core	Bounda-	Samp,	Width	Assay *	% (Au,	Ag q/1)	Rock name		Mineral	Remarks
	(m)	log .	ry (m) Dip 50.40	No	(m)	Cu Pb	Zn Au	Ag	NOOK HOME	tion	zation	Nemarks
1		777	51.25			ļ			limestpne	:		crystalline
ļ		777							black schist			black schist-phyllite
١		7//	52.60		ļ					ļ	1	
1			53.70 54.10									,
1			54.10	1		] .						white-light grey
1		<u> </u>										crystalline.
-												some silicification
-									•			wollastonite:
1		$\vdash$										max. 10 mm
												61.50-70.25 m rich in wollastonite
	60		< 20°						limestone	}	py	pyrite pyrite
-		<del>                                     </del>		·	}				Timescone		"	parallel-subparallel
										1		to bedding 20°
Ì		$\sqcup_{+} \sqcup$		ĺ								(biotite thin layer)
.						1						65.40-66.90 m
												many pyrite layers
			6 5.40			<del> </del>						
			< 20° 66.90	1.50	S-52	0.0290.00	0.002	2//				53.70-54.10 m
1												graphite schist
				•				:				·
	<u>.</u>								·			
	70		70.25			<u> </u>		·		<u> </u>		
-		+ +										gneiss-schist
ł		+					:	1				granitic composition
ļ		+ +		1		]:		٠		İ		mafic: bi
ı		+	1.									hard,
ł		+ +	75.67		1				47		1	naru,
Į		0 +	75.72							İ		q veins: barren
1		+							1			
		T										81.30-81.72m
							: .		·			aplitic granite
1	80	+ +	79.80	1		1 .						
	~~	q	80.10						bi gneiss			
		<u> </u>	81.30 81.72							1		
		+ +	·						·			·
	. 5	+										
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	100	+	100.20									
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CORE LOG

LOG GSJ-5

Depth	Core	Bounda-	Samp	Width	Assay % (Au,Agg/1) Cu Pb Zn Au Ag	Rock name		Mineroli	
(m)	log	Dip	No	(m)	Cu Pb Zn Au Ag		tion	zation	
	0.0					overburden			pale brown soil and calcrete.
	////	2.30							
	777	3.50		•					bi > mus.
					·	bi schist			upper part: calcretized
	//	6.10							schistosity: very clear
		7.30				mus schist			
10		9.85			) 	black schist			
10		< 20°				bi-mus schist			
		12.85 14.30 /14.60							white-light grey
	1111	14.70 15.00							crystalline, mainly massive
	////	15.90   6.50							some silicification wollastonite.
					·				18.45-19.00m
-									siliceous ls with wollastonite.
20					:	limestone	·		28.40-31.50m
						Timescone			rich in wollastonite
									pyrite layers 30.83-30.85m
	T * 1								14.30-14.60m graphite
									schist (?)
									14.70-15.00m quartzite
		< 20°		4					15.90-16.50m black schist
								İ	· · · · · ·
30								1 py	
		. : 31.50				·		.	
	17/	31.50							
		< 15							bi = hb
				ŀ		bi-amp schist			1-4 mm
		35.80	:						
	.+		ĺ						gneiss-schist
	+ +					hb-bi gneiss			light grey
	+ +					gnerss			granitic composition
40	+	< 25°			-				fine grained
	+ + 7.7.	41.55							
		44.75				amp schist			minor folding
	+ +								
	+ -	< 15*					-		
	+					. h		.	
50	+ +			1					

Γ	1	<u> </u>	· F	T	T				7	1	
Depth (m)	Core log	Bounda- ry (m) Dip	Samp No	Width (m)	Asşay Cu Pb		iu,Ag g/t) Au Ag	Rock name	Altera tion	Mineral Zotion	Remarks
	+ +	51,30 51.50					,				gneiss-schist granitic composition gneissosity (schistosity) very clear.
	+ +	54.60 55.40									fine-coarse grained several veins-dykes.
	+ + + + +	< 20°									q veins: barren 2.30-3.50m 51.30-51.50m 54.60-55.40m
60	+ +							bi gneiss			aplite: 82.95-83.35m 89.20-89.30m 91.10-91.20m
	+ + + + + +			-				or duction	:		granite: 89.45~87.95m 91.60-91.75m 96.70-96.90m
	+ + + + +										98.10-98.40m
70	+ + + +	< 50°									
	+ +										
	+ + + +										
80	+ + + + + + + + + + + + + + + + + + + +					•					
[ F	+ +	82.95 83.35									
	0 + 0 +0+ 0 + 0 + <sub>0</sub> +			-				hb-bi gneiss			porphysoblastic gneiss granitic composition porphyroblast: fs
90	* * + +	87.95 89.20 89.30				·			-		same as 44.75-82.95 m
	+ +	91.10 91.20 91.60 91.75						bi gneiss	-	-	aplite 82.90-89.30m 91.10-91.20m
	+ + + + + + + + + + + + + + + + + + +	< 30° 96.70									granite 87.45-87.95m 91.60-91.75m
100		96.90 98.10 98.40							• .		96.70-96.90m 98.10-98.40m

S=1/200

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CORE LOG

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	Core	Bounda-	Samp	Width	Assay % Cu Pb Zn	(Au	,Ag g/t)	Rock name		Minerali	Remarks
(m)	log	DIP	No	(m)	Cu Pb Zn	Α.	u Ag		tion	zation	
· · · · · · · · · · · · · · · · ·	0	1.50	<u> </u>					overburden			brown soil floats of Q.
	1//										dark green
							-		1.		generally schistosity is
					1						very clear.
	11/1										dip of schistosity 0-30m 55°,30-101.5m
	1//	< 55°									40° from horizontal.
											some epidote
	///	,							ļ.	:	61.70-62.70m,89.90-92.40m
10	<i>777.</i>										12.10-12.90m amp schist becomes
											clayey.
									1.		some carbonate veinlets
											69.10-69.15m,72.30-73.90m
											Py.Cp.hm > malachite Py.Cp.
											impregnated > within
					[						hm-q veinlets
		< 60°									hm-q veinlets with or without Py, Cp.
											width 0.05-3cm
20	<i>[]]</i>	20.00			·		<u></u>				about 50 veinlets
- 1											generally veinlets are accompanied by
			s-53	3.00	0.039 0.000 0	0.007	70.0 0				Py or/and Cp.
		23.00			<u> </u>						generally they are
				7.00	0.046 0.000 0			amp schist			parallel-subparallel
		26.00	5-54	3.00	0.046 0.000	, OU	0.0 0	•			to schistosity. Cu content
		< 50"									26.00-29.00m Cu 0.178%
		:	S 55	3.00	0.178 0.000 0	900	0.0 0				94.00-97.00m Cu 0.228%
		29.00	ļ		ļ						
30								• •			
			S-56	3.00	0.043 0.000 (	0.007	0.0 0			·	
		32.00			<u> </u>						
		33.80		7.00	0.029 0.000	000	.,,		: [		
	9	34,50	S-57	3.00	0.029 0.000	0.00.	• •	1.4 1			
	////	35.00						•		j	
-	////		S - 58	3.00	0.0410.000 0	005	11				
		38.00									
		38.90 39.40							act.ch1		•
40		< 40	s~59	3.00	0.066 0.0000	.004	//				
		41.00									
	999)		S - 60	3.00	0.025 0.000 0	),O U4	' '				· :
		44.00									
			S – 61	3.00	0,043 0.000 0	00 6	11				
		4700				_					
	////										
			s-62	3.00	0.034 0.000 0	.004	0.0 0				
50 l	////	50.00					ł				1

Denth	Core	Bounds-	Same	1111211	Assay % (Au,Ag g/1)		Altera	Minerol	
(m)	log	ry (m)	No	( m )	Assay % (Au,Agg/t) Cu Pb Zn Au Ag	Rock name	tion	zation	Remarks
						-			
			S - 63	3.00	0.054 0.001 0.005//				
		53.00	-						•
			S-64	3 00	0.050 0.001 0.004//	·			
		56.00	3 04	0.00	0.000 0.001 0.00477				
		36.00							·
			S-65	3,00	0.023 0.001 0.004 / /				
		59.00							
60		<40°		0.30	0.007.0001.000.11				·
		61.70	\$~66	2.7.0	0.023 0.001 0.006//				
		63.70	S-67	2.00	0.028 0.001 0.005 / /				
İ									
	V///		s~68	3.30	0.045 0.002 0.005//				
		66.10		ļ					
1.					:				
			S – 69	3.00	0.029 0.003 0.004//				
70		70.00			· · ·				
			S-70	3.00	0.037 0.002 0.005//				in the second second
		73.00							
						amp schist			
			S-71	3.00	0.045 0.002 0.005 / /	amp sentse			
		76.00	~- <u>`</u>		···				:
			c _72	3.00	0.036 0.002 0.007//				
		70.00	3-12	3.00	0.036 0.002 0.00777				
80		79.00 < 35		l <b></b>					
80			S-73	3.00	0.083 0.002 0 006//	s.			
		82.00							
	[]]]		S-74	3.00	0.041 0.002 0,006//	er i i i i i i i i i i i i i i i i i i i			
		85.00							
	9	86.15 86.80	S - 75	3.00	0.073 0.002 0.007//				
	////	88.00				•			
90			s~76	3.00	0.052 0.001 0.007 / /	•		·	
		91.00							
			בילי	7.00	0.035 0.001.0004.00	•.			
			3-11	3.00	0.036 0.0010.004 0.0 0	. •			
		94.00			·				
			S -78	3.00	0.228 0.001 0.006 / /				·
-		97.00							
	7//	<40°					.		
			S-79	4.50	0.063 0.001 0.007 //	7			
100	11/1	101.50					<u> </u>		

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Depth	Core	Bounda-	Samp	Width	Assay % (Au,Agg/1)	Rock name	Altera	Minerali	Remorks
(m)	log	Bounda- ry (m) Dip	No	(m)	Cu Pb Zn Au Ag	ttook liome	tion	zation	Komorks
	0 0	2.00				overburden			black turf soil floats of Q, schist
									up to 5.90m slime slime contains some garnet(?)
		< 40°		. :		bi-mus schist		·	
10		11. 40	ı			black schist			pelitie
			:						and a solid
			·			mus schist			pale purplish schist pelitic, phyllitic
						* . * . * .			
20		19.05							
		< 35 °				graphite schist		•	same as 58.15-81.90 m
:		25.30							
		< 35 °				mus schist			pale purplish schist pelitic, phyllitic
		28.90				graphite schist			graphite (2)
30	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	29.55 30.20				basalt	·		graphite (?)
		31.65				graphite schist	·		graphite schist - black schist
	v v		ı						fs phenocryst max. 3 cm 28.90-29.55m, 31.65-32.90m
	*			,	. :	basalt			weathering, clayish 36.05-36.75 m soft, yellowish green,
40	v v v	40.20							serpentinization
40		70.20							
		< 25 °							45.70-46.45m aplite
	/// * *	45.70 46.45				graphite schist			same as 58.15-81.90 m
50									

Depth	Core	Boundo-	Samp.	Width	Assay % (Au,Ag g/t)	Rock name		Mineral	Remarks
(m)	log	Bounda- ry (m) Dip	No	(m)	Cu Pb Zn Au Ag	NOCK NOME	tion	zation	
		51.50							51.50-52.50m, 57.30-58.15m chilled margin
	A A	2							
	^					3-3			
	^ ^					dolerite			dolerite - microgabbro
	^								very fresh
	^ ·^	58 .15							
		59.00							
60	1777	59.15	}						59.00-59.15m quartzite
					· ·				
		·							
		< 40°				·		: .	amount of graphite is
								]	only a little
									abrasived by fingers, then they become dark grey
					. •				it has weak electric
						·			conductivity sometimes,
									not often.
70						graphite			
70					•	schist			pelitic,
									it looks like slate
						:			
			-					·	
	$//\lambda$	< 40°							
į		` 10				•			
		İ							
				·					
						e e			
3O.									
		81.90		•		mus-bi-amp	-		
ł		<30°				schist			
		8 4.50				- 			
ł									
						mus schist			
ļ.	-	87.65							
ŀ		8 7, 70						j	
eo	4/	89.90 90.20					-		
	12/11	91.10							q veins
	10/11	91.60				green schist			w=2cm
		93.25	Ì			-		-	parallel to schistosity
F	///							• 1	
ľ	/ / /	40 <sup>4</sup> 95,65				mus schist	1		
		96.15				green schist			
ľ,				[		bi-mus			
1		98.65	j			schist	-		
	777					green schist			
<u>00 (</u>	1.1.1.1	00.20							Aney -8

