4-1-5 Resistivity and FE Plans

For this survey, high FE zone possessing mineralization shows good coincidence with low resistivity zone with value of less than $100~\Omega$ -m. It is understood as that it is the bed with rich porosity widely effected by alteration around zone of mineralization. In order to examine the correlation, plane map is made by every electrode separation factor of (n). Plane map of apparent resistivity is shown in Fig. III-9-1, and the one of FE is in Fig. III-9-2.

In addition, it is apt to lead misunderstanding about deep anomaly, then, interpretation must be done with great care. This means, with anomaly setting by dipole-dipole electrode

1=1

anomaly source

arrangement showing inverse V shape anomaly, fake anomaly appears on plane map cutting at n=3, 4 and 5. This is the reason why it is called as pseudo-section.

For this survey, anomaly of plane map shows the trend of spreading toward north since real anomaly source is south dipping.

For low resistivity plane map, low resistivity zone against distribution of sedimentary rocks is detected at the area range from center toward north of the survey area. This distribution is widely recognized under the capping of andesite on survey line P.

Low resistivity pattern of deeper than n=3 is distributing toward north and east-west of measuring point No. 5.

Neanwhile, anomaly is detected at northern end of each survey line of B, D, E, H and I as shallow indication in n=1 for FE plane map. It is consider—to be caused by disseminated sulfide widely spread at boundary surface of granodiorite and mudstone — sandstone and is indicating that granodiorite is successive at the depth.

At No. 5 \sim 6 of survey line C, there is another isolated anomaly at n=2, 3 caused by massive sulfide examined by its spectral form. At No. 5 \sim 6 of survey lines D and E, weak spread of anomaly towards east is perceived with small texture.

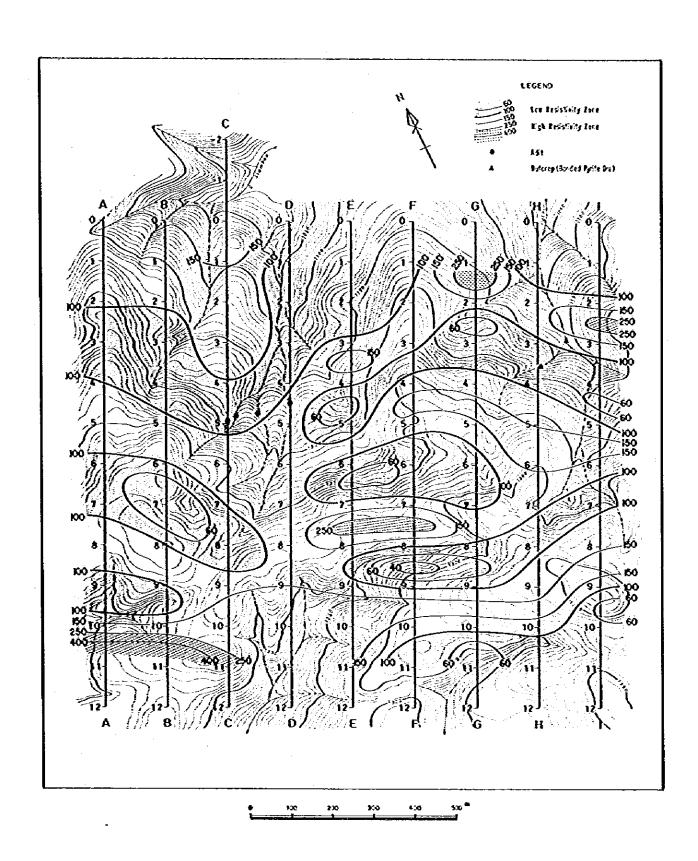


Fig. III-9-1.1 Plan Map of Apparent Resistivity [N = 1]

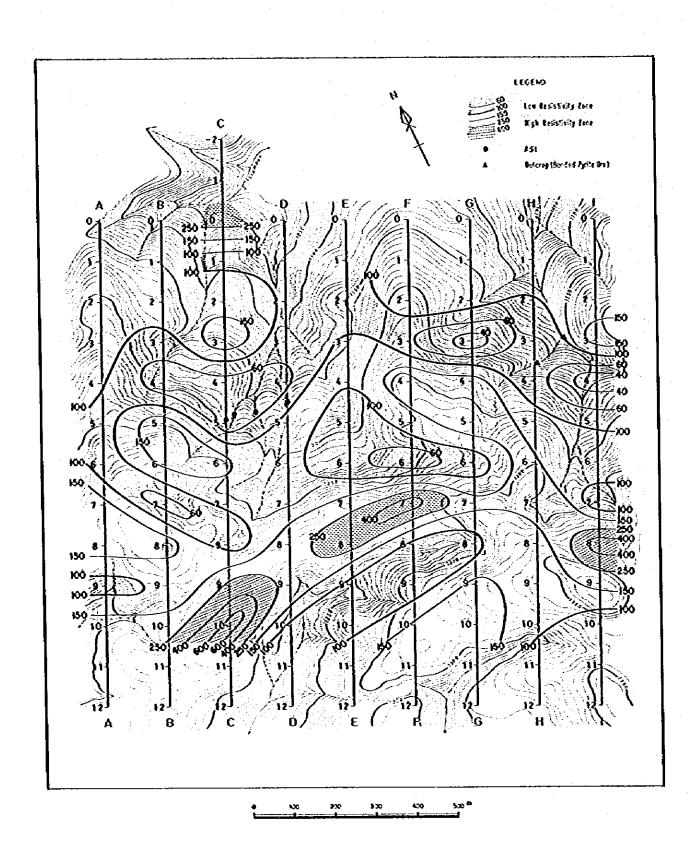


Fig. III-9-1.2 Plan Map of Apparent Resistivity (N = 2)

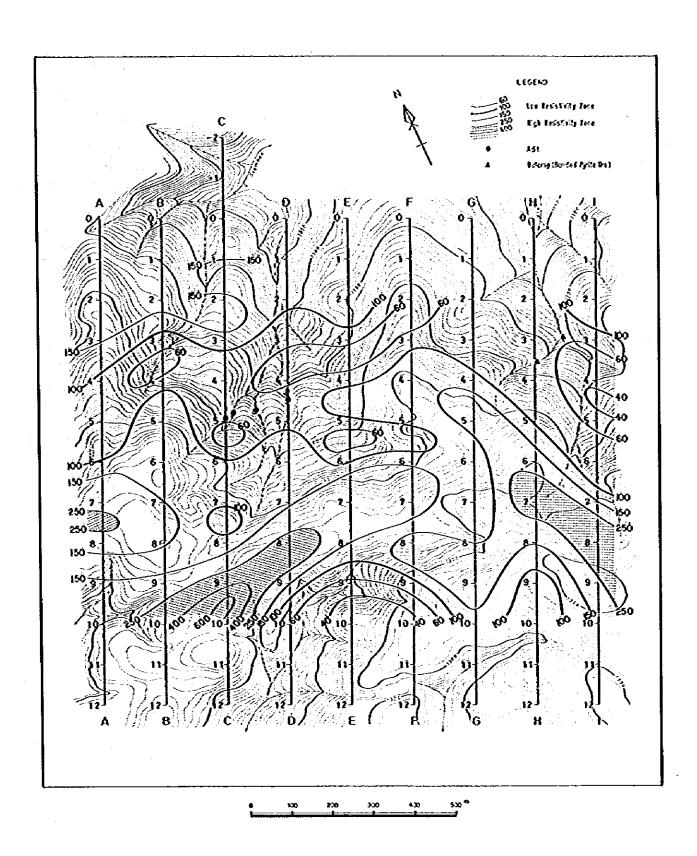


Fig. III-9-1.3 Plan Map of Apparent Resistivity [N = 3]

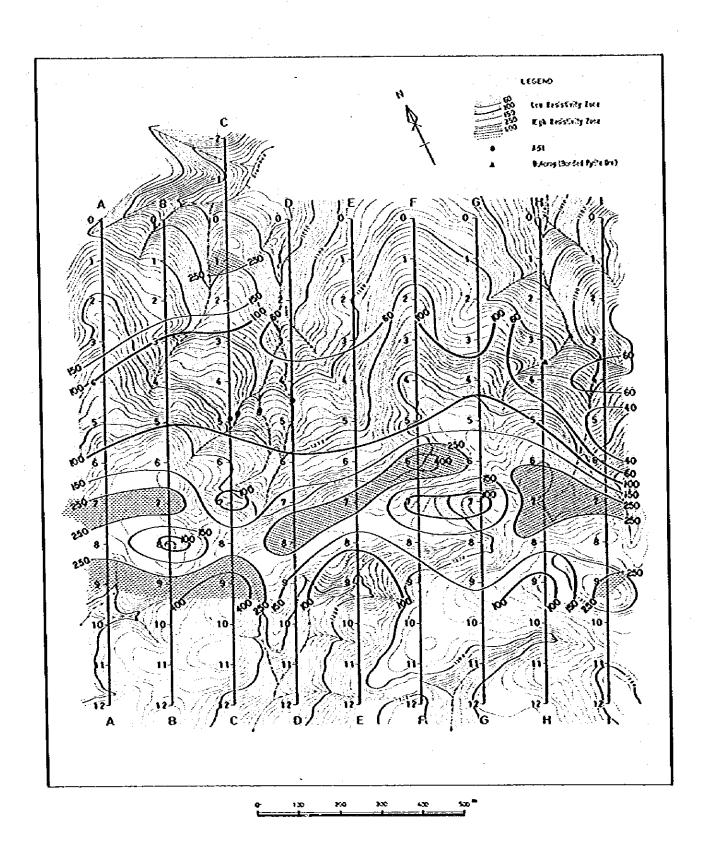
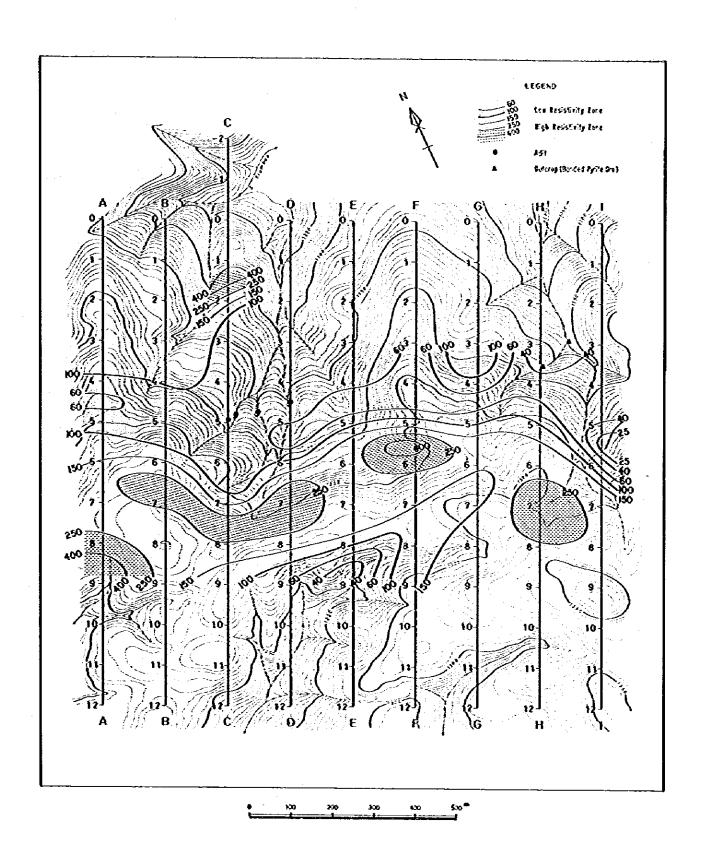


Fig. III-9-1.4 Plan Map of Apparent Resistivity (N = 4)



Pig. III-9-1.5 Plan Map of Apparent Resistivity (N = 5)

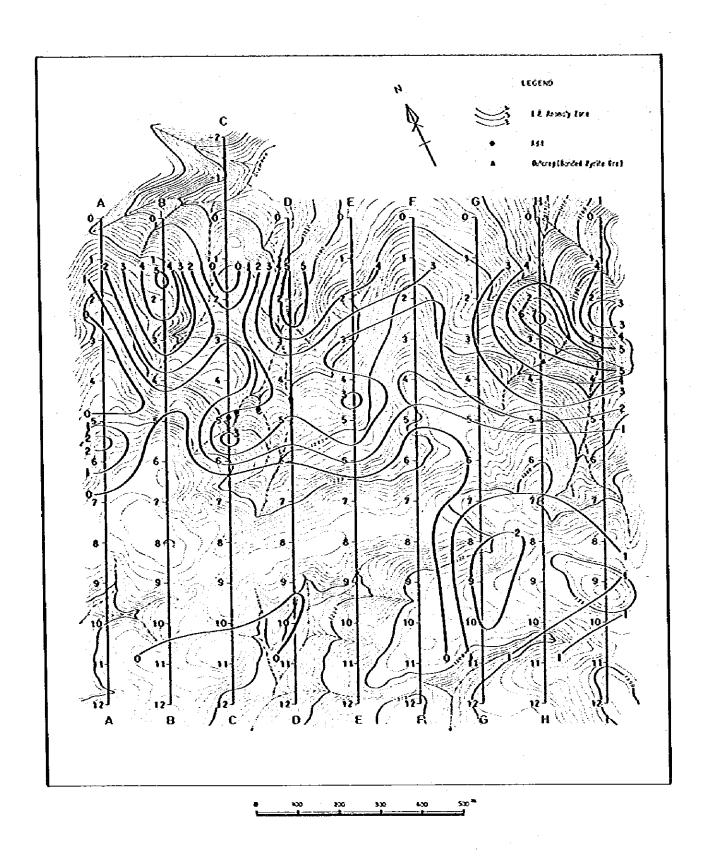


Fig. III-9-2.1 Plan Map of Percent Frequency Effect (N = 1)

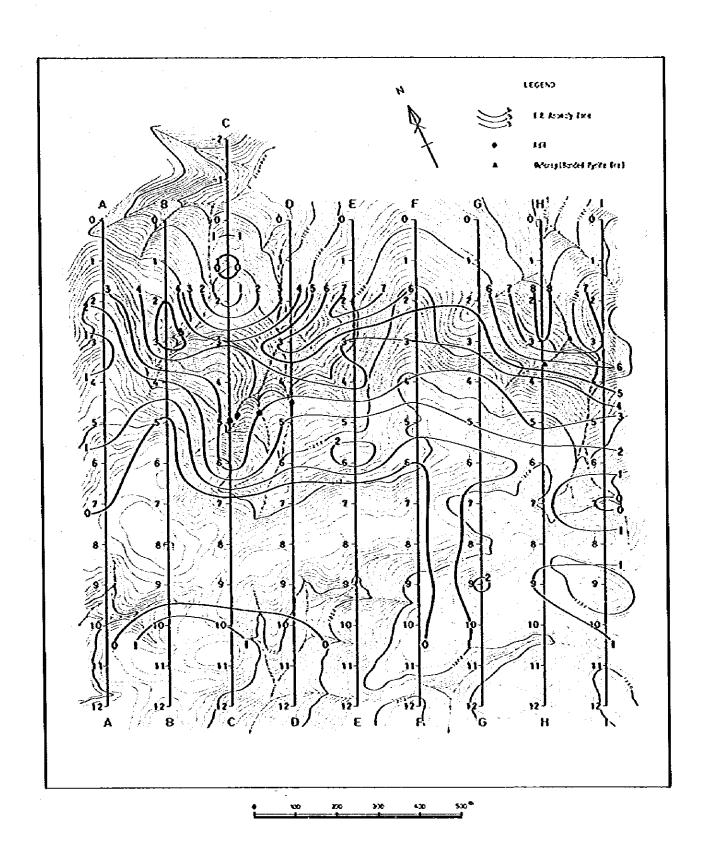


Fig. III-9-2.2 Plan Map of Percent Frequency Effect [N = 2]

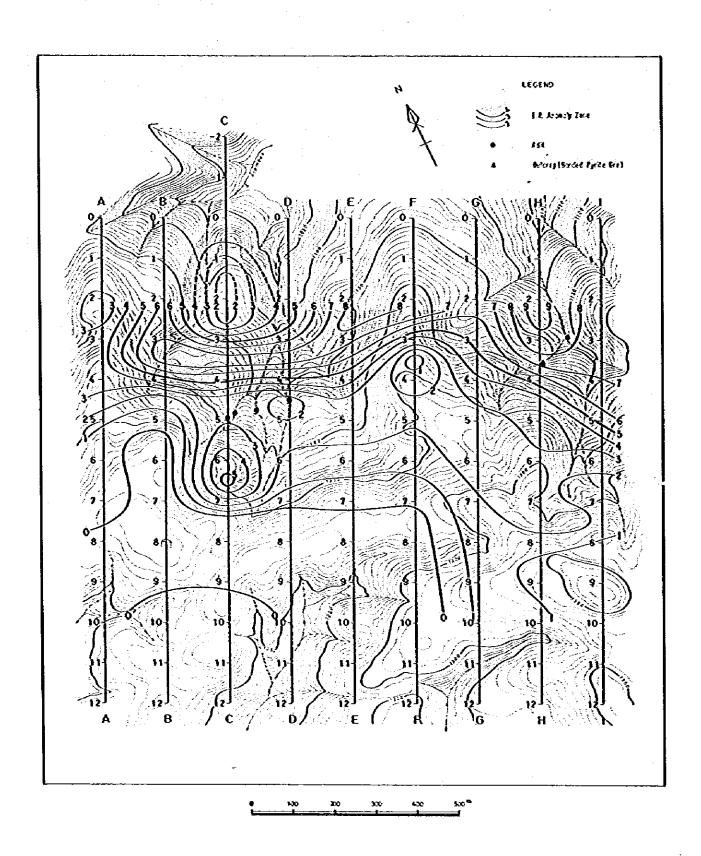


Fig. III-9-2.3 Plan Map of Percent Frequency Effect [N = 3]

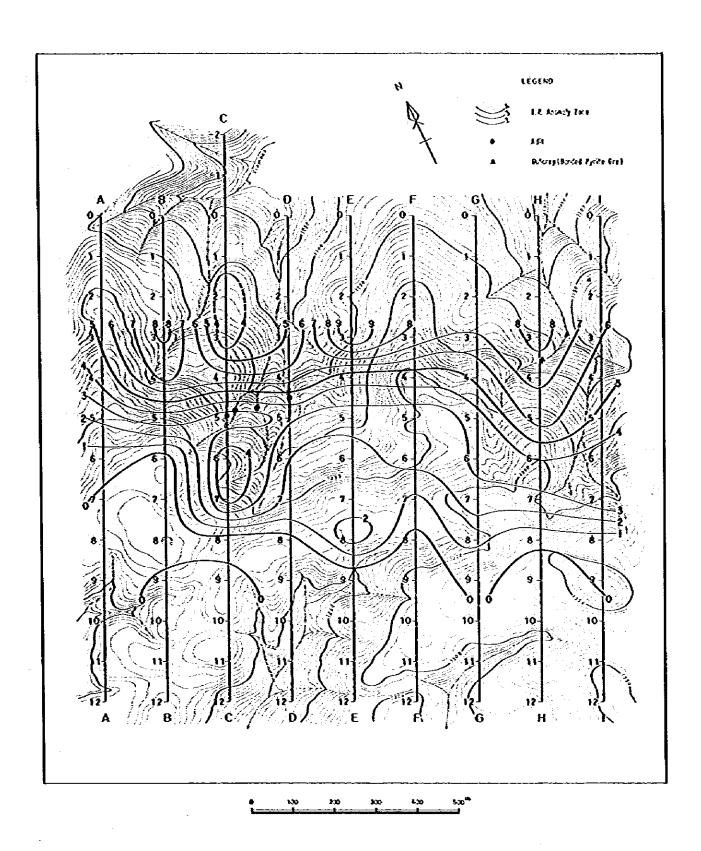


Fig. III-9-2.4 Plan Map of Percent Frequency Effect [N = 4]

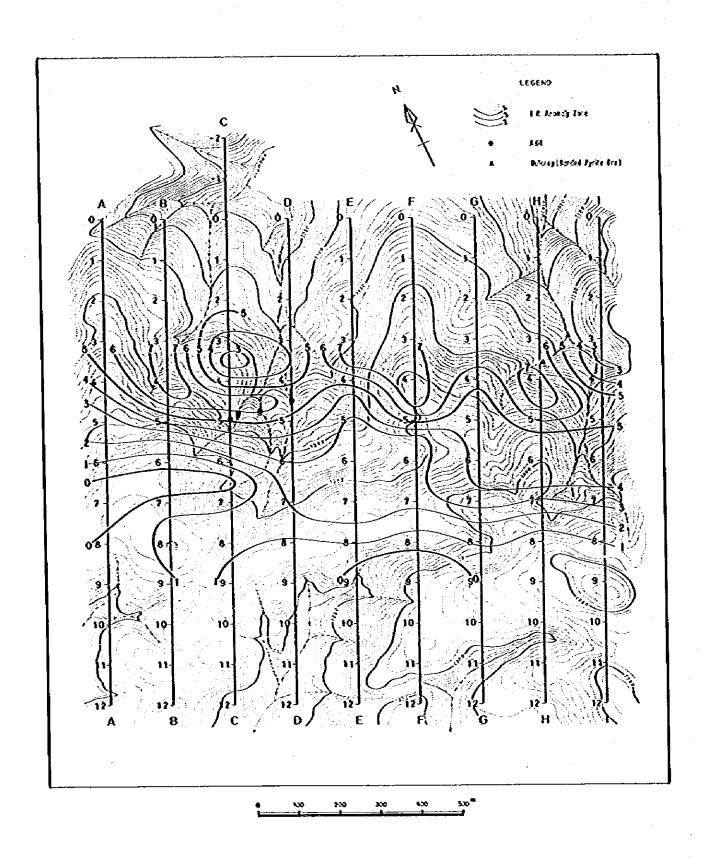


Fig. III-9-2.5 Plan Map of Percent Prequency Effect [N = 5]

For pseudo-section caused by disseminated sulfide zone spreading from the shallow, careful interpretation is needed since real anomalous source is shallow and is small scale even though anomaly spreads widely at the depth.

4-2 OTHER GEOPHYSICAL DATA

gradient in the State of the state of the state of

In the past in Muara Sipongi area, geophysical surveys such as self potential method, magnetic survey and IP method were conducted by the Directorate of Mineral Resources, and some data were taken and mapped in the present survey area.

Those surveys cover the northeastern part of line C and the line spacing is 400 m as they are the reconnaissance surveys.

Comparison of the present SIP survey with the former one are as follows: Self Potential Method (SP)

Negative anomalies are usually observed above the ore deposit and the mineralized zone. In this area, background of SP survey seems to be -10 mV, so that SP anomalies are separated into a weak anomaly of -30 ~ -50 mV and a strong anomaly of less than -50 mV to delineate the anomalous zone.

In the northern part of this area, NN-SE trending anomalous belt was confirmed with less -70 mV negative anomaly around No. 1 ~ 2 of line D as its center.

Anomaly of less than -50 mV extend to No. 1 of lines E and F, and the weaker anomaly extend to line I. Another weak anomaly are seen around No. 4 of lines E and F.

Meanwhile, at No. 5 of line C near the outcrops of the ore deposit, potential gradient is small within a weak anomaly zone of -20 mV. This -20 mV contour, showing closed circle towards east where limestone is distributed may extend towards west.

SP anomaly belt in the north correspond with the southern boundary of granodiorite, which agree with the northern anomaly of this SIP survey caused by pyrite mineralization.

Weak anomalies around No. 4 on lines E and F locate in the eastern extension zone of the outcrops, but negative anomaly is weak and source can not be identified from the geological features.

Magnetic Method is story and also a manager with the second a result of the

Magnetic anomaly is characterized by three anomalous zones: comparatively strong anomaly belt running in the middle of survey area in NW-SE direction, nothern part of lines C and D, and the eastern part of the area. Hagnetic anomaly detected in the center of the area is the strongest around No. 5 of line H, with a tendency to expand to the east. However, no magnetic body are found on the surface, and basic rock is assumed to exist at the depth.

Anomaly on lines C and D are attributed to the Tertiary andesite dikes found on the surface at No. 1 of line C and No. 3 of line D.

In the south of No. 6 of lines C and D, a weak anomaly was detected, which is interpreted as being due to andesitic tuff on basic volcanic rocks.

Around No. 5 of line C and No. 4 of line D near the outcrop, a pair of high and low weak magnetic anomalies are detected matching on limestone surrounded by mudstone and sandstone. This anomaly is considered to be mainly due to pyrrhotite in the contact ore deposit.

It is interpreted as that anomaly is limited in the limestone, so that the distribution of limestone is limited within the surface distribution, or as that content of magnetic mineral decrease outside of the limestone.

IP Method

As the results of IP survey, five IP pseudo-sections for lines A, II, III, IV and V were obtained. This IP method is a conventional one using 0.3 and 3.0 Hz with an electrode spacing being 50 m. Electrode separation factor is n=1 ~ 4, so that this method was a shallow survey.

Judging from each pseudo-sections, more than 5% is interpreted as "anomaly" and the anomalous zone is shown on Fig. III-10-1.

Strong IP anomalies are detected in the northern part of the area at the southern boundary of granodiorite, continuous anomaly of No. 2 and No. 3 of lines G, H and I, and a weak shallow anomaly at No. 4 - 5 of lines F - I. The former two coincide with FE anomaly detected in this SIP survey. The latter one is the shallow anomaly source at the depth of 75 m and in the west of this shallow anomaly, outcrops of lines C and D are seen, so that this anomaly must be related with this mineralization. The reason why SIP anomaly was not detected here is believed to be due to the wider electrode spacing of 100 m.

4-3 HODEL SIMULATION FOR SIP ANOMALY

Among the several eminent SIP anomalies detected in this survey, one detected around No. 5 of line C (West ore deposit) and one around No. 4 of line H (East ore deposit) are interpreted as the most promissing anomalies in this area.

