No. 13

REPORT ON
THE PRE-FEASIBILITY STUDY FOR THE DEVELOPMENT
IN
TSAV AREA, MONGOLIA
(PHASE III)

MARCH 1995

JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN

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Preface:

In response to the request of the Mongolian government to the Japanese government geological surveys for the purpose of local area development in Tsav, an area located in the eastern part of Mongolia's Dolnot prefecture was conducted. These surveys were entrusted to Japan International Cooperation Agency(JICA). As the scope of these surveys were in the field of geology and mineral exploration, JICA further commissioned the actual undertaking of the surveys to Metal Mining Agency of Japan(MMAJ).

This survey was conducted in 1994, as the third year's survey, by the Metal Mining Agency of Japan. We dispatched a survey team comprising ten members (four of them are for diamond drilling) from July 29 to November 5, 1994 to complete 306m tunneling and sccessory work.

Between October 14 and November 20, 1994, an additional three engineers were sent to conduct diamond drilling.

During this survey, an additional geologist was sent to conduct geological investigation too. Through the cooperation of the relevant organizations of the Mongolian government, our surveys of the designated area were completed as scheduled.

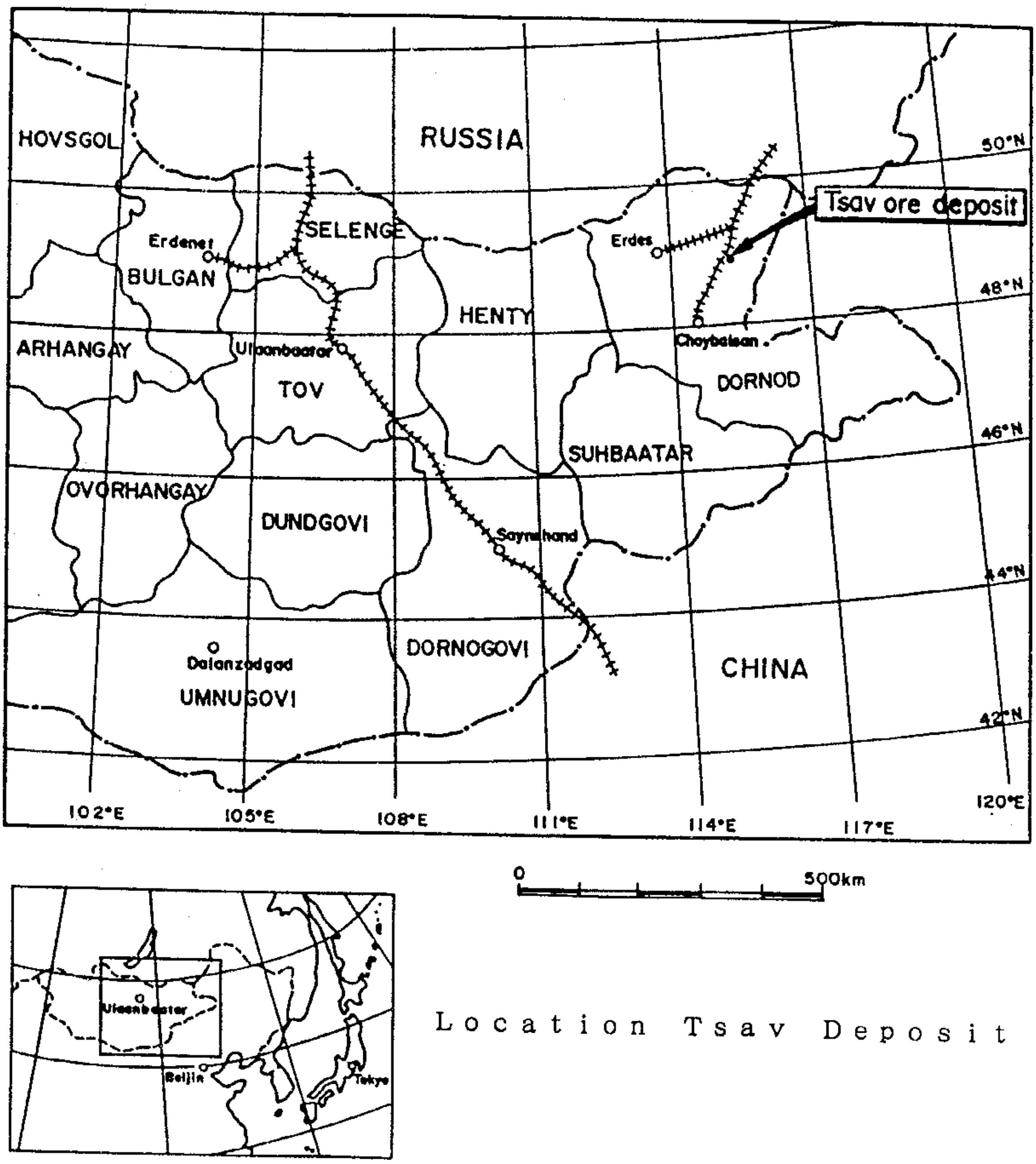
This report presents a summary of the third year's survey results, and will be included as a part of the final report.

In closing, we would like to extend our deep appreciation to the relevant organizations and personnels of the Mongolian government, as well as the Ministry of Foreign Affairs, the Ministry of International Trade and Industry and the Japanese Embassy in Ulaanbaator.

February 1995

Kimio FUJITA
President
Japan International Cooperation Agency

Takashi ISHIKAWA
President
Metal Mining Agency of Japan



Location Tsav Deposit

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Summary of Survey Results

The Tsav deposit area is underlain by upper Proterozoic metamorphic rocks middle～upper Jurassic pyroclastic rocks and upper Jurassic granitic rocks which intrude into the former two.

The deposit was formed by fissure-filling, vein-type mineralization resulting from post-igneous activity accompanying the intrusion of granitic rocks. Occurrence of mineralized zones is found in extensive chloritized rocks, where argillization (sericitization) and chloritization are increasingly overlapped near by the veins.

As to the sizes of these alteration zones, argillized zones are several meters wide whereas most of silicified zones are less than 1m. Intensive carbonitization is observed in and around the mineralized zones. Most of carbonate minerals are presumably rhodochrosite.

The mineralized zones of Tsav deposit are considered to have been formed through polymineralization repeated at least several times, which include 1) polymetallic mineralization containing precious metals occurring in quartz veins, 2) auri-argentiferous mineralization accompanying quartz veins or network veins, 3) base-metallic mineralization accompanying carbonitization, and 4) Pb and Cu enrichment by supergene process.