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Depth (m)	Core log	Boundo- ry (m) Dip	Samp No	Width (m)	Assoy % (Au,Agg/1) Cu Pb Zn Au Ag	Rock name	Altera tion	Mineroli zation	Remorks
	0 0 0 0 × X	1.50				overburden			
	* *	2.25 5,85				quartzite			fs quartzite or aplite 1.80-2.25 m aplite
		8.30	,	*****		green schist			green basic rock (basalt?) origin
10	××	10.20			·	aplite			white, fs > q
		13.75				green schist			same as 5.85-8.30 m
	× ×								white fs > q
	××					aplite			
20	× x	20.70							
		22.35				bi-mus-q schist			basic rock origin (?)
	××					aplite			white fs > q
	·* ×					aprice			
	*	28.70			· 	altered			en en en en en en en en en en en en en e
30	////	29.90				basic rock			yellowish green
		< 70° 32.90				amp-bi-q schist			
						q-schist			pale brown-brownish grey weak magnetism basic rock origin (?) aplitization
		39.50							
40		43.30 43.65					ta carb		yellowish and purplish green alteration product from basalt 43.30-43.60m, 46.50-46.80m
						talc-carbon- ate rock	chl		fs megaphenocryst bearing basalt remains
	XX	16:50 4680 48:90	,						
50	v x v			V		aplitized			49.90-50.20 m

	Core	Bounda-	Samp.	Width	Assay % (Au,Ag g/t) Cu Pb Zn Au Ag	Rock name		Mineral	Remarks
(m)	log v×v		No	( m ) 	Cu Pb Zn Au Ag	basalt	tion	zation	basalt with megaphenocryst
	¥	51.00			:		chl		remains darkgrey-black-dark green
		55.60 56.30				basalt	sil		phenocryst: fs max. 3 cm 55.60-56.30 m aplite
	~	56.85			i				
	v <sub>x</sub> v v× v				3.	aplitized basalt			basalt has been aplitized 50%.
60	V V V V	61.10 61.34		-		basalt			61.10-61.34 m granite
! }		62.00							
	L L ×			. [	4 * V - 2				reddish pink-greenish grey -green
	L L								strong aplitization relict of basic rock (basalt?) 5-95% i.e. aplite replaces
70	L L	•							basic rock 95-5%
	×								95.00-96.70 m
	L L					1			bi quartzite or aplite
	LL					aplitized			
00	×					basic rock			
80	× .					aplite			
	LL								
	×								
	×								
90	, L								
		ļ							
	×	95.00						-	
	- 1	96.70							
100	_ [_	00.30							

Depth	Core	Bounda- ry (m) Dip	Samp	Width	Assay	<u>% (</u>	Au,Ag g/i)	Rock name		Minerali	Remarks
(m)	log	Dip	No	(m)	Cu Pb	Zn	Au Ag		tion	zation	
	0 0	2.00						overburden			brown soil, calcrete, floats
	17/1	2.00							+	·	of Q.
									.]		greenish yellow-greyish
											green-grey
					:						fine-coarse grained schistosity very clear
		7.50									20°-50° from horizontal.
	1///	7,53									
10.	////	9.40 9.45									
10.		9.45									alteration
				-							<pre>chlorite, talc-carbonate epidote, tourmaline</pre>
		< 20 <b>°</b>									chl-talc-carb
											2.00-37.90 m
											talc-carb
									chl		64.85-66.45 m
				ŀ							83.60-84.00 m
			·						ta		some epidote 72.00-77.00 m
20									1		
								, · · ·	corb		tourmaline 55.15-55.30 m
											tour-q vein
											72.20-72.40 m
								amp schist			tour-fs-q-vein with some ep and py.
		< 25		1				<b>-</b>			carbonate
	////	26.90 26.95 27.70									5.0-9.0 m
	7/57/	27.80									veinlet-network
7.0	777	29.10 29.20		- 1							q veins
30											width 1-30 cm
											with or without sulfide
								٠.			aplite veins
:	////	33.95 34.00									7.50-7.53 m
		36.05									87.40-88.15 m
	101	36.30									
		3 7 90						•		٠	
		< 30		}	· .						
40		<b>\30</b>						•			
		41.85					ļ				
	(1/1/2	41.85 42.15 42.85					ļ				
	7,01)	43.15									
	////										05.00.05.60
	///	46.10								,	36.20-37.90 m some clay 40.90-43.60 m core is taken
	1/3/	46.20									as slime
}		48.50								:	
			. 1								

Depth	Core	Boundo-	Somp	Width	Assay	% (A	u,Agg/t) \u Ag	Rock	n orne		Mineral	Remarks
(m)	log	ry (m)	No	(m)	Cu Pb	Zn A	lu Ag			tion	zation	Hollaria
	11/1	K 50°							schist			
		52.25		l .				2. 4	001,200			
	777											
		1										mineralization
		55.15			٠ .							69.50-82.00 m
	7,97	55.30	1				2			∖tour		py > cp
	1///	1									j j	impregnation >
		1										within q vein.
		}						amp s	chist			
60	1///	]										cu content
ΘŲ		}										69.60~75.00 m
		1		İ								cu: 0.113%
		k 20°										
		[ 20		1					4.	ŀ		i
		64,85										
	KK	07.00										
	$\langle \rangle \langle \rangle$	66.45							carbon-	ta-carb		
	17/1			1				\ate r	rock /	1		
					}							same as 2.00-64.85 m
										•		
70		69.60		<del> </del>	<u></u> .							
							•					
		72.00									:	
	1/0//	73.10	S-80	5,40	0.113 0.0	0.0 000	006 / /					
			1		· .							
		74.80	]				ja j	200.0	chist	ер		•
		75.00		1 1			·	omb s	CHISC	tour	ру	
	11/1	77.00								100.	ср	
		77.00										·
		]	S-81	7.00	0,059	111	1					
		}										
80							:					
										-		
٠	1//	82.00		·		···						
		83.60										i i
	11/1	83.6 0 8 4.0 0	ļ							fa-corb		
	7, 7/	84.70		<u> </u>				basal	t			phenocryst fs max 7 mm
	////							amp s	chist	1:		
	1///	87.40							100			
	× ×	88.15						aplit	e			
	V V			Ī								
90	V				İ			basal	t			phenocryst: fs max 7 mm
	V V 777	90.50	<del> </del>	ļ	ļ					<u> </u>		with come for (anlited)
		91.80	ļ					quart	zite			with some fs (aplite?)
	1///											
*												
	1///										.	
	W//.											
		50'						amp s	chist			
	1//						İ	-			•	
	(///											
أيي	W//			:								
00	1/1/	100.20		<u> </u>				<u> </u>			<u> </u>	

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LOG GSJ-10

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CORE LOG

S=1/200

Depth (m)	Core log	Bounda- ry (m) Dip	Samp No	Width (m)	Assay % (Au,Agg/ Cu Pb Zn Au Ag	-1 ROCK HODE	Altera tion	Minerali zation	Remarks
	0 0	1.85				overburden			black turf
									core is taken as slime fs. Q >> bi > gt (?)
				,		bi schist			
		. *				DI SCHISC			
10									
		12.00							
	<del>↑</del> ↑	12.25 12.70 13.00							
	^ ^								yellowish grey medium grained chilled margin
	^ ^								12.20-16.50m, 38.10-39.95m
20	^ ^				. *		1		composed of fs. cpx, mt as main primary minerals
		20,90					ch i		without megaphenocryst of fs
	\$ \$ \$ \$ \$ \$	23.10 23.35 23.60 23.85					ta .		alteration chl, talc, carb
	^ ^	24.65				dolerite	carb		weathering
									many aplite veins white.
30	^		· .				: :		
	^ ^ ^ \	31.50							
	^			:					
	^ \								
	^ \								
40		39.95			· · · · · · · · · · · · · · · · · · ·				
		40°				q schist			core is taken as fragment
		44.65							
						black schist			schist or black massive slate (?) with small amount of graphite
50		49,35							

Γ						Assay % (Au,Ag g/t)		T	]	
ľ	epth (m)	Core	Bourda- ry (m) Dip	Samp No	Width (m)	Cu Pb Zn Au Ag	Rock name	tion	Minerali Zation	Remarks
	<del>-,-,-,-,-</del>		52.55				graphite schist			
		× ×					aplite			
			55.40							53.60-53.80 m high grade graphite 53.75-53.80 m fixed carbon 66.8%
	60				·		graphite schist		* i <sup>*</sup>	volatile material 7.3% ash 24.8% 53.60-55.45 m with many q veinlets 55.45-69.75 m
		× × × × × × × × × × × × × × × × × × ×	64.65 65.00 65.55 66.00							core is taken as slime amount of graphite is only a little in slime many aplite veins
	70		68.00 68.25 70.05							
		× ×	70.60							
			< 60°					chl :		pale greenish grey- dark green, generally schistosity is very clear some relict of basic
			< 40°				green schist	ta I carb		rock remains, i.e., basic rock origin some magnetism, 70.60-79.00 m
ε	30		79.00 < 35°	*.						very weak pyritization
			82.90					•		
		^^								dark greenish grey dolerite-microgabbro without megaphenocryst of fs.
		. ^	.			·			Ì	medium-strong magnetism.
2	90	, ,								
		^				·	dolerite			
		^^								
		^ ^					:	Ŋ.		
		^								
K	00	^ ^	00.101							

CORE LOG

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S=1/200

Depth	Core	Bounda-	Somp	Width	Assay % (Au,Agg/t)	Rock name	Altera	Minerali	Remarks
(m)	log	Dip.	No	(m)	Assay % (Au,Ag <i>g/</i> 1) Cu Pb Zn Au Ag	ROCK Hume	tion		Kentorks
	000	1.50				overburden			
									4 50 5 00
		1							1.50-5.00 m core is taken as slime
					.∵				
						mus-bi			bi > mus
						schist			amount of mica changes
		9.40							by places. schistosity: very clear
10	2	10.00			•				q vein: barren
					·				
									•
		13.80							
						·	Í		schistosity: very clear
						·			
20		< 30	1	-					
		. 30	·	ļ					
					·	mus-bi-q			
						schist			
							1	.	
		27.10							
	,, 0	27.20					ĺ		q vein: barren
ļ				1			.	.	
30								.	
Ì	, ,								
. [						·	Ì		·
Į	11.11							İ	
		35.00					·		:
ł		< 25°			•			-	
		.		ŀ			1		
. [									•
								.	
ю						mus-bi	. [		
						schist			
ł			.		.			-	
}									
t									
-		4710							
ŀ		47,10							fs quartzite
		49.05				quartzite	. :		with some mus >> bi
50									

Depth (m)	Core log	Bourda- ry (m) Dip	Samp. No	Width ( m )	Assay % (Au,Ag g/t) Cu Pb Zn Au Ag	Rock name		Mineral zation	Remarks
		51.45 51.50				mus-bi schist			schistosity: very clear q vein: barren
60		55.65 56.70 56.95 < 25° 69.95	-			mus-bi-q schist			55.65-60.95 m coarse grained q veins: barren
		70.05							
70		< 35°							
		73.80 73.95 75.35 75.65		\$-82	0.006 0.000 0.007 / /	amp schist			coarse grained some ep a little gt 79.35-81.20 m
во		79.35 40° 81.20 81.50 82.25 82.45			0.022 / / 0.0 0	amp sentse		native cu	native copper along crack Cu: 0.022%
		82.45					kaal		85.90-86.00m sericite rich 87.30-87.65m sericite schist with some kaolinite
<b>90</b>		87.65 : 20*				mus-bi-q schist			
		97.35							
00		00.05				quartzite			fs quartzite