Then, model simulations were applied for those anomalies by assuming PPE and resistivity model based on the physical property measurement. In order to get the closest calculated value to the observed value, more than ten times of calculations have been tried and their results are shown on Fig. III-9-3.1, 3.2.

Line C (Fig. III-9-3.1)

There are three massive anomalies detected on this line; between No. 5 and No. 6, between No. 3 and No. 4, and north of No. 2, for which three kind of codes, "8" (resistivity of 50 Ω -m, PFE of 10%), "5" (resistivity of 1,000 Ω -m, PFE of 10%) and "4" (resistivity of 1,000 Ω -m, PFE of 10%) correspond to them respectively.

Resistivity and PFE of other non-anomalous area are assumed by rock sample measurement and the model structure by geological section attached.

Results of Simulation

As for apparent resistivity distribution, low resistivity zone around No. 5 is generally fit well with the observed value, except north of No. 2 and south of No. 10 because of the end-effect of the line, where the correlation with the observed value are not sufficient, but general tendency of the calculated value look like that of the observed value.

As for PFE, a pants leg shape under No. 5 and high PE pattern under No. 3 can be calculated close to the observed value with a slight change in their shapes. It may be due to the high resistivity andesite dikes seen between No. 0 and No. 3 which affect considerably to the calculation of FE, and due to the end-effect of the line.

Line H (Fig. 111-9-3.2)

On this line, strong PFE anomaly was detected at the northern part of No. 4 at the depths. There are high resistivity zone between No. 6 and No. 8 at the middle to deep zone, with comparatively high PFE values. For those sources, code number 5, 6 and 7 correspond to PFE of 10 ~ 25%, resistivity of 50 ~ 100 Ω -m model between No. 3 - No. 5.5.

en en trons, invalvo en 12 de Britaning, en 18 mai men men met in en volende grans. Si Le la compacta de l Les la compacta de la La compacta de la compacta del compacta de la compacta de la compacta del compacta de la compacta de la compacta del compacta del compacta de la compacta del compacta del compacta de la compacta del compacta de la compacta de la compacta del compa

(i) I partition of the first of the control of t

on the state of the state of the second

(b) A distribution of the control of the control

and the second of the second o

$\{\{x_{k+1}, x_{k+1}, x_{k+1},$

The state of the s

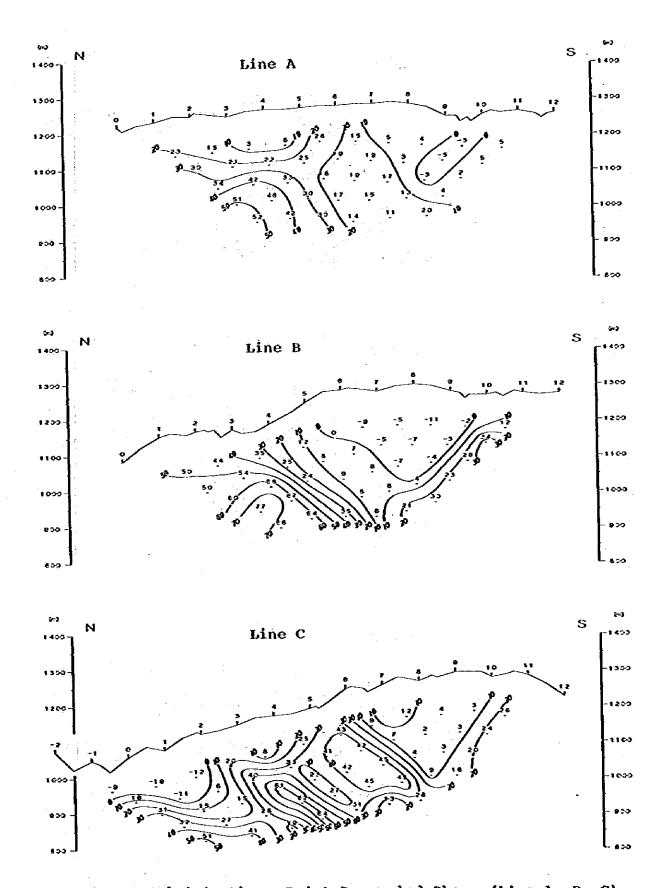
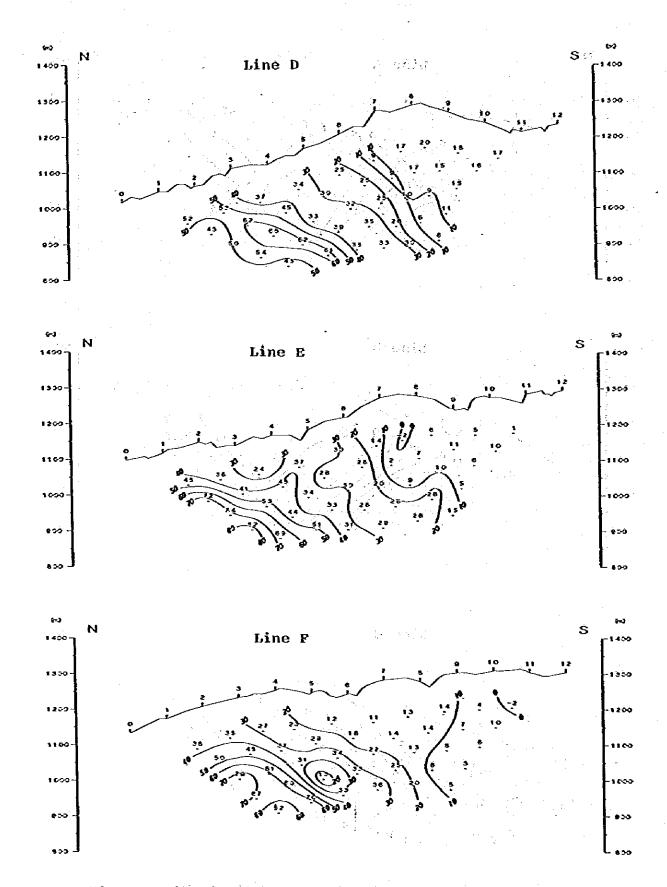


Fig. (III-8-1.1 Three-Point Decoupled Phase (Line A, B, C)



Pig. III-8-1.2 Three-Point Decoupled Phase (Line D, E, F)

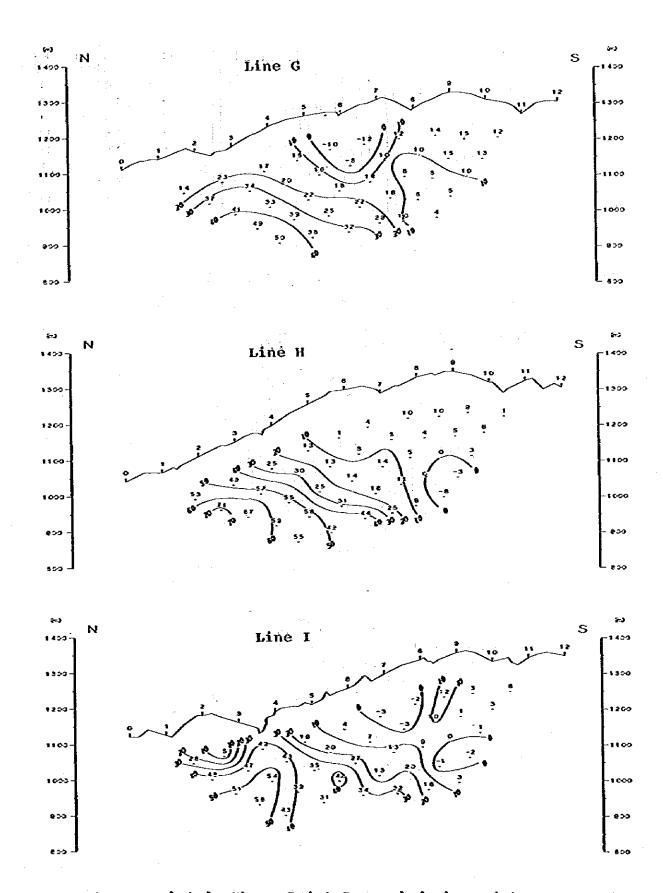


Fig. III-8-1.3 Three-Point Decoupled Phase (Line G, H, I)

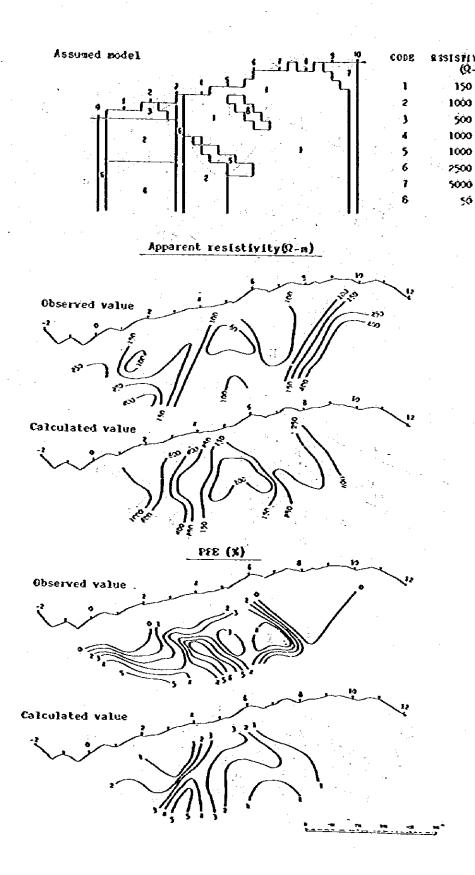


Fig. III-9-3.1 Model simulation for Line C again

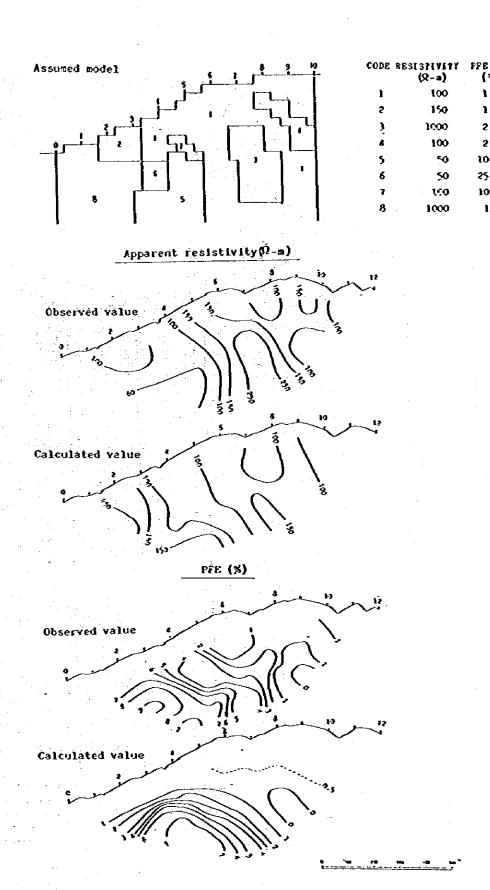


Fig. III-9-3.2 Model simulation for Line H

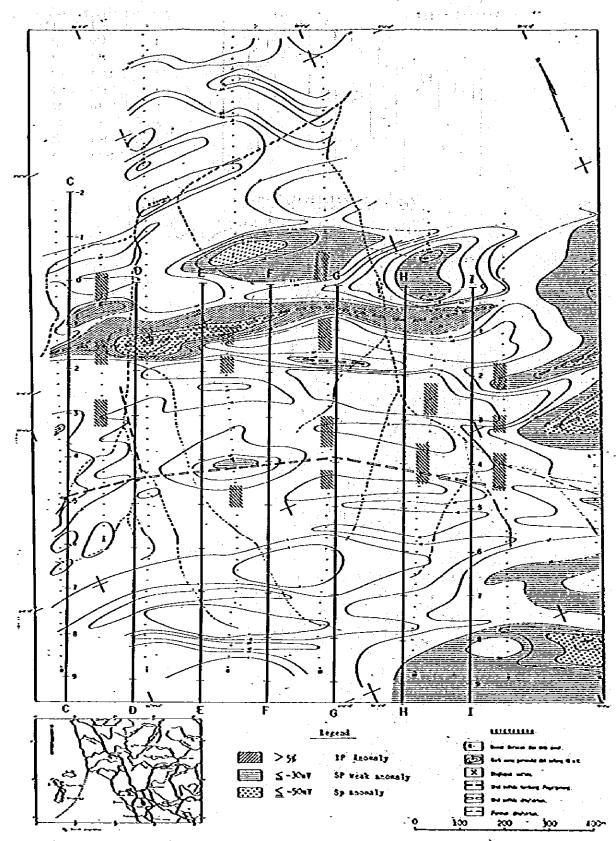


Fig. III-10-1 SP & IP Anomaly Map

(From RiMarioen 1981, courtesy of D.M.R.)

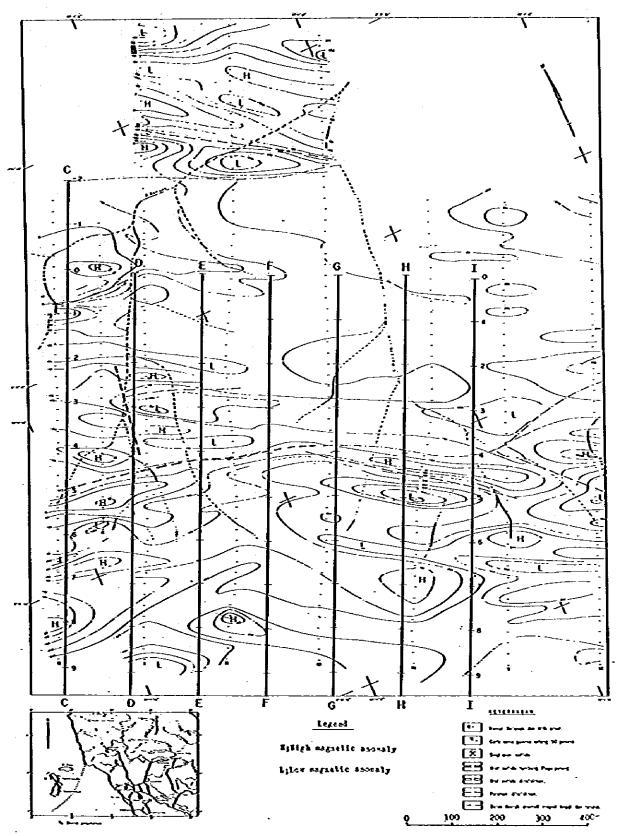
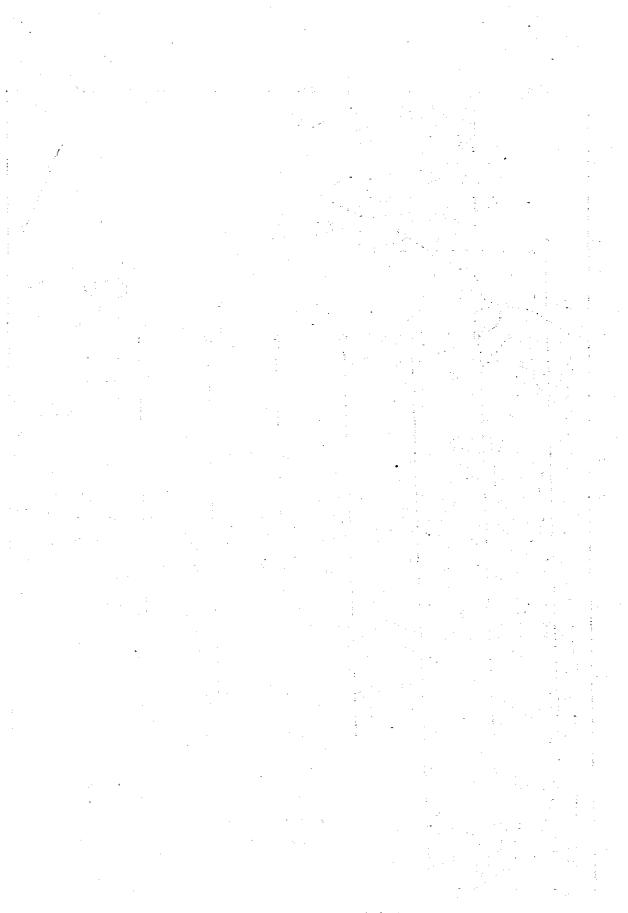


Fig. III-10-2 Iso-Magnetic Map
(From B.Ruswandi 1981, courtesty of D.M.R.)



Then, for the high resistivity zone at the middle depth of No. 6 - No. 8, code number 3 correspond to the model of 2% of FE and 1,000 Ω -m of resistivity.

Results of Simulation

General pattern of calculated resistivity roughly fit well with the observed value, which suggest us that the assumed resistivity model is close to the real structure.

On the other hand, for PFE model, only good correlation was obtained for the anomaly north of No. 3, but for the south dipping anomaly from No. 4 ~ No. 8, no response was found in the simulation. Some anomalous source might exist in the depth of No. 5 ~ No. 8.

4-4 CONSIDERATION OF SURVEY RESULTS

By investigating the relationship between the geology - mineralization and IP anomaly detected by each survey line, it is understood as follows:

A) IP anomaly seen in north of every survey line is mainly detected at the contact between sedimentary rocks (such as mudstone and sandstone) and granodiorite. It is considered to be caused by wide disseminated or bedded sulfide ore.

Some of the survey lines show different shape of anomaly source, and it is believed as that they indicate the form of granodiorite at the depth.

- B) Shape of the spectral of weak anomaly detected at the depth at No. 5 ~ 6 of survey line C forms different shape of anomaly from one of A's and indicates decreasing trend of phase at low resistivity range. The anomaly is considered to be effected by massive sulfide with small texture.
- C) At andesitic tuff seen at No. 3 ~ 4 of survey lines C and D, there is strong dissemination of pyrite with south dipping anomaly.
- D) Sedimentary rocks generally show low resistivity such as value of 100 \sim 200 Ω -m, but some of the parts which have effected by mineralization construct lower resistivity zone with value of 50 \sim 100 Ω -m. Hence, IP anomaly is detected in low resistivity zone.
- E) Fine grained limestone and pyroxene andesite show high resistivity.

 There is no IP anomaly caused by mineralization.

By above mentioned results, anomaly of each survey line was plotted on the plane map and is shown on Fig. TII-3-1, called spectral IP Anomaly Map.

Anomaly zone spreading toward east-west in northern part of each survey line differs in its depth and pattern: however, it is stretching to dominant strike direction caused by mineralization around the contact between sedimentary rocks and granodiorite.

At survey lines F - I, they move their center toward north a little but they are still successive to anomaly of survey lines A - E at the depth.

At the creek in northeast at No. 3 - 4 of survey line K, strong IP anomaly can be detected. It is supposed to be due to dissemination of Py, Pb and Zn in dacitic tuff.

Meanwhile, about anomaly detected at No. 5 - 6 of survey line C, no anomaly was detected at adjacent survey line 150 m apart from this survey line C because of small scaled massive sulfide.

However, there is weak indication between No. 5 ~ 6 of survey lines D and E. It is possible that it stretches toward east along the structure from survey line C.

and we can be a selected and the

tana ara-katang mentagai perakanan dalam 🐱 😼

to the office of the property

In the entire transfer and the first of the conference
 In the entire transfer and the conference of the entire transfer.

Consequently, it is needed to confirm the spread of the anomaly towards survey line D with prospecting by drilling for IP anomaly at most promissing area of No. $4 \sim 6$ of survey line C.

Moreover, drilling around No. $3\sim4$ at survey line H is recommended to certify the anomaly in northern part of the line.

•

•

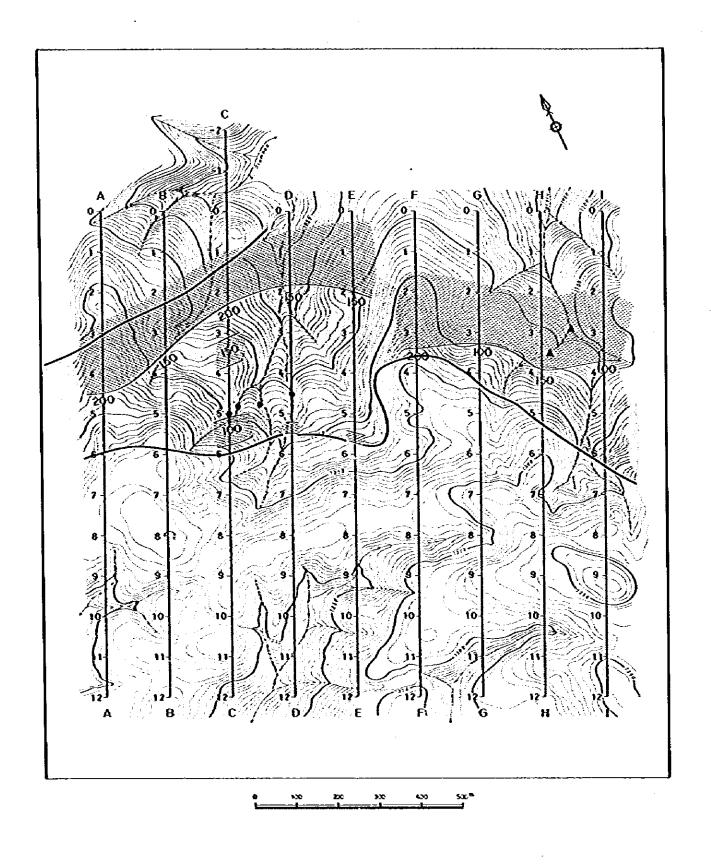


Fig. III-10-3 Spectral IP Anomaly Map

Legend



IP Amprofous Zone

Depth to lop of the source in meter

Low Resistivity Zone (Less than 100 A-m)

- Adi
- ▲ Outerop (Bondes Pyrite Orn)

CHAPTER 5 SUMMARY IN IN

Based on the geological and geochemical survey of the first phase mineral exploration, outcrops of contact metasomatic ore deposit are confirmed in Pagar Gunung area.

In the second phase survey, as one of the geophysical survey, a spectral IP was adopted to investigate the lower extension of the ore body and the distribution of mineralization.

Nine survey lines of 1.2 km length with each 150 m apart were run and the total line length is 11,000 m. Electrode configuration is Dipole-Dipole and the spacing (a) is 100 m.

Survey instruments are made by Zonge Engineering Research & Organization, and the receiver is CDP-12/2G, whose frequency range is from 0.125 to 80 $\rm Hz$ to measure phase and magnitude.

The field survey was commenced on 11 June 1983 and completed on 18 July 1983.

Data processing and interpretation works were done in Japan; after conducting calibration and topographic correction, phase spectrum, Cole-Cole diagram, magnitude diagram, pseudo-section and plane map of PFE and 3-point decoupled phase are made.

Rock samples collected for physical properly measurement are 29 pieces. Physical property measurement are done by the same system as used in the field by showing phase and magnitude spectrum for each sample.

For the interpretation of the results, above mentioned data and maps together with geological informations are synthetically taken into consideration in order to know the horizontal distribution of IP anomaly and vertical extension to the depths.

The following conclusions are derived from the survey:

ly seen in the higher frequency range. Especially in the southern part of survey lines G to I, out-of-phase component is small, while in the southern end of line A to F, vertical pattern are recognized. In the

northern part of each line, left side up pattern which suggest SIP anomaly are dominant.

regarded the village with the service of the instance of the instance of the contract of the c

- Prom phase spectral map, three kinds of typical pattern which may reflect the characteristic of anomaly source are separated: The first one detected in the northern end of survey line A, B, D and E at the depth of n=3 ~ 5 are almost flat at 0.125 Hz harmonics with phase anomaly of more than -50 milliradian. The second one is a V shaped spectral seen in the central part of line C where 0.125 harmonics decreases with frequency increases, and this pattern is also found on lines B and D. The third pattern are seen in the southernmost part of line A showing monotonously increasing spectrum mainly due to electromagnetic coupling.
- 3) Magnitude spectrum map showing decrease to the right in the northern end of the line suggest big IP effect, which are concordant with Cole-Cole and phase spectrum in the same zone.
- Apparent resistivity of this area vary from 40 ~ 250 Ω -m and low resistivity zone less than 100 Ω -m correspond with sedimentary rocks of mudstone and sandstone, while high resistivity zone more than 250 Ω -m with non-altered andesite dikes or limestone.
- 5) More than 3% of PFE are defined as anomaly, which overlap with phase anomaly zone of bigger than -30 milliradian.

Three major SIP anomalous zones are selected by synthetic interpretation:

- (1) Anomalous zone between No. 5 ~ 6 on lines C, D and E
- (2) Anomalous zone between No. 2 ~ 4 on line A to line B
- (3) Anomalous zone north part of line F to line I
- (1) is the anomaly related with Pagar Gunung West ore deposit showing V shaped phase spectrum. This spectral is characteristic around the outcrops of line C, No. 5 and also seen on both lines D and E. This anomalous source is supposed to lie by southerly dipping at the depth of 100 m.

Phase anomaly in (2) zone have more than -30 milliradian and the spectral type is almost flat in low frequency range and increasing in higher range than 8 Hz. This anomalous zone may be attributed to the pyrite mineralization at the contact zone of granodiorite with mudstone and sandstone. This anomalous zone continuing well to the adjoining line are interpreted to be due to disseminated sulfide.

(3) anomaly is related with Pagar Gunung East ore deposit and resembles with (2) anomaly by their phase spectrum and PFE, however, apparent resistivity of the anomalous zone is less than 100 Ω -m. As the maximum PFE detected at the depth of No. 3 of line H is 9.3% and typical PFE pattern is observed on the easternmost line I, this anomalous zone must be extending further to eastwards.