On an assumption of the cut-off grade being Pb+Zn+Cu≧2% or Au≧1g/t, or Ag≧100g/t, the ratio the average extension of the deposit (the deposit's extension) increases to 66.8%. If the previous ore reserve calculation is reassessed on the basis of this assumption, probable reserve amounts to 115,997t and possible reserve to 1,360,745t, totalling 1,476,742t, which is approximately 1.67 times as large as the previously calculated ore reserve of 885,920t.

Grades of the probable ore block, which constitute the basis of this calculation, change as follows: Pb decreases from 9.43% to 6.78%, Ag from 259g/t to 213g/t, Zn from 3.78% to 3.17%, representing some 20%, deacrease, respectively, whereas the gold grade stays without a change at 1.61g/t, as initially anticipated.
The following surveys are advisable to be conducted in the further exploration.

1) Diamond drilling to find downward extension of the vein in the levels of surface～750m and 750m～-30m.
2) Cross cutting in 720m level for dewatering in 750m level.
3) Exploration for north and south extension of orebody in 750m to acquire additional probable ore reserves.
4) The cut off grade of probable ore reserves has been revised in this year. Revision of cutt off grade was not applied to the old diamond drill holes which have no available Au assay. A proper ore reserves estimate as well as revision of ore grade in old diamond drill holes are to be conducted.
5) Drifting to make clear details of orebody and its grade.
6) Mineral processing test to estimate operational data.
7) Survey for environment.

I . General Remarks

Part I. General Remarks

Chapter 1. Introduction

1.1 Purpose of the survey

The purpose of the survey is to carry out tunnelling and diamond drilling in the upper parts of level 180m(630m above sea level) of the Tsav deposits to explore the No.4 vein where the investigation is most advanced, and to draw up a mine development plan through the exact recognition of the characteristics of the mentioned vein, as well as through mineral processing test to be conducted on the collected samples. The tunnelling comprises the driving a inclined shaft from the surface and a drifting at -60m level (750m above sea level).
The diamond drilling was carried out inside the tunnel and on the surface.
The survey also aims to promote technology transfer pertaining to excavation, mining and machinary control by means of those works and training of counter parts in Japan.

1.2 Scope of the survey

Mongolia possesses a high potential for the production of virtually various types of mineral resources. Presently, copper, molybdenum, tin, and fluorite are produced there. By developing its mineral resources, we anticipate that Mongolia will also become an important supplier to the world's future increased demands in copper, lead, and zinc, etc.

Reform of Mongolia's economic structure has progressed steadily since 1987. However, in recent years, the scale of its resource development was decreased considerably due to reduced technological cooperation from the former Soviet Union and other Eastern European Countries. This scaling down of Mongolia's mineral industry, an industry vital to the country's acquisition of foreign currency, has caused the industry to enter a period of stagnation.

Since the integrated studies in Tsav, an area in the northeastern section of Mongolia's Dolnot prefecture, could indicate a high potential for a commercially feasible mine, the Mongolian government has expressed a strong interest in the development of the area and in February of 1992 has made a request to Japanese government a technical cooperation for the survey to develop the polymetallic deposits(lead, zinc, copper, and silver)in the eastern Dolnot area.

The development of a new mine will contribute significantly to have the economic growth of Mongolia while at the same time establishing an additional stable supply of metal ore resources for the global market will benefit to Japanese economy. For these reasons, new budgetary measures for the regional development planning studies have been taken and implementation system has been established accordingly.

Under these circumstances, Japanese government has dispatched a preliminary study team and held a conference with the Mongolian government regarding the studies to be conducted. And, on July 30, 1992, scope of work regarding the studies to be conducted were established.
Under these formally established scope of work, a studies team consisting of seven members was dispathed to the survey area between August 31 and September 19 and the framing of the plans for the study project was designated. Under this plan, from July 28 to November 20, 1994, the total 14 engineers were sent to conduct tunnelling and diamond drilling.

Chapter 2. Overview of the survey area

2.1 Location and transportation

The Tsav mineral deposits are located in the Somon area of Choybalsan district of Dolnot prefecture in the eastern Mongolia.
It is approximately 120 kilometers northeast of Choybalsan City (refer to the map of survey area). The first years survey, conducted in 1989, encompassed an area of approximately 45 km^2 and included the Tsav ore deposits. As indicated on the map, this area is located between the north latitude of 48° 50′ to 49° 00′ and the east longitude of 115° 15′ to 115° 30′ . The geographical coordinates at the heart of the Tsav ore deposits which includes an area of approximately 12 km^2 is at the north latitude of 48° 55′ 40″ and the east longitude of 115° 20′ 33″ .
Approximately 5 kms west of the Tsav ore deposits is the main trunk line of the Siberian Railway which runs in a southerly direction from Siberian Railway's Bolsha Station across the border towards Choybalsan

to Elentsav (Sorobefusuku), and then on to Choybalsan (Bayan Toumen). The distance to the neighboring Habilka Station is approximately 17 kms.

An unpaved road which is passable throughout the year runs between the Tsav ore deposits and Choybalsan. The distance takes approximately three hours by car. In July of 1992, a new customs house (the name in Chinese reads 35 Kokuzantou Customs) was established at the border of the autonomous Chinese Mongolian State located approximately 50 kms east southeast of the Tsav ore deposits. For the three months form July the customs house is opened for business during the first half of each month. From the Tsav ore deposits the customs house can be reached by car over an unpaved road in approximately ninety minutes.

2.2 Topography

The topography of Tsav is moderate rolling hills which consist of a gentle hilly terrain alternating with swampy plains. The slope gradient of the Tsav area does not exceed 5 to 10 degrees. It is a moderately hilly terrain with smooth slopes. The highest peak is 825 meters above sea level. The difference of the hight between the mountain ridge and valley is 50 to 80 meters.

2.3 Vegetation and Climate

Vegetation of the Tsav ore deposit area is typical steppe lands with a variety of grain plants and lack of trees. The nearest forest is located approximately 150 kilometers towards northwest.
The climate is typical continental dry environment. The daily and annual changes in temperature and pressure is remarkable. Windy days with little precipitation are prevailing in winter. The average, annual snowfall does not exceed 80 to 150 millimeters. The daily temperature changes in spring are severe. Dry air, strong winds, and sand storms are characteristic of that season. Summer is short and mild. The temperature differences between day and night are great. The principal wind direction is northwest with an average speed of three to five meters per second. The maximum wind speed is between 20 to 25 meters per second. The average temperature throughout the year is 0℃. The lowest recorded temperature is -37.5℃ (1987). The highest recorded temperature is +37.5℃ (1982). According to the Choybalsan meteorological observatory, the average annual rainfall of the region is 244

millimeters. However, according to the Eldes Town (Maludai Mine) observatory, the average annual rainfall is 402 millimeters.