GSJ-12 S=1/200

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CORE LOG

Depth (m)	Core log	Bounda- ry (m) Dip	Samp No	Width (m)	Assoy % (Au,Agg/t) Cu Pb Zn Au Ag	Rock name	Altera tion	Minerali zation	
	`O. O	1.20				overburden			calcretized soil
		6.20	- And Annual Ann			mus-q schist			5.20-5.40m bi schist
10	× × × ×	13.75				aplite			schist is replaced by aplite but schist remains at places. many q veins.
		< 45°				mus-bi schist			greenish grey with brownish tint schistosity very clear mus. bi. very rich
20		23.30				bi-mus schist			geenish grey 1.20-25.80m, 44.50-63.60m black small dot, graphite (?) amount of it is only a little, but distributes
		25.80				mus quartzite			grey. schistosity not clear
30		<40° 27.60 28.20 29.05 29.25 29.65 29.75				bi-mus schist			greenish grey aplite veins q vein: barren
		31.90 33.20 34.00		÷				· ·	white aplite with relict of schist.
		< 30° 38.70				aplite			mus-q schist, grey 36.00-37.20m limonitization after Py
40		44.50				mus-q schist			brownish grey
		<40" 48.30 48.80						٠	greenish grey q veins: barren
50									

epth (m)	Core log	Bourdo- ry (m)	Samp. No	Width (m)	Assay Cu Pb	% (/ Zn	Au,Ag g/t) Au Ag	Rock name	Altera tion	Minerali zation	Remarks
	9	50.25	.,								
		50,40							· .		
				1							
	11 11	< 25*						bi-mus-q			
		55.00						schist			
	110	55.20									
•	11/1										
	11/1		-								
_	11						. •				
0											
	1/1/							;			
	37.32										
	1/1/1	63.60									
											greenish grey mica rich
	1//	}									bi > mus > chl, talc (?)
					٠.		:				
		< 20°									basic rock origin (?)
)											
											79.70-83.40m
									1 22		strong aplitization
							-				very weak pyritization
					٠.		÷				
								bi-mus			
								green			
								schist			
Э.	1//	79.70									
										ру	
		< 25						.*			
		83.40					. *				·
							-		1		·
									.		
							•				
О								* *			
		,								.	
								•			
											·
		< 20								.	
0	(//:)	100.10									

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S=1/200

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CORE LOG

Depth	Core	Bounda-	Samp	Width	Assay	% (	Au,Agg/nA	Rock name	Altera	Mineroli	Remarks
(m)	log	ry (m) Dip	No	(m)	Çu P	b Zn	Au,AggA) QA uA	ROCK Home	tion	zation	TO MOTING
	0 0	1,20						overburden			
		,									
		-			ŀ						greyish brown-brownish grey
		. :									
					ļ						
										•	
10		< 20°	}								
									Ì		
		12.20	ļ					bi-mus		<u> </u>	
		12.30 13.60						schist			q veins: barren
	181	13.70									d verns; barren
		13.60 13.70 14.30 14.40						•			
20								<i>2</i> *			
20											
									İ		
									,		
	///	23.40 23.70									
		23.10									brownish grey
		< 40°						mus-bi schist			Drownish grey
		27.50					,	SCHESC			
		27.50	ļ						<b> </b>		
30											pale brownish grey
								bi-mus			
								schist			
		1						:	-		
		37.10			-				ļ		
		}									pale brownish grey
								:       •			
40		k 35°						mus-bi			
		İ						schist			
		]								1	
	///	43.60	<u> </u>						<u>                                     </u>		
	11	<b>1</b>						mus-bi-q	.		light grey
								schist			argue grey
	11/2	46.20	ļ	<u> </u>	<b></b>				-		
								mus-bi			brownish grey
								schist			And I
50		49.30			<del>                                     </del>				<del> </del>	<del> </del>	

Depth	Core	Bourda-	Samp.	Width	Assay % (Au,Agg Cu Pb Zn Au Ag				g g/t)	Rock name	Altero	Minerali	Remarks
(m)	log	ry (m) Dip	No	(m)	Cu F	b.	Zn /	۱u	Ag	WOOV HOING	tion	zation	veuntv2
	11/11												light grey
	11/11									bi-mus-q			<del></del>
	11									schist			
	113	< 25°				•							
	11	55.45	,		<u> </u>								
		56.80							•				light grey-dark grey
	19/	56.85											weak pyritization.
60									•	·			
60													very small amount of
													graphite (?) exist.
		1.								•			amount of pyrite is
													only a little.
										·			•
		٠.											
				ļ [				•					
70		< 20°											
										mus schist		ру	
						٠.							
		• :	,						-				
·		·								•			
80			·										
										-			
:		. *											
		< 25°								·			
:									•				
		87.70										<u> </u>	<u> </u>
		88.65											
		89.20		·							1		greenish grey
90						•				bi-hb-schist			÷.
			ļ ·							DI IIO DOMESO			88.65-89.20m
													bi schist
		. '										.	
		94.90	ļ	<u></u>	ļ				:				
	191	95.10					•						dark grey
												NV.	weak pyritization.
										mus-bi	-	ру	
		< 30°								schist			
100	///	100 30	l	l	1					1	1	1	

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CORE LOG

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pth n)	Core log	Bounda- ry (m) Dip	Samp No	Width (m)	Assay % (Au,Agg/t) Cu Pb Zn Au Ag	Rock nome	Altera tion	Minerali zation	Remarks
		'				overburden			q rich
	x x					aplite			white
	* * *	3.50							
									<pre>brownish grey q &gt;&gt; fs &gt;&gt;&gt; bi schistosity: very clear</pre>
		< 30°		,					semiscosicy: very crear
0					·	m).ca			
ļ						mus-q schist			
ļ						· · · · · · · · · · · · · · · · · · ·			
ľ					·				
		17.30				• .			
				÷					brownish grey with
0		· .							greenish tint
		< 25 °							
ł									
ľ									
						bi-mus-q schist			
ļ		s .			e e				
o į									
ł									
.									
		< 50°		·					
		37.15				·			
									pale greenish grey
0									
		42.40							
		42.90				bi-mus schist			
ľ									
ا		40.							
			1.50 x x 3.50 3.50 17.30 17.30 17.30 42.40 42.50 42.90 42.90 43.40	30° 30° 37.15 37.15 42.40 42.50 42.90 43.40	30° 30° 30° 30° 37.15 37.15	1.50 x x x 3.50 17.30	10	1.50   overburden   aplite	overburden aplite  mus-q schist  25'  bi-mus-q schist  37.15  37.15  bi-mus-q schist  bi-mus-q schist

epth m)	Core log	Bourda- ry (m) Dip	Samp No	Width ( m )	Assay °	% (Au Zn Au	,Ag g/t) ı Ag	Rock I	acme		Minerali zation	Remarks
		51.90 52.40						bi-mus	;		[ [	•
	777	32.40	1					schi	.st			
		54.35										
	11		<u> </u>		· · · · · · · · · · · · · · · · · · ·							
	11 1						· ·					light grey
	11		S~85	5.35	0.002 0.0	ion nin						
				0.00	0.002 0.0		02 0.0 0					
	4											
)	7. 7.	60.00		·			•					54.35-100.00 m
	1 1							mus-q schi	ct			<pre>pyrite impregnated &gt;&gt; py</pre>
	11/							50113	.5,0			bearing q veinlets.
			S-86	5.00	0.010 /	1	/ /		,		ŧ	<u> </u>
		< 30°			[							
	11	65.00						·			.	
	1 3							ļ ·				
Ì				}				İ	;			
			S – 87	5.00	0.004 0.0	00.0.0	03 / /					
		70.00	ļ	L								
	<del></del>	70.85									ру	<u> </u>
		72.25							•		,	light grey
	Q	72.95	S-88	5.00	0.004 /	٠,	/ /					q veins: barren
	. 0	73.70		·.	j							74.70-75.60 m
		75.00		ļ				quartz	tite			mus-q schist
		75.60						quaren				1 251125
												* * *
		·	S ~ 89	5.00	0.004 0.00	0.003	2 0.0 0		·			
		79.25							15 1 14			en and the second second
		80.00										
		<25°				-		mus-q	1.1 1.5			greenish grey
1	" :: "]	·						schi				
	<i>"</i>	٠	5-90	5.00	0.002 /	/	7. 7. 1		1			
		84.15										
-	<i>:</i> : 1	85.00		ļ			• .	quartz	zite			light grey
. ļ	1///	85.80									}	1
		87.70	s= 01	5.00	0.002 0.00	nn a ac	15	bi sch	nist			brownish grey
	///	01.10	3-31	3.00	2.002 0.01	. 0.00	13 / /		<del></del>	<u> </u>		light grey
.	1//											9 9- rx
)	11	90.00	-			·		quartz	zite			
	111											•
ļ	11		e_ 02	5.00	0.001 /		, ,					
-	<del>///</del>	92.95	2-92	5.00	V 001 /	. ′	, ,	<u> </u>		·	-	brown
ŀ	///			·								very rich in bi
ļ		95.00 95.55						bi sch	nist			
Į	73											
			S 07	5.00	0.00 800.0	: വരവ	00 0	mus-q-				grey
ŀ	11		J 33	3.00	3.0000.00			schi				
٠,	· / ·	< 20 *		-								
) [	لكسما	100.00			<u> </u>	·		l	<del></del>		1	Apex15

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CORE LOG

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Depth (m)	Core log	Bounda- ry (m) Dip	Samp No	Width (m)	Assay % (Au,Agg/1) Cu Pb Zn Au Ag	Rock name	Minerali zation	Remarks
	0 0	1.50				overburden		
		< 40*				bi-mus schist		pale greenish grey.
10		7.00 8.3 0 8.40				mus-bi schist		yellowish brown q vein: barren
								pale greenish grey schistosity: very clear mus >> bi > ep very small black dot are contained widely but its amount is only a little (1.50- 100.20m) → graphite (?)
20		< 30° 22.15 22.45						q vein: barren 22.15-22.45m aplite 35.70-36.60m mus-bi schist
		23.10				bi-mus schist		
30								
		35.70						
		36.60 <45 <sup>*</sup>						
40		40.80				mus-bi schist		
		43.00 < 30 °				bi-mus- schist		same as 10.30-40.80m 42.60-43.00m pegmatite
50		. : :						

epth (m)	C or e	Bourda- ry (m) Dip	Samp. No	Width (m)	Assay %	6 (Au,Agg/t) In Au Ag	Rock name	Altera Mi tion za	iinerol ation Remarks
		51.60 51.75							q veins: barren
		56.50 56.60 < 35°					bi-mus schist		
60		61.80							
		65.50 65.90					mus-bi schist	-	biotite very rich
		66.00							same as 10.30-40.80m
70		< 25"							q veins: barren
						·			
30				_			bi-mus		
					:	•	schist		
		<40°							
0						:			
		93.15 93.65 94.85							
		95.87							

S=1/200

Depth (m)	Core log	Bounda- ry (m) Dip	Samp No	Widti (m)		Rock name	Altera tion	Minerali zation	Remarks
	0.0	1.70				overburden			calcrete
:						calcretized rock			white original rock: unclear. mus. schist (?)
		7.20 8.40				pegmatite			
	^ ^	1				F. 2			
10	^ ^	·							dark grey-greenish grey fresh. many steep cracks. composed mainly of
	^ ^							·	fs and transparent cpx by microscopic obserba- tion.
	^ ^ ^ ^								
20	^								
	^ ^				·			:	
	^								
	^ ^					dolerite			
	^ ^ ^								
	^	t							
30	^ ^ ^								
	<b>^</b> ^						-		
	۸								
	^ ^								
:	^ ^								
	^								
	^ ^		• •						
40	^ ^ ^		-			·			
		41.75 42.40 45.00	S-94 S-95		0.564 0.000 0.004 0.0 1				dark green, yellowish green, red brown, greasy lustre, chl, talc, carb,
		47.50	S - 96	2.50	0.103 0.000 0.007 0.0 0	talc- carbonate	- carb		ep, diop, some gt, mica Cu mineralization Bo. Cc, Cp, malachite
50		49.70	S-97	2.20	0.172 0.000 0.005 / /	rock	10 c		occur as impregnated grains.