PART IV DRILLING SURVEY

CHAPTER 1 SURVEY OUTLINE

1-1 PURPOSE OF THE SURVEY

As a result of geological, geochemical and geophysical (SIP method) surveys on Pagar Cunung ore deposit of Kuara Sipongi area B carried out in the first stage of second phase, Pagar Cunung ore deposit would be expected to be promissing target for further exploration.

Five drills (total hole length: 1,200 m) were successively planned and were carried out in the later stage of the phase in order to explore dawnward extention of Pagar Gunung West ore deposit and SIP anomaly distributing at north zone of the deposit.

1-2 SPECIFICATIONS AND LOCATION OF THE SURVEY

The survey method and quantity are shown in Table IV-1-1

Table IV-1-1 Specification of the drilling survey

	Drilling Survey	Ore Deposit Survey
Survėy Hethod	Wire-line Drilling method (Drilling capacity 300 m in BQ size)	Survey by measure tape and compass
	Drilling	Detail survey of Ore Deposit
	Hole length 250 m x 4 holes 1,000 m 200 m x 1 hole 200 m 5 holes 1,200 m	Pagar Gunung East (Outcrop A & B) Pagar Gunung West (Adit 1 - 6)
Survey quantity	Core survey Geological column of dri- 11ing core 1/200	Geological and ore deposit tap 1/100, 1/1,000
	Thin section 10 pcs Polish section 20 pcs Chemical assay of ores (Au,Ag,Cu,Pb,Zn) x 30 pcs	

Drilling sites are shown in Fig. IV-1-1 and Table IV-1-2.

ing kitatan mengangan beranggan beranggan beranggan beranggan beranggan beranggan beranggan beranggan berangga Beranggan

《 文本》:"注意、名章 医光行性的文章

filosof (5) fil fil fil (1), it is to to destination of the profit of th

Turn mily reported by a server in a Tight of Sharph metal data on, action by a server of the Sharph means of the Sharph means of the Sharph means of the Sharph Sharph means of the Sharph Shar

्यात्रा स्टब्स्ट्रे वस्त्रास्था स्टब्स्ट्रेस्ट्रेस्ट्रेस्ट्रेस्ट्रिस्ट्रेस्ट्रेस्ट्रेस्ट्रेस्ट्रेस्ट्रेस्ट्रेस्

The first winds of the contract of the stage base is dained by the action

er e		og men graden er	
Santaga da series de la compansión de la			
 And the second of the second of		1. 18 (1. 1. 1. 18 18 18 18 18 18 18 18 18 18 18 18 18	
	· *	ga ett. Seedi en laavil valgalese	्रिकेटकार-क्रिकेटकारी है। इसेटेटकार-क्रिकेटकारी है
	, et1 e.,	AND SECURE OF THE CONTROL OF THE CON	
		oto grova Africa (14 otario Arrey, 18 ₂ otario otari	

The state of the s

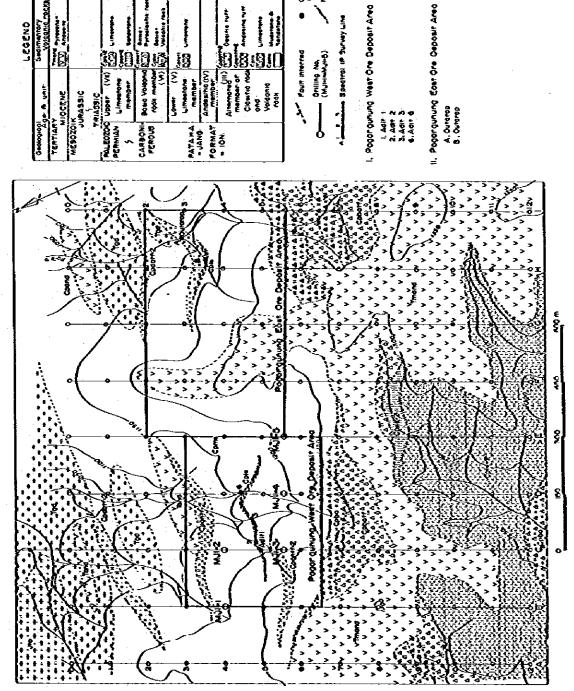


Fig. IV-1-1 Location Map of Drill Role

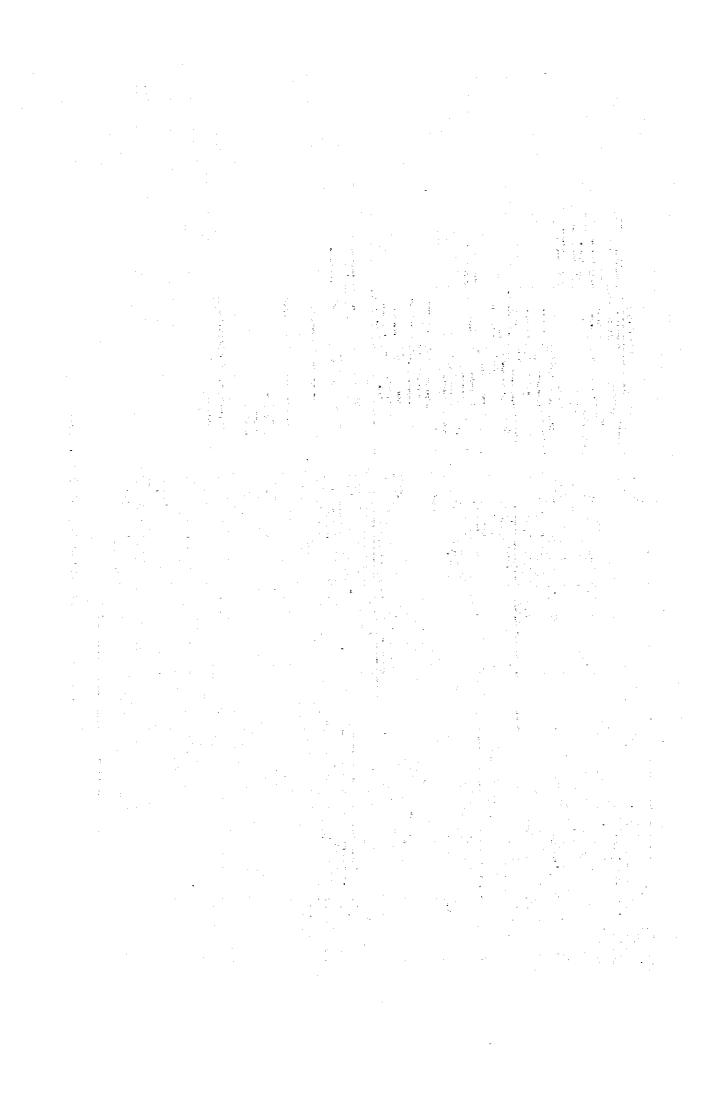


Table 1V-1-2 Location and Purpose of Drill Hole

Drilling hole No.	Location	Hole length planed(m)	Ûĺp	Survey Purpose
HJ1-1	B 1ine-4.0 (HSL)	200	90°	Survey of SIP anomaly located at north parallel zone along Pagar Cunung West ore deposit
н ј 1-2	C line-4.0	250	90°	Survey of SIP anomaly located at north parallel zone along Pagar Gunung West ore deposit
нј1-3	C line-5.5 (1,215 MSL)	250	90°	Dawnward extention of Adit No. 1 & 2 out crop of Pagar Cunung ore deposit
X)1-4	D 1ine-5.5 (1,185 HSL)	250	90°	Davnward extention of Adit No. 6 outcrop of Pagar Gunung West ore deposit
нл-3	É line-5.5 (1,210 HSL)	250	90*	East extention of Pagar Cunung West ore deposit show by SIP anomaly
	Total	1,200		

The locations are shown by point of SIP survey line, and these altitudes are obtained through topographycal map of 1/5,000 compiled by DMR member for SIP survey.

1441 2000

1.3 DRILLING HOLES LENGTH PERFORMED and from and appeal to the 100 and 100 and

Hole length, dip, core recovery and drilling period of each hole are shown in Table IV-i-3.

Table IV-1-3 Drill Hole Length and Drilling Period Performed

eas Physical	čas fyzika	រំបូរ៉ាក់ មួយ ។ វិទ្រាក់ មួយ ១១៤	1 total	ijo i i filijo Sile j		Maria de la composição de		
Drill hole Number	Planed Hole Length (m)	Actual Hole Length	Dip	Surface Soil (m)	Core Length (m)	C. R. (Z)	Drilling , started	Drilling completed
NJI-1	200	200.50	-90°	10.00	177.80	93.3	84-4-10	84-4-27
HJI-2	250_	250.20	-90*	9.00	195.65	81.1	'84-3-13	184-4-4
HJI-3	250	250.30	~90°	17.00	210.70	90.3	183-12-15	'84-1-10]
HJ1-4	250	250.20	-90°	7.00	185.95	76.5	184-1-16	84-2-14
XJ1-5	250	250.10	~90°	. 12.00	212.00	89.0	84-2-19	'84-3-7
Total	1,200	1,201.30					ele ger en en en	en de la companya de

Core length

C.R.: Core recovery =
hole length - Surface soil part length

and the stage of the first of the contract of typic, repeat of the east of the definition and restrict that it

Commission of the state of the country of the count

CHAPTER 2 DRILLING OPERATION

2-1 DRILLING METHOD

The drilling operation was performed by means of wire line method using oversized diamond bits of NQ (79.0 mm diameter) and BQ (62.0 mm diameter) size, besides non core drilling using tri-cone bit through soil and unconsolidated part of surface.

Bentonite was used for material of mud water, but libonite-mixed bentonite mud water used to use to keep good hole condition while the drilling work passed fault brecciated and fractured zone, because libonite is useful to protect collapsed or swelled wall of hole. It was also very effective to add suitably cutting oil in the mud water in order to decrease torque resistance caused by wall collapse.

Geology in the drilling holes consists of sedimentary rock (shale, limestone, slate and sandstone), volcanic rock (andesite, dacite and their pyroclastic rock) and igneous rock which are mostly silicified and occur many joints, schistositys and fractures. They form sometimes with the fracture and were frequently pluged up in core barrel. Haterial, namely telstop, saw dust and chaff, were mixed in circulating water to prevent running out water through crack and fracture.

2-2 DRILLING MACHINE AND EQUIPMENT USED

Table IV-2-1 shows drilling machine, used in the survey. Consumables of the survey is also listed in Table IV-2-2.

2-3 OPERATION HEHBER AND SHIFT

Operation of moving-in, moving-out and preparation in drilling site was done by one shift per one day system, while drilling operation was carried out by three shifts per one day, eight hours per one shift. One shift of drilling work consists of a Japanese engineer, a Indonesian counterpart (DNR) and two Indonesian workers.

ann aire in tha ann ait an airteana

tento o custo mas a la lagraca notale cara asperanta for a mai ricipa della compania della compa

And the second s

o the something something and extracted the con-

And the second of the second of

Section of the sectio

(2) On the first of the content o

Table IV-2-1 Drilling Rachine and Equipment Used

Drilling Machine Model 'OE - 88L'	lset
Specifications:	
Capacity Dimensions L x X x H Hoisting capacity Spindle speed	300 m (BQ N.) 1,550sm x 700zm x 1,260sm 2,000 kg Forward 100, 190, 320, 530, rpm
Engline Nodel 185-130CG	13 HP / 2,200 rpa
Drilling ounp Rodel "HG-10"	iset
Specifications:	
Piston diameter Stroke Capacity	68 mm 100 mm Discharge capacity 120 U m Max pressure 70 %
Dimensions L x V x H Engine Model NS-110C	1,690 sa x 580 sa x 980 sa 11 HP /2,200 rgs
Sagine woder 12-1100	11 pr / 2,200 1/4
Tater supply pump Model "TASOO"	lset
Specifications: Capacity Engine Model NS-50C	Discorge capacity 40 2 / mi Hax pressure 30 % 6 HP /2,400 rpm
Wire line hoist Model "BLH-4"	lset
Specifications: Rote capacity Boisting speed Engine Model NS-40C	500 m 8~105 m/mi 5 HP /2,400 rpm
Nud mixer Nodel "NCE-100"	Iset
Capacity Engine Model NS-40C	100 2/600 rea 5 RP /2,400 rea
Generater Rodel "NDY-3.25"	lset
Generater Model 'YSG-2S'	lset
Drilling tools	
Drilling fod	NO SL 3 B 70 pcs BQ %L 3 B 110 pcs
Casing pipe	HX 0.5 m 2 pcs HX 1 m 6 pcs NI 1 m 3 pcs NI 3 m 20 pcs
•	BF 1 m 3 pcs BF 3 m 70 pcs
Derrick	iset
Specifications: Height Hax load capacity	9-5 m 6,000 kg

Table IV-2-2 Consumables Used

	· · · · · · · · · · · · · · · · · · ·	· 				atlly	 	<u> *</u> :		
Description	Specifica tions	Ualt	1 IUK	XII 2		1 3	NJI 4	×31 5		lotal
Description	11013						3.21	1,81	- I 	8,760
Light oil		<u> </u>	1,505	1,750		840	1,850 50	1,61;		265
Esgine oli		L	46	57	┨—	57	<u></u>		-1	
Breraulic oil	1 1 2	2 L 2	10	13	.	. 50	17	11		98
Gear oll		. L			.l			-	-	18
Greate	1 / 63	18		·				36 53	<u> </u>	25
Bealoaite) kg	3,510	6,050	. 6	,780	7,180	4,15	0 2	7,610
Liberite		ks		-: :	1	80	735	18	<u> </u>	1,000
Ć X C	[:11:	5.5	83		. 11	66	: ; 6	ર ;	: 311
		15				1	8	<u> </u>	3	Si
Cassilé soéa	1	1g		6	3	107	30			200
Jel - stop				15			40	73 -	(a	455
Callies oli		£.	120	2			35	: 3		83
Colcius coloride		ks	} <u>-</u> -		_			1		8,350
Cenent) kg	760	1,41		1,400	3,800		<u> </u>	25
Distord bill	HOTE	PC .	5			5	. 5		<u>-</u> -	
•	80 LF	PC .	3	1	5	6	\$		5	24
Planed realer	10 IL	- tc	1		2		2	-	2	9
*	eg fL	₽¢.	1_1		2	2_	2	-	2_	9
Casteg Retal shoe	RX	J:c	1	1	<u>. </u>	1	1)	5
*	1/2	Je	1		•	1	<u> </u>		1	5
•	[3	×	1		1	1			1	5_
	3 7 6	7 90	2		2	ż				-8
fricese bit	3 ∕A NQ FL	şel			*					2
Core barrel Ass'y	-	- [1		-					2
		303		-	-		 	-		4
Jaser tube	10 15	F.		-	-		1-		1	4
	BQ TL	- Fc		-		6		- -	2	20
Core Ilfter case	10 SL	_ <u> </u>		<u> </u>				4		18
•	DO IL	J. K.		²	4.		-			
Core lilter	IQ FL	Je		3	4			6		25
•	EQ TL	š¢	_	4		1	<u> </u>	6	- 1	2\$
Threst ball bearing	ıŋ n.	<u>K</u>		4			<u>. </u>	4	5	22_
*	BQ FL	şc		2	. 4		<u> </u>	2	4	16
Jacertabe stabilice		₿ ¢			2		2	2		8
A STREET	B5 LF	34		7	1			1	1	6
	10 ft	7.0		_	ヿ					2
Chack plece	PQ FL	<u>\$8</u>	1	- -			_	\exists		2
Calladaer liner	68 = 1			_			_			2
	_						1			4
Fisles tos	_				-1		1	-1-		
	65_E4	. 2	t t					_ -		16
Site teje	6,% 20	0 m 10	11	[- : .		1 (1) 1 (1)	
Kasira Toje	16% 10	<u>e 1</u>	ш			<u></u>	[-[-	110 	
Sire .				_ -					. <u>* * *</u>	
8511		k	<u> </u>	_ _]			36
Core box	HQ FL		<u>:_ </u>	21	22		25	25	27	
•	EQ NL	1	c ·	13	18	<u>L</u>	18	15	16	. 80

2-4 TRANSPORTATION AND ADDRESS OF THE PROPERTY OF THE PROPERTY

Drilling machine and equipment shipped from Japan were landed at Harbor Belavan (Medan), and were transported by large truck (capacity 6 tons) to Kotanopan through Sumatra Travers High Way, and by truck (capacity 2 tons) from Kotanopan to Simpang Tolang. There are about 650 km from Belavan to Kotanopan and 6 km from Kotanopan to Simpang Tolang.

Through mountain road of 9 km, the machine and equipment were conveyed from Simpang Tolang to Pagar Gunung base camp by human power.

the particular Local transportation between drilling sites in Pagar Gunung Area access road was constructed.

and the control of the first property of the control of the contro

and interaction of an affiliation of the

កាស៊ីន ព្រឹក្សាសំខាន់ សូមីស្រាស់ស្រាស់ស្រាស់ស្រាស់

in the text of the state of the

A Topic of St. (1) A St. (2) Agent through the control of the contro

Same Attending to the control of the

the arm to the term of the control o

with the account of the sign o

ALKEDIST OF BUILDING STATES

2-5 WATER SUPPLY

Circulation water of drilling operation was supplied by pumping directly up from river or via water storing pond constructed between river and drilling site while river is very far distance.

Assisting to the interest of the good problems to the contract of the contract of

CHAPTER 3 RESULTS OF THE SURVEY

ik indakki aki okistoret oler begukik iku dilapyakke kekoleri.

3-1 DRILLING was a second response to a section of entrols and the second of the secon

3-1-1 Sice Mil-1 to seed during the more about the property of the confidence of the

We used 3 7/8" tricone bit and concentrated bentonite drilling mud for drilling through the soil and talus deposits. HX casing pipe was inserted at 4.00m depth, we continued drilling to 10.00m depth where NW casing pipe was inserted.

Below 10.00m, hQ wireline method, bentonite drilling gud and cutting oil were used for the operation. The major rocks were andesite, calcareous rocks, shale and siliceous rocks. Silicification was generally strong and the rocks were easily fractured because of the well-developed joints. They became partly crushed and often clogged the core. Collapse and lost circulation were frequent. Thus the hole between 10.00m-37.10m depth was expanded by 3 7/8" tricone bit and MY casing was extended, but the insertion of the casing by mechanical rotation became increasingly difficult. Therefore the NN casing was inserted at 33.00m depth. Partial collapse and loss of circulation occurred frequently below 33.00m and operation was often jammed by the total loss of circulation and the sludge caused by the collapse of the upper parts. We continued drilling to 123.00m by cementing each time the operation was jammed. BW casing pipe was inserted at 123.00m, and below that depth we drilled by BQ wireline method with bentonite and and cutting oil. The rocks were mainly siliceous in mature and some tuff, shale, sandstone and others were observed. The rocks were quite strongly silicified. Preventive measured were taken for loss of circulation and the drilling went smoothly down to 200.50m where the objective was accomplished and the work completed.

3-1-2 Site MJI-2

The 3 7/8" tricone bit and concentrated bentonite mud were used for drilling through the soil and talus deposits. HX casing pipe was inserted at 4.00m depth and we continued drilling to 9.00m depth where the bedrock was reached and NW casing pipe inserted.

Then, we drilled to 141.00m depth by NQ wireline method with bentonite drilling mud and cutting oil and inserted the BW casing pipe. The major rock units were andesite, slate, sandstone and shale.

anguar ng mga kaganganga an mga talawan ng Kalawan ng Rawan ng Malawan ng Malawan ng Kalawan ng Kalawan ng Kal There were argillized fractured zones where the hole collapsed. Also, the well-developed joints caused frequent jamming and loss of circulation. The hole was expanded between 9.00m-21.00m by 3 7/8" tricone bit and extended the NW casing pipe. But the lithology below that depth was still unfavourable and collapse and loss of drilling mud occurred frequently. These were stopped each time by cementation and pumping concentrated drilling mud containing straw, say dust and cement milk. When we reached the depth of 98.00m, the cemented portion - near 30m-40m depth - collapsed and the operation became difficult. Therefore, the hole between 21.00m-45.00m was expanded by 3 7/8" tricone bit and extension of NW casing pipe was inserted. Total circulation was lost at depths 67.20m, 97.10m, 97.70m and 133.00m. Also loss of circulation at the rate of 101/min-501/min occurred frequently (pumping rate 601/min) and preventive measures were taken each time (a total of 32 times). The total loss of circulation at 133.00m could not be stopped after four attempts and subsequent operation was done by cutting oil. But the vibration caused by the drilling without circulation resulted in partial collapse and the operation became difficult. Thus BV casing pipe was inserted at 141.00m depth.

Below 141.00m, we drilled by BQ wireline method with bentonite drilling mud and cutting oil. The rocks were generally strongly silicified with well-developed joints. The core was jammed particularly between the depth of 141.00m to 206.00m. There were six points where circulation was lost at the rate of 101/min-301/min including a total loss (pumping rate 401/min) at 235.85m. The loss was stopped by normal measures each time and the objective of the drilling was achieved at the depth of 250.20m.

in the consistency of the second of the seco

重要的 经工作的 化二氯甲基甲基甲基甲基甲基

Section of the sec

-- 99 --

3-1-3: Site Nui-3: 0 or common of Bay 5 - 30 () and common

The 3 7/8" tricone bit and concentrated bentonite mud were used for drilling through the soil and talus deposits. EX casing pipe was inserted at 3.60m depth, continued drilling with 3 7/8" tricone bit to the depth of 19.00m and NV casing pipe was inserted.

Then we drilled by NO wireline method with bentonite and libonite drilling muds. The major rocks were andesite, shale, sandstone and limestone. The lithology was unfabourable to the depth of 30.00m and the operation became difficult due to the loss of circulation and the collapse of the hole. Thus the zone between 19.00m to 31.00m was expanded by 3 7/8" tricone bit and NW casing pipe was extended to that zone. The rocks were generally silicified strongly with well-developed joints. They were easily fractured and jammed the core frequently.

The circulation was totally lost at depths of 27.80m, 28.60m, 32.30m, 44.10m and 79.80m. Also small loss of 10t/min-20t/min circulation occurred frequently. At every loss of circulation, concentrated drilling mud containing Tel-stop was pumped in to stop the loss. The soft argillaceous layers collapsed by the drilling mud flow and frequently jammed the operation. BW casing pipe was inserted at the depth of 150.00m.

Below 150.00m, BQ wireline method with bentonite drilling mud was used. The rocks were mainly siliceous. The circulation was totally lost at 182.20m and here we recovered semi-spherical core of approximately 25cm which we believe to be a vug. We made several attempts to stop the loss by pumping in Tel-stop and cement milk. Each attempt stopped the loss temporarily, but we lost the circulation completely when we resumed drilling. Therefore, we subsequently drilled without circulation to 206.60m, but the vibration was intense. And the wear of the bits lowered the efficiency of the operation so much that we halted the operation in order to stop the loss completely. We threw in cement lumps containing Tel-stop, waited to harden and cut through the cement. We repeated this operation for four days and succeeded in maintaining approximately 2/3 of the circulation. We drilled to the depth of 250.30m with stopping minor circulation losses and attained our objective.

3-1-4 Site MJI-4

We drilled through the soil and talus deposits to 3.50m using 3 7/8" tricone bit and concentrated bentonite drilling mud. NW casing pipe was inserted at that depth.

We further drilled to 7.00m by 3 7/8" tricone bit and inserted NW casing pipe. Subsequent work was conducted by NQ wireline method with bentonite and Libonite drilling muds. The major rocks were andesite, volcanic tuff breccia, black shale and siliceous rocks. In general, the physical nature of the rocks was not stable and the hole collapsed frequently. Therefore, the 7.00m-32.80m and 32.80m-42.00m zones were expanded by 3 7/8" tricone bit and the NY casing pipe was extended into the above zones. The lithology below 42.00m was also not favourable, particularly the 50.00m-114.80m zone was intensely argillized with some fractured zones and the hole collapsed very frequently.

Sew Alfrica General Court of the Carrier Section in the Court

et aralaset it va gilvagrag Sulla ava

A Para Transfer of the Control of th

At 56.50m depth, groundwater flowed in at the rate of 321/min which further aggravated the collapse and frequently caused jamming. At 64.60m cement grouting was done four times with a total of 2,600 litres of cement milk in order to stop the water. This lowered the water flow to 3-51/min and we resumed drilling. The subsequent drilling was conducted continuously through fractured zones and the operation was greatly hindered by frequent collapse, partial jaming by clay and various other problems. Thus, we were forced to use time for cementation for preventing collapse and the efficiency was very low during this zone. We drilled to 150.00m with repeated cementation and inserted BW casing pipe.

Below 150.00m, we proceeded by BQ wireline method using libonite drilling mud. The rocks were siliceous rocks, sandstone, hard shale and slate. They were partially argillized. The rocks were well-jointed and fragile, frequently causing core jamming. The objective of drilling in this site was accomplished at 250.20m.

3-1-5 Site MJ1-5

We drilled through the soil and talus deposits to 7.00m using 3.7/8" tricone bit and concentrated bentonite drilling mud. HX casing pipe was inserted at that depth.

We further drilled by NQ wireline method with bentonite and Libonite drilling muds. The rocks were andesite, hard shale, sandstone, tuff breedia and slate. Argillized zones and fault zones were found. The lithology of the upper parts were unfavourable, resulting in frequent collapse. Therefore, we expanded the hole between 12.00m-18.00m by 3.7/8" tricone bit and extended the NW casing pipe into that zone. Below this depth, we encountered partial collapse which forced us to carry out cementation three times to the depth of 90.50m. We continued drilling to 150.00m and inserted BW casing pipe. Below this, we operated by BQ wireline method with Libonite drilling mud. The main rocks were calcareous rocks, coarse-grained tuff, sandstone, slate and granite, and the drilling in this zone progressed smoothly. We attained or objective at 250.10m depth and completed our operation.

the first of the first of the first of the first specific period of the second of the first specific period of the first specific pe

Compared to the Compared States of the Compared States

in that in a control of the second of the proof to group to

and the control of the property of the control of t

Control of the Control of the second of the control of the control

3-1-6 Drilling Record of the state of the st

(1) Drilling Operation Data

Drilling operation data on each hole are summarised in Table IV-3-1 A IV-3-5. Average drilling length per drilling-day was 10.36 m.