The table belows shows the average temperature and rainfall on a monthly basis (courtesy of the Eldes meteorological observatory).

Month	1	2	3	4	5	6	7	8	9	10	11	12
Temp. (℃)	-20	-18	-8	0	+11	+16	+18	+16	+9	+1	-10	-17
Rainfall (mm)	3	2	4	11	15	51	91	117	36	3	7	3

Table.1 The average temperature and rainfall by monthly basis (source, the Eldes meteorogical observatory).

The depth of the frozen ground in winter is between 2.4 to 4.2 meters. By the end of June, the frozen ground is completely thaws. There are no permanent frozen ground in the survey area. There are no continuously flowing springs or watercourses in the vicinity of the Tsav ore deposits.

2.4 Geology and ore deposits

The area of Tsav is composed of the groups of upper Proterozoic to lower Paleozoic and upper Mesozoic formations.

The lower geological units, consisting of the metamorphics of upper Proterozoic Sal Kit series and granite of lower Paleozoic are located in the north to northeastern parts of the surveyed area. The Sal Kit series is composed of phylite, meta-schist, crystalline schist, gneiss, limestone, and marble with a thickness of 1,500m. The granite is medium to cosrse grained porphyritic biotite granite～granodiorite. The rock facies are variable showing freqently banded structure to gneissose structure.

The upper geological units are composed of middle to upper Jurassic volcanics (Tsav series) and late Jurassic intrusives. The volcanics of Tsav series, mainly consist of dacitic to andesitic lava and pyroclastics accompanying rhyolite and basalt are frequently intercalated by tuffaceous conglomerate, sandstone and siltstone. The Tsav series are spread out extending north to south in the western part of the area and elongating northwest to southeast in the central to eastern part of the area. Thicness of the formation tend to be thinner in the eastern part of the area and thicker as much as 700m or over in the western part of the area. The intrusives of late Jurassic are mainly composed of granodiorite accompanied by some granite porphyry, syenite porphyry, monzonidiorite porphyry, and dykes of andesite and porphyrite.

The geological structure of the area is characterized by the regional structure (Tsav fractured zone) extending northwest to southeast. The Tsav fractured zone is composed of the two groups of fracture, the northwest-southeast fractures prevailed in the northern part of the area and northwest west-southeast east fractures prevailed in the southern part of the area. Tsav mineralized area is located at the junction of above mentioned two fractures. A fracture of northwest to southeast cut across the above mentioned regional structure.

The ore deposits of Tsav were formed in the Tsav fractured zone as a fissure filling polymetallic deposits. The principal ore bodies are NO.1, 2, 4, 6 and 8 veins deposited in the continuous fault. The subordinate veins are NO.1A, 1B, 2A, 4A, 4B, 6A and 8A deposited in the secondary echelon fractures. Strike of the veins is NW-SE dipping steeply (60～85°) to the east. The principal ore minerals are pyrite, galena and sphalerite associating with a small amount of chalcopyrite, chalcocite, marcasite and rare argentite. The gangue minerals are mainly quartz and sericite associated with carbonates and clay minerals. Calcite and rhodochrosite acompanied by rhodonite are observeded as carbonates. An oxidation zone was formed -30m～-40m below the surfaced where a part of sulphide minerals of lead, zinc and copper was turned into cerussite, smithonite, malachite and azurite.

Chapter 3. Outline of survey in this year(1994)

3.1 Purpose of the survey

In order to clarify the mode of occurrence of NO.4 orebody in -60m level, tunnelling in -60m level (750m above sea level) and diamond drilling have been done in this year. Geological investigation of the old trenches has also been done. Based upon the data obitained in the above mentioned surveys ore reserve estimate for NO.4 orebody has been conducted for the appraisal of orebody.

3.2 The survey in this year

Under the plans that were designed in 1992, the following tunnelling were conducted.

(1)Project Name :Regional development planning studies
(2)Investigation area :TSAV area,Mongolia
(3)Period :1994.07.27～1995.02.28
(4)Content of Survey :Tunnelling and Temporary Constructions etc

.Tunnelling

Quantity

Horizontal Drift	:306.0m (North 112m、South 194m)
Third Waste Pit	:30.0m
Fourth Waste Pit	:15.0m
Transformer Station	:15m³
Pump Station	:15m
Designed Section	:11.88m² (Width 4.0(m) x Height 3.4(m))
Designed Gradient	:±1/500
Designed Direction	:reference to Plan of Tunnel and Core Boring in 1994

·Temporary Construction	
Electricity	:Setting Control Panel,Switch Board etc
Ventilation	:Setting Fan(37.5kwx2),FRV Air Duct(700m/mφ)
·Diamond Drilling	:14 holes totalling 430m Location and length of the drill holes are shown in '94 Survey plan
·Surface Geology & Trenching	:To clarify the mode of occurence of the Tsav deposits, investigation of the old trenches are to be conducted.
·Data analysis	:Based upon the data obtained in the above survey, ore reserve estimate to be conducted.

3.3 Form of Work and Dormitory

3.3.1 Form of Work

① Working time

staff	9:00～18:00
first shift	9:00～17:00
second shift	17:00～ 1:00
third shift	1:00～ 9:00

② Number of Personal

Member of Japanese study team

Engineer	15 persons	
Member of Mongolian counter part		
Staff	14 persons (include 3 foremen)	
Driller	6	
Mechanic	3	
Electrician	3	
Operator of Generator	3	
Surveyor	1	
Cooks for Japanese	3	
Cooks for Mongolian	3	
Clerk	1	
Guards	4	
Driver	3	
Laundry and sweeping worker	2	
Assistant worker of Mongolian	5	(include 3 Sampler)
Driller(for Boring)	6	
Sampler	3	
Interpreter	4	

3.3.2 Dormitory

For dormitory, the Japanese built Gel (five buildings of ten meters in diameter and three buildings of six meters in diameter) in 1994. Additional facilities including a dining room (one building of ten meters in diameter), four buildings serving as bathroom/toilet facilities (20 feet containers), a kitchen and a laundry (both 40 feet containers) were utilized. Drinking water was carted from a wel dug by the former Soviet Union and located six kilometers from Tsav. This was stored in a 50-cubic-meter tank. A septico tank with capacity to treat 21 persons processed polluted water.

The Mongolians built a wooden prefabricated office which doubled as dormitory (52.5 meters x 12.5 meters) in 1994.

Electricity was supplied to buildings for both parties using an independent 750 KVA power generation system.