		Bourda- ry (m) Dip		, , , , ,	Cu Pb Zn Au	~y		tion	zotion	T.
1		55.25						ch I e p amp		<pre>pale brownish grey   q &gt; fs &gt; mus.   schistosity: not so clear,   rather massive   homogenous   sandstone origin</pre>
60							mus schist			49.70-55.25  pale green layers of chl, ep, amp.
70		70.50								
80										this rock is divided into 2 facies.  1) talc-carbonate facies richer in ferromagnesian minerals than carbonate.  same as 41.75-49.70m.  70.50-71.40m  71.75-72.20m  73.25-75.30m
	XXXXXXXXXX						talc- carbonate rock			76.50-79.40m 80.50-81.50m  2) carbonate rich facies richer in carbonate than ferromagnesian minerals. red brown, pink, white carbonate: crystalline. 71.40-71.75m
90		92.20								71.40-71.75m 72.20-73.25m 75.30-76.50m 79.40-80,50m 81.50-92.20m minerals in both facies are same, but amount is
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	ኢሊብ	98.20 99.05			· · · · · · · · · · · · · · · · · · ·	+	mus schist			different. same as 49.70-70.50m

CORE LOG

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	h Core	Bounda	Somp	Width		Rock name	Altera	Mineral	Remarks
(m)	log	Dip	No	(m)	Cu Pb Zn Au Ag	NOCK HOME	rion		
		1.60			<u>.</u>	overburden			dark brownish grey soil.
	^ /							<u> </u>	dary grey-greenish grey
	^								fresh.
	^ ^						1		many steep cracks.
	. 1								
	^ ^								
	\ \^ \								
1,0	^ ^								
10	^				·				
	A A								
	^					dolerite			
	A A						-		
	^								
	\ \ \								
	- ^					·			uatino per
	Λ · Λ						·		
20	^								
	^ ^			.					
	^								
	<u>х</u> х	23.10							
	x L x	24.35				aplite			basic rock remains (10%)
	Δ			.		aplitized			yellowish green
	LL		S-98	5.35	0002 0000 0.007 / /	basic rock	срх		altered basic rock
		1+				with skarn			some schistosity, along which q, apl veinlets
		29.70					. gt		intruded.
30	F	30.50				basalt			aplitization
	LL		5-99	.90	0.025 0.000 0.005 / /	aplitized	срх		phenocryst of fs: 7 mm pale greenish grey
	1	32.40 33.40	S -100 I	.00	0620 0.000 Q005 0.0 O	basic rock			altered basic rock with
	[, <del>^</del> , [				DIII 0.000 0.003 / /	with skarn	gt		strong aplitization. skarn mineral: gt,
	ļi	34.80	3 101		211 0000 0.000 7 7				ep. diop.
	^ - ^		.					· .	secendary Cu mineral,
	^								Cc, Bo, Cp (impregnated) malachite (film)
	^ ^								Cu content
40	^			-				-	32.40-33.40m Cu=0.620% 33.40-34.80m Cu=0.110%
	^ ^							ĺ	
	^								dark grey-greenish grey fresh.
	^ ^					dolerite			many steep cracks.
	Δ								
	^ ^								
	^						İ		
	^ ^								
	^								
50									

Depth (no) log rymm   Samp (no)   No   (no)   Cu Pb Zn Au Ag   Rock name   Altern than 2 tribon   Remarks    A A A A A A A A A A A A A A A A A A	
dolerite    A	
dolerite  dolerite  dolerite  green-greenish brown greasy. brown banding (biotite altered products of be rock (?)  greyish brown schistosity: very clea biotite very rich bi-tale-carb alteratio weaker than bi-tale- carbonate rock.	
dolerite    A	
dolerite    A	
bi-talc- carbonate rock  bi-schist  green-greenish brown greasy. brown banding (biotite altered products of ba rock (?)  greyish brown schistosity: very clea biotite very rich bi-talc-carb alteratio weaker than bi-talc- carbonate rock.	
bi-talc- carbonate rock  bi schist  green-greenish brown greasy. brown banding (biotite altered products of ba rock (?)  greyish brown schistosity: very clea biotite very rich bi-talc-carb alteratio weaker than bi-talc- carbonate rock.	
bi-talc- carbonate rock  bi-seloo  s-102 2.00 0.021 0,000 0.005 / / bi schist  bi schist  green-greenish brown greasy. brown banding (biotite altered products of ba rock (?)  greyish brown schistosity: very clea biotite very rich bi-talc-carb alteratio weaker than bi-talc- carbonate rock.	
bi-talc- carbonate rock  bi-talc- py  green-greenish brown greasy. brown banding (biotite altered products of ba rock (?)  greyish brown schistosity: very clea biotite very rich bi-talc-carb alteratio weaker than bi-talc- carbonate rock.	
bi-talc- carbonate rock  bi-talc- py  green-greenish brown greasy. brown banding (biotite altered products of ba rock (?)  greyish brown schistosity: very clea biotite very rich bi-talc-carb alteratio weaker than bi-talc- carbonate rock.	
bi-talc- carbonate rock  bi-talc- carbonate py  greasy. brown banding (biotite altered products of bar rock (?)  greyish brown schistosity: very clea biotite very rich bi-talc-carb alteratio weaker than bi-talc- carbonate rock.	
bi schist    Carbonate rock   py   altered products of barrock (?)	
bi schist    S-102   2.00   0.021 0,000 0.005 / /	
bi schist  greyish brown schistosity: very clea biotite very rich bi-talc-carb alteratio weaker than bi-talc- carbonate rock.	
bi schist  bi schist  biotite very rich bi-talc-carb alteratio weaker than bi-talc- carbonate rock.	
bi schist  biotite very rich bi-talc-carb alteratio weaker than bi-talc- carbonate rock.	r
weaker than bi-talc-carbonate rock.	
carbonate rock.	
74.00 bi	
bi-talc-   ta   same as 61.00-66.00m	.
carbonate	
rock	
80 79.20	
brownish grey	ĺ
mus-bi same as 66.00-74.00m	
q vein: barren	
88.00	
same as 61.00-66.00m	
90 bi-talc-carbonate	
92.00 rock	
93.70 very pale greenish gre	y
same as 64.00-74.00m	`
mus-bi schist	
9720 9 9730 q veints: barren	
97.50 98.50 /g/98.55	
100 / 100.80	}

S=1/200

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CORE LOG

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Depth (rn)	Core	Bounda- ry (m) Dip	Somp No	Width (m)	Assay % (Au,Agg/1) Cr203 T.Fe Al203 Mgo SiQPi	Rock name	Altera tion	Minerali zation	Remarks
	۰					overburden	1		brown soil, floats of Q,
		1.50	ļ			serpentinite			chromite, serpentinite
	XXX	3.20				- Corporative Co			
	+ +						:		
10	+ +								granitic composition composed of gt, bi, hb, q, fs coarse grained color index: 10-15%
	+								gt: transparent pale brown
		< 30°				·			0.3-0.5 mm
	+								
Ì	+ +					4			
	-								
	+ +								
	+					gt-bi-hb			
20	+ +	< 30"				gneiss			
	+								
	+ -1								•
	+.			·					
1:	4 4	< 60°							
	+				:				
	-ii-								
30	4-							٠.	
	  -}}-	,							
		< 70°							
		34.00							
	+ 0+	1							porphyroblastic gneiss
	0 + 0				. :	gt-bi-hb			granitic composition mafic gt>bi>hb
	+ 0 + 0					gneiss			coarse grained
	+ 0 +		- 1				:		porphyroblast: fs
40	0 + 0	< 75	:						
	+ • +					-			
	× ×	4240				***			
	×	44.90				aplite			grey
	* * * * * * * * * * * * * * * * * * *					gt-bi-hb gneiss			amount of gt is less than above, color index: 30%
50	* *	47.50 50.00				serpentinite	Serpenti – nization		47.50-50.00 m rich in talc 50.00-51.30 m secondary bi, act

	Core	Boymo-	Samp,	Width	Assay % (Au,Ag g/t) Cr203 T.Fe Al <sub>2</sub> O <sub>3</sub> Mg S:O <sub>2</sub> Pt	Rock name		Mineroli	Remarks
(m)	log XXXX	ry (m) - Dip < 80°	No	(m)	Cr203 T.Fe A1203 Mg S:02 Pt		tion	zation	Condita s
	$\bowtie$	51,30	<u> </u>				Ser-		
	+	63.30	:						
	XXXX	53.30 53.62							same as 3.20-34.00 m
	-+ +								
	†					•			53.30-53.62 m
	+ +					-			dark green amphibole
	+				·				
60	+ +	< 50°							
	+ +						ļ		
)	+								
	+ +	_			:	4.0 I			
	+					gt-bi-hb			· · · · · · · · · · · · · · · · · · ·
	. '					gneiss			
	+ +								
70	-}-	. 50*							
	+ +	< 50°							
	-}								· .
	+ +								
	+								
	+ +								
	+ +	77.80							
						•			dioritic composition color index: 35%
80		< 40 °						Вy	
	+ +	81.70			·	bi-hb gneiss			81.25-81.70m, 84.40-85.30m granitic composition
						gnerss			85.30m just contact
	+ +	89.40			* .	1-			
	+	85.30					4_		05 70 06 00 02 60 04 75
	$\bigotimes$	86.80				\$ 1	0 CT		85.30-86.80m, 92.60-94.75m actinolite
	$\bowtie$						с 0		
						serpentinite	201		86.80-92.60 m talc
90						serpencinice	5		
	$\otimes$				·		serpintinization		
	$\bowtie$	92.60				Ž			
	$\bowtie$				· ·.	•	act	,	
	XXX	94.75			:		<b>†</b>		same as 3.20~34.00 m
	+ +	< 60'				gt-bi-hb			
	+					gneiss			
	+ +				ŀ		1		
100	. 1	100. 20							,
		٠							Apex19

# Apex. 2. Analytical data

Apex. 2-1 Analytical data on copper ore

Sample	Location	Cample		Assays %	(Au, Ag	, g/t)		Domonto		
No.	Location	Sample	Cu	Pb	Zn	Au	Ag	- Remarks		
S-1	X5.5, Y4.1	float	5.74		-					
S-2	X5.5, Y4.1	float	5.10	-				M-3 anomaly		
S-3	X5.5, Y4.1	float	5.84		_			Floats of green copper		
S-4	X5.6, Y4.16	float	5.45	0.003	0.022	0.0	3	·		
S-5	X4.2, Y15.3	float	0.36	_	-			NNW 1 km from GSJ-6		
S-6	X2.0, Y1.02	float	8.14	0.008	0.018			Outcrop of quartzite with green copper SW of M-4 anomaly, float of green copper		

Apex. 2-2. Analytical data on chromite ore

Sample	Location	Sampling		Ass	says % (P		Cr/Fe	Remarks		
No.	Location	width (m)	Cr <sub>2</sub> O <sub>3</sub>	T. Fe	Al <sub>2</sub> O <sub>3</sub>	MgO	SiO <sub>2</sub>	Pt	CI/Fe	Kemarks
S- 7	X6.12, Y23.00	float	33.5	17.8	12.2	13.7	9.7	:	1.3	
S- 8	X5.23, Y23.53	float	32.9	17.7	11.3	14.9	10.2		1.3	
S- 9	X5.13, Y23.90	Лоаt	36.6	16.9	13.3	13.2	7.5		1.5	
S-10	X4.90, Y23.73	float	27.8	20.8	6.7	15.9	11.9		0.9	magnetite rich
S-11	X5.02, Y23.46	float	35.9	16.9	13.2	13.5	8.0		1.5	
S-12	X4.66, Y23.31	float	32.3	19.9	10.1	13.8	8.4		1.1	
S-13	X4.67, Y23.31	float	32.1	18.8	11.8	13.3	10.0		1.2	
S-14	X4.73, Y23.25	float	18.5	22.3	7.0	17.8	16.8		0.6	magnetite rich
S-15	X5.59, Y23.99	float	33.2	16.6	13.5	15.0	10.1		1.4	·
S-16	X5.61, Y23.99	float	37.0	17.7	13.5	12.3	6.6		1.4	
S-17	X6.13, Y23.85	float	37.9	18.3	13.6	11.5	5.7		1.4	
S-18	X6.13, Y23.86	float	33,0	20.1	12.2	11.7	8.4		1.1	