(2) Core Recovery

Average core recovery of five holes was 86.6 percent, as it is shown in Table IV-1-3.

(3) Drilling Progress to the case of the control of the first attack and the

Progress of drilling operation on each hole are shown in Table IV-3-6 v IV-3-10, and working time analysis of the drilling is shown in Table IV-3-11. Table IV-3-12 and IV-3-13 show record of consumed diamond bits.

(4) Drilling Progress Figures

Drilling progress of each hole are figured in Fig. IV-3-1 ~ IV-3-5.

Table IV-3-1 Summary of the Drilling Operation on MJI-1

		<u> </u>				+ 1		i		
			Surve	y	period				Total	Fan
		<u> </u>	riod	-	days	Tork day	7 0	ff day	Engieer	torker
	Prepara- tion	6. 4.19	84~ 9. 4.	1984	3.5	3.5	days	0	14	115
ag S	Drilling	10. 4.19	84~27. 4.	1084	18	4311124 16		0	64	260
Operation						2		0	, 8	57
000	Rezoving	20. q.1;	×84~ 5. 5.		8	. 8	8 0			153
	Total	6. 4.19	84~ 5. 5.	1984	29.5	29 .	;	0	118	585
	length	100 55	Surface so Overburden				recov	ery of	100 à h	ôlê : 1
a	planed	200.60	Quaternary		10.00	Depth (of hol	e co		core
leng th	Increase or	3		,	R				ecovery	recovery cumulated
	Decreas	-	Core lengt	th	177.8		(m)	Ti.	(%)	(%)
Orilling	lengt						~ 100		91-6	
D.F.	Length		Core		9	•	~ 201	-5	95-4	93.3
	drille	200.50	recover	7	93.3			-		
:	Dri 11	lng	200°50°	49.	0 39	5 E	ffici	ency of	Drillin	<u> </u>
	Other	vorking	174°00′	42.	1	Total	a/To	rk pé-	200.50=	18 days
	Pecov	ering	35°10′	8.	6 6.	Total	D/To	/day)		14m/day) /51 shift
	To	tal	410°00′	100	80.	7		shift)	(3	93m/sbift)
bours	Rea	ssemblage	31°00		6.		lling	length	/bit sized bi	t)
23	Dis	satlezent.	17°00	i .	3.	3 Bit s	•	378		ВО
Woking	Sater trans	portation				Drille	igth	10.0	0 113.0	77.50
		nstruction others	\$0°00		9.	Core	ath	-	104-9	
	G. 1	Total	508°00		100					- -
ي ا	Size	zetéragé	meterage drilling X	100	Recov					•
prpe Inserted		(x)	length (_ജ	(%)		4			
	BI	4.00	2.0		100					· ,
Casing	ЯВ	33.00	16.5		loo					
ទឹ	ВТ	123.00	61.3		100					

Table IV-3-2 Summary of the Drilling Operation on HJI-2

7			Survey	ceri	lad				<u> </u>	<u></u>	
		Per	riod	,,,,	days	ئ	ork day	نده معاد	Tota	- 1	a
1	Prepara-		 			-	din:	off day	Engi	-급 -	orker
····	<u> (ios</u>	9. 3.1	84~12. 3.	984	3.5	e t	3.5	0	14		131
cion	Drilling	13. 3.19	84~ 4. 4.	1984	23	##C	19 •****3	0	79		482
Operation	Rènoving	1 6 10	984~ 6. 4.	1004	1 6			1 1	- 11	. 7.5	105
5	Total	4. 3.1	984~ 6. 4.		1.5 28	-	1.5 27	0 	1110	7	759
	length		Surface so	<u> </u>			The state of			- 4 - 1 - 4 - 4	
	planed	250.00	Overburden Quaternary		9.00	-	Core rec				
eng th	Incréase		Atacci Ear)	_ -	<u> </u>	-	Depth of h		re écove	- T	covery
len	or Decrease		Core lengt	h I	= 195-65		(1	1 2 5	(%		ulated (%)
3u	in	1			:		0~10) 0	53.4		FR
Drilling	lengti	 			9	7	100 ~ 20	ю	91-4		76.2
۵	Length drille	250.20	Core		81.1	0	200 ~ 25	0.2	100		81.1
-	<u>'</u>	<u> </u>			4 46	_			8.9 at 2.2		
	Drill		231 "00"	44.	4 40	<u>—</u> 6		ciency o			
		vorking	233°20	44.			Total m/ riod (B/027) (23 days m/day)
	Recov	 	56°10'	10	8 9	•9 —	Total m/	Total si ■/sbift	سنح ال		64 shift shift)
bours	To		520°30′	100	<u> </u>	_	Drilli	ng lengt			1 / \$611()
1	1	ssemblage mantlezent	30 00		5	•3	-	(éach	sized	bit)	
Woking	Fater		15°30'		2	-7	Bit size	37	3 }	N Q	вQ
ş		portation enstruction	-				lengti Core	9.	-1-	32.00	109.20
ļ ·	and	others	ļ	1			léagti			91.05	104.60
 		Total	566°00′	<u> </u>	100		-				· .
	Size	ceterage	drilling X	100	KSCOA	7	4				÷ .
100			length (_{ින}	(%)	_					
חמ ש	NY	45.00	1.6		100	_					
Casing pipe	B #		18.0		100	÷					
<u> </u>	1 5 1	141.00	56.3	<u>_</u>	100	٠.					<u> </u>

Table IV-3-3 Summary of the Drilling Operation on MJI-3

<u></u>		 					··· <u>·</u> · · · ·				i
	Versil.	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	Survey	per	tot				ļ	Total	рап
	كبيي	<u></u>	riod		days	ľ	fork day	off	day	Engleer	wrker
	Prépara tion		983~14.12.	1983	11		* H 4178	0	days	44	501,1
u o	Drillin	15-12-1	983~10. 1.	984	27		20	0		80	242
Operation				. · · ·		3 84	casterif 6	6 1		24	64
ő	Rezovia		984~12. 1.1	984	2		2 0			8	23
	Total	4-12-1	983~12. 1.	1984	40	40 39 1				156	1,436
	length plane	250.00	Surface so Overburden		17.00		Core recovery o			100 m 16)le
۱ ۽	hraner		Quaternary		- 17.00	11	INCATE OF BUILDING		COL	COTELL	COTE Tecovery
length	increas or	e a	Carl Lasse				(1	.)			cumulated (%)
	Decreas in	d –	Core lengt		210.70	Ò	0 ~ 10			76.9	10.1
Orilling	lengt	법 -		_ _		_	100 ~ 20			96.7	87.7
ă	Length drille	360.00	Соге		90.3	ó	200 ~ 25			99.6	90.3
<u> </u>	diffic	4	recover								
	Drill	ing	181 °00 h	30.	4 25.	6				Orilling	
*		vorking	253°40	42.	5 35	8	Total m/	2/d	(VS		727 days 78∕day)
		ering	161 50	27.	•		Total m/	iotal N/sh	shiift)	250.301/	72 shift 8a/shift)
pours		tal	596°30	100	-	-{	Drilli	ng le	ngth		04/ 20116 }
1	1	ssemblage mantlesent	63°00		8.	3		<u>`{</u>	ach :	sized bit	.)
Poking	Tater		5°00		0.	7	Bit size	_ _	3 78	ЯQ	BQ
-		scortation.				4	length Core		19.00	131.0	0 100.30
		others Total	43°00′ 707°30′		100	1	length	Ц.		110.7	0 100.00
	1 4.		<u> </u>	<u> </u>	Recov					-	
8	Size	néterage (m)	drilling X length (6	700	617	,					
Casing pipe	R X	3.60	1.4	(6)	(%) 100			•			
3ut	N T	31.00	12.4	-	100	-					
3	8 7	150.00	60.0		100	÷					
ш.						1	,				-

Table 19-3-4 Summary of the Drilling Operation on MJI-4

				<u> </u>		<u> </u>	<u></u>					
	212 4 4	Air i	Surve	y pei	iod	• ; • <u>.</u>	raj Valde Mara 18		To	ital	еад	
	· 2		riod		days	¥	ork day	off day	Er	gieer	TOT	
	Prepara-	13. 1.198	4~15. 1. 19	84	3		3 41,75	0 411	5	12	1	09
g	Drilling	16. 1.192	84~14. 2.19	84	30	4rii	111ut 21			82		37
Operation	<u> </u>	5 th 100 to 100				# # C 4	8	1		36	2	35
Opex	Removing	15. 2.198	34~16. 2.19	84	1 - 5		1.5	ò	s :	6		41
	Total	13. 1-198	34~16. 2.19	84	34.5	į į	33.5	1		136	7	ટર
	length	- 1 1 -	Surface so		1		Core rec	overy o	f 100	o a ho	le	1
-	planed	250-00	Overburden Quaternary		12.00	ш	Depth of 1	363122 4	ore		tore	
length	Increase	1				- ii					i upul	ated
2	or Decrease	-	Core lengt	. h	185-95			<u> </u>		(%)	4	(%)
841	in lengti						0 ~ 10	00	67.	5	· · · · · ·	
Drilling	Leagth		Core		9	8	100 ~ 20	00	81.	1	74	1.5
l a	drille	464.00	recover	,	76.5		200 ~ 2	50.2	83.	9	70	; · 5
	Drill	ing	200°50′ h	29.	1 27.	8	Eili	ciency (o t	rillin	<u> </u>	
ļ	Other	vorking	351°20	50.	8 48	0	Total a/	work pe		50.20	/30	days
	Recov	ering	138°50	20+	1 19.	0	Total a	Total s	ь ,	50 - 20		
bours	То	tal	691°00	100	94.	5		m/sbii	بال		lp/	shift)
	Rea	ssemblage	26°00		3.	5	Drilli	ng leng	th/ a st	bit zed bit		Ž
Woking	L{1:	sant lesent	14°30		. 5	0	Bit size	3,7	8	НQ		ВQ
3	fater trans	portation					Drilled lengt	h 7	00	143.0	-	100.20
		others	-				Core lengt			102.3	5	83.60
	G.	Total	731°30		100							
	Size	neterage	acterage drilling X		Recov				. ,			
ر و ع	i	(a)	length (રકો	(%)	- 1			<i>.</i>			
2010	BX BX	3.50	2.3		100				-			
Casing	NY	42.00	16.8		100	-						
3	BV	150.00	60.0		100						·	

Table IV-3-5 Summary of the Drilling Operation on HJI-5

. ₹

$\overline{}$	<u> </u>			•		-		1.7	<u>_</u>	:	
		1 . 6 . 1 2	Survey	r pe	riod	_		 : -		Total	pan
		<u> </u>	riod		days	L	rórk day	off d	ау	Engicer	Torker;
3 *	Prépara- tion	16. 2.19	84~18. 2.1	984	2.5		2.5	0	4135	10	75
go	Drilling	10. 2.10	84~ 7. 3.1984		18	Ľ	16	0		62	359
Operation		1		304	1.0	2.6	1	1		8	57
Open	Renoving	8. 3.19	3.1984~ 9. 3.1984				1.5	0		6	36
: :	Total	16. 2.19	84~ 9. 3.1	984	22		21	I		86	527
Ì	length	1	Surface so		1	•	Core rec	OTELY	of :	100 m h	ole :
	planed	250+00	Overburder Quaternary		12.00	۱ ۱	Depth of h		Ċor		core
Beth	incréase							. !	re	COTEIT	recovery cumulated
2	or Decrease	_	Core leng	th	212.00	,	(1	<u>)</u>		(%)	(%)
Sur	in lengti					į	0 ~ 100	9	7	8.9	<u> </u>
Driling tongth	Length	i	Соге		9	8	100 ~ 200	9	9	6.8	88.4
٥	drille	466.46	recover	7 :	89.0		200 ~ 250	0.10	ģ	1.5	89.0
	Drill	ing	182°20 h	46.	5 41	8	Effi	cienc	r of	Drilling	
	Other	vorking	184°50	47.	i 42	•3	Total a/				18 days
	Recov	ering	25-20	6.	4 5	.8	Total a	Total	sh		9a/day) /49 shift
92	To	tal	392°30′	100	89	.9	ift((5.1	Ob/shift
pour	Rea	ssemblage	23°00		- 5	-3	Drilli	ng lé: · (e:	ogth, ach	∕bit siżed bi†	. 1
Woking.	Dis	eant lesent	21°00′		4	. 8	Bit size		3 78	ΝQ	BQ
ğ	Tater trans	portation	-				Drilled leagth		12.00] 	
-	Road co	nstruction others	_			•	Core length		_	118-95	<u>i</u> -
		Total	436*30*	1	160	_	10231	<u> </u>		1.0.50	7 7 33103
7	s	2012-00-	neterage X	100	Recov	-					
DLDC	5126	ecterage (m)	drilling ^		(%)	7	l -			-	
13-	BI	7.00	2.8	-	100						
Casing	NT	18.00	1.2	-: -	100	_				•	
3	B	150.00	60.0		100	_		•	-		

Table IV-3-6 Record of the Drilling Operation on HJI-1

	Drill	ing length		Total		Shi	ít _	Vorking	≡ an
	Shift: 1'	Shift. 2	Stiff. 3	Drilling	Core leagth	Drilling	Istel	Eogineer	Vorker
Aprils:	Réassemb	•		2	3	अस्र	saîlt	312	123
'n	Reasseab			1 : ,			1.5	1 (1/1)	
8	Reasseab						1.5		45
g	Réasseab		1 2 2			* 1 = 4			
10	10.00			10.00	<u></u>				
11	4.10	4.70	5.90	14.70	11.80				
11 12	5.60	3+80	6-10	15-50	14.15				N. C.
13	Reasing	Reasing	Reaning	er 					1000
. 14	Ins-C.9	3.30	. 3.00	6.30	6.60	9	15	88	209
15	3.10	4-50	4 - 40	12.00	11-60				
16	4.20	4.00	5.0ò	13.20	13.20				
17	3.10	4.40	5-80	13.30	11.50		٠,		-
18	4.90	Off day	Cen,	4.90	4-90			-	
19	Sol-cea	Ces-cut	\$.00	2.00	1.30		ŧ		÷ .
50	3 - 30	3.10	3.30	9.70	9.60		* = = = = = = = = = = = = = = = = = = =		
- 21	2.30	3.10	4.50	10.30	10.40	17	20	28	81
23 25	2.50	4-20	3-10	10.40	10.00				
23	2.10 5.00	3-60 5-70	5.30	11.00	8.30				
25	7.5ô	1.20	5.00 6.90	15.70 21.60	15.70 21.60			1.5.1	
26	7.60	6.40	5.30	19.30	18-15		211		
27	4.70	5-20	Out C.P	9.90	9.10	-] :
28	Dismant			. ,	j ,	17	19	28	127
29	Transpor				i	i			
30	Transpor								
Hay I	Transpor								
2	Transpor								
3	Transpor								
4	Transpor			,	* :				
5	Transpor		<u> </u>	<u> </u>	ļ		7	28	123
Total	10.60	63.70	66.20	200-50	177.80	43	62-5	118	585

Abbreviation: Reassemb, Reassemblage Dismant, Dismantlement

los-C.P. Oat-C.P.

Transpor, Transportation

Inserting Casing pice Taking out Casingpice

Cen. Cementing work
Cen-Cat, Catting cementing part
Sol-cen, Solidification of cement
Stop-rat, Stoping for water leakage

Table IV-3-7 Record of the Drilling Operation on MJI-2

	13 - a - 1 - 1	<u> </u>			: 				
	Drill	og length	6.1 <u>10.11 1.12 1.</u>	Total	<u> </u>	Shii	lt i	Torkin,	g #30
	Shift. 1	Shift, 2	Shift. 3	Orilling	Core length	Octiling	Total	Englacer	Forker
March		3	; 5	2		531(1)	11162	811	\$25
9	Reasseab		*			Ì			
10,	Reassemb	***					1.5	6	53_
11	Reassenb								
12	Reasseab		:		,		*		•
13	10.50			10.50	1.00				!
14	5.40	2.10		7.50	2.00		:		
15	4.50	3.20	6.40	14-10	8 • 45				· '-
16	6.10	2.10	3-60	11 -80	3.60				
17.	Sol-cen	Cen-Cut	5.50	5.50	2.70	10	14	28	208
18	8-00	5.30	5.30	18-60	12-10		-		
19	3.40	off day	Cen-Cut	3-40	1.75	1 1	•		
20	2•50	4-20	5.40	12.10	8-15				į.
: 21	ି- 3∙60	4-10	2.00	9.70	7.95				
22	4.50	1.10	off day	5.60	5.35		:	<u> </u>	
23	Reaning	Reasing	Ins-C-P	į				i :	
24	Ce∎-Cut	Cen-Cut	3.00	3.00	2 80	13	19	26	202
25	6.50	5 - 40	4-50	16.40	15.60		:	1	Ì
26	3.40	5 - 60	6.00	15.00	14.20				
27	2.30	2.70	2 80	7.80	5.40				
28	Ins-C-P	4.60	4.90	9.50	9-20				
29	5.10	5.20	4.60	14-90	14.00	#			
30	6.20	3.60	4.40	14-20	13.20			1	ļ
31	5.20	4.40	4 - 40	14.00	12.55	20	21	23	174
April l	4.60	3.60	5-10	13-30	12.35	1			
г	5.90	5.60	6.40	17-90	17.90				
3	2.70	4-80	5.80	13.30	13.30				
4	6.80	5.30	Out-C-P	12.10	12-10	·	-		
5	Dismant	Dismant	-			:			
6	Transpor		3 1.5	1 178.		11	14.5	22	122
Total	97.20	72.90	80-10	250.20	195.65	54	70	110	759

Table IV-3-8 Record of the Drilling Operation on MJI-3

K 1										
	Dr1111	og length		Total		Shi	ít .	Vorkia	g san	
	Shift. 1	Shift. 2	S\$111 3	Ociliing	Core leagth	Ortilles	Total	Énglucer	Forker.	
December	•	an jû sej ≢				s)1ft	nite	111	811	
4	Transpor		100					2.5		
5	Transpor							5 +		
6	Transpor						4.	1114	÷.,	
7	Transpor			÷				1.1		
8, 9:	Transpor Réassemb	·	V					112		
10	Reassemb	- :		\$ 457.1					j.	
11	Reassemb			<u> </u>			7	28	669	
12	Reassemb		1774	21.37	1 - 7 - 4 -		•		•	
13	Reassemb	:	2.5		1.75=5	1.51		44 T		
13 14	Reassemb	21 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		11-14		1.12			,	
15	Keassemo 4.09		1	117 51						
16	15.00			4.00				4 d = - 1		
17	5.70	4.50	.	15.00	- -					
18	1-50	0.80	Cen Cen	10.20	10.05	4	9	28	467	
19	Cen-Cut	Reaming	Ins-C·P	2.30	1.60	, (d)	- 4		-	
20	1.20	3.20	7.80	12.20	À 40		ted a light		5	
21	2.70	5.00	5.20	12.20	8.50	11.3	A Property			
22	6.30	6.20	8 20	20.70	8-15	110			- "	
23	6.10	6.50	7.60	20.20	15.80			a f	3	
24	2.00	6.50	5.70	14.20	14.00	17	A 1			
25	3.30	6.10	2.60	12.00	11.90		21	28	69	
26	4.70	4.70	5 - 20	14-60	13.00					
27	6.20	5.20	0.30	11.70	10.40					
28	3.30	5.00	5-00	13.30	13.20					
29	6.00	7.00	6.00	19.00	19.00			1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
30	Stop-rat	Čen	off day		7	•				
31	Cen-Cut	Ces	off day	• *		15	19	28	90	
Jaouary 1	off day									
2	4-60	4.80	3-10	12.50	12.50	[
3	2.50	3.60	3.60	9.70	9.60					
4	2.10	Cen Cut	Cen	2.10	2.10				-	
5	Cea-Cut	Cen-Cut	Сев					1		
6	Cen-Cut	Cen	Sol-cen		ĺ		·			
7	Cen-Cut	Cen	Cen-Cut	<u> </u>		7	18	24	75	
8	1.50	6.10	7-90	15.50	15.40			1	†	
9	6.60	5.40	5.70	17.70	17.70					
10	2.50	7.40	0.60	10-50	10.50					
11	Out-CiP	Out-C-P								
12	Dismant					9	12	20_	66	
Total	87-80	88.00	74.50	250.30	210.70	52	86	156	1,436	

Table IV-3-9 Record of the Drilling Operation on HJ1-4

	Drill	ing length		Total		Shi	ſŧ	Vorkin,	g man
262.37	sun. 1	Sylle. S	Shift. 3	Drilling	Core Jeagth	Deliling	Total	Engineer	Forker
January 13				•		shift	કાત	145	819
14	Reassero			: : <u></u>			2	8	73
15	Reassero						-	7	ì
ì	8.40	:	·	8 40	1.30				
17	5.10	8-00	8 30	21.40	21.00				
is	3.00	Reaning	Reasing	3.00	1-10	1			-
l is	Ins-C-P	3.60	5.70	9.30	3.70	1.0		·	, , , , , , , , , , , , , , , , , , ,
20	Reaning	4.50	7.30	11-80	4.40			· 1	The state of the s
2	5.00	3.00	2.70	10.70	6.85	12	17	28	109
2	Cen	off day	off day					, .	
2	Cen-Cut	Cen-Cut	Cen-Cut	:					
2	Cen	Cen-Cut	0.40	0.40	0-15		1	1	4
2	5 2.00	Cem	2.90	2.90	1.20			:	•
2	5 Sol-cem	Ce≡-Cat	5.80	5.80	2-90			1	
2	7 Cen	Cen-Cut	4.20	4.20	3-60				
2	3 Sol-cen	Cen-Cut	5.90	5.90	5.20	6	19	26	200
2	9 6.00	5.70	6.60	18.30	15.90				
3	7.20	6-60	6.40	20.20	15.70	1 1 1 1			
3		Cen	Cen	0.50	0.30	1	e e	. 1	
Febrea	ry 1 Soi-cem	Ces-Cut	Сев				-	i i	
	2 Sol-ce	Cen-Cut	Cen						
	3 Sol-cem	Cen-Cut	Cen						
	4 Sol-cen	Cen-Cut	1.60	1.60	1.00	8	21	28	161
<u> </u>	5 5.50	4.20	5.00	14.70	}	 		100	
	6 5.50	3.40	1.90	10.80	1	1			1
	7 5.50	6.50	4.70	16.70		1			
	8 7.30	7.00	6.10	20.40		1 -			
	9 5.60	5.00	6.00	16.60	1				1
1	0 2.60	1.20	2.60	6.40	1		1	ļ	
1	2.30	1.60	4.80	8.70		1	21	28	99
	2 4.50	4.20	5.30	14.00					
	3 1.80	3.90	2.40	8-10	9	1	t	ļ	
l.	3.60	3.80	Out-C.P	7.40	1				1
	5 Dismant	Dismant		1		ļ			
	6 Transpor		j			8	11.5	18	80
Total		72.20	96.60	250.26	185-9	-1	91.5	136	722

Table 1V-3-10 Record of the Drilling Operation on MJI-5

and the second of the second second second second second

			v =					and the second	
	Drili	log leògtb		Total	3.1	Shi	íı l	Forkio	e 20
	SMITE 1	Shift. 2	SHIft- 3	Deilling.	Core	Orithing	Total	Englacer	Torker
February 16	Reassemb	4			4	sin	sitt	\$14	<u>e</u> 13
17	Reassemb	:							
18	Reasseab	: :	* * *	4.7	Note that		2.5	10	75
19	13.50			13.50	0.65			-	
20	6.50	3-10	0.50	10-10	7.05	13/7 1 - 1/4 1 - 1/4			
21	1-70	6.20	off day	7.90	4:10				
22	Sol-cen	5 - 40	6.10	11.50	8.25				
23	2.40	8-60	3.20	14.20	10.80		- 1		
24	Cen	off day	Cen-Cut						
25	6.00	7.70	5.80	19.50	18.05	14	17	27	223
26	9-60	4 - 20	off day	13.80	12.60	1		, i , ; ;	:
27	Cen-Cut	9.00	7.30	16-30	14-50	1 1 1			1
28	9.80	5.60	8.70	24.10	23.85				:
29	9.30	7.00	2 - 80	19-10	19.10		1 40		
March 1	2.80	5.70	5-10	13.60	13.60				\
2	6-20	5.80	5 - 50	17-50	17.00			- 1 m	1
3	5-80	6-10	5.90	17.80	16.50	19	20	27	119
4	6.10	5-60	5-60	17-30	16-90				1 . 11
5	5.80	5.90	5.60	17.30	15.40				
6	4-90	4.20	0.80	9.90	8.60				
7	3.50	3.20	Out-C.P	- 6 - 70	5-05				, ,
8	Dismont	Dis≢ant							
9	Transpor	1				11	14.5	22	110
Total	93.90	93.30	62.90	250.10	212.00	44	54	86	527