3.4 Organization of study teams

(1)Japanese team

Name	Duty	Company
Kunitoshi OE	General Manager	(MINDECO)
Mamoru OOSHITA	Chief Admistrator	(〃)
Yukikazu KAWAUCHI	Chief Mecanical Engineer	(〃)
Michihiko HASEGAWA	Chief Electrical Engineer	(〃)
Tomio HIKAGE	Chief Foreman for Tunnelling	(〃)
Yukou TAKAHASHI	Chief Foreman for Tunnelling	(〃)
Masanao WASHIYA	Chief Foreman for Tunneling	(〃)
Kazuo YOKOKAWA	Vice Foreman for Tunnelling	(〃)
Masaki SUMIYA	Vice Foreman for Tunnelling	(〃)
Hiroyuki HASHIMOTO	Vice Foreman for Tunnelling	(〃)
Tsutomu AOYAMA	Chief Foreman for Boring	(〃)
Katsuhito SHINNAE	Chief Foreman for Boring	(〃)
Yoshihiro YAMAUCHI	Chief Foreman for Boring	(〃)
Hiroshi HAMA	Chief Geologist	(〃)
Tatsuo YAMAZAKI	Chief Geologist	(〃)

MINDECO :MITSUI MINERAL DEVELOPMENT ENGINEERING CO.,LTD.

(2)Mongolian team

Name	Duty	Company
Lodoin AYUR	General Project Manager Director of TSAV Company	(MEGM and TSAV Company)
L.BYAMBAJAV	Deputy Director of TSAV Company	(TSAV Company)
R.BATBAYAR	Mecanical Engineer	(〃 〃)
Y.LUTBAATAR	Tunnel Superintendent	(〃 〃)
SH.NAMHAINYAMBUU	Electrical and mechanical Engineer	(〃 〃)
TS.NOROVSAMBUU	Chief Geologist	(〃 〃)
YA.DOLGOR	Geologist	(〃 〃)
N.TSOLMON	Economist	(〃 〃)
B.KHALZAN	Administration Manager	(〃 〃)
D.MUNHTSETSEG	Chief Accountant	(〃 〃)
TS.DASHZEVGE	Clerk	(〃 〃)

V.KHURELTUMUR	Foreman for Tunnelling	(〃 〃)
L.KHURELBAATAR	Foreman for Tunnelling	(〃 〃)
B.BAATARHUU	Foreman for Tunnelling	(〃 〃)

MEGM :THE MINISTRY OF ENERGY,GEOLOGY AND MINING OF MONGOLIA

	Content of Study	Quantity	July	August	September	October	November	December	January	Febrary	March	Note
1	Mobilization Withdrawal		Tunneling Geologist		Geologist	Boring	Geologist Tunneling Homecoming					
2	Transportation outward trip inward trip											
3	Temporary Construction Electric Dranage Ventilation											
4	Tunneling Drift North South Pump Station No, 3 Waste Pit No, 4 Waste Pit Transformer Station Geological Survey Core Boring	 112.0m 194.0 15.0 30.0 15.0 15.0m³										
5	Report											
6	Delegates General Manager Administor Chief Tunneling Assistant Tunneling Chief Mechanical Chief Electrical Chief Geologist Chief Geologist Chief Boring	 1person 1 3 3 1 1 1 1 3										

Table. 2 Project Schedule

II. Progress of Survey

Part Ⅱ. Progress of Survey

Chapter 1. Tunnelling survey

1.1. Tunnelling Site

Drifting of this year was commenced at the bottom of inclined shaft (750m above sea level) which was driven in the last year (refer '94 Survey plan).

1.2 Survey method

1.2.1 Length of drift

Work	Project	Effect
Horizontal Drift	(306.0m)	(306.0m)
Type 1	255.0m	288.0m
Type 2	51.0m	18.0m
Cross Cut		(23.0m)
Type 1		20.4m
Type 2		2.6m
Third Waste Pit	(30.0m)	(24.0m)
Type 1	21.0m	18.0m
Type 2	9.0m	6.0m
Fourth Waste Pit	(15.0m)	(15.0m)
Type 1	9.0m	3.0m
Type 2	6.0m	12.0m
Pump Station	15.0m	15.0m
Second Transformer Station	$15.0m^3$	$15.0m^3$
Total	366.0m $15.0m^3$	383.0m $15.0m^3$

Table.3 Length of drift

1.2.2 Specifications of drift

(1) Effective section for each drift

		Area(m^2)	Width(m) x Height(m)s
Tunnel	type 1	11.88	(4.0 x 3.4)
Tunnel	type 2	11.88	(4.0 x 3.4)

(2) Gradient of horizontal drift

±1/500 (Pump Station -15°)

(3) Elevation of starting point in 1995

750.0m

(4) Direction of horizontal drift

refer plan of Tunnel and Core Boring in 1994

Equipment	Specifications	Quantity	Note
Drill Jumbo	Hydraulic 2 Boom	1	use as rock-bolt
Mortal Charger Car	TOYOTA Hilux	1	Mortal Pump(MM151)
Load Haul Dump	3.8m³ class	2	
Explosive Chager	TOYOTA Hilux	1	AN-FO charger(75Kg)
Compressor	21m³/min	1	
Mini-Back-Hoe	0.1m³ class	1	with Breaker
Jack-hammer	30Kg class	2	
Track	2t,attached with crane	1	
Track	1t, Hilux,WCabin	1	
Wagon	Landcruser 80type	1	
Wagon	Landcruser 70type	1	
Generator	750KVA	2	
Generator	55KVA	1	
Generator	10KVA DCA-13SPK	2	
Submersible Pump	5.2KW BS-2102HT	3	
Submersible Pump	2.2KW BS-2066	2	
Deep-well Pump	3.7KW SP-5A-19type	2	
Fan	1,000mmϕ,300mmAq,75Kw	1	
	900mmϕ,100mmAq,18.5Kw	2	
Car Washer	Pressure 65Kg/cm²	1	
High-speed Cutter		2	
Baby-Compressor	3.7P-14V5, 230 Liter	1	
Electric Welder	BPZ-400-3	2	
Engine Welder	BLW-150SS	1	
Feed-Pump	25BISND5.4	1	
Fuel-Pump		2	for vehicles
Fuel-Pump		1	for generator
INMARSAT Communication		1	
Travelling Crane	5t electric crane	2	

Table. 4 Main Equipment in Tunnelling

1.3 Details of Tunnelling

1.3.1 Drifting

A southward tunnel (139° E, 194m) and a northward tunnel (327°, 112m) have been driven in this year from the bottom of the inclined shaft which was driven in the last year. The tunnelling has been carried out by trackless method using hydraulically-operated mobile jumbo (drilling blast holes) and load haul dump (diesel driving underground wheel loader). In order to maintain the wall rock of the tunnel, smooth blasting using burn cut blasting was adopted. In some place steel frame or rock-bolting were applied to hold the wall of tunnel.