Sample	Location	Sampling		Ass	says % (P	t g/t)			Cr/Fe	Remarks
No,	Location	width (m)	Cr <sub>2</sub> O <sub>3</sub>	T. Fe	Al <sub>2</sub> O <sub>3</sub>	MgO	SiO <sub>2</sub>	Pt	Ct/re	Kemarks
S-19	X5.93, Y23.83	float	35.6	18.3	11.9	12.3	7.4		1.3	
S-20	X5.95, Y23.83	float	35.2	16.9	13.2	13.2	8.2		1.4	
S-21	X5.89, Y23.18	float	36.1	16.8	13.6	12.8	7.0		1.5	·
S-22	X5.66, Y24.71	float	37.6	18.4	13.2	11.2	6.2		1.4	
S-23	X5.60, Y23.89	float	36.3	16.8	12.9	13.2	7.3		1.5	
S-24	X5.40, Y21.85	float	32.3	20.6	12.4	10.6	7.6		1.1	
S-25	X5.47, Y23.87	float	36.3	17.6	12.6	11.8	6.7		1.4	
S-26	X6.45, Y24.10	float	35.2	16.4	12.6	13.4	8.7		1.5	
S-27	X5.04, Y24.69	float	34.6	17.0	12.9	13.2	7.9		1.4	
S-28	X4.95, Y24.49	float	36.5	16.4	13.8	13.3	7.0		1.5	,
S-29	X4.90, Y24.50	float	35.2	16.7	13.4	13.5	8.1		1.4	
S-30	X4.90, Y24.48	float	34.9	16.3	13.1	13.7	8.8		1.5	
S-31	X4.95, Y24.61	float	39.8	17.0	13.9	12.5	5.8		1.6	
S-32	X4.93, Y24.63	float	36.6	16.9	13.5	13.6	8.9		1.5	· ·
S-33	X4.52, Y25.02	float	36.6	17.1	13.1	13.5	8.0		1.5	
S-34	X5.15, Y24.33	float	34.1	16.8	12.9	14.1	9.7	·	1.4	
S-35	X5.25, Y24.08	float	38.0	18.7	13.1	11.2	5.9		1.4	· .
S-36	X5.24, Y23.81	float	39.2	16.9	13.5	12.9	6.2		16	
S-37	X5.27, Y23.88	0.60	35.1	17.7	12.1	13.6	9.4		1.4	Trench 2
S-38	X5.27, Y23.88	1.50	33.9	16.9	12.2	15.3	9.9		1.4	Trench 3
S-39	X5.28, Y23.88	0.80	31.5	16.8	10.9	15.1	11.1	0.0	1,3	Trench 4
S-40	X5.29, Y23.89	0.80	35.3	19.2	13.1	11.3	7.8		1.3	Trench 6
S-41	X5.30, Y23,89	1.00	36.1	18.0	13.1	12.0	7.5		1.4	Trench 8
S-42	X5.34, Y23.92	1.40	38.4	18.1	13.0	12.2	6.5		1.5	Trench 10
S-43	X5.34, Y23.92	2.20	35.8	19.3	11.7	12.5	7.9	0.0	1.3	Trench 11

Sample	Location	Sampling width (m)		Ass	says % (P	Cr/Fe	Remarks			
No.	Location		Cr <sub>2</sub> O <sub>3</sub>	T.Fe	Al <sub>2</sub> O <sub>3</sub>	MgO	SiO <sub>2</sub>	Pt	CITIE	11011111110
S-44	X5.34, Y23.93	2.00	34.2	18.6	12.2	13.5	8.9		1,3	Trench 12
S-45	X4.67, Y23.32	1.20	32.6	18.5	12.2	13.9	9.6		1.2	Trench 14
S-46	X4.66, Y23.31	1.70	30.1	21.0	10.8	13.9	10.6		1.0	Trench 15

Apex. 2-3. Analytical data on core (Chromite)

Sample	No. of	Sampling		A	ssay % (P	t g/t)			Cr/Fe	Remarks
No.	drill hole	width (m)	Cr <sub>2</sub> O <sub>3</sub>	T.Fe	Al <sub>2</sub> O <sub>3</sub>	MgO	SiO <sub>2</sub>	Pt	CITTE	Kellarks
S-47	GSJ-1	0.42	27.3	22.9	8.7	14.5	11.6		0.8	
S-48	GSJ-2	1.30	31.7	19.7	11.4	14.1	10.4	0.0	1.1	
S-49	GSJ-2	0.72	30.2	20.0	9.7	13.9	11.5	0.0	1.0	
S-50	GSJ-2	0.35	26.7	21.9	8.2	14.7	12.3		0.8	Core has strong magnetism
S-51	GSJ-2	0.23	17.0	20.0	. 10.8	19.3	18.0		0.6	Rich in magnetite

Apex. 2-4. Analytical data on core (Copper)

Sample	No. of	Sampling		Assay 9	Domeska			
No.	drill hole	width (m)	Cu	Pb	Zn	Au	Ag	Remarks
S-52	GSJ-4	1.50	0.029	0.004	0.002			Pyrite in limestone
S-53	GSJ-6	3.00	0.039	0.000	0.007	0.0	0	Py, Cp in amphibole schist
S-54	GSJ-6	3.00	0.046	0.000	0.007	0.0	0	Py, Cp in amphibole schist
S-55	GSJ-6	3.00	0.178	0.000	0.006	0.0	0	Cp, Py in amphibole schist
S-56	GSJ-6	3.00	0.043	0.000	0.007	0.0	0	Py, Cp in amphibole schist
S-57	GSJ-6	3.00	0.029	0.000	0.006			Py, Cp in amphibole schist
S-58	GSJ-6	3.00	0.041	0.000	0.005			Py, Cp in amphibole schist
S-59	GSJ-6	3.00	0.066	0.000	0.004			Py, Cp in amphibole schist
S-60	GSJ-6	3.00	0.025	0.000	0.004			Py, Cp in amphibole schist

Sample	No. of	Sampling		Assay 9	% (Au, Ag g	g/t)		
No.	drill hole	width (m)	Cu	Pb	Zn	- Au	Ag	Remarks
S-61	GSJ-6	3.00	0.043	0.000	0.006			Py, Cp in amphibole schist
S-62	GSJ-6	3.00	0.034	0.000	0.004	0.0	0	Py, Cp in amphibole schist
S-63	GSJ-6	3.00	0.054	0.001	0.005			Py, Cp in amphibole schist
S-64	GSJ-6	3.00	0.050	0.001	0.004			Py, Cp in amphibole schist
S-65	GSJ-6	3.00	0.023	0.001	0.004			Py, Cp in amphibole schist
S-66	GSJ-6	2.70	0.023	0.001	0.006	•		Py, Cp in amphibole schist
S-67	GSJ-6	2.00	0.028	0.001	0.005	0.0	0	Py, Cp in amphibole schist
S-68	GSJ-6	3.30	0.045	0.002	0.005			Py, Cp in amphibole schist
S-69	GSJ-6	3.00	0.029	0.003	0.004			Py, Cp in amphibole schist
S-70	GSJ-6	3.00	0.037	0.002	0.005			Py, Cp in amphibole schist
S-71	GSJ-6	3.00	0.045	0.002	0.005			Py, Cp in amphibole schist
S-72	GSJ-6	3.00	0.036	0.002	0.007			Py, Cp in amphibole schist
S-73	GSJ-6	3.00	0.083	0.002	0.006			Py, Cp in amphibole schist
S-74	GSJ-6	3.00	0.041	0.002	0.006			Py, Cp in amphibole schist
S-75	GSJ-6	3.00	0.073	0.002	0.007			Py, Cp in amphibole schist
S-76	GSJ-6	3.00	0.052	0.001	0.007	1.		Py, Cp in amphibole schist
S-77	GSJ-6	3.00	0.036	0.001	0.004	0.0	0	Py, Cp in amphibole schist
S-78	GSJ-6	3.00	0.228	0.001	0.006			Cp, Py in amphibole schist
S-79	GSJ-6	4.50	0.063	0.001	0.007	:	·	Py, Cp in amphibole schist
S-80	GSJ-9	5.40	0.113	0.000	0.006	-		Cp, Py in amphibole sheist
S-81	GSJ-9	7.00	0.059	· <b>–</b>	-			Py, Cp in amphibole schist
S-82	GSJ-11	5.40	0.006	0.000	0.067			
S-83	GSJ-11	1.70	0.022	<u> </u>		0.0	0	Native Copper
S-84	GSJ-11	0.75	0.050		_			
S-85	GSJ-14	5.65	0.002	0.000	0.002	0.0	0	Pyrit impregnation

Sample	No. of	Sampling		Assay %	6 (Au. Ag g	/t)		Remarks
No.	drill hole	width (m)	Cu	Pb	Zn	Au	Ag	Kemarks
S-86	GSJ-14	5.00	0.010	_	<del>-</del>			Pyrite impregnation
S-87	GSJ-14	5.00	0.004	0.000	0.003			Pyrite impregnation
S-88	GSJ-14	5.00	0.004	_				Pyrite impregnation
<b>S</b> -89	GAJ-14	5.00	0.004	0.000	0.002	0.0	0	Pyrite impregnation
S-90	GSJ-14	5.00	0.002	_				Pyrite impregnation
S-91	GSJ-14	5.00	0.002	0.000	0.005			Pyrite impregnation
S-92	GSJ-14	5.00	0.001	_				Pyrite impregnation
S-93	GSJ-14	5.00	0.008	0.000	0.003	0.0	0	Pyrite impregnation
S-94	GSJ-16	0.65	0.564	0.000	0.004	0.0	1	Secondary copper ore
S-95	GSJ-16	2.60	0.162	0.000	0.007			Secondary copper ore
S-96	GSJ-16	2.50	0.103	0.000	0.007	0.0	0	Secondary copper ore
S-97	GSJ-16	2.20	0.172	0.000	0.005			Secondary copper ore
S-98	GSJ-17	5.35	0.002	0.000	0.007			Secondary copper ore
S-99	GSJ-17	1.90	0.025	0.000	0.005			Secondary copper ore
S-100	GSJ-17	1.00	0.620	0.000	0.005	0.0	0	Secondary copper ore
S-101	GSJ-17	1.40	0.111	0.000	0.003			Secondary copper ore
S-102	GSJ-17	2.00	0.021	0.000	0.005			Secondary copper ore

Apex. 2-5. Analytical data on core (Graphite)

	M	C		1	Assay %			
Sample No.	No. of drill hole	Sampling width (m)	Fixed carbon	Volatile material	Ash	Moisture	Fe <sub>2</sub> O <sub>3</sub>	Remarks
103	GSJ-10	0.05	66.8	7.3	24.8	1.1	5.86	Flake graphite Best quality at all

Apex. 3. Analytical data (Soil)