Table IV-3-11 Working Time Analysis of the Drilling Operation

		Drilling	•	Sh	Shift	Working man.	ada			Workingstine	gentime			
NO.	Dit size	Drilling	Core	Drilling	Total	Bng.L neer	Forkor	Deilling	Other Working	Recover	Total	Removing	Road con- atroction and others	G. Total
	, 7,	10.00	4	Ahi (t	4.5	2 Web	130	3,40	4°50	- North and the second	8°30	31,00,	# · · · · · · · · · · · · · · · · · · ·	39°30
MJ1-1) S	113.00	104.95	28	33	4 80	218	126730	121 000	34.00	281.30	- The second sec		281 "30
	o o	77.50	72.85	7	8	22	237.	70 40	48°10	1,10	120,00	17°00	50,00	187°00
	total	200.30	177-80	433	62.5	118	585	200°50′	174,00	35-10	410,000	48.00	50.00	508,00
	3 /4:	9.00	1	1	4.5	81	174	3°30	5,00		8°30	30.00		38°30
MJI-2		132-00	91-05	31	38	75	343	125750	136.00	16°30	279°00′			279,00
		109.20	104-60	22	26.5	38	272	101°40	91.040	39°40	233"00"	15°30'		248°30
	total	250-20	<u> </u>	35	7.4	110	759	231 00	233720	56°10	520°30	45°30		566,00
	1,8	10.00		23	13	32	1,126	5.20	11,040	. · · ·	-	63°00	43°00	123°00
MUX-13	So ×	131.00	110.70	88	33	44	113	86,30	139"50	37°20				264700
	D O	100-30	100.00	22	\$	9	195	88"30	102.10	124°30	315,30	5.00		320°30
	1 2 2	250.30	210.70	52	98	136	1,436	181 00	253*40	161°50	596"30"	68,00	43.00	707°30
	3,4	7.00	1			V.	118	2010	1 "50		4,00,	26,00		30,00
N.J.I A		143-00	102.35	30.5	60.3	80 C)	445	108"20	240,30	132.40	481 "30"			481 30
		100-20	83.60	72	27.3	33	159	90.20	109"00"	6.10	205730	14°30′		220 000
	total	250-20		8	91.5	136	722	200°50'	351,20	138°50	691,007	40°30′		731,30
	2	12-00	ı		3.5	1.4	110	4"30	4.00		8,30	23.00		31,30
S. I. S.		138.00	118-95	23	27	88	261	100°30	92°10	24.20				21700
	0	100-10	93-05	20	23.5	34.	156	77.20	88"40	1,00	167,00	21,000		183,00
	total	250-10	``		54	86.	527	182,20	184.50	25-20	392-30	44.00		436.36
Grand	Total	1,201-30	l	248	364	900	4.029	996-00,	1.197"10	417-26	2,610"30"	246,00	93,00	2.949~30
·											-			

Table IV-3-12 Specification of Diamond Bir Used

75-6 mm NO - W. 28 CE E 25 4 NO - W. 30 CE 25 4 79-0 mm NO - W. 30 CE 25 4 79-0 mm NO - W. 30 CE 25 4 NO - W. 30 CE 25 4 NO - W. 30 CE 25 4 190 CE 25 4 100 M - W. 20 CE 25 4	Itom	Size of	Type of bit	Carats per bit	Matrix	Stones per carat	Waterway	Total bit Used
79.0 nm N2 - W. 30 Z ZS 4 79.0 nm N2 - W. 30 CE 25 4 60.0 nm S0 - W. 25 IIIS 60 - 80 6 60.0 nm S0 - W. 22 ZS C 25 70.1 ll S0 - W. 22 C 25		75-6 Ⅲ	N - W.	15 88	රා	pes 25		80 G
79.0 mm NO - WL 30 CE 25 4 NO - WL 23 IIII 60 - 80 6 60.0 mm 80 - WL 19 E 25 25 4 52.0 mm 80 - WL 22 CE 25 4 Total 1,203			78 - 87.	30	2	83	**************************************	ڼ
79.0 mm NO - WL 30 CE 25 4 60.0 mm 80 - WL 19 E 25 62.0 mm 80 - WL 20 Z 25 70tal 1,203	pavad		1 2	30	Ų	-07	•	4
60-0 mm	Bit	79-0 as	78 - FC	ಜ	용	25	7	. P
60-0 mm			NO - NT.	\$2°	1018.	60 ~ 80		8
62-0 mm BQ = ML 22 C 40 4 40 4 40 ML 22 CE 25 25 Total 1,203		eu 0-09	190 − ¶L		æ	25		6
62-0 mm 80 - WL 222 C 40 4 4 4 7 Total X 1,203			DQ: "W.	20	2	25		OX.
Total Total		62-0 BM	- BG	22	į.	40		en e
1,203 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)			. BQ = #C	22		25		1 199
		Total		1,203	17 of W			67

E : for ordinary rock C : for hard rock

Z . for ordinary rock 1918 : for imprignate but

* total amount of diamid carat

Table 1V-3-13 Drilling Meterage of Diamond Bit Used

Item	Size	Bit No.	Drilli	& Rélerage	by kole Unl	t : Keter		Total
			W1-1	8-1fK	M11-3	X31-4	N11 - 2	10041
		8 2217			34.83			34.80
		P 2218			17-50	10.70		28.20
		P 2219 .			25.20	2.70		27.90
		P 2220				42.80		42.80
		9 2221			27.45		5.00	32.40
-		P 2222			25-10			25.10
		38360				27.60		27.60
		38301				18-10		18-10
		33302				21.50		21.50
		38303				19.69		19-60
		40493					27.60	- 27.60
Distord	NО	45494					30.20	30.20
bit	, v	40495					29.90	29.00
		40 435		15.30				15.30
		40497		12-50				12.50
		181752					46.20	46.20
		181753		26.20				25.20
		181754		23.60				29.66
		181766		27-00				27.00
		181767	30.70					30.70
		181768	17.90					17.90
		181769	26.70					26.70
		181770	21.30					21.30
		28738		21.40				21-60
		28740	16.40					16.40
		Orilli	eg leagth/b!	£ (657.00/	(25)			(25.28
		N 979		-	32.30			32-39
		N 980			12.50	7.80		20.30
		N 7189			11-50			11-60
		N 1190			10-50	9.20		19.70
		H 1191			18-70	- · · ·		18-70
		41103			14-50			14.50
		6954			·	18-10		18-10
		0985				16-70		16.70
		1210				12-30		52-10
		1211				17-50		17.50
Dispod	8 Q	1212			·	18-80		18.80
Sit		1213				!	11-30	11-30
		1214				<u> </u>	18-20	18.20
		1215	- '				16.50	16.50
		P 6317					28.60	28.60
İ		P 6318					25.50	25.50
	}	P 6319		21-00	<u> </u>			21.00
		P 6320		19-20				19.20
	1			24.50	ļ			24.80
		P 6321						
		172685		27.60			<u> </u>	27.60
		17268\$ 172685						
		172685 172685 172687	24-60	27.60				16.6
		172685 172685 172687 172688	24.60 28.10	27.60				27.60 16.60 24.60 28.10
		172685 172685 172687 172688 172689	24-60 28-10 24-80	27.60 16.60				16.6 24.6
		172685 172685 172687 172688 172689	24.60 28.10	27.60 16.60	457.30/24			16.6 24.6 28.1

			·	•		
	in the second se	ing the Hall May be a control of	ing and the second of the sec	trantiti		
			(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	to Section		
		·				
	15 4 5 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	The State of the S		- 1	en e	
	$= h + \frac{1}{2} \frac{\partial f}{\partial x} + $					
					el jago-mandarine fermelier dief	. :
					· maintenance in the contract of the contract	
	1.11					
					and the second	
				A Company of the Comp		
	u Mark un in der gegener	in the second of the second o		•		
		+ 10,414).				
					1	
	· · · · · ·					
				i	\$ {	•
				:	g, special	
•		the state of the s				
-				= : -: :		
F	· :	1.4	1 T			
	· ·					•
		we see that the second	1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			-
					;	
	- -				1	
	: :					2
						e de describer de la companya de la
					:	
	r set			• :		<u>.</u>
				·	:	:
	:			: :	# 	\$
					· ·] · }
	:					
					; 2	•
				\$.		
			en e			
		,	e de la companya de			•

|--|

Drilling Progress on Mil-1 Fig. IV-3-1

	Abri 1	L. Inserted NM C.P. to 9.00m. L. Inserted NM C.P. to 9.00m. Cone bit, Kemput NM C.P to 45.00m Cation of cement Isanond bit and standed by solidification of cement ing work. Affilled cementing part	inserted BW CP to 150m -drilled by BQ-WL diamond bir Completion of drilling diamentlement of mathins	cranaportación
ses and one	March	o to 11 12 13 14 17 18 19 20 21 22 23 24 25 27 28 29 30 31 1 2 3 4 5 6 Orilled by 3-7/8 tri-cone bit, inserted NN C.P to 44.00m. Analyse NG-WL bit standed by 3-7/8 tri-cone bit, re-put NN C.P to 45.00m Atilled by NQ-WL dismond bit. Genent of coment of coment of coment of coment of coment general by 3-7/9 tri-cone bit and reinest of the coment of coment of coment of coment of coment coment of coment coment of coment coment of coment com	preparation of drilling site transportation	
	Drill- ling method		23	
Dril)		
	tog Lithlogy	alternation of shale, sandstone limestone limestone sandstone sandstone sandstone sandstone sandstone saltoeous rook tuff tuff saltoeous rook saltoeous rook saltoeous rook saltoeous rook		and the state of t
	Nago Tradeo	£ 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		
L		<u></u>	<u> </u>	

Fig. IV-3-2 Drilling Progress on MJI-2

Progress	December	5 6 7 N 9 10 11 12 13 14 15 16 17 1N 19 20 21 22 23 24 26 29 27 28 3	- Z Z
	Dril- ling method	*	
Dr.13-	- 1	30, 50,	
	tog theriogy		which is the state of the state
	Depth	(E	007

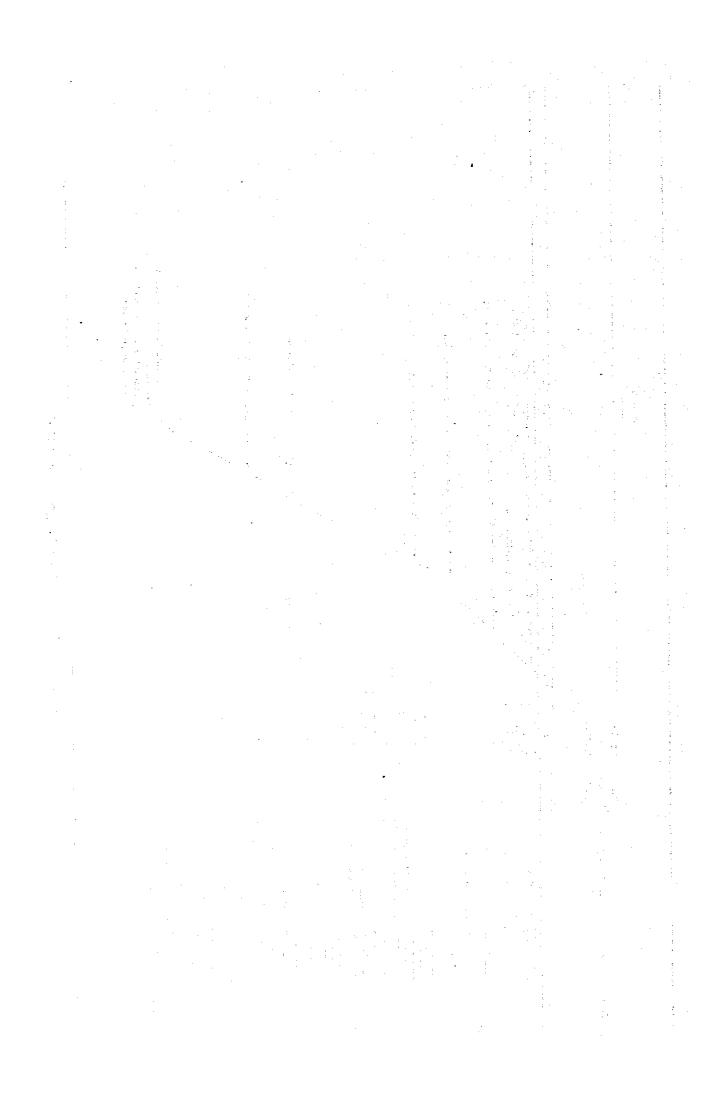
Fig. IV-3-3 Drilling Progress on MJI-3

17 14	Pebruary P	1 2 3 4 5 6 7 8 9 10 11 12 13 14 13 16	ng work -standed by solidification of cement -drilled by NQ-WL diamond bit	standed by solidification of cement	inserted BW CP into 150m		dismantlement of drilling and transportation	
es e	January	13 14 15 16 17 14 10 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9	cementing work		transportation and reassemblage			
	Dril- ling method	1	a d	ğş		ŠŠ		
, , , , , , , , , , , , , , , , , , ,	12ng hour/ meter	8					1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	
	Lithlogy	andestato tuff	anale real fault in pandatone, tuff bhale, aandatone		ahale (sandstone)		F andatone S alliceous took	
	<u>\$</u>			Secretary of the second				·
<u> </u>	Depth Depth	€		100		000	250.70	

Fig. 17-3-4 Drilling Progress on MJI-4

Progress	February	6 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 2	drilled by 3-7/8" tri-cone bit, inserted NX C.P to 7.00m drilled by NQ-WE diamond bit reamed by 3-7/0" tri-cone bit, re-put NY C.P into 10.00m	deneting work and drilled cementing part	drilled by NG-WE diamond bit		transportation. and reassemblage	drilled by BQ-WL diamond bit		completion of drilling diamentlement of machine and transportation	
	Dril- ling method	ğ			àů	-1			0 3 0 3		
12.70		40,									
	Lichlogy		o o o o o o o o o o o o o o o o o o o	daldareous rock	Shale Calcernated with	alternation of sandstone, tuff		datemation or sable, sa		siliceous cock	
	\$		00					υυ V	x , , x		
	Depth	€		1 1 4						250.10	

Fig. IV-3-5 Drilling Progress on MJI-5



3-2 GEOLOGY AND THE RESULTS OF MICROSCOPIC OBSERVATION

3-2-1 Site HJI-1

The columnar section of the drill core is shown in Fig. IV-3-1. The lithology of the section is as follows.

0-10m depth: Top soil and andesite boulders.

10m-40m depth: Hainly sandstone, calcareous rocks and shale. Green skarn observed in limestone at 31.80m-34.30m.

40m-99m depth: Mainly acidic rocks (quartz diorite, aplite, granodiorite), siliceous rocks and hybrid rocks. Alternation of tuff, calcareous rocks and shale is observed in places. Microfolding of calcareous rocks is observed at 67m-68m. There is a fault breccia zone at 76m-78m. Weak pyrite dissemination is observed throughout and fine-grained magnetite is observed near 92m.

99m-183m depth: Kainly acidic rocks (quartz diorite, granodiorite) and siliceous rocks. Pyrite dissemination is observed throughout. Quartz veins (0.10m-0.05m) and quartz vein network is observed in some parts of the acidic rocks. Green skarn is observed in calcareous rocks at 153m-158m and in siliceous rocks at 171m-183m.

183m-200.50m depth: Mainly tuff (tuff breccia, sandy tuff, fine-grained tuff), shale and sandstone. Parts of the shale is phyllitic.

Microscopic observation of rocks

នាក្រាស់ បាន នៃក្រុម និងក្រុម នេះ និងប

S12 (93.00m depth) is somewhat pelitic fine-grained tuff consisting of fine quartz, plagioclase, calcite fragments and clay minerals. It has unclear foliation.

Microscopic observation of ores

D26 (91.10m depth) is an ore consisting mainly of massive pyrite. Some chalcopyrite and pyrrhotite are observed under the microscope. D25 (93.10m depth) is a disseminated ore in silicified epidote skarn. Pyrite, sphalerite and minor amounts of chalcopyrite, galena and pyrrhotite are observed.

activities registed in the title year tiles in the

in the first term is not the first term to be sent and the first term of term of the first term of the first term of the first term of the

3-2-2 Site HJI-2

The columnar section of the drill core is shown in Fig. IV-3-2. The lithology of the core is as follows.

0-9m depth: Top soil.

9m-49m depth: Mainly sandstone, shale and calcareous rocks, partly slate and phyllite.

49n-62.70m depth: Mainly acidic and hybrid rocks. The origin of the hybrid rocks is difficult to determine because it is intruded by acidic rocks. Schistose structure and microfolds are observed in parts of there rocks.

างเกรียงสายอยู่ที่ เกี่ยวกลางสายที่ พาสมาร์สอนที่ การที่ที่ ผู้เหติ เพื่อพระกรรณ์ หรือแล้วสร

62.70m-90m depth: Hainly sandstone, felsic rocks and siliceous rocks.

នាក់ស្រុកស្រុកស្រែស្រី ស្រាស់ស្រាស់ គឺ ស្រីស្រែក្រៀត ប៉ុស្ស៊ី

90m-110m depth: Hainly acidic, hybrid and siliceous rocks. Between 106m and 110m is a fractured zone and the hard shale is brecciated and argillized.

110m-170m depth: Hainly acidic rocks, green siliceous rocks and calcareous rocks. The calcareous rocks (partly siliceous) is significantly green-skarnized. The mineralization is mainly pyrite dissemination and occurs accompanying quartz veins (111.30m-111.80m, 160.90m-161.05m) and also as banded ore in the skarn zone (136.20m-136.80m, 139.50m-140.20m, 142.50m-143.30m, 146.00m-146.80m, 148,00m-149.50m, 155.60m-157.00m). In both types of mineralization, pyrite and pyrrhotite are the only ore minerals which can be identified by the unaided eyes.

170m-218,50m depth: Mainly siliceous and calcareous rocks. Parts of these rocks have suffered strong silicification and have altered to chert. Also skarnization is observed in parts of calcareous rocks. Quartz veins (width 0.25m-0.05m) are observed particularly between 204m and 218m.

218.50m-250.20m depth: Mainly hybrid, siliceous and acidic (quartz diorite) rocks.

to because the professional for the first of the self
Microscopic observation of rocks

S11 (126.00m) is dacitic tuff. Quartz, plagioclase and clay forms the matrix and dacite and pumic fragments, plagioclase and maffe minerals are observed.

Hicroscopic observation of ores

P20 (53.70m), P21 (112.50m) and P22 (139.00m) are all disseminated ores. The major mineral is pyrite with some pyrrhotite and minor amounts of chalcopyrite and sphalerite.

S24 (226.00m) is a disseminated ore from silicified epidote skarn. Pyrite, pyrrhotite and small amount of chalcopyrite are observed microscopically.

the remarks when water present the contract the contract of the contract of

3-2-3 Site HJI-3

The columnar section of the drill core is shown in Fig. IV-3-3. The lithology of the section is as follows.

0-17.00m depth: Hainly soil and andesitic pyroclastic rocks.

25. November 1980 (State Option France) in the State of the State of State

for full cultivation and account to the community of the

17.00-34.00m depth: Dark brown to dark green andesite with quartz veinlets and quartz network transecting through-out the rock. Severely fractured.

34:00m-65.00m depth: Mainly sedimentary rocks (shale, sandstone, limestone, tuff); Mineralized zones were confirmed at 34.50m-38.40m, 53.70m-54.30m and 58.90m-60.00m.

Fine-grained ore minerals are disseminated in the mineralized zone at 34.50m-38.40m. The host rock of this zone is argillized and fractured mudstone (partly sandstone, limestone). It is difficult to identify the ore minerals by the unaided eyes.

a filoso de filosocia de filosocia de filosocia de filosocia (1909, peregição 1904).

The mineralized zones at 53.70m-54.30m and 58.90m-60.00m occur in the fault breccia zone and massive ores rich in lead and zinc are observed, Brecciated ores with 5cm of fault dray are found in the cores.

65.00m-75.60m depth: Andesite with well-developed joints. Chloritization is intense along the joint planes.

75.60m-109.40m depth: Mainly calcareous rocks (partly silicified), limestone, hard shale with minor amount of phyllitic rocks. Fractured and argillized zones are observed in some places.

109.40m-149.00m depth: Hainly siliceous rocks accompanied in some places by quartz veins (width 0.30m-0.10m). Also andesite sills and dacite dykes occur occasionally. Weak dissemination of pyrite and magnetite are observed at 120.00m-145.00m.

a fitting of site of the common of the

1 2344454

149.00m-190.00m depth: Hainly siliceous rocks with quartz vein network in some places. Also semi-spherical core of 0.25m width was obtained at 182.25m. This is interpreted as being the result of drilling through the outer part of a vug. The inner side of the vug is covered by fire (1-2mm) comby crystals of quartz. Weak pyrite mineralization is observed at 149.00m-152.50m and 162.00m-186.00m.

190.00m-250.30m depth: Mainly siliceous rocks (massive, schists), hard shale, hybrid rocks with some intrusion of granitic rocks (aplite, granodiorite). Contact metasomatism is conspicuous near the granitic intrusion and the lithology becomes complex making identification of the rocks by unaided eyes difficult.

As for mineralization, weak pyrite (magnetite, pyrrhotite etc.) dissemination and veinlet network is observed at 200.00m-210.00m and 218.00m-231.60m.

Hicroscopic observation of rocks

Si (66.50m) is dacitic sandy tuff. Quartz, clay and mafic minerals form the matrix and siliceous fragments, quartz, mafic minerals and minor amounts of plagioclase are observed. S2 (139.60m) is dacitic tuff. Quartz, clay and iron minerals form the matrix and quartz, plagioclase, iron mineral fragments and some mafic minerals are observed. Both Sl and S2 contain chlorite, sericite and epidote as secondary minerals. S3 (166.50m), S4 (191.50m) and S5 (217.50m) are all mylonitic rocks with cataclastic structure the constituent minerals are quartz, plagioclase and mafic minerals. They are fractured and some quartz are recrystallized.

·囊 医多数多数 医多种 电电流电流 医二氏

As for original rocks, S5 retains some coarse-grained plagioclase and quartz with banded structure and it is tonalite or granodioritic rock, while S3 and S4 is finer-grained and it is most probably decitic tuff. S6 (248.50m) is slate and contains muscovite, quartz, carbonates and minor amount of plagioclase in banded arrangement.

The second of the second second

Microscopic observation of ores

គុំស៊ីនា ប្រាស្ត្រ

医髓膜科 医隐断线 医异乙酰 医克里氏 医克里氏

than Friday of the first of the

P7 (35.50m), P8 (71.80m), P9 (144.60m) and P10 (225.70m) are all pyrite and pyrrhotite dissemination ores and contain minor amount of galena, sphalerite and chalcopyrite.

\$23 (54.00m) is a massive ore consisting mainly of pyrite and arsenopyrite with minor content of chalcopyrite, shalerite and galena. The chalcopyrite occurs as small exsolution dots or lamellae in sphalerite.

3-2-4 Site MJ1-4

The columnar section of the MII-4 drill core is shown in Fig. IV-3-4. The lithology of the section is as follows.

0-7.00m depth: Soil and andesite boulders.

7.00m-24.80m depth: Brown andesite to andesitic tuff with quartz veins, veinlets and network dissecting throughout the core. Andesit is well-jointed.

Contributing the property of the contribution of the first parties of the parties of the contribution of t

en in en late kreuk in Engelog beken e**ngelog i**n de jo

24.80m-29.80m depth: Tuff breccia and brecciated andesite.

29.80m-50.10m depth: Sedimentary rocks consisting mainly of black shale.

Mineralization is almost non-existant between 7.00m and 50.10m.

化氯化铁 电电流通讯器 化铁石油 化环烷酸亚甲酯环苯甲酰胺亚酚医亚酚医亚酚医亚酚医亚酚

50.10m-114.80m depth: Siliceous rocks, calcareous rocks, hard shale, siliceous and sandy tuff. Practured and argillized throughout the zone. Practuring and argillization are particularly strong at 50.10m-53.90m, 61.00m-72.80m and 106.30m-111.00m. Slickenside was observed in the fault zones at 61.00m-61.50m, near 65.00m, 71.00m and others. Quartz vein network is particularly developed at 80.50m-105.00m.

Pyritization is the major mineralization and finegrained pyrite is disseminated in most of the fractured and argillized zones. The pyritization is relatively strong at 50.10m-51.90m and the zone 71.00m-72.80m consists of galena and pyrite dissemination.

114.80m-127.60m depth: Hit ore deposits. It is dissemination of fine-grained ore minerals including brecciated massive ore (2n, Pb rich) dragged by fault. The host rock is siliceous at 114.80m-121.60m, shale at 121.60m-123.90m and calcareous rocks at 123.90m-127.60m. Fig. 1V-3-5 is the sketch of the boundary of the deposit as seen in the core (116.20m-131.90m).

127,60m-191,20m depth) Green siliceous rocks, sandstone, hard shale and slate. Quartz veinlets occur along the microfolds of the hard shale. Also quartz network is observed in places at 152,40m-170,00m. As for mineralization, weak dissemination of pyrite and magnetite is observed.

191,20m-250.20m depth: Siliceous rocks, felsic rocks, sandstone, hybrid rocks and aplite. Chloritization is strong in siliceous and hybrid rocks. Mineralization of this part is weak pyrite mineralization.

相关,我就看着我的自己的主题,就能够是这种的自己的自己的。这样,但是一个一个一个

(b) 经申请股票等的编令 (b) 网络克勒斯多尔伊克克斯斯克 化二二甲甲二甲酚

Microscopic observation of rocks

S7 (49.00m) is slate with banded arrangement of blotite, suscovite and minor amounts of plagfoclase and quartz. Some chlorite is also present. S8 (118.50m) is green skarn with epidote, pyroxene, calcite and sericite. Minor amounts of sphalerite and pyrite is associated.

Hicroscopic observation of ores

P11 (122.30m) and P12 (124.10m) are the lower I mineralized zone of the Pagar Gunung Deposit consisting of chalcopyrite, pyrite, sphalerite and galena. Chalcopyrite occurs as small exsolution dots and lamellae in sphalerites.

3-2-5 Site MJI-5

(au) softentier fil

The columnar section of drill core MJI-5 is shown in Fig. IV-3-6. The

0-12m depth: Soil and andesite boulders.

12m-29.20m depth: Dark green andesite, generally massive.