1.3.2 Cross Cutting

As descrived later, Third waste pit did not encounter the NO.4 orebody, a new tunnel was driven from the entrance of Third waste pit to the hanging wall of NO.4 orebody at the direction of 74° 30′ E and 23m long. The driving method is the same to drifting.

1.3.3 Third Waste pit

The wall rock was washed out by spring water (50l/min) at 24m from the entrance of the tunnel of 50° E direction which was driven at 138.2m from the entrance of the southward tunnel, although the said tunnel was scheduled to be driven for 30m. The driving was suspended due to lack of proper materials to continue driving and it was dangerous to continue further driving.

1.3.4 Forth Waste pit

A drift of 15m long with 52° E direction was driven at 110m from the entrance of the northward drift.

1.3.5 Pump Station

A inclined tunnel of -15° gradient was driven from the left side tunnel near the entrance of the northward drift. The driving method is the same to that of drifting.

1.3.6 Second Transformer Station

At 247m from the entrance of the inclined shaft the left side of the inclined shaft was widened for transformer station.

Chapter 2. Diamond Drilling Survey

2.1 Diamond Drill Site

A series of diamond drill holes has been drilled for NO.4 orebody from the drift of -60m level at the interval of 20m.

2.2 Survey Method

2.2.1 Length of Diamond drilling

No. of hole	Project	Effect	Bearing	Inclination
MJMT- 1	20.00m	20.15m	58°	0°
MJMT- 2	25.00m	25.45m	58°	0°
MJMT- 3	30.00m	30.25m	58°	0°
MJMT- 4	35.00m	37.05m	58°	0°
MJMT- 5	40.00m	40.50m	58°	0°
MJMT- 6	30.00m	31.10m	50°	0°
MJMT- 7	30.00m	30.10m	50°	0°
MJMT- 8	30.00m	30.25m	50°	0°
MJMT- 9	30.00m	31.70m	50°	0°
MJMT-10	30.00m	33.65m	50°	0°
MJTM-11	30.00m	30.70m	50°	0°
MJTM-12	30.00m	32.35m	50°	0°
MJTM-13	30.00m	33.35m	68°	0°
MJTM-14	40.00m	40.80m	96°	0°
Total	430.00m	447.40m		

Table.5 Length of Diamond drilling

2.2.2 Diamond Drilling Method

Wireline method with BQ size was adopted. At the collar of the hole a single tube with diameter of 66m was used to drill, then outer tube was inserted.

Item	Model	Quantity	Capacity, tye, and Specification
Drilling Machine	L-24-62	1	Capacity BQ 150m AQ225m
			Inner Diameter of Spindle 62mm
Moter		1	5.5kw 4P
Drilling Pump	MG-5h	1	Pistone 68mm
			Pressure 25～60kg/cm²
Moter	Invator moter	1	3.7kw 4P
Pump	LB-400	1	Capacity 120ℓ/min
Moter		1	0.4kw/200v
Column Jack		1	Screw Jack Style
Hand Mixer	UM-22	1	0.4kw/100v
Water Tank		1	2,000ℓ
Drill Rod	BQ-WL	35	1.5m/pc
Core Barrl Ass'y	66mm	2	0.50m/pc
Core Tube Ass'y	BQ-U WL	1	1.50m/pc
Inner Tube Ass'Y	BQ-U WL	1	1.50m/pc
Inner Tube	BQ-U WL	1	1.50m/pc
Outer Tube	BQ-U WL	1	1.50m/pc
Over Shot Ass'y	BQ-U WL	1	
Water Swivel	BQ-U WL	1	
W-L Hoist.		1	Capacity 50m

Table. 6 Main Equipment in Diamond Drilling

2.2.4 Core storing

All drill cores were kept in the core boxes and stored in the core house.

Size	Length	Width	Hight	
66mm	1,030mm	340mm	57mm	plastic
BQ	1,040mm	435mm	43mm	plastic

2.2.5 Water for Diamond Drilling

Spring water from the underground tunnels and diamond drill holes was pumped up and used for diamond drilling.

2.3 Results of Diamond Drilling

2.3.1 MJMT-1

Drill length : 20.15m
Core length : 20.15m
Core recovery : 100%
Drilling commenced : Oct. 18, 1994
Drilling completed : Oct. 20, 1994

From the collar to 1.50m 66mm single diamond bit was used, then from 1.50m to 21.50m BQ wireline diamond bit was used to drill throughout granodiorite. Mineralization was observed from 8.40m to 8.90m accompanied by clay. There was no spring water.

2.3.2 MJMT-2

Drill length : 25.45m
Core length : 22.65m
Core recovery : 91.5%
Drilling commenced : Oct. 29, 1994
Drilling completed : Oct. 31, 1994

Drilled from the collar to 1.50m by 66mm single diamond bit and from 1.50m to 25.45m BQ wireline diamond bit throughout granodiorite. Quartz vein accompanied by clay was encountered at 9.45m ~9.55m. Amount of spring water is 15 l/min.

2.3.3 MJMT-3

Drill length	: 30.25m
Core length	: 28.25m
Core recovery	: 93.4%
Drilling commenced	: Oct. 31, 1994
Drilling completed	: Nov. 2, 1994

Drilled from the collar to 1.30m by 66mm single diamond bit and 1.30m to 30.25m by BQ wireline diamond bit throughout granodiorite. Mineralization with clay was encountered at 17.15m～17.45m. There was no spring water.

2.3.4 MJMT-4

Drill length	: 37.05m
Core length	: 35.60m
Core recovery	: 96.1%
Drilling commenced	: Nov. 2, 1994
Drilling completed	: Nov. 3, 1994

Drilled from the collar to 1.50m by 66mm single diamond bit and 1.50m to 37.05m by BQ wireline diamond bit throughout granodiorite. Mineralization with clay was encountered at 28.85m～29.40m. There was no spring water.

2.3.5 MJMT-5

Drill length	: 40.50m
Core length	: 37.35m
Core recovery	: 92.2%
Drilling commenced	: Nov. 3, 1994
Drilling completed	: Nov. 5, 1994

Drilled from the collar to 1.00m by 66mm single diamond bit and 1.00m to 40.50m by BQ wireline diamond bit throughout granodiorite. Mineralization with clay was encountered at 31.60m～32.50m. The amount of spring water was 13 l/min.

2.3.6 MJMT-6

Drill length	: 31.10m
Core length	: 30.90m

Core recovery : 99.4%
Drilling commenced : Nov. 10, 1994
Drilling completed : Nov. 11, 1994

Drilled from the collar to 1.30m by 66mm single diamond bit and 1.30m to 31.10m by BQ wireline diamond bit throughout granodiorite. Quartz vein with clay was encountered at 23.40m～23.55m. There was no spring water.