Sample	Location	As	say PPN	1	Sample	Longitor	Ass	say PPM	
No.	Location	Cu	Pb	Zn	No.	Location	Cu	Pb	Zn
1	XI.01, Y1.02	106	3	46	25	X1.08, Y7.08	79	4	43
2	X1.00, Y1.25	79	- 4	43	26	X1.42, Y1.02	114	3	45
3	X1.00, Y1.50	65	4	38	27	X1.42, &1.23	64	4	39
4	X1.00, Y1.75	82	6	57	28	X1.42, Y1.50	36	5	36
5	X1.00, Y2.00	62	5	44	29	X1.44, Y1.75	109	11	84
6	X1.00, Y2.25	92	6	58	30	X1.45, Y2.00	42	4	47
7	X1.00, Y2.50	52	4	54	31	X1.45, Y2.20	73	6	56
8	X1.00, Y2.75	45	6.	40	32	X1.50, Y2.44	56	6	61
9	X1.00, Y3.00	45	8.	58	33	X1.52, Y2.76	66	5	58
10	X1.00, Y3.27	59	4.	52	34	X1.52, Y3.00	59	, 6	44
11	X1.00, Y3.53	56	5	63	35	X1.53, Y3.17	81	9	80
12	X1.00, Y3.77	89	6	65	36	X1.53, Y3.44	48	7	57
13	X1.00, Y4.02	61	9	68	37	X1.52, Y3.72	77	5	54
14	X1.00, Y4.30	36	4	48	38	X1.53, Y4.00	50	5	49
15	X1.00, Y4.55	51	4	55	39	X1.51, Y4.22	26	5	48
16	X1.00, Y4.79	66	5	51	40	X1.51, Y4.60	40	5	46
17	X1.01, Y5.07	104	5	40	41	X1.51, Y4.95	55	5	47
18	X1.01, Y5.31	61	8	57	42	X1.50, Y5.25	24	4	41
19	X1.01, Y5.60	32	4	34	43	X1.50, Y5.50	59	7	51
20	X1.01, Y5.87	79	9	48	44	X1.51, Y5.75	61	7	42
21	X1.02, Y6.15	76	7	42	45	X1.51, Y6.00	54	5	43
22	X1.03, Y6.40	46	6	38	46	X1.51, Y6.27	69	7	47
23	X1.05, Y6.74	42	5	33	47	X1.52, Y6.51	53	5	37
24	X1.06, Y6.85	60	4	3' 37	48	X1.52, Y6.77	41	5	36

Sample		As	say PPM		Sample		Ass	ay PPM	[
No.	Location	Cu	Pb	Zn	No.	Location	Cu	Pb	Zn
49	X1.52, Y7.00	55	5	42	74	X2.07, Y7.10	41	7	33
50	X2.00, Y1.00	35	4	33	75	X2.55, Y1.00	33	5	33
51	X2.00, Y1.25	83	4	36	76	X2.55, Y1.25	74	8	54
52	X2.00, Y1.48	78	12	68	77	X2.55, Y1.50	62	8	55
53	X2.00, Y1.77	77	10	70	78	X2.55, Y1.76	74	9	73
54	X2.00, Y2.05	78	10	63	79	X2.55, Y2.00	. 90	15	127
55	X2.00, Y2.25	82	6	64	80	X2.55, Y2.25	66	6	61
56	X2.00, Y2.52	54	5	55	81	X2.55, Y2.48	39	6	57
57	X2.00, Y2.75	45	7	61	82	X2.56, Y2.72	40	6	47
58	X2.01, Y3.01	53	. 6	49	83	X2.60, Y2.95	33	7	46
59	X2.01, Y3.25	423	8	51	84	X2.55, Y3.00	59	9	61
60	X2.01, Y3.50	50	8	57	85	X2.53, Y3.25	70	8	62
61	X2.01, Y3.75	54	5	46	86	X2.53, Y3.50	52	8	50
62	X2.01, Y4.00	27	. 5	50	87	X2.53, Y3.75	29	7	42
63	X2.01, Y4.26	20	- 5	50	88	X2.00, Y3.95	18	6	43
64	X2.03, Y4.51	20	5	41	89	X2.50, Y4.00	20	4	42
65	X2.03, Y4.76	43	. 7	42	90	X2.48, Y4.25	16	4	36
66	X2.03, Y5.02	49	6	33	91	X2.48, Y4.50	25	5	38
67	X2.03, Y5.30	50	4	38	92	X2.48, Y4.75	42	4	31
68	X2.03, Y5.55	76	6	46	93	X2.50, Y5.00	18	4	25
69	X2.03, Y5.78	34	5	37	94	X2.50, Y5.25	56	4	38
70	X2.04, Y6.07	89	8	47	95	X2.50, Y5.50	47	4	37
71	X2.05, Y6.28	65	5	40	96	X2.50, Y5.75	55	4	40
72	X2.05, Y6.54	52	7	38	97	X2.50, Y6.00	99	9	50
73	X2.06, Y6.80	38	5	33	98	X2.50, Y6.25	74	6	44

Sample		As	say PPM		Sample	<b>T</b>	As	say PPM	
No.	Location	Cu	Pb	Zn	No.	Location	Cu	Pb	Zn
99	X2.50, Y6.50	68	10	41	124	M-3 anomaly	9	5	17
100	X2.50, Y6.75	61	6	38	125	M-3 anomaly	15	5	22
101	X2.50, Y7.00	40	6	35	126	M-3 anomaly	74	7	40
102	M-3 anomaly	69	5	45	127	M-3 anomaly	53	4	37
103	M-3 anomaly	338	6	40	128	M-3 anomaly	37	5	27
104	M-3 anomaly	51	8	24	129	M-3 anomaly	27	4	33
105	M-3 anomaly	705	6	33	130	M-3 anomaly	23	11	24
106	M-3 anomaly	182	5	32	131	M-3 anomaly	20	5	25
107	M-3 anomaly	24	5	26	132	M-3 anomaly	16	5	23
108	M-3 anomaly	36	7	28	133	M-3 anomaly	51	10	36
109	M-3 anomaly	48	8	31	134	M-3 anomaly	57	10	37
110	M-3 anomaly	53	8	30	135	M-3 anomaly	34	7	27
111	M-3 anomaly	47	6	33	136	M-3 anomaly	25 :	6	23
112	M-3 anomaly	42	6	30	137	M-3 anomaly	25	5	22
113	M-3 anomaly	35	5	25	138	M-3 anomaly	25	6	19
114	M-3 anomaly	29	5	23	139	M-3 anomaly	17	5	18
115	M-3 anomaly	41	5	27	140	M-3 anomaly	22	4	31
116	M-3 anomaly	17	5	13	141	M-3 anomaly	66	4	34
117	M-3 anomaly	16	5	11	142	M-3 anomaly	222	4	40
118	M-3 anomaly	12	. 5	10	143	M-3 anomaly	64	4	42
119	M-3 anomaly	19	5	27	144	M-3 anomaly	1,060	12	37
120	M-3 anomaly	47	5	34	145	M-3 anomaly	57	7	29
121	M-3 anomaly	48	4	31	146	M-3 anomaly	61	5	34
122	M-3 anomaly	16	5	30	147	M-3 anomaly	89	4	30
123	M-3 anomaly	11	5	23	148	M-3 anomaly	61	4	25

Sample	Location	A	ssay PPN	4	Sample	Location	As	ssay PPN	1
No.	Location	Cu	Pb	Zn	No.	Location	Cu	Pb	Zn
149	M-3 anomaly	22	4	25	167	M-3 anomaly	40	5	27
150	M-3 anomaly	29	6	26	168	M-3 anomaly	22	7	22
151	M-3 anomaly	15	5	32	169	M-3 anomaly	47	6	31
152	M-3 anomaly	15	4.	21	170	M-3 anomaly	62	7	38
153	M-3 anomaly	27	4	32	171	M-3 anomaly	62	8	36
154	M-3 anomaly	65	. 5	36	172	M-3 anomaly	75	9	39
155	M-3 anomaly	51	6	36	173	M-3 anomaly	71	8	41
156	M-3 anomaly	68	3	34	174	M-3 anomaly	69	7	42
157	M-3 anomaly	45	4	30	175	M-3 anomaly	61	9	41
158	M-3 anomaly	46	6	35	176	M-3 anomaly	68	8	49
159	M-3 anomaly	43	5	33	177	M-3 anomaly	67	8	47
160	M-3 anomaly	40	6	31	178	M-3 anomaly	80	8	50
161	M-3 anomaly	37	7	30	179	M-3 anomaly	81	8	49
162	M-3 anomaly	53	8	35	180	M-3 anomaly	82	9	52
163	M-3 anomaly	51	9	34	181	M-3 anomaly	73	8	50
164	M-3 anomaly	40	6	28	182	M-3 anomaly	86	9	52
165	M-3 anomaly	35	8	24	183	M-3 anomaly	100	9	57
166	M-3 anomaly	33	9	25					

#### List of Microscopic Observation (Thin Section) Apex. 4.

A-1 - A-40:

Geological sample

A-41 - A-74 :

Drilling core sample

## Abbreviation:

### Mineral:

q	quartz	si	siderite
kf	potash feldspar	ep	epidote
pl	plagioclase	chl	chlorite
mus	muscovite	tour	tourmaline
bi	biotite	ser	sericite
hb	hornblende	serp	serpentine
act	actinolite	gt	garnet
hyp	hyperthene	lm	limonite
срх	clinopyroxene	rt	rutile
op	opaque mineral	hm	hematite
int	magnetite	ta	talc
chr	chromite	py	pyrite
ap	apatite	cha	chalcedony
Zſ	zircon	mal	malachite
sph	sphene	ol	olivine
ca	calcite	gr	graphite
do	dolomite	leu	leucoxene

## Texture:

		<u> </u>	
holo	holocrystalline	sac	saccharoidal
gran	granular	crypto	cryptocrystalline
sch	schistose	рогь	porphyroblastic
gne	gneissose	oph	ophitic
mos	mosaic		
		1 1	

### Symbol:

1			T	
	•	abundant	٠. ۵	гаге
	0	common	×	very rare

Matsitama schist and metasedimentary group (upper, lower) A: B:

Mosetse river gneiss group (upper, lower)