29.20m-84.50m depth: Hainly sedimentary rocks (calcareous rocks, hard shale, sandstone and tuff breccia). Skarnization is observed through the core and the mineralization is weak pyrite dissemination.

84.50m-108.00m depth: Mainly shale and limestone. There are local microfolds (96.50m-98.70m), fault breckia zone (near 84m and 87m) and argillized zones. Relatively large mineralization occurs at 84.50m-85.10m, 88.50m-89.40m and 106.00m-106.80m. The mineralization consists of dissemination of fine-grained pyrite and galena (?) which is difficult to identify by the unaided eyes. The host rocks are sandstone and calcareous rocks.

108m-129.70m depth: Hainly coarse-grained tuff, fine-grained tuff and sandstone.

and the titles. The artistic of show his many mining the prompty it to write

ริการ มี ภาษาอดเรือก **เ**ป็นอาณอันเสริ

129.70m-159.00m depth: Hainly calcareous rocks and slate. Quartz vein network is developed throughout the core. Zone of fault fractures and microfaults are observed near 130m and 140m respectively. Mineralization is weak dissemination of pyrite.

159.00m-194.70m depth: Hainly calcareous rocks, coarse-grained tuff, sandstone and slate. Quartz veins are observed near 176m and quartz network near 180m. Hicrofolds are observed near 189m. The larger mineralized zones in this core are as follows.

Depth (m)	Width (a)	Host rock	Hineralization
170.60-170.80	0.20	Slate .	Dissemination (Pb, Zn, cp, py) accompanied by
175.50-176.00	0.50	Sandstone	Dissemination (py) accompanied by quartz vein network
190.40-191.40	1.00	calcareous rocks	Dissemination (Zn, Pb,
191,40-192,60	1.20	calcareous rocks	Dissemination (Zn, Pb,

194.70m-250.20m depth: The upper part consists mainly of sedimentary rocks and the lower part of acidic rocks (granodiorite, aplite etc.). The sedimentary rocks near the contact with the acidic rocks is hybridized and the identification of the original rocks is difficult because of silification and microfolding. Also chloritization is generally observed. There is a mineralized zone at 241.40m-242.20m which consists of banded ore. The major ore mineral is pyrite accompanied by sphalerite and galena. The host rock is green siliceous rocks.

Microscopic observation of rocks

S9 (186.00m), S10 (196.00m) are both dacitic sandy tuff. The matrix consists of quartz, plagioclase, calcite and clay. Dacite fragments, quartz, plagioclase, calcite and other mineral fragments are observed.

Microscopic observation of ores

- I. P17 (190.60m) and P18 (241.60m) are massive ores which will be described later. They consist of sphalerite, pyrrhotite, pyrite, chalcopyrite and galena. Chalcopyrite occurs as exsolution dots and lamellae in sphalerite.
- II. P19 (24.00m) is a banded ore which will be described later. It consists mainly of pyrite accompanied by minor amount of sphalerite. These minerals are arranged in banded structure.

及政府通知的特色中央 电电子系统 (1) 电影 (14) 的现在分词 (14) 电影 (1

។ ប្រទេស និង អាមេរិយៈ ស្រង្គាល់ «១២ «ស្គីស្មី» ខេងបេទីបែ

Committee and the end of the same of the s

(2) The problem of the second of the second of the problem of the problem of the problem of the second of the s

A constitution of the first of

Pig. IV-3-6 . Geological Log of MJI-1

 Location
 Pogor gunung (West Area)
 Elevation
 1 190 m

 Direction
 B line 4,0
 Inclination
 90°

 Depth
 200,50 m
 Core Recovery
 93,3%

 Boring Machine
 OE - BBL
 Team
 84'-4-10 ~84'-4-27

<u> </u>	, , I		·	 '	Δ	ssay	Ŕà	sülts	· · · ·	
Depth	ž I	Litholog	Mineralization	Sample	Depth					<u> </u>
(m)	loģ		etc	No	(m)	VOAT	1/867	Cu%	Pb %	Zn*/
						İ				
						1				
		¹ 4		!						
			4.			1		1 1 1		
				:		1		*	٠.,	
	00.	Soil	-							
	.0					1			100	1 + 4
•	ο.		:			N 2				
-101004	. •									
	Ľ	And		*						
15.00	\ <u>'</u>	12.00	12.00 _T			.]				
-	14	Calacarous (Cal)	Ī							
	• —	Ss		*				•		
		Sh		1:	- ;					
	•									
17,50			Week limomi∽		:	1				
	4	Col	fizotion							
19,20								. :		٧.
-20							1 1			5.3
- ;	•				i					
-	· · ·	Ss	j	!						
-]	23,00-}-							
25,50		Sh	1		11.					
-				1						
-		Ss (Arkose)		1						
_	3	1	Sheared 28,00 zone	i i		16.5				
- 20,00	\	Col Ss Alter (Br)					1 / ·			
_	\$ \\ \frac{1}{2} \rangle \		Py diss							
−30	Ξ	Col								•
31,86 31,86		Foult Br Arg	Skornization				7 7			
•-										
		ן ני			1	1				
34,3	<u>الراب</u>	-{	¥ 34.30							
	Z	1								
	P	Coi								
	,	1								
38,2	'Si	Siliceous (Si)	38,20			- [
40	50.5									
		1:200				-				

				1 12 1	<u> </u>	12.5		•••		
Depth	Orill	: k itholog	Mineralization			\$ oy	Res	ults		
(m)	iog	Litholog	etc.	Sample No	Depth (m)	Au 9/1	Ag g/I	Cu %	Pb %	Zn %
	•			1.70					I	<u> </u>
	• "	an an _ i .						e ya e	. :	
	" •						* 11173			
44.00	+ "	00 II	graduation of the state of the			F 1	100			
44,00	(şi	Siliceous	in the second							
	3,1		Py diss						- 4 2	
46,30	戸	Qtz vein wd 0.20 Hofd÷sh	X 47,00		N.					
	(\$ j	通われたという Ali file		i de la fi					1	
ق	V)	\$1 mossine					श्रामीक.		1.	er de la La Briga
50	13			1		-				- 1.4 1
	11/2	Qiź yein wd 0.05	ĺ							+ + 1
	K,								•	
	ľ>	•								
	W.,	Čiz dio							1	
	1.	Do 1f		1	1					· #
	,					1		:	4.	
5450	7.	i	l i							
	[[交	Qtz network 13r	ļ į		i		-			- ;
\$9,50 -60	1 11					Į.				ere of
	•	\$13 Sondy Do If	l i			i		·. • - [
	11		i i			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				2.42
	п	Q1z dio						: · · · · ·		
	'		i	:						ş :
66,20		Col	Skarnization	-]					
	1]				-				į.
	14	Folding	1 1		ŀ					
€8,20		<u> </u>						1		
69,50		Col sh offer	1 E		1					
- 70	1	ACIOIC IVII								
	1									
- -	1	Gr-dio	<u> </u>	1					1	
	1.3	(mylontic)	Sheped	1		1	٠			
74.2/	(1)	}	zoně I							
75,30 75,60		⊋ Br	25,30 T	Ì	1					
-		Foult Br Arg (gray)		1.				`.		
77,90 78,40	0000	finegrain py diss			- E-	1005			1,1 12	. (w
	13		1 1 1							'E
-80	15/3	Si green	Škornization	,						
81,50	, 5.	mossine	Storizon.		1	1				15.1
	1.	fice II			1	1				
84,0	<u> </u>	Aplitic - \$12			ŀ	1		:		
64,0	13)	7316					-		1	in strik V
_	(1)							, ·		
86,6		Py diss						s!		
87,3	°[•+	1								
-	1X	Qf2-dio		-		1	٠.,			· .
90	144			1.		1		ŧ		3 .

Dei	Яħ	Drill	0514, 4615					As	soy	Rest	ills		
((r		log	Litholog	1	eraliz etc.		Sample No			A. 9.	Çü %	05.47	7.4/
<u> </u>	<u> </u>	3.7 + 1	P26 Skarne Cal Banded Py dise				""	1 ^{1m} /	149 /1	A9 71	ψυ 7¢	10%	20.70
91 91	10		Col Bonded Py diss	Shedi	ed P	y diss I		ļ					
- 1	50	***	Complex	1					-				
			P25 Py magnetite			İ					•		
["	ۇق ۋەر	**	\$i . 8r		¥	i]						
		Si	Co1		Skárn	noitos							
_	•	15.						1	ŀ				-
}		3/	Si Shloritezation massive			į	· i						
93	30	<u>×</u> '											
-100		/ /							İ				
-		1	Gra-dio			į	1	į					,
-			(Mylonitic)			į							
103	60	~											
		1	Si Br		l '	Ĭ							
106	óò,	\mathcal{H}				j I							
-		X							ŀ				
-		X,	Si mossive	-		!		,					
109	- 1	Δ~ Δ + Δ	Br Arg goma		!		1		}				
110		† 4	(Calcite crystal)			į							, -
		1	Qfz network			•			ŀ				
! [• +			İ	i							
		+,	Öta eta		į	Í			ľ				
4			Q1z-dio .		i							•	
1		Ž.			; ;	 							
Ì		+ \	Qtz filinyein		6 6	! 							
-		X+			1	1	:		İ				
II		1			! 	1							
120		+			! !	1		į					
122		+			 								
183		SiA	Si Br		1	į		1					
<u> </u>		`~`	Fault? Ss (Silem)		i	į	±						
125	.00	~`.~ •Si/			: •	į		1					
t	1	۵. (۵	Si Br		; {	į	:]			,		
127	.30	11	4	127,00	L	İ				• •	•		
128	90	3	Si mossive		٠	į							
130		×	Py diss Fine groin		•	 							
'*		×х	Aptitic Py diss										
1) ×	Qiz veîn wô 0.05m Qiz veîn wô 0.05m			-	1						
-		1	412 142. 80 0.00311	, · ·		į							
-	ļ	**/	<u>.</u> .		:	•			Ī		1		
ŀ	•	\v+	Q12 network	i	:								
Ì		**	منه م			i				-			
		ハ	Q + dio			1						_	
L		+	·										
[110		+				į							
3			1:500										

	١١			1121	A	SSO	v f	?esul	ts		9. N
Death		Litholog	Mineralization	Somple					1 1 1 1 1 1 1 1 1		
(m)	log		etc.	No	(m)		YYJA	Sala	"/	Pb %	Zn %
!	+ *		Py, diss	no ré			1 - 1 - 1		3	, ,	
٠		Qtz vein wa 0.10m	F 7 0 33		:				As estat.		un sin i
	+		\								- 1
	*			$-i_i$							5 13 5
	$ \cdot $										4
	• +					Į	;				
	+		,		Ì	- 1		· 1.		1.2	
	•+	Qtz vein wd 0.05m						•			- 71 - 40
150	*					1					i ot fili
	1			4							
	区	Sh	Skarnization		1 :	.		194			- (S
155,5	0 +	1 3"	153 🛣							1	3 3 1
· .		Col Sh Alter				İ			a in		-
		TOT OF AIR				ŀ					
	•	1			, r						
150,20	. 🔆	Si Mossive	158¥	1	1	١	٠	• :			
recogni	+	1	136					- 1. 1. j	, h. :		
-16Ò	 !		į į				1 %		23	<i>*</i>	4.3
	1,7	Q-dio			1 :					5	
	\rightarrow	.				ı					
	+ • · · ·	Br	1								
10012	, ,		İ			•		÷	10.0	1	r _g - t
-	1X	Q - dio				- 1					٠.
-					1				1.		. *
-	+.		Ì	1	1						, '
-	• ,	. [1		,						
-170	, ,	,]			:					. 4	* 1 55 5 1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
_	١,	+	Stornization			1				•	
171/	*10.5	1 .	11430						.:		
	17			1	*			· .			
-	13	5		÷		•					- : : :
-	13	Si	1 T						± 1	- 1	1
-	1/3	Qtz network			1.5	; + E					
	13							:	- :		
	N	<u> </u>	1 ! !	1					2 7	-	
-180	15										
-		Qts wd O.10m		-	181,7	o	1		1.5	1	<u> </u>
}	13			A3		92,30	<0.1	0.2	0.03	lt.	0.01
183		Arg Br	183,001								:
t	180 140 (F)	Sh folding	ļ !		1			11,	. · .		
f	11		1	1							•
185	5.50	<u> </u>					}		. · · ·		
		Sondy tuff	[[1				
1.8	9,0	Turk bassis									
معنا		Tulf beccia					<u> </u>				

					Assoy Results								
Depth (m)	loğ	Litholog	Mineralia etc.	tolion	Sample No	Depth (m)	AU9/3	Δġ ^ġ /1	Cu%	P b %	20%		
194,00 194,60		Ss Mossive Sh (Phytlitic) Ss		Py 6ss									
191,70 - 199,40 -200	14 A	Tuff Breccia Otzyein wd 0.10m Sh (Phytatie)	F99,40			1		• • •					

INDEX

030		\$oil	÷ ; ;	+++	Q-đó	Quartz - Diorite (Granifold rock)
	\$s	Sandstone		+++	gr-dio	Granddiarit (Mylonite)
臣司	Ls	Limestone		³ c 33	Comp	Complex rock
	Sh	Shole		ΔΔ	Br	Breccio
	\$1	Stote	:	~~~	Àrg	Argillization
FI —	Éŧ	Felsic rock	. :	555	Sili	Silicification
c	Cal	Calcarous rock	;	×	QIz	Quartz Yein & network
-si-	\$i	Siliceous rock		West.		Mossive Ore
• 4	Tf	Tuffaceous rock			diss	Dissemination
^^^	Da	Docisie rock		\$14	Thin	Section (Sample No.)
(V _V V	And	Andesitic rock		PI ~	Polisi	sed Section (Sample No.)
x x	Αρ	Aplitic rock		Ala	Assay	(Sample No.)

Fig. 1V-3-7 Geological Log of MJI-2

Location : Pagar gunung (West Area) Elevation : 1175 th

Direction : C line 4,0 Inclination : 90°

Depth : 250,20^m Core Recovery : 81,1%

Boring Mochine: OE-8 BL Term: 84'-3-13-84'-4-4

				Assoy Results								
Depth (m)	Driil Iog	Litholog	Minerolization etc.	Somple No.	Depth (m)	Au % Ao % Cu % Pb % Zn %						
	0.0											
5	0.0	Soil	1,233									
9,00	0.0	etseetit een e	Shegred ∓ zone									
10,50		Hard Sh	1									
	7.13	Ss Sh (Phyllitic)				and the second of the second						
13,00	Χį											
15,50	KŽ	Ss Sh,Ss	Mineralization									
16,50 17,10	VV7	Ss	17,10									
	•	Sh (Black) Phyllitic	Py diss			The Carte of the C						
20	in the	Folding										
21,30		Ss			9.2							
24,30		Śh	24.30 A			And the second s						
25,90		Sh (Phyllitic) Sh										
		Ss Hard Sh (Block)			1							
29,00	ii	Folding			3							
30 34,00	•	Sh Ss Sh oiler	31,00±			4.1						
34,30		Qiz wd 0.20m Ss										
- 3520		Cot (Cotcorous- Ss rock)										
37,60		Col St (groy)										
39.50 60	(0.55 (0.55)	= 1										

	 T			Assoy Results								
Depth		Lithology	Mineralization	Somple								
(m)	iòġ	C 1111010 y 9	etc	No.	Depth (m)	AUX AOX	Cu % Pb % Zn %					
	*****	Ss, St oiter	Sheared									
41,50			zone		·							
		Ss mássive	1			Ì	,					
44,00	34	Col Folding	Chloritization	ì								
					1							
47,00		SI (dork groy)										
		Qtz Yein (0,05")	48.90		·							
48,90		Ss	10,00			1	•					
50	11 31 12,	Do If										
	11 11 201	Complex				1						
53,60	11 21 ~11	Grmy	l į į									
33,60	~~	P20 Arkose Ss	55,00		1							
5500	242	Ss (Br, Arg)		-2 -								
56,70 57,40	346	(gray) Ss Qtz Veinlet	1er				,					
37,40	10 11	Do 11	diss									
ŀ	100	Complex										
60,00	3				1		•					
	15.7	Qtz Veintet			1							
62,70	7.3	Sh,Ss alter	62,701	1			Company of the Compan					
6430		Ss massive	65,00									
65,20). 				1							
	55	Ss, Sili	i	1		1	<u>.</u>					
	1				1							
69.20 -70	L.F.				i							
["	F	Felsic rock										
12,0) F	 	1 .	:		İ	•					
ł	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Si massive										
Ì.,,	父		75,00 ₄									
75.0 76.2	Ā	Ss (Br, Arg)	76. <u>2</u> 0									
	X	<u>-</u>	Chi									
}	15	Si green (Chi)	i ! !									
79.5 80	·//	Śs			1							
ėı,	فسننا	Hard Sh (Black)										
}	1101	Do H	84,50									
1	 					1						
	溪											
 	[X]	Si (mossiva)		1		*						
1	ΚX	(Granitic rock)			1							
	K.	.]	_# 69	\mathbf{I}			•					
44	5/	'	1 1 1 9									

0				Assay Results								
Depth (m)	Drill Iòg	Lithology	Mineratizátión et c	Somple	Depth	· · · · · · · · · · · · · · · · · · ·	Pb % Zn%					
			(a) (b) (b) (b) (a) (a) (a) (b)	No.	(m)	אל האוויים או	70 70 40 70					
	/Xיו	06 H	Pydiss	21 T		1 5 6						
	k. "	00 11	i				1 to 1 to 1 to 1 to 1 to 1 to 1 to 1 to					
93,70			į									
33,10	1400	Complex Qtz vein wd.0.03 ^m				٠.						
95,20												
96,50		Hord Sh	1 :			The state of the						
	11 •				in the second							
	·,, "	Đờ If			- t	Tara Beach						
-100 -	•"											
	11 11	m										
	332	Arg wd. 0,05 ^m										
1	(A)	Si green (massive)		1	7 7							
ŀ	33	Qiz wd 0,0i~0,05 ^m Py diss				and a second se						
<u> </u>	12.		Chi Sheared									
106,20	**************************************	Arĝ,Br	Noek Azone		ē.	i de la compositión En de de la compositión						
ł	ŽŽ	Si(H-Sh)		ខ្មាំ		ইনীক্রীক রাজ হুব						
	7-4~	51(n-5ii)		:		31 2						
-110	4 5		nox x			eng 🚶						
	ا کُرُون	Si green	Skorn ^l 東 本語30	1								
19,3X 18,8X	1	Qiz yein (massive) P21 wd 0,05 m	1 \$~		-							
}		.1		7.5		± 1 m/s	i de genero . ¥					
-	N.	Cal vein wa 0,02 ^m (Skarn	Epidote									
	135		(Epi)				1.44177					
€6,00	4	Qtz vein wd 0,10 ^m (Py, pro dist] i			4 1 1 E						
1:8,00	$ \iota\rangle_{\mathcal{L}}$	11,7,5,10 4.0	CAI II83x									
,.		1]		Ė							
~120	17.	Sigreen Sh			•							
ļ		.				1						
-		Hord Sh			•		9 1					
123,0		Qtr-dio?	1234									
ł	111	(groy~	1 ! !									
Ì	•11	palegreen) (massive)	Py									
];; ;	SII Do 14	(Pro)	1	:	·	-					
	\"	Đo 11										
ļ	, "				<u> </u>							
-:30	k .											
}		4		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Section 2018	* **					
132,5		3	Skorn Sheore	d d		.4						
130,0	1/5/	Si Araan (D-)										
t	18	Si green (Br)	Egi i									
Ì	354	Bande										
136,2	or i	Green Skorn Py	1 1 1 1									
]	以	diss		į	1							
130.2	18/8	Cot R (Siti) Bonded P22 Py dis		: :								
139,5	ŽŽ	P22 Py dis	<u> </u>	1	1	<u> </u>						

		18 \$ \$ \$ \$ \$ 1 \ \ \ \ \ \ \ \ \ \ \ \ \ \			As	say Results	_
Depth (m)	lõğ	Lithology	Mineralization etc	Sample No.	Depth (m)	Au% Ag% Cu% Pb % Zn 9	%
140,20		Siliceous Rock	Skorn† Col Pydiss		et get.		7
142,50		(Felsic)	1 1	Ì	,		
143,30	Lv I	Aptitic R				:	
	ÎXX						
146,00 146,00	118	Banded Pydiss	↑ ⊈ ↑	A31	146,00 ~ 146,80	<0.1 0.2 0.01 tr 0.0	ı
148,00	17/2	Si(Col)					
149,50	\mathcal{M} :	Banded P) diss					
50	Sil	(mossive)					
	W.						
153,24	****	Qiz vein wd 0,05 m ~0,02	1 1 1				
	$M_{\tilde{x}}$	Si (Cal)		:			
155,64		Banded	†		1		
67, 0	M.	Py (Pro)	Shedre				-
	.×	diss				-	
:60	XX	Aplitic		1			
160,9	4/1	Qiz Yein wd O _s i5 ^{III} Pyrich	₹				
	1	Felsic (Cherly)			ļ		
164,5	7	gona]		
165,0		Pydiss (Skarn)	85 <u>1</u> I				
167,	M	Feisic	€7±				
	\mathbb{X}	Col(Sili) mossive	Ερ	ļ			
	K	\		İ	ļ		
-170 -170,	× (×)		170	1			
	<i> </i> /	Col(Sit)			1		
		(Cherty)		-			
		(gray			1		
		→ poie green	1			·	
-	1;"	N		1	İ		
-	//	(Cherty)		1			
-180		: '					
(0),	10 EX	<u> </u>					
183,	200	Qiz Vein wd O, 10 Pyd	iss	1			
	[/y	8					
Ì	8/	Si(Cherry R)					
Ĺ	\	(gray)		ł		,	
ŀ	1/3	<u>}</u>	Skaral I				
1988°	26d (S)	2	Skorn w			i	

	(*·		MJI-2	<u> </u>		. 3	ra, fei				5	
epti (m)		Lithology	Miner	olizótió etc	n Sampi No.	e C	As Septh		Re:	Cu%	Pb %	zn %
	(3)\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Siliceous green rock	Pydi I I	s 's								
19570 19360 198,20	34.0	cor (Sill)	Skern # ! !	Sheored				1 · · · · · · · · · · · · · · · · · · ·				
198,20 -200 202 <i>0</i> 0		Si (Br, Arg)		202001				1 e 1 2 % 2 = 18 1				
eve po	5K72>	Col(Sin) (mossive) Q1z vein wd 0,05 대						19 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5				
207,00	10/1/1/2	Qtz vein wd O,IO ^M Cal, Ss alter	· ¥.					4.11) 14.11)	Jinta Kali Jef	i Site 5		
20 210,70 211,20	公公公	Si (massive) Cal Foult Br wd OJO ^M	Ŧ		A32	2	10,70 × 211,20	<0.1	0.5	0.02	0.05	0.52
217,00	NO.	Qfz vein wd Ö,25 ^m Qfz vein wd Ö,10 ^m	<u>۲</u>					÷				
218,50 220	15	Cal Qtz veinlet	*						=			
	かんかない	Complex rock (Sili) (massive)		: . : : :								
229,0	34.25	P24		{ { { ! !						i er ^a		
2345 -230	H	Siliceous rock (Bonded) Qua film vein		 								
	××××××××××××××××××××××××××××××××××××××	Siliceous (massivė)		 								
239,0 240	, X	Granodlorit										

	-		MJ1-2		ta was si				6	
Depth	Deill F	Lithólo ý y	Mineralization							
(m)				Sample No	Depth (m)	Δυ9/	A9%	Cu%	Pb %	Zn %
	+	re e	J AMENE		·					
	 	Granodior Ite	5\$. 11) 		:			1.1
	1	Qiz Vein wd 0,20 ^M Qiz Vein wd 0,20 ^M	Topic total		17:		.•			, ···· .
250	******	250,20 m								: 2

INDEX

000	Soil	1 + + + Q-60	Quartz - Diorite (Granifold rock)
Ss Ss	Sandstone	+++ gr-dio	Grańódiórit (Mylonite)
Ls	Limestone	Omp Comp	Complex rock
⊞ sh	Shale	A ^A Br	Breccio
sı	State	Arg	Argillization
-St-FI	Felsic rock	Siti	Siticification
-c- col	Calcarous rock	Qlz	Quartz Vein & network
-Si Si	Siliceous rock	1	Massive Ore
14	Tuffaceous rock	diss	Dissemination -
^ ^ D 0	Dacitic rock	Si~ Th	n Section (Sample No
bnA (V v V	Andestric rock	Pi~ Pol	ished Section (Sample No)
X X Ap	Aplific rock	AI~ As	say (Sample No)

Location : Pagor gunung

Direction: Cline 5,5

Depth : 250,30 m

Boring Machine: OE-8 BL

Elevation 1215 M

Inclination : 90°

Core Recovery: 90,3 %

Term : 83-12-15 84-1-10

Depth.	Orill		Minerólizátion		Ass	dy Results
(m)		Lithology	etc	Sample No		Augh Ag of Cu %Pb % Zn 9
	9.0		i, i			
-	00.					
	0.0					
-	.0.1			•		
	0.0	Ŝoli	্ বিভিন্ন	i f		
_	7.0	e Milional e e e e e e e e e e e e e e e e e e e				
-10	0.0					
	0.0	tin nakhada Alabaha	i y i			
	0.,	t et en ege				Albert Frank
	0.0	a Anna Anto				
1	0.		1.			
- 17,00	.0.				:	
	\	And (dork green)			-	
- i9,00 20	y	joint		**		4
-	$ v \setminus v $	Qiz network				
-	12	(1∾3 ^m m)			4 4	
24.20	v	And Tf				
24.70	¥	Q1z wd O,tO ^m	1			
	N.	. '	ļ			
	``		· .		9.2%	
-	N.	And massive				
-30	N.				1	·
	V V		Ì	,		
-	V V V		Mineralization		,	
34,60 34,50		py Shale (Sh) & Sandstoness	34,50 Sheared 34,50 20)		
-	7	Siteification (Sili) - Ls, Arg	Veinlet Py diss	Αı	34,30 0, 36,30 36,30	<0.1 1.9 0.01 0.05 0.0
-	~ ~	Mudy (Block)	1	A 2	36,30 ~ 38,40	<0.1 1.9 0.01 0.02 0.0
38,40	~		38,40			
40	ale	1:200				