2.3.7 MJMT-7

Drill length : 30.10m
Core length : 29.80m
Core recovery : 99.0%
Drilling commenced : Nov. 8, 1994
Drilling completed : Nov. 10, 1994

Drilled from the collar to 1.40m by 66mm single diamond bit and 1.40m to 40.80m by BQ wireline diamond bit throughout granodiorite. Mineralization with clay was encountered at 25.20m～25.22m. There was no spring water.

2.3.8 MJMT-8

Drill length : 30.25m
Core length : 30.00m
Core recovery : 99.2%
Drilling commenced : Nov. 7, 1994
Drilling completed : Nov. 8, 1994

Drilled from the collar to 1.95m by 66mm single diamond bit and 1.95m to 30.25m by BQ wireline diamond bit throughout granodiorite. Clay was observed throughout the cores. There was no spring water.

2.3.9 MJMT-9

Drill length : 31.70m
Core length : 30.05m
Core recovery : 96.2%
Drilling commenced : Nov. 5, 1994
Drilling completed : Nov. 7, 1994

Drilled from the collar to 1.30m by 66mm single diamond bit and 1.30m to 31.70m by BQ wireline diamond bit throughout granodiorite.

Clay was observed throughout the cores. There was no spring water.

2.3.10 MJMT-10

Drill length	:	33.65m
Core length	:	30.80m
Core recovery	:	91.5%
Drilling commenced	:	Oct. 27, 1994
Drilling completed	:	Oct. 29, 1994

Drilled from the collar to 1.40m by 66mm single diamond bit and 1.40m to 33.65m by BQ wireline diamond bit throughout granodiorite. Quartz veines with clay were encountered at 29.40m～29.55m. There was 5 l/min of spring water.

2.3.11 MJMT-11

Drill length	:	30.70m
Core length	:	27.90m
Core recovery	:	90.9%
Drilling commenced	:	Oct. 25, 1994
Drilling completed	:	Oct. 27, 1994

Drilled from the collar to 1.40m by 66mm single diamond bit and 1.40m to 30.70m by BQ wireline diamond bit throughout granodiorite. Quartz veines with clay were encountered at 2.45m～2.55m and 19.35m～19.55m. There was no spring water.

2.3.12 MJMT-12

Drill length	:	32.35m
Core length	:	30.15m
Core recovery	:	93.2%
Drilling commenced	:	Oct. 24, 1994
Drilling completed	:	Oct. 25, 1994

Drilled from the collar to 1.50m by 66mm single diamond bit and 1.50m to 30.15m by BQ wireline diamond bit throughout granodiorite. Quartz veines with clay were encountered at 15.85m～16.10m and 30.10m～30.30m. There was 5 l/min spring water.

2.3.13 MJMT-13

Drill length : 33.35m
Core length : 32.00m
Core recovery : 96.0%
Drilling commenced : Oct. 22, 1994
Drilling completed : Oct. 24, 1994

Drilled from the collar to 1.50m by 66mm single diamond bit and 1.50m to 33.35m by BQ wireline diamond bit throughout granodiorite. Quartz veines with clay were encountered at 10.20m～10.65m and 31.10m～31.30m. There was 18 l/min spring water.

2.3.14 MJMT-1

Drill length : 40.80m
Core length : 39.30m
Core recovery : 96.3%
Drilling commenced : Oct. 20, 1994
Drilling completed : Oct. 22, 1994

Drilled from the collar to 1.00m by 66mm single diamond bit and 1.00m to 40.80m by BQ wireline diamond bit throughout granodiorite. Quartz veines with clay were encountered at 11.45m～11.80m and 20.60m～21.10m. There was 17 l/min spring water.

Chapter 3. Trenching Survey

3.1 Locations of Survey

The trenching survey performed during this fiscal year comprized detailed survey at the main portion of the No.4 vein and reconnaissance survey at the Tsav deposit area. Locations of these suverys are indicated in Fig.1.

3.2 Methods of Survey

For the detailed survey at the main portion of the No.4 vein, a trench survey map with a scale of1/200 prepared by the Mongolian side was utilized as the base map. Since most of the previous trenches had been collapsed or filled in, the trenches were positioned by measurring. Reopening of collapsed portions were done by manpower while filled-in portions were dug by an LHD, a backhoe and manpower, till fresh rock appeared, to the maximum depth of -310cm. For sampling, a scale of 1/50 the previous trenching sketch was referred to, so that sampling points may coincide with those of the previous survey. In case geological conditions did not correspond to those in the previous sketch, a scale of 1/200 sketches were newly drawn to determine sampling points. In principle, samples taken at the bottom of trenches, were 10cm wide, 5 cm deep and of lengths same as those of previous sampling. If the sampling length was 70cm or less, width and depth were increased accordingly, so that each sample may weigh 10kg.

For the reconnaissance survey at Tsav deposit area, a scale of 1/1000 survey map prepared by the Mongolian side was used as the base map. As the previous trenches had been heavily collapsed and partly filled in, sampling points were determined with a 50m steel tape after checking previous sampling points in the base map. Reopening of trenches was performed by manpower, with exceptions of No.6 and No.8 veins which were dug by an LHD, a backhoe and manpower. Sampling was conducted in the same manner as that in the detailed survey. In case sampling length exceeded 1m, sample was divided into two parts in consideration of geological conditions so that each sample may not weigh more than 15kg.

All the samples collected were sent to the Central Geological Laboratory, Ulaanbaatar, where the samples underwent crushing, reduction