U: Upper

Lower

No. X  A-1 5.50 2 5.00 3 5.20 4 6.50 5 6.40 6 5.30 7 5.40 8 6.30 9 6.20 10 6.10 11 4.88 12 8.41 13 8.41 14 5.54 15 5.55 16 5.58 17 4.99 18 4.73 19 3.50 20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	24.67 24.02 24.42 24.98 24.52 2.41 4.08 4.13 4.16 3.64 2.91 4.02	float outcrop float	amphibole schist serpentinite bi-hb gneiss calcrete serpentinite serpentinite hb-gn (?) serpentinite serpentinite serpentinite serpentinite serpentinite serpentinite supentin	0	•	pl m	* X	hb hb		hyp	срх	mt op. Δ	chr	ap z	r sph	ca	do si	Δ X A	chl m	ont ser	serp	gar lin	×	hm	ta py	leu	cha	mal	ool gr	Texture  sch  gne porb	B(U) B(U) B(L) B(U) B(U) B(U) B(U)	Polished section B-2 Gn or alteration product calcareous sediment
X  A-1 5.50 2 5.00 3 5.20 4 6.50 5 6.40 6 5.30 7 5.40 8 6.30 9 6.20 10 6.10 11 4.88 12 8.41 13 8.41 14 5.54 15 5.55 16 5.58 17 4.99 18 4.73 19 3.50 20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	23.95 23.62 24.38 23.25 23.86 23.74 24.67 24.02 24.42 24.98 24.52 2.41 4.08 4.13 4.16 3.64 2.91 4.02	float outcrop float	serpentinite bi-hb gneiss calcrete serpentinite serpentinite hb-gn (?) serpentinite serpentinite serpentinite serpentinite serpentinite syenite mus schist q schist calcareous q schist q schist mus-bi-chl schist tour-q schist fs quartzite	• • • • • • • • • • • • • • • • • • • •	•	0 0 0 4 3	× ×	•				ορ. Δ ο			Δ Δ	•	31	Δ X A	X		•	Δ	×		x					sch	B(U) B(U) B(L) B(U) B(U) B(U)	
2 5.00 3 5.20 4 6.50 5 6.40 6 5.30 7 5.40 8 6.30 9 6.20 10 6.10 11 4.88 12 8.41 13 8.41 14 5.54 15 5.55 16 5.58 17 4.99 18 4.73 19 3.50 20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	23.62 24.38 23.25 23.86 23.74 24.67 24.02 24.42 24.52 2.41 4.08 4.13 4.16 3.64 2.91 4.02	outcrop float	serpentinite bi-hb gneiss calcrete serpentinite serpentinite hb-gn (?) serpentinite serpentinite serpentinite serpentinite serpentinite syenite mus schist q schist calcareous q schist q schist mus-bi-chl schist tour-q schist fs quartzite	•	•	O O O O O O O O O O O O O O O O O O O	* X	Δ				0		x	Δ   X			Δ	•	8	•	:			×						B(U) B(U) B(L) B(U) B(U) B(U)	
3 5.20 1 4 6.50 5 6.40 6 5.30 7 5.40 8 6.30 9 6.20 10 6.10 11 4.88 12 8.41 13 8.41 14 5.54 15 5.55 16 5.58 17 4.99 18 4.73 19 3.50 20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	24.38 23.25 23.86 23.74 24.02 24.02 24.42 24.98 24.52 2.41 4.03 4.13 4.16 3.64 2.91 4.02	float float	bi-hb gneiss calcrete serpentinite serpentinite hb-gn (?) serpentinite serpentinite serpentinite serpentinite syenite mus schist q schist calcareous q schist q schist mus-bi-chl schist tour-q schist fs quartzite	•	•	O O O O O O O O O O O O O O O O O O O	* X	Δ				0		×	Δ   X			Δ	•	6	•	:			×					gne porb	B(U) B(L) B(U) B(U) B(U)	
4 6.50 5 6.40 6 5.30 7 5.40 8 6.30 9 6.20 10 6.10 11 4.88 12 8.41 13 8.41 14 5.54 15 5.55 16 5.58 17 4.99 18 4.73 19 3.50 20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	23.25 23.86 23.74 24.67 24.02 24.42 24.98 24.52 2.41 4.08 4.13 4.16 3.64 2.91 4.02	float float	calcrete serpentinite serpentinite hb-gn (?) scrpentinite serpentinite serpentinite serpentinite serpentinite syenite mus schist q schist calcareous q schist q schist mus-bi-chl schist tour-q schist fs quartzite	•	•	O O O O O O O O O O O O O O O O O O O	* X	Δ				0		×	Δ   X			Δ	•		•	:								gne porb	B(L) B(U) B(U) B(U)	
5 6.40 6 5.30 7 5.40 8 6.30 9 6.20 10 6.10 11 4.88 12 8.41 13 8.41 14 5.54 15 5.55 16 5.58 17 4.99 18 4.73 19 3.50 20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	23,86 23,74 24,67 24,02 24,42 24,98 24,52 2,41 4,08 4,13 4,16 3,64 2,91 4,02	float float	serpentinite serpentinite hb-gn (?) scrpentinite serpentinite serpentinite serpentinite syenite mus schist q schist calcareous q schist q schist mus-bi-chl schist tour-q schist fs quartzite	• • • • • • • • • • • • • • • • • • • •	•	O 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	x x	۵				0		×	x			Δ	•		•	:									B(U) B(U) B(U)	
6 5.30 7 5.40 8 6.30 9 6.20 10 6.10 11 4.88 12 8.41 13 8.41 14 5.54 15 5.55 16 5.58 17 4.99 18 4.73 19 3.50 20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	23.74 24.67 24.02 24.42 24.98 24.52 2.41 4.08 4.13 4.16 3.64 2.91 4.02	float float float float float float float float float float float float float float float float float float float float	serpentinite hb-gn (?) serpentinite serpentinite serpentinite syenite mus schist q schist calcareous q schist q schist mus-bi-chl schist tour-q schist fs quartzite	• • • • • • • • • • • • • • • • • • • •		ο <b>a</b>	x x	۵				0		×	x				•		•	:									B(U)	
7 5.40 8 6.30 9 6.20 10 6.10 11 4.88 12 8.41 13 8.41 14 5.54 15 5.55 16 5.58 17 4.99 18 4.73 19 3.50 20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	24.67 24.02 24.42 24.98 24.52 2.41 4.08 4.13 4.16 3.64 2.91 4.02	float float float float float float float float float float float float float float float float	hb-gn (?) scrpentinite serpentinite serpentinite syenite mus schist q schist calcareous q schist q schist mus-bi-chl schist tour-q schist fs quartzite	• • • • • • • • • • • • • • • • • • • •		ο <b>a</b>	x x	۵				0		×	x	•			•			Δ			x						B(U)	
8 6.30 9 6.20 10 6.10 11 4.88 12 8.41 13 8.41 14 5.54 15 5.55 16 5.58 17 4.99 18 4.73 19 3.50 20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	24.02 24.42 24.98 24.52 2.41 2.41 4.08 4.13 4.16 3.64 2.91 4.02	float float float float float float float float float float float float float float float float	serpentinite serpentinite serpentinite syenite mus schist q schist calcareous q schist q schist mus-bi-chl schist tour-q schist fs quartzite	• • • • • • • • • • • • • • • • • • • •		ο <b>a</b>	x x	۵						X	x	•			•		•	Δ	ļ						_			Gn or alteration product calcareous sediment
9 6.20 10 6.10 11 4.88 12 8.41 13 8.41 14 5.54 15 5.55 16 5.58 17 4.99 18 4.73 19 3.50 20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	24.42 24.98 24.52 2.41 2.41 4.08 4.13 4.16 3.64 2.91 4.02	float float float float float float float float float float float float float	serpentinite serpentinite syenite mus schist q schist calcareous q schist q schist mus-bi-chl schist tour-q schist fs quartzite	0		ο <b>a</b>	x x							X	x				•		•	Δ	•						- 1		Ban	
10 6.10 11 4.88 12 8.41 13 8.41 14 5.54 15 5.55 16 5.58 17 4.99 18 4.73 19 3.50 20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	24.98 24.52 2.41 2.41 4.08 4.13 4.16 3.64 2.91 4.02	float float float float float float float float float float float float	serpentinite syenite mus schist q schist calcareous q schist q schist mus-bi-chl schist tour-q schist fs quartzite	0		ο <b>a</b>	x x					•		x	x								4		×		· .	$\sqcup \bot$		<u> </u>		
11 4.88 12 8.41 13 8.41 14 5.54 15 5.55 16 5.58 17 4.99 18 4.73 19 3.50 20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	24.52 2.41 4.08 4.13 4.16 3.64 2.91 4.02	float float float float float float float float float float float	syenite mus schist q schist calcareous q schist q schist mus-bi-chl schist tour-q schist fs quartzite	0		ο <b>a</b>	x x					•		x	<del> </del>				0			×	<u> </u>		x .						B(U)	
12 8.41 13 8.41 14 5.54 15 5.55 16 5.58 17 4.99 18 4.73 19 3.50 20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	2.41 2.41 4.08 4.13 4.16 3.64 2.91 4.02	float float float float float float float float float	mus schist q schist calcareous q schist q schist mus-bi-chl schist tour-q schist fs quartzite	0		ο <b>a</b>	x x							x	<del> </del>						•				х						B(U)	
13 8.41 14 5.54 15 5.55 16 5.58 17 4.99 18 4.73 19 3.50 20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	2.41 4.08 4.13 4.16 3.64 2.91 4.02	float float float float float float float	q schist calcareous q schist q schist mus-bi-chl schist tour-q schist fs quartzite	0 0		Δ >	x x		:						x	1	, т	×				-					ļ			holo	B(U)	
14 5.54 15 5.55 16 5.58 17 4.99 18 4.73 19 3.50 20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	4.08 4.13 4.16 3.64 2.91 4.02	float float float float float float	calcareous q schist q schist mus-bi-chl schist tour-q schist fs quartzite	0		Δ >	x .					Ì I		i							$\perp \perp$		ļ							sch	A(U)	
15 5.55 16 5.58 17 4.99 18 4.73 19 3.50 20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	4.13 4.16 3.64 2.91 4.02	float float float float	q schist mus-bi-chl schist tour-q schist fs quartzite	0					-		1 1	$\vdash$			×														$\perp$	sch	A(U)	
16   5.58   17   4.99   18   4.73   19   3.50   20   6.64   21   5.00   22   4.81   23   5.05   24   5.03   25   2.52   26   3.33   27   4.08	4.16 3.64 2.91 4.02	float float float	mus-bi-chl schist tour-q schist fs quartzite	0				<del> </del>	1		<del>                                     </del>			_ _	<u> </u>	•	-   -				1-1	0	<b>-</b>					0	_ _		A(U)	
17 4.99 18 4.73 19 3.50 20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	3.64 2.91 4.02	float float	tour-q schist fs quartzite	•	- -		7 0			-		Δ			ļ	· .					-		-			X	ļ	-	$\perp$	sch	A(U)	
18 4.73 19 3.50 20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	2.91 4.02	float	fs quartzite	1	ļ			-	1				_		ļ				•		1-1	Δ.	<del> </del>		-	·		Δ		sch	A(U)	
19 3.50 20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	4.02	<del> </del>	<del></del>	1 - 1		_		-	1									×	•	_	+	Δ	×		<u> </u>	ļ ·		$\vdash$	_	sch	A(U)	
20 6.64 21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08			antonana a a a tala-a	<del>  </del>		•		_	<b>_</b>	<u> </u>			_		ļ	-	- -				$\perp \perp$					<u> </u>		$\vdash \vdash$			A(U)	Cu 5.84% S-3, B-6
21 5.00 22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08		outcrop	calcareous q schist	•		Δ			<u> </u>	ļi				×	-	•	-	_	Δ		$\perp \perp$	_	×			-			_	sch	, A(U)	Cu 5.45 S-4, B-7
22 4.81 23 5.05 24 5.03 25 2.52 26 3.33 27 4.08	8.52	<del> </del>	chl schist						4			Δ	$-\downarrow$	×	0		-		•		11		Δ			-		<b>  -</b>	_	sch	A(L)	
23 5.05 24 5.03 25 2.52 26 3.33 27 4.08		float	amphibole schist	Α		x		•	<b>_</b>				-	_	-		-	٥			11		X			1		$\vdash \vdash$		sch	A(L)	
24 5.03 25 2.52 26 3.33 27 4.08	10.44	float	calcareous schist		_	-+	x	_					_	$\perp$		•	44	_			1	-	$\bot$		_	1		$\vdash$	-	sac	A(L)	-
25 2.52 26 3.33 27 4.08	10.60	float	graphite schist	0	$\perp$		0	-	1					_					Δ		11	Δ	-						•	<u> </u>	A(L)	
26 3.33 27 4.08		<del> </del>	calcrete	0			×						_		-	•							+		_	ļ		$\vdash$		ļ	A(L)	
27 4.08		<del> </del>	limestone	$\vdash$			+	-	_	-		×	_			•					+ $+$		-					-		crypto	A(L)	
		<del> </del>	amphibole schist	Δ			×	•	-	-	-	Δ	$\dashv$	×				•	_		╂╌╂		×		·					sch	A(L)	
28 3.00			black schist	0	-			+		+-	$\vdash$				-	×	+	+	Δ		++		×			+		$\vdash$	+	sch	A(L)	
<del>- 1 - 1</del>	14.70	<del> </del>	q-chl schist altered basic rock	0		• A		+	<del> </del>				+	+		-	-	-	Δ		-  -		1	$\vdash$	-   -	-		$\vdash$	+	sch	A(L)	Sample from trench
		<del> </del>	altered basic rock	Δ		Δ		+	Δ				$\dashv$	_		•	+		•		++		-	$\vdash$	0					<u> </u>	A(U)	Sample from trench
	23.29	<del> </del>	serpentinite	-		_	+	+-	+			Δ	$\dashv$	-					-			x		<b>i</b> ——	×	+		-			A(U) B(L)	Dampto Hom General
	1.20		amphibole schist	Δ	-   ·	0		-	<del> </del>	-		×	-	+-	$\vdash$		+-	•			•	+^	+-			Δ		+	-	sch	A(U)	1 1 1 1 1 1 1 1
	1.00		amphibolite	Δ		0	•	┥		-	-	Δ			$\vdash \vdash$		-		x		╁╌╂							$\dashv$	+	3011	A(U)	
	5.80	<del> </del>	fs quartzite	•		Δ	+-	+	-			-	+	+	+-	Δ	+	-	<u> </u>	+	+ +	+	×			+			+		A(U)	
35 2.50		float	amphibolite	0		Δ	+	-					-			Δ	+				+-+		+	$\mid - \mid$		×			$\dashv$	<b> </b>	A(U)	
36 1.50		L	calcareous schist	Δ	-	×	+	Δ			$\vdash$		_	×	-	•	++		_				×	-	_	+				sch	A(U)	
	4.10		actinolite schist	Δ		^ ×	+	+		$\vdash$		Δ	$\dashv$	+^	$\vdash$	-	++	×		,	1		<del>  ^</del>		-	×		_+	-	sch	A(U)	
	7,10		amphibolite	0			+	-							<del>  </del>		+	Δ				-	1	$\vdash \vdash$		Δ		_	-		A(U)	<del> </del>
39 11.30	4.06		quartzite				_ -	╅	<del>                                     </del>	+		Δ			$\left  - \right $		╌╁┶┼							LI.		-			-	mosaic		
40 11.10 1	4.06	float	ORSHADE		1 4	x   >	a :	1	1	, 1		- 1		- 1	1			- 1	i	ı	1 '	ı	_			1		١ ١	1		B(U)	1