5 		MJI- 3	3		* 1 1 1 1 1 1 1 1 1				<u> </u>
Oepth	Cal		Mineralization	11. 12.	Ass	ay Resu	ilts		
(m)	109	Lithology	etc	Somple No		Au9/ Ag 9/	1	Pb %	Zn%
41,90		\$h	Mineralization zone 4,90-						
7,50	W	A3	4,90 _F 4230 Pydiss	A 3	41,90 ~ 42,30	<0.1 3.2	1r	0.01	0.01
		Ss (topillitic tuff) Clay (white)	144,0	{ · · · · ·					<u> </u>
	~ ~	_	Py diss				•		
	37	Sh (mudy)	T 480	d					N. 🚁 🕾
49,00 - 50	V V		Pydiss						
51,40	VV	And	Py diss					: :	
	ξί ζ. ζ. ξ. ζ.	Si (Sondy) P23 A4	Breccia Ore	A 4	5370~5430	<0.1 62.0	0.14	3.44	1.29
53,70	* * £	Foult Breccio	SAX Mossive Ore core 0,05 or PbZn,cp,py	rd .					·
-	~~ 5 \$	Si massiye Otz film Yein	Py diss						
		Es Cir IIIII Year	Qtzven						أيدين
}	- (- 	Fault Breccio At	ssác network Py 5959 Breccia Ore 5000 mássive Ore	A 5	59,50	<0.1 34.0	0.29	0.90	0.85
-60	5- - 5i	Si	i core 0,05 cm	1	₹ 60,00		1 4.24	1000	:
-		Ss Ac	GIRT Pb.Zn.cp.py 4 Qtz.network	A 6	61,80	<0.1 56.0	0 [4	2.93	4.18
<u></u>	5i 5 5 5i	Śi	Po,Zn,Py	1.0	<u>~ 61,90</u>		1	1	
		Qtz wd 0,03 cm	Py diss						
ţ	X	Si	1	1			,		
-		Sandy tuff (CN)							
70)								
ļ .	~ X	W	★ **,0	°l	·				
	V n	P8			:				
t	п.		75,00		:	1			
	-¢-								
	 - <u>-</u>	Calcarous rock		1		•			,
}	-c	Chl					•		
-80	C A	₫.	¥8.0	×					
-	- <u>c</u> -							-	
Ī		- A. /a						;	
+		Sh (Block) II II Ls			:				
-		Phyllitic rock							s .
<u> </u>		Stote (SI)			1	:			
90	Scole	1:200	<u> </u>	_ l	 	<u> </u>		- 	

	 3	MJ	1-3					3
Depth	 		Mineralization		Ass	юy	Results	
(m)		Lithology	etc	Somple				Pb% Zn%
		<u>. 31 (14) (15) 15 (15) 15</u> Hall (15) 15	Sheared a zone	No	(M)	7	va Alca ve	F 0 70 Z N 76
	م^م	SI (Phyline)	# 1000 !		e Tradita Japanes			
93,60	~				***	40		
94,50			19450		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		**	
-	Λ Λ Λ	Do (White ~ gray)				della La della		
	Λ Λ Λ	mossive						
98,00		Hard Sh (aray)	÷ .				$(f, g) \mapsto f(g)$	
-		Hard Sh. (gray) massive				1 1	to distant of	
-100	St		. :				1915	
	s−s −Si∸	Si	1 .		A Argonia			
104.00	4.3							
1	Śi				nu.			
	5 5 ~~ *	Si	, 1 40		1			*
}	3					10.0	en Eugenie	
108,50	Si	Šh (Bláčk)		1 . 1 4 4			** ** **	
10940 -10	. ^ .	Dà sa a la sa a) * . 		. 1,		
-	V V V	Olz wd 0,20m		14 - 41 14 - 4				
\$1,70		Qtz wd 0,25 ^m		J. 15	\$ 1	is,	. 17	
	- S - S -			in the set of the set			#=1	
		Sh .			,		- " _e	
<u> €,00</u>	-\(^-	Olz wo O,15 ^m			i San B			
17,50		Ċtz wd O _s iO ^{fΩ}						
Ţ.,	<u>5</u>	Si green rock	Mineralizátion		:		110011	
120	===	Sh (Black)	2000					
121,00	.5	QIZ WO 0,30 Th						
123.00	55.	Qiz wd O,15 ^m			:		e i se en A	
	۸٠							
-	۸ ۸ ۵۸۵		l !					
-126,00	1 A 4	טייס מייוא ו	#15eto	Ĭ	1			
129,50	666 57	Block day wd 0,25 ⁰				4 -		
	Įδ	Si (Breccied			}		; :* •	
⊣30	18	į		1				
(35'00	1253 1253	Siliceous	Py diss (magnetite	÷.				
-	NE.	green rock	mineral)					
13450	5 \	8r			ļ			
133,50	 ₩	Qtz nehrork		1			$F_{-1} \leftarrow \frac{1}{2\pi i} (1 - 1)^{i}.$	
136,70	15"3	Hord Sh					*	
-138,30	F.	Qtz network		1				2 -
140	[]	Ši massive Š2						
7.77		198		1	<u> </u>	<u> </u>		

Depth Orill (m) log Lith old gy Mineralization etc Sample Depth No (m) Augustion etc No (m) Augustion No (m) Augustion Py diss cone No (m) Augustion Py diss cone No (m) Augustion No (m) Augusti	Results TAO 9/1 Cu 9		%
Lithology etc Somple Depth No (m) 143,50	T A 9 % Cu 9	% Pb % Zn	%
143,50 144,50 144,50 144,50 144,50 145,00 144,50 145,00 144,50 145,00 144,50 145,00 1	1.5 fr	0.01 0.0	
And (Brown) 143,50 145,20 And massive V Chibritization 148,20 And massive Chibritization 148,20 And massive V Chibritization 148,20 And massive V Chibritization 148,20 And massive V Chibritization 148,20 And massive Sr and Arg Py diss 152,00 Si (massive) 152,50	1.5 tr	001 00	
And massive Chiritization 148,200 AA Br and Arg 149,00 St Otz wd O,08 150 S S 152,000 AA A Si (mossive) 152,50 5 S	<u>.</u>) ž
148,20			
150 5 5 Q1z wd 0,08 Py diss 152,00 a a a Si (mossive)			
\$ 15 S S S S S S S S S S S S S S S S S S			
			,
	: : .		
ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا ا	e de la companya de l		÷ ;
\$ 51 \$ 5 5			
Qtz network162,00			
\$ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\			
Qtz network			· : .
St. Mytonitic Pyciss (fine grain)	·:	,	
-170 \$ 5 \$i		· . :	-
	·		
Si Si Si Si Si Si Si Si Si Si Si Si Si S			
177,205 54 Silicitication 4177,30			
Sh (Hord) Pydiss			41.4
usz.so wd 0,25 (gama)		1 g	٠.
Sh (Hord) 18500 XXX Aplitic wd 0,20 th			
Sh (Hord)	t .		
Schistosity Aptitic (Xenolith shale) Application of the shale of the			

- [мЈ	I <u>-3</u>							5
		2 13 9 2 5 kg = 1 cc			As	say	Resi	lits		
Depth (m)	Drill Iog	Lithology	Mineralization etc	Sample No	Depth (m)	Au9	4 A9 4	cu %	Pb%	Zn %
ı91,50	1.16	\$4 Granodioritic rock (mylohitic)	Mineralization Pydiss		4.5	7				
194,40	11/2	Qtz wd 0,30 ^m	194,0	16.31				· ·		e da Granda Granda
197,00		Gronitic gness?		1						
	27) 27 27	Gr	¥ 200,00	:						
200	3/	Si. (massive)			7		an erann	-		
2047		Qtz wd 0,20 th	Py diss						•	
206.00	1.5 1.5 1.5i		Py network		-					
	5.5 3.5	Qtz network	kPy network					-, ⁻		
540	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Aplitic roc Si	# 510,00g			-	i And	ngu silu		
212,9	1×.	Sh (Hord) Aplific					-			
26,0 26,0	4 76 x	Otz wd O,10 ^m Sh (Hord)			= - - -		Sec.			
	30.7	x S5 Complex rock (mossive)	¥ 2:8,00) 1) ;		-				
- 220	1		Py diss					. 111		*
	ر مر کر مر		* 223,50							
- 225.	2 / E	PIÓ Qrz Veintel	× 225,50		:			٠		
228,	Kon /	Si massive Qtz Veinlet	Py diss and veinte magnetic miner				1,555 55	e de la companya de la companya de la companya de la companya de la companya de la companya de la companya de La companya de la companya de la companya de la companya de la companya de la companya de la companya de la co		
-230 234	*.	Qtz wd O,10 (epidote	1 2000	1 1	230,60 ~ 2	3160	(Q.I 1.		1 0.0	5 0.06
ŀ	553	Q1z wd 0,25 ^m	NA SE ESIÑO							
234	2000	Sh (Hord)	= 234,50 Py diss				un ana	er spil		
}	272	Miner folding Q12 film vein	Veintet P				± 1. ₹			: :

Donth	j Dein		Mineralization etc	Assoy Résults								
Oepth (m)	loĝ			Somple No	Depth (m)	Au 9	A9 9,	Ċu%	РЬ %	Zn %		
	3.4	Gr.(mylonitic)					14.1			- ,;		
242 <i>j</i> 00	χ_{χ}	%\ Sh (Hord)	34 455 4 		Į.		٠.	•		Sign of		
- 245,00	ا مرکز کرکز	98 N F 89			.177			C	edi.	1		
	かんと	Qtz Veinlet \$6	Py diss	:	1910 . 1910 .		V	. i				
-250 25030	XXX		¥ 250,30									

1:200

	\sim	_	•
IN		-	ж

		IND	EX	
6.00		Soil	+++ Q-Go Quartz - Diarit (Granitaid rock)	
	Ss	Sandstone	+++ Gr-dio Granodiorit (mylonite)	
	Ls	Limestone	Comp Complex rock	
	Sh	Shote	A Br Breccia	
	SI	Stote	Arg Argillization	
<u>-</u> jt-	FI	Felsic rock	555 Sili Silicification	
<u>-c-</u>	Col	Calcarous rock	Qlz Quartz vein & network	
- 5i-	Si	Siliceóus rock	Massive Ore	
* , ,	Tf	Tuffaceous rock	diss Dissemination	
^^^	Da	Dočitić rock	S1~ Thin Section (Sample No.)	
VVV	And	Andesitic rock	PI ~ Polished Section (Sample No	• }
x^x	Αp	Aplitic rock	A1~ Assay (Sample No.)	- :

Location: Pagor gunung

Direction: D line 5,5

Depth : 250,20 m

Boring Machine: OE-8 BL

Elevation : 1185 m

Inclination 90°

Core Recovery: 76,5%

Term : 84-1-16 84-2-14

Depth Drill		Mineralization		Ass	ay Results
(m) log	Lithology	eic	Sample No	Depth (m)	Au% Ag% Cu % Pb % Zn%
0.					
70000	Soil	21.34	r z		•
X	(www.derect.com) And (Brown)				
** X,	Joint Qız film yeln			4 1 ·	
12,30 k	: 1 445 -			1	
	Andesiti tuff				
-20 AAA	With Qtz wdm I~3 /m	Sheared zone ¥ 20	ρ	-	
i v	a 11	1		,	
24,80 25,50 AAA	Arg w 0,05 ^m		,		
26.80 V	Lopili tuff				
29.80 V 4	Andestic tuff (green patch)				
33,70 V	And Breccia > Arg Sh Ss				
37,20 % A	<u>-</u>				
3900	Ss Fault zone				

		<u>MJI</u>	-4								5
Depth	Ocill		Min	erolization	1 21	Ass	óy	Res	atiu		
(m)	100	Lithology		elc	Somple No	Depth (m)	Αυ <mark>γ</mark> η	A09/1	Cu %	Pb %	Zn %
40,50	~ .	Sh, Ss alter		Sheared	ne						
	X			1 1							
	X	Black Shale (Sh)									:
- .	X			1	•				÷		
-	华										
- 49,00	X	\$7 Foult		Í					•		
50 ₅₀ x		Sh (Block)		rolizotion Fourza 50/04		50,10	 		<u> </u>	1	
1	4	Sh	A9	Py diss ^{50,0}	A 9	√ \$1,90	< 0.1	1.6	11	tř	0.0
54,90 }	~~~	Sh (Block) Arg oller	کر.ام								i
53,90	3:		53,90	. 539ò [⊥]			Ì				
	1,3	Ss Silicification		I	l					•	
56,54 57,20		32 l _{/min}		56,50						 	
	, X	Siliceous rock (Si) Sondy mossive		Pydiss fine green	•	·					
60	;;;	SOLDY MOSSITE		l i	Ì	1					
61,5	13.73	Foult	61,00	.* 6100)	.						
63)	~ 4		63.40		1						
	5:5	Si (Sondy)	63.0	Pydiss fine green							
650	0 74 A	Fault Br zone	0-4,00	- NI T							
E 5 20	4 ~										
 	~ ^ ^ ^	Calcorous rock (Cal									
70 0	£,ú,			i Formation							
740	717	Fault Br zone	74.00 A K	Pb, Py 71,00	AIO	71.00		4.3	0.02	2 0.11	0.1
72,6	0	Hord Sh (Block)	نة ديا	diss 72,80		N 72,8	o < 0.1	4.3	100	2 0.11	10.
74.7	4.6			Py diss	d to the			-	٠.		
75,7	0 1 1	SS SIII	7570	75,70							
77,	k).	Tuffaceous \$s massive									
78.		Hord Sh	-								
79) -80	1 ÷	Ss Ss	79,0	Shedred 60,00	one F				•		
80	錮	Sh (Black)	•	i							
	艺	Qfz network		Py diss							
	17	• · · · · · · · · · · · · · · · · · · ·			[] : ·		1				
85,0				fine grain	į	i					
86,	智	Sh (Black) Qiz network		•							
89,	ω	Ss (gray)		8800					•		
89	लक्ष	(1200	1	89,70	*		1		•		· ———

	.	MJ	1-4								3		
Depth	Drill		Min	eralization		As	ay	Resi	ilts	1.2			
(m)		Lithology	14111	elc	Sample No	Oepth (m)	Αυ ⁰ /Τ	A9%	ću %	Pb %	Zn %		
	113			alfza Sheared						المنت			
	置	Sh Qtz network	116	"				144	* * ** *	:			
	三	Chloritization				* :							
9450 95,00		en de de da compaña en estado de de de de de de de de de de de de de	j i	9450 ¥ 'y diss				•					
96,50 97,50		Ss (Pale blue) massive Sh	1) Giss			- *	•					
98,30		Qtz wd 0,20 ^m			İ				4 .		-		
-100	44	Ss massive	1	жооож		. 1 . 1 . 1 . 1 . 1 . 1 . 1 . 1 . 1 . 1					, ¥1)-		
- 101,00		Qiz network Sh Br and Qiz			47						. 700		
101,80		network Ss mossive			100	1. 53	7						
- 103,00 -	14	Sh (Black)			V 25								
- 105,00 - 106,30		Q1z network					=	· 8 2	y a ^{la} .				
	1 A A	Śń (Black)				:		ÿ = ¹	•		11 4		
-	A A	Br and Arg		1	:	\$ 15 ₀			Service.				
- BÓ		·	10,000		1						•:		
- 191,00	-			! !	1	7 7 55 5					- 1 1 1 1		
-		Sh (Black)	1	1 1									
- 113 <u>0</u> 0 -	Δ¥4	Sh ·			All	84,80 № 116,50	<0.1	6.7	0.02	0.04	0.08		
114,84	1	Sh,Ss alter	±480, A1I	i i		118,50	<0.1	4.5	0.93	0.71	1.50		
96,50		Arg	\$6,50	massive ore wd 0,20 ^m	A 12	~118,40				-	•		
1:8,4		Faultzone Så! BrOre Ss Arg (grey)	A 12	พช 0,05 ^m พช 0,05 ^m	AI3	118,40 ∼120,70	<0.1	19.0	0.43	0.24	0.64		
- 150½ - 150	2		A 13 2070	0.0.00	A 14	120,70 ~122,00	<0.1	69	0.06	Ó.1 I	0.24		
122,0		QizSh P∦ BrÔre	22,60 22,60		A 15	155'00	< 0.1	42.0	0.30	2.50	4.48		
_ 153'3 _ 153'3	18.1	Sh Sh 	2330 2390	I WOURD	A 16	√123,90 √123,90		7.7	0.03	0.22	0.29		
_ 124,8· _ 125,9		[[24,60 25,90	Ale wd O,Oe	"AI7	123,90 124,30 124,80		47.0	0.21	0.80	1.53		
1276	S	LS 	2360 Br	A19 wd O,04 massive ore	A18	124,80 125,40 125,40 125,90	<0.1	29.0	0.08	1.05	0.76		
129,7 130	0 123	Ss Folding	29,70	Pb, Zn rich!	A19	125,90 ^127,60	<0.I	5.7	0.03	0.23	0.8		
-		Calcite vein Hard Sh (Black) Qtz wd 0,02 ^m		; !		:] #	, 2, 1°				
133,3	6	Ss mássive	A20	i I Pydiss	A 20	129,70 ^ 140,10	<0.1	0.9	0.01	001	0.0		
- - 136,0	xQ	Sh		1						·	-1 1.		
-		Ss Qiz film Vein Qiz wd 0,10 ^m				i si		212))		Zirin ş		
	20.00	1 WG U.10		B	1 -	1							

·* [1]

				T				•		
Depth	Orill	the state of the s	Mineralization	Somple	As		Res	ults	1	SELVINO
(m)	lóg	Cilliology	etc	No	Depth (m)	ΑυŶ	A99/	Cu %	Pb %	Zn%
		1							1	· · · · · · ·
		State (\$1) (grey)	Mineralization	•						
14330			14330 T	1						
	3 3	Spiceous rock (Si)						, :		1 12 12 14 14 14 14 14 14 14 14 14 14 14 14 14
14550	14	Sandy	500000 500000 500000 500000 500000 500000 500000 500000 500000 5000000 500000 500000 500000 500000 5000000 5000000 500000 500000 500000 5000000 5000000 5000000 500000000	Ī		•				
	Α.		;							
_	$ \uparrow \uparrow \rangle$		1						*	
_	1	SI (grey)								
50	<u> </u>		1							
	*	Ofz wo 0,20 ^m	j	,÷ ,		l				<u>.</u>
152,44 ~		i Ss	;	T., .		ł		•		
1542		Qfz network		4					• • •	
-	44	Si		1			:			
156,8 157,4	0 ~\.	Br SI Qtz nelwork]	47.5		ł				
15//4	公		ļ <u></u>	Ì	ĺ			18		
158,9	۰ <u>. ۲</u>						i i			
160	1	Si Qiz network massive	1			1				- ⁻
	ALA	Arg (Block)	į	1						
163,1	3536	Si Qiz network	163,30 🗓		1	Ĭ				
}		SI (gréy)			Ì			•		
Ì		J	Seeĝo _≅	İ		1				1
165,2	-	QIZ WOO,IO ^M					•			
<u> </u>	••	Si	Pydiss							
168,6	~~	Si massive	1	İ						
- 170	8.3	Qiz network		A 21	170,00	<0.	1 2	6 0.	01 00	2 0 01
Į.	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		(Magnetic ?	-	~175,0	-				-
}	Şį	A	A21		1	1				
ŀ	5.3	SiEceous Si green roc!								
 	Ş.	mossive	175,00 l	1						
	\$ \$						٠			
-	۶.									
179		5 5.05							-	
183		Folding Hord Sh								,
	₩	(dark grey)	186,00 7			1		•		
1		Qtz film Yein							•	:
i84,	30 V.	Qtz wd 0,05 ^m								
-	13.	:								
1		Hord Sh		1		1				
-	15.5	Si 8r			1					ė
}	33	Hard Sh								
190	اغ،	<u> </u>	_1ii			Д.,				

Depth	أونين	***************************************	187-4-2-17-2-49-5	7.7	Ass	oy Results
(m)		Lithology	Mineralization etc	Somble		
1	150	Maria Maria 16		No	-(m)	Au 9 Ag 9 Cu % Pb % Zn %
191,20		Si gréen rock	Py diss			
	-		3920			
-	72	Felsic rock (FI)			F	
194,50		(grey) Si massiye			ž=,	
	対	VI II ~ 55170	1			
-	[7]	:	:			
-	[7_	Fi	Mineralization		-	
<u>.</u>	7-		Sheared			
_199,50 -200			199,50,00			
_		Ss Silicification massive	i i	1		
202,20	5		Py diss			
203,40	****	Arg (grey), Br	¥ 203,40			
-	1 st		Chlorin			enditive and the
<u> </u>	5,5	Sigreen rock	l noites			
-	\$. \$. \$. \$. \$	Chloritization	207,0		4	
- 207 <i>j</i> C		Aplitic rock	2000			· · · · · · · · · · · · · · · · · · ·
		Si green rock				the state of the s
-219 2040	ÿ	Sandy	20,402 2:0,40		•	
- 2/0,40 -		in a second	2.3,15			
- ,		FI (grey) bedding		1		(1) 14 (1) 14 (1) 1 (1)
ŀ		Dedding				Service of the following services
- 214,30		Qiz wd 0,05 ⁵¹¹		-		
25.80			2-5-80_			
		FI, Ss ölter		1	1.8	
		(grey darkgrey	3			1 <u>-</u> 1
<u> </u>	7			* : -		
- 550			Py diss			
221,4	O AAA	Qiz wd 0,10 ^m	2250			
r	- -	FI	•			
- 55300	13-5-C	: }	223.00 223.00	Ì		
224.3	45%	Br				
[130	Complex rock	Pylin	1		
-	35	Calcite network	diss			
- 558'0	d	Chloritizatio	n Chioritiza tion		1	•
-	2.7.2	Fi Br, Arg		1	1	
-530	7.00	,,y	*230,50			
	TAT	FI massive	1 1	. 1	1	
232,7	dV.	(Bue)	!			
2337		Arg (grey), Br	233,70			
-	II_i	fi (joint)			1	The second section of the second seco
ŀ	1/1	 LI (1)X(H)				
}	17,	-				
2317	0	1	[1	
- 310		\$ s				
240	1.0	<u> </u>	- 			

Depth	D-11				l Mid	neralizat	ا خمنا		As	say	Res	ults		
(m)	169	Lii	hóló	ŷУ		etc		Sample N ó	Óspih (m)	Aug	A9 %	Cu%	Pb %	Zn %
	: A:	Ss	massiv	·e		!							•	
242,00	15					l Py diss				1				
-	7		(dark				1							
24480	7-		-			,		7	1					
-	52	Si	(Sond)	γ)				1						
	14					İ		4						
		344	mass	IVO .]		,		1				
248,50 	1	Qta	wd O	,05 ^m	248,5	O _F		:			•			
250	5.5	· .	250,2			<u> </u>				1				
	<u> </u>		· · · ·		1	<u> </u>	-	<u>Linea</u>	L	.l		<u>- 1 </u>		
	1	200	,	•		1								
	÷ ;			rit.		1 1	.			•				
	: :	. 1	:	: * ¹	1 ¹ -	ž .		1		:		:	:	
					·.	: :	NDE	X						
	(2)	100						F:+:	0.45	Önáci	z – Dioi	i i		
1	g	<u>\$</u>]		Soil	ŧ			لعثا	0-40	(Gron	itolore	ck		
Ase i		<u></u>	Ss	Sands	tone			+++	Gr dio	Grand Emyle			,	
			Lś	Lime	stòne			हुद द	Comp	Comp	lex roc	k		
3	E		Sh	Shale	· ·			AAA	81	Brec	cia			
	E	3	SI	Ślate		: 	-	[~~] Arg	Argil	lizatio	n N		
	Ē	<u>{t-</u>]	FI	Felsk	ročk			ς ς ς] Siti	Silici	ficatio	n		
		<u>c</u> _	Ċď	Colco	rous i	ock		*	Q12	Quor	tz vein	& net	work	
	Ė	<u> </u>	Si	S₹ice	ous r	òck			Ţ	Mos	sive Ós	ė		
		11	Tf	Tuff	ačeou	s rock		•••] diss	Diss	eminat	ion		•
	[^	^^^	Da	Dáci	tic ro	¢k		SI~] Ta	in Se	ctión (Sompt	e No)	,
	[v	And	J Ande	sitic	rock		PIA	Po	dished	Secti	on (S	elqmb!	No)
		×X	Ap	Apli	ic roc	k		AIA	A	ssäy	(Sompi	e No)	•	

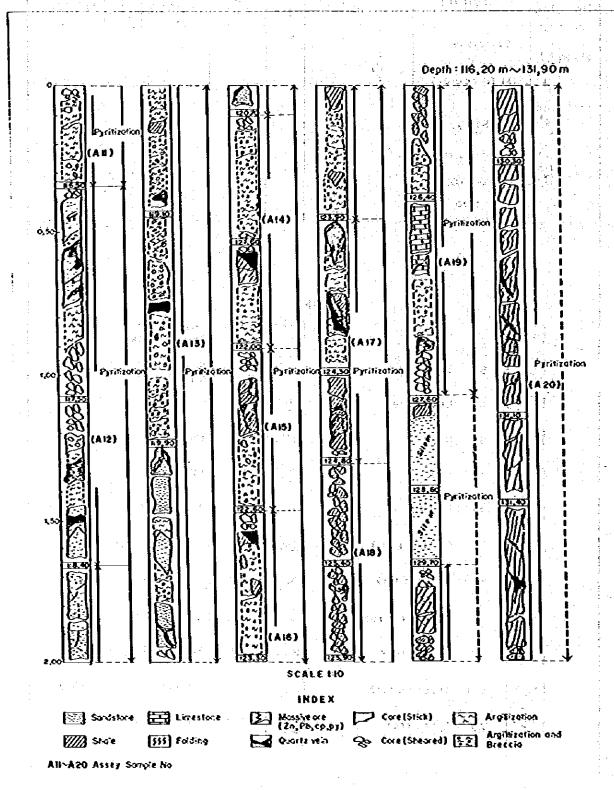


Fig. 1V-3-10 Sketch of Mineralization zone between 116.20 m to 131.90 m of MJI-4

Fig. 1V-3-11 Geological Log of HJI-5

Location: Pagar gunung (West Area)

Direction: E line 5.5

Depth: 250,10

Boring Machine: OE-8BL

Elevation: 1 210

Inclination: 90°

Core Recovery: 89 %

Team: 84'-2-19 *84'-3-7

Depth	Orill		Mineralization		A	ssoy	Res	ults	100	
(m)	log	Lithlog	éic.	Somple No	Depth fm)	1			Pb %	Żn %
-	0, 4						L 	L		l
	Ó				1		-			
	0.									
	0::				İ		- '			
	.O									
	. 0	Solt		:					٠	. 5
	· • •					:				
	.4.									
10										
				2						·
12,00	••						-			
	٧									
	V V	.	·		. •					
	Y	And massine		•						
	v v	dar kgrean								
	٧									
Î	y y			į į						
20	¥					1				
	Y Y		·		-					
	v v									
	v									
	v v	•	;			1				
	v			*						
	v v									
	Y					ļ				
29,20	, , ,		Sheared zone							
,30,00	21 . le	Andesitic tutt	zoce T							
	₹4? ?2 ~	A A Alasta	i							
	۵ <i>۰</i> م	Arg (Black)	1				-			
	~ £≅ ♥ ~	Br (Hard Shate)				Ì				-
33,40	₹~	Of f Date State)	\$korn 1 35,40 1		-					
33,40			35,40 ¥						,	
		Hord sh (Groy)								
37,50	11	Calearous rock	1		1					
	I I	Skorn	1			•				
40_	41		!							