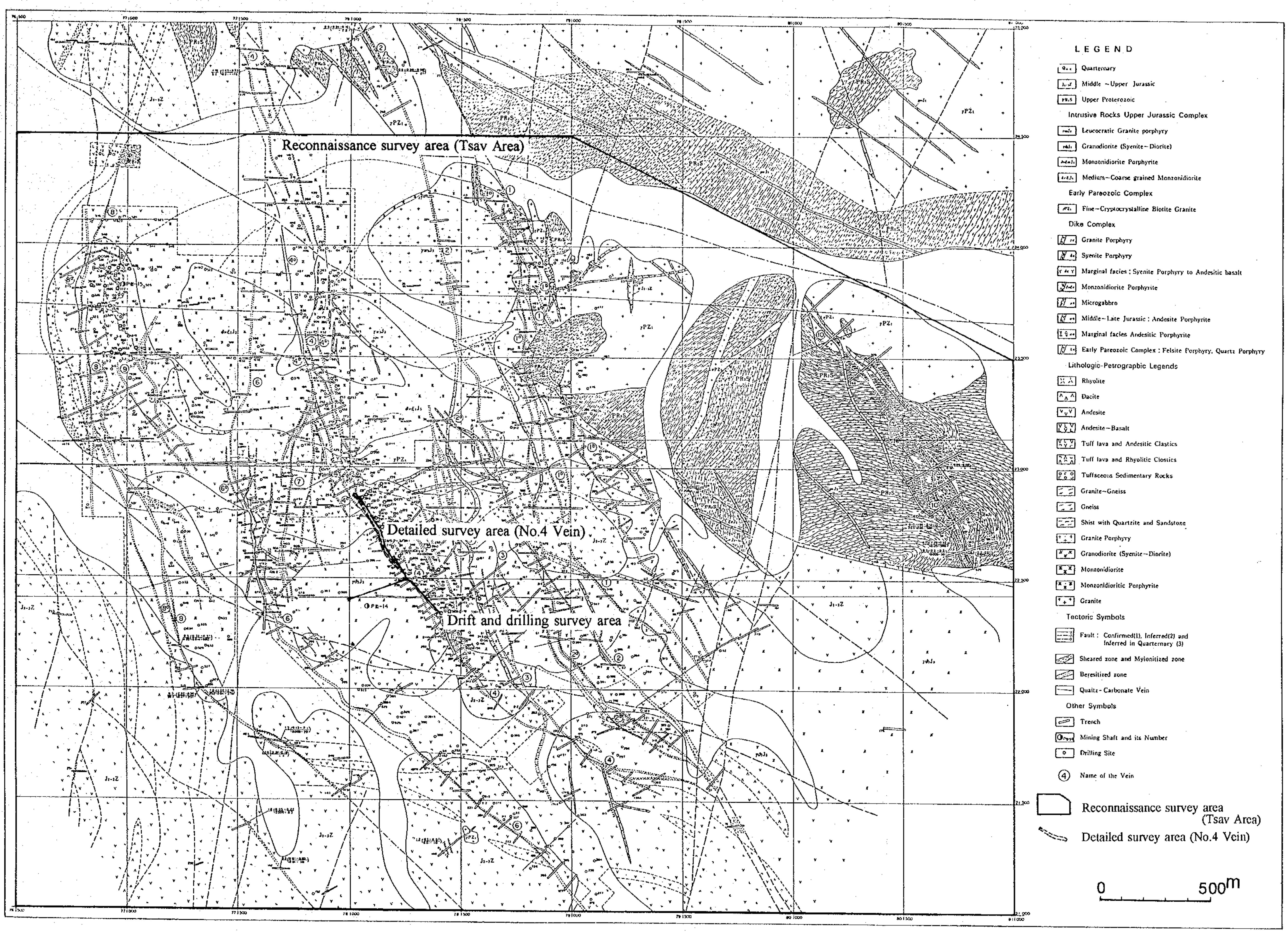


Fig.1 Location Map of the Trenching survey

and grinding. Pulp samples were then divided into two parts, one for analysis and the other for duplicate. The former was forwarded to Japan where single element assay of Au and 5-component assay of Au, Ag, Pb, Zn and Cu were conducted by Public Nuisance and Medical Research Institute, Inc.. The duplicate samples are in custody of the Mongolian side.

The assay samples collected during the trenching survey are listed in the following Table.

Survey Method	Elements	Quantity of Samples
No.4 Vein Detailed Survey	Au	181
	Au・Ag・Pb・Zn・Cu	75
Sub-total		256
TSAV area Reconnissance Survey	Au	61
	Au・Ag・Pb・Zn・Cu	2
Sub-total		63
	Au	242
	Au・Ag・Pb・Zn・Cu	77
Total		319

Table.7 Quantity of Trenching samples

5 thin sections and 10 polished sections have been prepared for further study of rocks and gangue minerals accompanying mineralization and ore mineral assemblage.

Chapter 4. Analysis of Previous Data

4.1 Areas for Ore Reserve Calculation

Detailed ore reserve calculation was done of the detailed survey area of No.4 vein, whilst, of the entire area of Tsav deposit, the previous ore reserve calculation was re-assessed.

4.2 Methods of Analysis

4.2.1 Detailed survey area of No.4 vein (surface～750m level)

Au grades in this area newly obtained by this year's trenching survey are applied for the evaluation, as well as Ag grades. The previous cut-off grade, which was based on the Pb and Zn grades used in the previous calculation, is reviewed for the purpose of providing a new cut-off grade.

Based upon the new cut-off grade, a new ore deposit area is determined, for which the 1/200 assay maps of the trenches and the tunnels at the 750 and 630m levels are utilized. In demarcating the ore deposit area, sampling points are connected with straight lines. Measurement of the ore deposit area is done on the 1/200 maps with a planimeter.

Height of ore blocks is assumed to be the same as the strike-side extension of ore bodies, with a maximum limit of the midpoints between the levels. Volume is calculated on the assumption that a side, area of which is unobtainable, is a line. For the portion immediately below the 750m level, ore blocks of the same forms as those immediately above the 750m level are supposed.
Specific gravity is assumed to be $3g/cm^3$. For calculating ore reserves, figures below 10ton are omitted as fractions.

The grades by levels are represented by weighted averages by sampling length, whilst the overall average grade is by a weighted average by amounts of ore reserve. These ore reserves are classified as probable ore reserves.

4.2.2 Unsurveyed areas of No.4 vein

For the unsurveyed areas of No.4 vein between the 630m and 750m levels, calculation was made by multiplying the previous ore reserve with a coefficient, which is equivalent to a ratio of ore reserve newly obtained in the detailed survey area to the previous ore reserve. The ore reserve thus obtained is classified into possible ore reserve. For the 630m tunnel level, an ore deposit area is demarcated on the basis of the new cut-off grade, of which probable ore reserve was calculated in the same manner as that for the detailed survey area. For the portion below 630m level, the ore deposit area expands as the result of the new cut-off grade being applied. The safety factor changes accordingly. The ore reserve is classified into the possbile ore category.

4.2.3 Tsav deposit area

For the former probable ore block areas at the trench along the No.6 vein and at the 630m level tunnel of No.8 vein, an ore deposit area is blocked out based on the new cut-off grade. Probable ore reserve is calculated in the same manner as that of the detailed survey area of No.4 vein. For the former possible ore block area, calculation was made in the same manner as that for No.4 vein between 630m and 750m.