Apex. 4-2 List of microscopic observation (Thin section of drilling core sample)

	Samp	le					···································						• • • • •						Mir	eral			···															
No.	Drill hole	Sampling depth (m)	Rock	q	kf	pl	mus	bi	hb	act	hyp	срх	mt op	chr	ар	Zr	sph	ca	do	si e	p cl	hl t	our	ser	serp	gt	lm	rt l	ım t	ару	len	cha	mal	ol	qr	Texture	Geology	Note
A-41	GSJ-1	51.50	tourmaline			Δ		۵				†	Δ				1	-	_	+	x	Δ	•				х						-	<del> </del>			B(U)	
42	GSJ-2	20,75	chromite											•								$\top$			. 0		1			-				<u> </u>			B(U)	Cr <sub>2</sub> O <sub>3</sub> 31.70% S-48, B-14
43	GSJ-2	38.40	chromite															×							. 0			x									B(U)	Cr <sub>2</sub> O <sub>3</sub> 26.70% S-50, B-15
44	GSJ-2	67.15	hb gneiss	Δ		•			O					-	х				ļ	,	, ,	<		Δ			7	x								gne, porb	B(U)	
45	GSJ-2	100.20	serpentinite					0					Δ		Δ										0		1	۵				1				<u> </u>	B(U)	
46	GSJ-3	20.40	hb gneiss	0					•						Δ						Δ					Δ	x	x		1	-					gne	B(U)	
47	GSJ-3	33.00	serpentinite										Δ					0											×			Τ.		Δ			B(U)	Peridotite origin
48,	GSJ-3	46.40	serpentinite										Δ					0				-			•				4			1		0			B(U)	Peridotite origin
49	GSJ-3	55,75	hb gneiss	٠		•		Δ	0				х		۵	Δ						×		×			Δ		.							gne	B(U)	
50	GSJ-4	34.45	bi schist			x		9				-			x								×			×				7						sch		Porphyroblast: garnet
51	GSJ-4	38.55	bi schist	•		x		•							×			х			T		×			. Δ	х					1				sch	B(U)	
52	GSJ-4	91,00	bi gneiss	•		0		0							Δ	×						×		×				$\top$		1		1				gne	B(U)	
53	GSJ-6	47.55	amphibole schist			×		٠					×					х .		4	7		×					7	1	1						sch	A(L)	B-16,
4	GSJ-7	42.90	graphite schist	0									•			×	×			_	,	×					х	:	1	1						: "	A(L)	
55	GSJ-7	78.55	graphite schist	Δ			•	Δ					•								. 4	۵					Δ	x		<b>†</b>	-	-					A(L)	
6	GSJ-8	52,90	basalt			•	-				:		٥								-	0						1	_							oph	A(L)	<u> </u>
57	GSJ-10	53.75	graphite schist	٥			, × -						•					Δ									х							-	•	sch	A(L)	fixed carbon 66.8%, S-103, B
58	GSJ-11	34.80	bi-q schist	•				0					Δ		x	×	1		T			,	,			7		×		1		<u> </u>				sch	A(U)	B-20
59	GSJ-12	66.00	mus-bi-chl schist	0			0	•					Δ			×		Δ				,												7	$\neg$	sch	A(U)	
50	GSJ-13	29.30	mus-bi schist	•		Δ	Δ.	•					Δ		×	×	-	×				٠ ,						×		+		<u> </u>			$\neg \uparrow$	sch	A(U)	
51	GSJ-13	84.50	bi-mus schist	•		Δ	0	Δ					Δ					Δ								7		x	1		1	<u> </u>	$\Box$			sch	A(U)	
2	GSJ-14	46.50	mus-bi schist				٥	•					Δ							,		١,						x	1			<u> </u>		1	1	sch	A(U)	
3	GSJ-14	63.00	mus-q schist	•		×	0.	: -						_	×.			x				1			$\top$			×			$\vdash$	<del> </del>			$\neg$	sch	A(U)	Pyrite impregnation, B-22
4	GSJ-15	24.00	bi-act schist			Δ		•		•			Δ			×		Δ		×							×	×						$\exists$		sch	A(Ü)	
55	GSJ-15	38.00	bi-mus schist	•	].		٠	•					Δ		×	×		ŀ				3 ,	,					$\top$				$I^-$		7		sch	A(U)	
6	GSJ-16	27.50	dolerite	x		Δ		x	×		7	•	Δ		х			x		1	7	7			1	1		+	Δ	-	<del> </del>			_		oph	A(U)	
7	GSJ-16	41.75	skarn									•	x					Δ			Δ							$\top$	Δ			ļ —			1			after basic rock, Cu 0.564%, S-94, B-23
8	GSJ-16	66.00	bi-mus schist	•			0	Δ		anth _			Δ			x						х	_		$\top$	1	-	×	1	1	1					sch		anth: anthophyllite
9	GSJ-16	80.70	talc-carbonate rock												$\top$	$\top$		•	-	T	0	1	-		_	1		$\top$	•	1	×	<b></b>		+			A(U)	
0	GSJ-16	90.85	talc-carbonate rock						:	1			х		1	1		•	1		1		_			$\dashv$	×	+	0	1-	T	<b>-</b>		$\dashv$			A(U)	
1	GSJ-17	32.70	skarn					x				•			x			x		1	Δ		1	-	1	•	-	+	+	<del>                                     </del>	1	-		+	+	<del></del>	1.77	skarn by aplitization of altered rock Cu 0.620 S-100, B-23
2	GSJ-17	65.00	tale-carbonate rock					Δ		1			Δ	$\top$		$\top$		•		1	0		-	_	+	$\top$		$\top$	0	<del> </del>	1			_	-		A(U)	100k Cu 0.620 S-100, B-23
3	GSJ-17	96.50	bi-mus schist	•		$\uparrow$	0	۵							x	$\top$		$\dagger$	1	$\top$	Δ		-	$\dashv$	+			+	Δ	-	×			$\dashv$	$\dashv$		A(U)	
4	GSJ-18	61.00	gt-bi-hb gneiss	0	4	•		Δ	0				Δ	+		×		$\top$	1	1	1	+	+	$\dashv$	+	Δ	)	×	+-		1	<u> </u>	$\vdash \vdash$	-+			B(L)	

Apex. 5-1. List of Microscopic Observation (Polished Section - Geological Sample)

			.			•
Comple No	Lo	Location		14		
Sample 190.	×	Ϋ́	Sampie	Name	Description	Note
B-1	4.90	23.73	Float	Chromite	Grain size 0.3-0.6 mm (range 0.03-1.0 mm). Reflectivity and iron content of the outer part of chromite is higher than those of the inner part. Sample has some magnetism.	Cr <sub>2</sub> O <sub>3</sub> 27.8% S-10
B-2	5.40	24.67	Float	Magnetite in serpentinite	mt grains (0.05–0.6 mm) fills the space of olivine (now chlorite). Periphery of mt is replaced by hm.	A-6
B-3	4.99	24.55	Float	mt-hm quartzite	hm > mt. mt: 0.1 mm, mt is replaced by hm.	
B4	4.90	24.48	Float	Chromite	Grain size 0.2-0.4 mm (0.04-0.6 mm). Ore is crushed.	Cr <sub>2</sub> O <sub>3</sub> 34.9% S-30
B-5	5.50	4.10	Float	Green copper	Malachite and thin film of co in schist	Cu 5.74%
B-6	5.50	4.10	Float	Green copper	Malachite and cc fill the space of grains of schist.	Cu 5.84% A-14
B-7	5.60	4.16	Float	Green copper	Malachite and cc fill the space of grains of schist. cc : besides above, it show veinlet form.	A-16
<b>B</b> -8	2.00	1.02	Float	Green copper	Malachite and cc fill the space of grains of schist. cc : besides above, it show veinlet form.	Cu 8.14% S-6
B-9	1.50	3.65	Float	Green copper	Goethite ≽ cc	
B-10	5.27	23.88	Trench (T-3)	Chromite	Grain size 0.1–0.4 mm (0.04–0.6 mm).	Cr <sub>2</sub> O <sub>3</sub> 33.9% S-38
B-11	5.34	23.92	Trench (T-11)	Chromite	Grain size 0.1–0.3 mm (0.02–0.6 mm).	Cr <sub>2</sub> O <sub>3</sub> 35.8% S-43
B-12	4.66	23.31	Trench (T-15)	Chromite	Grain size 0.15 mm (0.02-0.6 mm).	Cr <sub>2</sub> O <sub>3</sub> 30.1% S-46

Abbreviation of term is same as that of Apex. 4.

Apex. 5-2. List of Microscopic Observation (Polished Section - Drilling Core Sample)

Note	Cr <sub>2</sub> O <sub>3</sub> 27.3% S-47, A-42	Cr <sub>2</sub> O <sub>3</sub> 31.7% S48, A43	3 26.7%				Fixed carbon 66.8% S-103, A-57				Cu 0.564% S-94, A-67	Cu 0.620% S-100, A-71
	Cr <sub>2</sub> C S-47,	Cr.20 848,	Cr <sub>2</sub> O <sub>3</sub> S-50	A-53				A-58		A-63	Cu 0.564% S-94, A-67	Cu 0
Description	Grain size 0.3-0.6 mm (range 0.03-1.0 mm). Reflectivity and iron content of the outer part of chromite is higher than those of the inner part. Sample has some magnetism.	Grain size 0.2-0.6 mm (0.04-0.8 mm). Chromite has not pleochroism, but has week strange anisotropism (?).	Grain size 0.2-0.6 mm (0.04-0.8 mm). Chromite has not pleochroism, but has weak strange anisotropism (?).	$cp \gg py > hm$ , cc. cp 15 mm, py, hm cc in cp. py : euhedral grain or veinlet, cc 0.04-0.2 mm.	hm > cp > py, hm: thin lamellar, radiated, $L=2 \text{ mm}$ , cp: 0.1-0.4 mm, py: euhedral 0.3-0.7 mm.	hm ≥ cc, hm: 0.01–0.04 mm, impregnated in amphibole schist. cc is very small grain and is contained in hm.	Small grain of hm (0.01–0.3 mm) is contained in graphite schist. This graphite isn't polished smooth for identification.	hm (0.03-0.3 mm) is destributed widely in this schist.	Native copper, hm in schist, native copper: fills the space of grain, 0.01-0.2 mm, hm: 0.002-1 mm.	py and hm: impregnated along schistosity. py ≥ hm, py: 0.02-3 mm, hm: 0.02 mm.	cc ≥ bo, cc: 0.02-0.4 mm, bo: 0.01 mm, in cc.	cc: 0.05-0.15  mm, many small grains of $cc$ fill the space of skarn minerals.
Name	Chromite	Chromite	Chromite	Copper ore (amp schist)	Copper ore (amp schist)	Copper ore (amp schist)	Graphite (graphite schist)	mus-bi-q schist	Native copper (amp schist)	Pyrite (mus-q schist)	Copper ore (talc-carbonate)	Copper ore (skarn)
Depth (m)	13.20	20.75	38.40	47.55	55.80	82.80	53.75	34.80	79.65	63.00	41.75	32.70
No. of drill hole	GSJ-1	GSJ-2	GSJ-2	GJS-6	GSJ-6	GSJ-6	GSJ-10	GSJ-11	GSJ-11	GSJ-14	GSJ-16	GSJ-17
Sample No.	B-13	B-14	B-15	<b>B</b> -16	B-17	B-18	B-19	B-20	B-21	B-22.	B-23	B-24