[· · · · · · · · · · · · · · · · · · ·	I									
Depth	Drill	Litholog	Min	eroliz	ation			say	Résu	its		
(m)	lóg	Lillorog	. :	etc.		Somple No	Depth (m)	AU9/1	Ag 🐉 (ċυ % .	Pb %	Zn*/e
		Colcorous rock (Col)	1 1 1 1 a		n	7,10	1144		- <u>- 1</u>			· · / /
42,00		Sill difficultion	Winerol	ization		Ì						
-	y:	(\$iii)		İ			-		, , ;	e"		# +j*
-	•\-		(A)	ត់រៀ						45.5		144
-	7	Col (Sondy)	Pg dis	ss) 16. 44		d et
-		11/022112		i			-					
-	Δ	e in a series and a series of the series of		·			-		1000		ij ji	
			45 5	1:	Sheored		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			!		
49,50 50	~	Arg (Block)	1	149	stone							***
		pag (block)	54.70	Skorn	į			ĺ]
51,70		Col (Sili)	Q, 70*	Ī	-4-				* 1		f	
 		Pole green			÷				i.			
		voic gittii					:	1				
55,00 56,00	l - : :	Ss						1				[
}		.]		ŀ	'			
ł		Cål										
59,50				اِ	9,50							
€0	Ć.			į] .						.
	14.	Cal (Sandy)			į						* .	
63,00			63.70	- 1	ļ							
-		Qiz network	1 →	kss			-					
65,00			1 16	ine ine						. • 5		
		Cal	'		i	ł			in a state			
67,50	ξi Δ	Br Tuff	67,50	-	į.		ļ					
69,10	\$ ~ \frac{1}{8}	Ss Qiz network		ļ.	1			1				
70,00	<u>~ څ</u>	Foult zone Arg Br	10'05 [±]	17	0,001							٠,
-				Py į		1	1				•	
<u> </u>		Sh (Block)	li	dīss I							· · · · · · · · · · · · · · · · · · ·	
	~~	<u>}</u>	MOOL	į,	¥03,6							• 1
75.5		a Ls		į	j	.						
}		Sh. Ls aller		i	!							
1		1 200 23 40161		ŀ	į							
78,0	C	Sh (Block)		į	ļ						٠.	
-60				ļ					:	424	-	e to
-	3	Ls -	8150	. 1	!					•	1.	
1	•	Sh (Block)	7		Į		1		* .	\$ 1.7	-	
673	1	Ls		Py 98	į	-[
84.5		PI3 Fault Br. I Ss	84.50 85,10	V 55	į	A22	84.50	o <0.	1 1.5	0.02	tr	0.01
ļ.	36	Sh (Calcile network) ^{(5,101}		1	A 23		o <0.		0.02	10	10.01
87.0	0	Fault Br		Py	1		- v-3			<u> </u>	•	
88,5	4	Col Ss	88,50	diss A23					*		٠	•
90	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Arg. (Block) Br.	89,40	, res	į					* 1		:
		1:200	1		· L							

	1	THE RESERVE OF THE PARTY OF THE	i			 	,					<u> </u>	
Depth	Orill		Mi	neral	izatio	n	. تالنسا	As	soy	Res	ults	:_	
(m)	lóg	Litholog		ėt		"	Somple	Depth	مۇرىد			17.1	
—				Ç (No	(m)	AU 7/1	eg 'A	Cu %	Pb %	Zo.24
90,94	1 4 2 3	S.S 4		Py diss	į	1					•		·
94,60		S.S Arg(Block)		!]	ľ		· ·					•
92,40	× * * * * * * * * * * * * * * * * * * *	Ls Arg(Black)	92,40	A24									
\$3,50	0	Sh (Block)		Pyob	\$he	pred	A 24	97,40 ~93,60	<0.1	0.8	tr	fi	0.01
Ť	~~~			diss	24	ne	<u> </u>	2. 35,65					1-7-
9550	WIII.	Sh. Ls offer	3	ļ.,,	! !		1						
96,30	TITLE	on. Es uner		Sk	ġrń.	1	l					.:	
-	Et.	Sh.Ls ofter] · 	1 1	j		·					
1	100	(Folding zone)			•] 	1						
98,70		Sh Ls olfer		Py	! 	i	1						
-100		SICES OILS		l Oiss	į	!				٠			
		Foult Bc Afg(Block)			i		* * *						
101,20	(1~A~ ~ ~	ė				į							
102,40		Arg (Block)			i	ľ							
103,60	F 2.	LS Aro Dr			1		l		Ì	* 4			
104.66		Arg.Br Ls			!	į	; -		,				
105.40	A-1	Ara (Block)		ios co	<u>i</u>	!							
106,00	∆.v.	PI4	05.0 0	Py pb	diss	į		11 A 11 A 1			:		
	3~	Ċŏl	OS.AQ	A 25		ļ	A 25	106,00	<0.1	1.2	ti	tı	fr
108,0		Coarse luff		Py di	SS	į	\vdash	~106,80			L	<u> </u>	<u> </u>
L .				1			l		1 1 1		٠		
-110		Ss mossive				i	1.5	ì		•			-
""				:		İ			,				
Ta.						l		•					
112,00	H A	Coarse tuff	12,00	r '		i	<i>2</i> <u>2</u> .						
F	H.	Éinetf.		!		!					-		
104,30	*	Coorse fulf				i							'
<u> </u>	=	£š.		Py dis Tine (İ							•
- 116,00		Ss		1	20.17	!							
117,00		Col	16,50	L .		Ì							
ļ	A	Coorse tuff Ss				į							
L 3.	A s		119,30	ı		1	•						
119,30	法。	Col		•		ĺ							
120		Arg (Block) Br.		l Py di	~~	1.	1	2.0					
	442			, , ,,	33	į							
İ.,		Ss Hand Sh				i b							
F 123,00		Col Ss after			90,ESI	1.							
124,60		tor as aref	240	F						-			
Ł								1.1		:			
F		Tuffaceous		; ,	3 +								
ŀ		sondstone											
Ļ		(fine tuff)											
129.00		Qtz wd 0.03m	29,0	-		_							
129.00 129.7 130	1 6	Coorse tuff	1	ŀ	_	Į							
130,5		Foult. Br. Arg		:									
ſ	123	SI (grey)		Ру		į							
Ī		Arg (grey)		dīss		į							
Ì		\$i		i		!		'					
1	130	Colcitee > Q12		ļ.		i							
r		netwock				1							
-		\$1.\$s. offer		i		į							
}		Ötz network		!		! i		·					
.	AA.	St. Ss alter				į							
ŀ	≈%	Åts askud		!		į						-	
146		Q12 network	;			<u>L</u>							
		1: 200											

1.			·				<u> </u>			4			
Depth	Drill	Litholog	М	ine	rolizati	ion		Α	ssoy	Ré	sulfs		
(m)	log	Lilnolog			etc		Sample	Depth	Au 9/,	Aco.	Cu*/	Pb %	Zn •/
7.75	. Mit.		ļ.,	·	V1V	-	No	(m)					78.63
141,60		SI Br.		<u> </u>	().	ored							
- 14.00	**	Čiz nelwork		ŀ					1.1	5. 经收益			
-						00 e				in the second	# 1	t AQUIT	
- ' ''	X	Si (Dorkgroy)		Рy	diss :					491793	+ 18		
-			1	ĺ		! !	1 1					·	
	3	Folding	:			ļ	<i>[</i>						
146,40	-30	Colcite wd 0.30m	3	l L 147	.00	•	12 miles	1 N 1					
-		•	Ì			•			l Partis				
-	₹ ₹	ŠI				İ		4 . 1					
-150	交	Olz network	İ.,				: 1		i			e er Erskrijk	
15100	T.	Ss	150	5 F. Py	diss			a				3	
_	7							= .					/- ·
_	5	Sti Dork gray				į							***:
_	()		154,	5 _		į							
_			3	ΕP)	diss	 	!	*. 1					Figure 1
_	る	.				[26.7			SENT P		41	
156,70		Ss mossine	156,			ļ		1 1 1 3 1 2			\$1.31		
157,50		Cal	1: 2	}1337. !	T	:	23			14124			4 4 5 £
159,00	 	\$5 Coorse tuff (green)		1		1		:					
-160	1	Fine tulf		į	160,0	¥.		- - -		A part			
		SI (Dark groy)		į								; *	
_	n·n	Fine Ivii		i				+					
-		SI (Giáy)		I Py	diss			= 1.7		114	e e in the		
- 164,00		Felsic		1				ž			\$ 1 to 1 to		
-165,00	16:11	Fine tuff		į					1	÷ = 1	124.4		
-		\$s mossine		İ				A to the					ing samuri Samuri
167,20		Qiz wa Olom		į				1 1/2			+ 7		5.00
-	Α.	Q12 ,wd 0.05m		!			1		ļ	•	. P. 15.75		
-		Coasse luff	İ	<u> </u>				ga dej		No.	ara Bartana		
170		SI Ss Veinlet P 5			inlet 170 m pb	Ť							. 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
17Q 60 -		P (5 SI (Gray)	A 20	5. C	ρ.	Ì	A 26	170,60 ~ 170,80	\ < 0.t	54.0	0.53	0.45	2.53
172,40				İ									
173,50		Ss Massion .		1		l I						45.	
1,3,30		SI Ss Alter				į		1		200	;		
-		Qiz network	75,5	A A	27 v dies							_	1. Fist
176,00	200	P16	176,		y diss	į	A 27	175,50 +176,00	<0.1	1.6	0.01	0.01	0.04
ŀ		Coorse tuff				1			1	£	`: 	:	
176,30				_		1	1			.1			
-	13	SI Qtz fitm	79,	1	y diss	į		1 / Z=				-	$\cdot \cdot \cdot \cdot \cdot \cdot_{p-1},$
–180 ₹80,20			179,5	a te	ine tain	1							f= .
-	#	SI		į,		1				11/11/15		1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
-	1	rel work. Qiz		į		į				. 1	•		
- 183,50		Cort	83,	4		į				* :	-		
-	7	Coarse tuff (grey)	ر ا	^		į						=	:
185,00	` ````	(1~0.5m/m	'	Ŧ		1		7			- · · · · ·		
1	MA,	Coons tull			y diss	į					100		·.
-	1000	1	1	֝֞֞֞֞֜֞֞֩֓֓֓֓֓֓֓֓֓֓֓֟	J VI35	į		:	1	2 :	25 2 7	· · · · · · · · · · · · · · · · · · ·	
Ì		Colcorios R		į		ļ				* * *			
- 189,00) T	enibia		į				,					
190	1.524	'4			19	9		<u> </u>				1	

						 	+			<u> </u>	
Depth	Drill			In oralizatión			ssoy	Re	sults	· · · · · ·	
(m)	log	🔠 Litholog 🤞 🔻		ineralization etc.	Somple	Depth	ا ه دا	ا . ه . ا		٠.	5 (24)
ן יייי ן	100	and the second		os iau	No	(m)		Ag ⁹ /1	Cu %	Pb %	Zn %
190,40	***	PJ7- 30 4 4 4 4 4 4	X	A 28	A 28	190,40	<0.1	13.0	0.09	0.09	3.39
19140		Mossive 0.04m (Zn.Pb) Col - Ss	91,	A29	A 29	191,40 4192,60	< 0.1		0.44	0.24	4.02
192,60	10	PI8 (Zn.Pb.Cp.Py)	32. 60	PS3	7.20	4134,60					
1		Col	50								
ļ.						1	1				:
194,70	1										
	· in.	Sondy tuff		Şkörn	•						
196,00	111.3	\$10		Ž Žitalu							7.4
:				i i			Ì				
<u> </u>		Cal (Skarn)			1						7 E.A.
199,60				¥	:		Į.				
200		Ss .		<u> </u>			•			,	
1		•	Ì	į	1			. •			
1		AL INC. IN A		į.							
:[- ~	Sh (Dark gray)		į	ļ		Į.				
	· · ·			!	ì		•				
204,00	11.6		1	i	1		1				
205,50	· · · · · · · · · · · · · · · · · · ·	Toffaceous Ss		į							
F .	μ, τ	Hárð Sh		1 1 1	1:						
206,7	> <	Ss	Ì	į	1						
		l e de la companya de la companya de la companya de la companya de la companya de la companya de la companya d		1	1		1				÷
1	1	Herd Sh			1						
1	3	Qtz w O.lòm	ı	Shedred			l				
510		Aprilia w O. 10m	100	Ţ	Į.						
F	EX			i i	1		1				
- - ,	岩	Complex rock Hard Sh					•		•		
-	1	Hata Su	iv	donetii e mineral)	1		ł				
213.83	40	4.7	,	1							
1	××		ļ		1	1					
	x^	Aplitic (1)					1				
	×	(Asidic R)			1	Į.					
1	×٠	geta d ≥ for a cif								-	
218,0	Si.	Siliceous green	1	! ! i	Į.						
L ⊢	1 7	. (Si Gr) rock	1		1						
-220	314	Massive		1 i i							•
	\x'.		1		1						
Ī	Ž,	Qtz network					ŀ				
t	××										
F	1	Si rock(Corrolex)				1					
F	18	lata see see a see cear		i i i		1					
ŀ		Qtz wd 0.20 wd 0.30	I		i	1					
1		ਜ਼ਿਲ ਅਤੇ 0.10		Chloritzation			1				
226,5	o is A	Si gr		į į i	ļ		1		`		
	1587	(Lineation)	1		1	1		٠,			
- 228,0	" <u> × ×</u>	⊈ Ap		j j	ļ	1	1				
ł	\$	4	1		1	1					
230		Si or.	1	i		1					
ŀ	5	Qtz network									
-		Ss (Sii)		1 1 1	1						
232,8	्रम् इंट्र	d Ao		! i			1				
Į.	1/37	folding (Ap Qtz vein)	1		1		1				
	23	si si	1			1					
ſ	H	₫ AÞ			I						
1	-9i	G	1		i		1				
-				į ; ;		1	1				
-	Si					1					
I.	1	Gr (mil)			1		l				
240	181	J					L				
		1: 006									

Depth	Drill	# 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2	/**			A	ssay	Res	ults		
(m)	log	Lithólóg	Міг	erolization etc.	Somple No	Depih (AU PA	1\ ⁹ eA	Cu %	Pb %	Zn %
240 241,40	S	Ap PI9		A 30 mossius	A 30	241,40 +242,20	<0.1	13.0	0.05	0.60	2.03
242,20 243,3	-\$i-	Dandad i i i i i i i i i i i i i i i i i i	24220	APA 1	3	\$ \frac{\pi_{\text{\texi{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\ti}\text{\texi{\text{\texi{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\ti}}\tint{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tin}\tint{\texi}}\tint{\text{\text{\tin}\text{\text{\text{\text{\texi}}\tint{\tinithtt{\text{\text{\texi}\text{\text{\text{\texi}\tint{\text{\tinit}\text{\texitile}}\tint{\text{\texitit}\text{\texit{\texi{\tinit}\tint{\texi}\texit{\texi}\til\titt{\texitile}}\t			1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		eta Si ^{n ka}
-	ታ ተ +. + +	Gr						- s	er I		
247,0 247,70 248,50		Hord Sh Gr	j 1 1			1		j erie.		د د م	
250	-Şi*	\$1 250,10 m		i i	<u> </u>						er in English de

INDEX

				1 1	
800		Soil	111	Q-0īo	Quartz - Diorite (Granitold rock)
	\$\$	Sondstone	1	ġr-dio	Granodiorit (Mylonite)
	Ls	Elmestone	क्ट भे	Comp	Complex rock
	Sh	Shale	6 6	Вr	Brecció
	ŚΙ	Slote	~~~	Arg	noitositienA
<u></u> n	Éŧ	Felsic rock	5 5	Sili	Silicification
-c-	Col	Calcarous rock		Qīz	Quartz Vein & network
<u>-\$i-</u>	Si	Siliceous rock			Massive Ore
	Tf	Tuffoceous rock		diss	Dissemination
^_^	Do	Oacitic rock	\$1+	Thin	Section (Sample No.)
$ \overline{ \mathbf{v}_{\mathbf{v}}^{\mathbf{v}} } $	And	Andesitic rock	PI	Polish	ed Section (Somple No.)
x x	Ар	Aplitic rock	AIA	A ssoy	(Sample No.)

3-3 GEOLOGY AND ORE DEPOSITS

The outline of the geology, ore deposits and microscopic observation of the Pagar Gunung West Deposit is described in II-4-2-1 (Fig. II-3-9 and 10) and those of the Pagar Gunung East Deposit in II-4-2-2 (Fig. II-3-11 to 14).

The objective of the present survey was to clarify the surface geology of the area in the vicinity of both East and West Deposits. Thus during this survey, the geology and ore deposits of relatively large area were investigated, sampling for chemical analysis was not conducted, and the analytical results reported in Part II are quoted here.

3-3-1 Pagar Gunung West Deposit

转形。或形形,有55万字以为"百万字形"。

There are old Tunnels 1, 2, 3, and 6 at the Pagar Gunung West Deposit. It shows that small scale prospecting and mining were conducted in the olden days. It is now almost impossible to confirm the old prospecting and mining dump. The present work was concentrated near the 2, 3 and 6 tunnels where high grade massive ores are exposed. (Fig. IV-3-12, Fig. IV-3-13)

(1) Adit 2

garan kalingan kalingan

The massive ore body is exposed continuously for approximately 5m along the strike at Adit 2. This tunnel was dug along the bonanza. The entrance has collapsed and it is not possible to enter.

The ore body extends in N45°W direction with a dip of 35°W. The length of the exposure is more than 8m. The massive part is high grade PbZn body with an average width of 1.80m and composition of Au 0.3g/t, Ag 127.2g/t, Cu 0.61%, Pb 14.02% and Zn 14.63%. The northern end of the ore body is cut by a fault the extension to the north is not clear. The southern end is brecciated by a fault which is approximately 2m wide and then continues southward to the footwall side of Tunnel 1.

The host rock is shale on the hangingwall side and andesite lava on the footwall. Argillization is particularly strong on the footwall side.

National Manager & All Carlos Davidson Commission Carlos Services

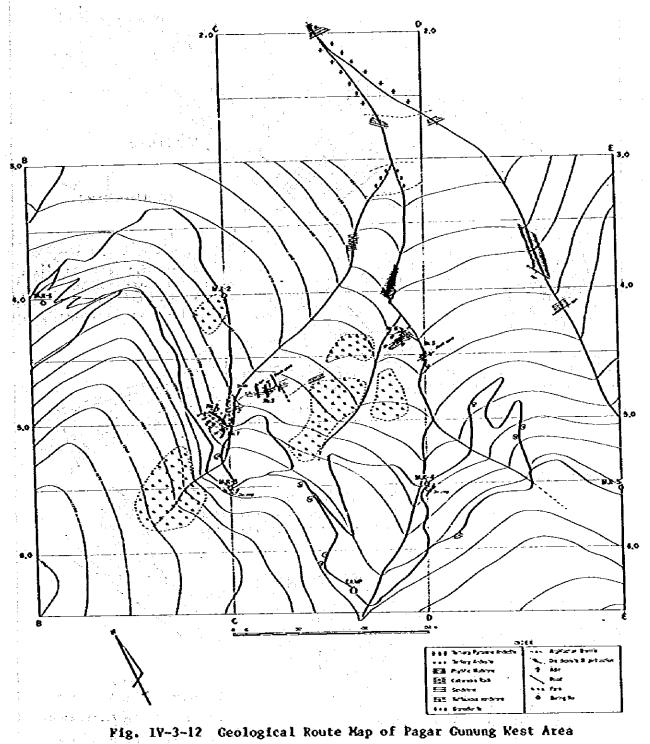
(2) Adit 3

This is located approximately 40m east of Tunnel 2 and is dug along the massive ore body. The direction of the tunnel is \$25°W and the slope is 30°S. The roof of the tunnel has collapsed at 2m from the entrance. The ore body has a strike of N80°W and a dip of 30°S and the extension of the outcrop is more than 20m. The ore body consists of 0.10m-0.40m wide veinlets and disseminated ores for a distance of 10m westward from the tunnel entrance. It is altered and the major minerals are limonite and oxidized. Near the entrance, the ore body is massive (0.30m-0.50m wide) with veinlets and disseminated ores (0.10m-0.30m wide) on the hangingwall side. They are both limonized with dissemination of galena, zinc ore and chalcocite. The ore body between the tunnel entrance and 8m eastward is Veinlets (0.10m-0.30m wide) and dissemination ores. The eastern end is dragged and brecciated by a fault (over 30 in width) and the extension cannot be confirmed due to the lack of exposures. The host rocks are black shale with partly calcareous rocks on the hangingwall side while the footwall side consists of phyllitic rocks and shale. They are altered, particularly the footwall is strongly argillized.

(3) Adit 6

This tunnel is located approximately 160m east of Tunnel 1. This is a cross cut for prospecting the high grade massive ore body. The trend of the tunnel is \$20°W and the roof has collapsed at 3m from the entrance. The strike of the ore body is approximately B-W and the dip 30°S. The length of the exposure is over 11m. The grade deteriorates to the west of the entrance. The ore body near the entrance is the bonanza of the massive body with a width of more than 2.90m and the average grade of Au 1.6g/t, Ag 85.6g/t, Cu 0.14%, Pb 5.97%, Zn 5.56% (Part II 4-2-1). The length of the bonanza, however, is approximately 3m and is generally small. The ore body to the east of the entrance is in a fault zone (2m wide) and is dragged with decreasing width (1.00m-0.50m). It is completely cut by the easternmost fault (strike N40°W, dip 75°E) and its extension cannot be confirmed.

The host rock on the western side is sandstone rich in quartz. The



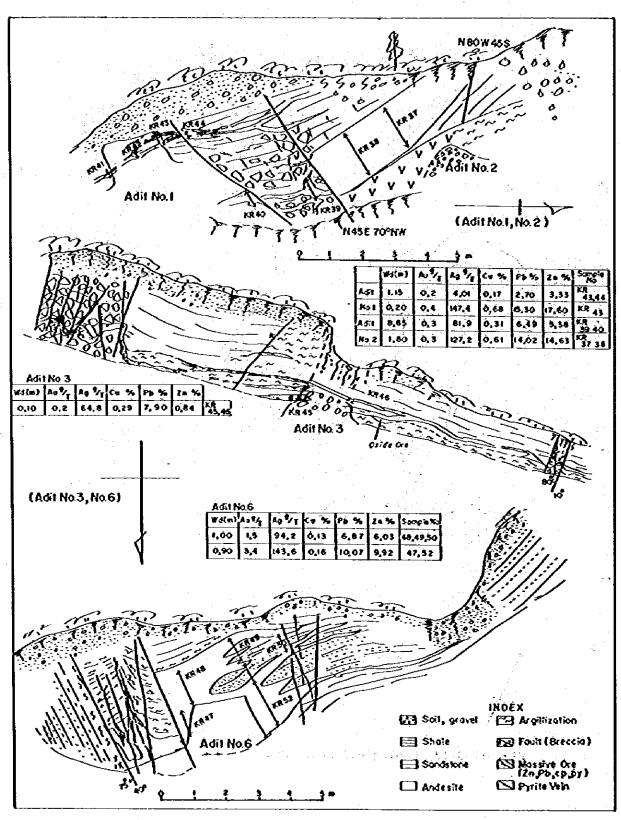


Fig. IV-3-13 Sketch of Ore Deposit, Pagar Cunung West Ore Deposit