Chapter 5. Survey Findings

5.1 Tunneling survey

Tunneling sketches with a scalel of 1/200 are exhibited in PL-4(1)～(5), a scale of 1/500 geological map of the 750m level in PL-5, a sampling location map in Apx-10, and assay results in Apx-11, while Table 8 list smineralized zones. Observation results of thin sections of rocks appea rin Apx-15, their microphotographs in Apx-16, observation results of polished sections of ore in Apx-17, and their microphotographs inApx-18, respectively.

Drift	Location	Sample Length m	Grade				
			Au g/t	Ag g/t	Pb %	Zn %	Cu %
Cross cut Drift north side	14.5～16.5	1.00	1.6	120.9	10.94	9.62	0.39
〃	19.5	0.15	1.8	144.9	12.99	18.34	0.35
〃	14.5～19.5	2.10	2.1	208.7	16.46	8.59	0.64
Cross cut Drift south side	15.0～16.3	1.70	0.8	127.4	8.05	7.16	0.20
〃	21.8～22.3	0.70	1.8	160.4	8.63	1.18	0.12
No.4 waste pit north side	8.8～ 9.3	1.00	1.1	242.9	18.95	2.62	1.32
No.4 waste pit south side	9.1～11.0	1.80	3.9	67.5	5.04	2.09	0.17

Table 8. List of Mineralized zones(Drift)

5.1.1 Inclined shaft (include. Nos. 1 and 2 Waste pit)

In this paragraph, the shaft depth is expressed in inclined distance on the center line of the shaft, from the portal.

Throughout the shaft, chloritized granodiorite is predominant. From 31.4m to 41.5m, joints amply occur, crossing the shaft direction (N25° W, 80° E), partly accompanied with white clay. At 56m and 64m points, there appear clay veins of 40cm (N10° W, 70° E) and 50cm (N10° W, 50° E), respectively. In some parts between the two points, sample occurrence of sharply inclined joints with the NNW-SSE and NNE-SSW trends are observed. Down to 89m point, veinlets with the NNW-SSE and, occasionally, NE-SW trends including calcite or white clay. Between 104m and 109m, zones crowded with joints (N65° W, 35° S and N35° W, 70°) are distributed. Down to 183m, calcite veinlets with the NNW-SSE and, occasionally, NE-SW and E-W trends are distributed every 4 to 5m. At 183m point (N40～50° E, 70～75° E), 191m point (N25° E, 65° E), 196m point (N20° E, 70° E), 214m point (N50～55° E, 60° S) and at 246m point (N30° W, 75～80° E), clay veins of 10 to 30cm are confirmed, which are sometimes accompanied with calcite veins of 1cm or less. In these clay vein areas, calcite veins with the NW-SE and NE-SW trends are distributed every 2 to 4m. Between 191m and 196m, there is a zone crowded with joints in a direction parallel with the clay veins. A 40cm sample taken from 56m point assays Au 0.5g/t, Ag 2.2g/t, Pb 0.07%, Zn 0.04% and Cu <0.01%.

5.1.2 Southward tunnel

The starting point of this tunnel (22,485.470N, 78,238.550E) corresponds with 251m point of the inclined shaft. In this paragraph, the tunnel depth is expressed in horizontal distance on the center line of the tunnel, from the southward starting point.

Nearly full length of this tunnel is dominated by chloritized granodiorite. Up to 35.6m point, calcite veinlets with the NW-SE trend appear every 5 to 6m. Up to 75m point, calcite veinlets with the NE-SW or ENE-WSW trend, almost crossing the tunnel direction, are dominant while those with the NW-SE trend parallel with the tunnel are rarely found. At 99.5m point (N5° W, 70～80° E) and 110m point (N5～15° , 70～80° E), there appears a silicified vein involving quartz veinlets of 20cm and 40cm (the north wall) to 80cm (the south wall), respectively. From 130m point to 160m point, there appears near the center of the tunnel a 20-100cm wide argillized vein parallel with the tunnel (average N50° W, 70° N). Its northern extension enters in the side wall at N20° W, 60° E, whereas its southern extension at N24° W, 70° E. Bewteen 164m and 171m points, an argillized zone (N10° E, 80° E) is formed. This altered zone, at 170m point, is accompanied with a 15～30cm wide silicified vein (N10° E, 90°). At 177m point, a 1～30cm wide clay vein (N45° , 80° S) and, at its hanging side, an approx. 1m argillized breccia zone are observed. Up to the tunnel face (194m point), calcite veinlets with the NE-SW and partially NW-SE trends are observed. Assay was conducted of silicified veins and argillized zones, whereby no mineralized zone was captured although some slight indications (Au 0.1-0.3g/t) were detected.

5.1.3 Northward Tunnel

The starting point of this tunnel (22,490.890N, 78,248.760E) corresponds with 11.4m point at the southward tunnel. In this paragraph, the tunnel depth is expressed in horizontal distance on the center line of the tunnel, from the northward starting point.

The tunnel is dominated over the full length by chloritized granodiorite. Up to 31m point, calcite veinlets with the NW-SE and NE-SW trends occasionally appear. At 31m point, a clay vein (N55° E, 70° S) of 15～25cm wide involving calcite veinlets is observed. Between 38m and 48m points, there appears a zone crowded with joints with NW-SE trends. As southward and nothward extension of this zone is blocked by calcite veinlets with the NE-SW trends, no continuation of the zone is observed. Between 56.9m and 59m, a fracture zone is formed, intercalated on the hanging and foot walls by 10～15cm wide argillized zones, involving calcite veinlets (N40° E, 70～80° E). Although a 20～5cm argillized vein (N10-20° E, 70～75° E) is observed at 77.5m point, there only appear calcite veinlets with the NE-SW trends, at 3～6m intervals from the fracture zone through to the face (112m point). In some parts, occurrence of joints with the NW-SE trends is observed.
A part of argillized veins caught in the tunnel was analysed, in some parts, Au 0.1g/t has been obtained but no mineralized zone was found.

5.1.4 No.3 waste pit and crosscut tunnel

The center point for excavation of the No.3 waste pit and the crosscut tunnel is located on the northside wall at about 138.2m point of the southward tunnel. In this paragraph, the tunnel depth is expressed in horizontal distance in the direction of the excavation, from the center point of excavation. Unless otherwise specified, the descriptions hereunder refer to the crosscut tunnel.

Granodiorite is dominant throughout the tunnel. The portion up to 11m point is chloritized, where calcite and quartz veinlets with NNW-SSE trends appear every few meters. From the 11m point to the face (30m point), an argillized zone occurs. In this argillized zone, there appear 10~30cm wide quartz veins which, respectively, have the strike and dip of N10~15° W, 50~60° E and N45° W, 60° N. They contain galena and sphalerite. In the vicinity of these mineralized veins, argilization is overlapped with silicification accompanied with quartz veinlets and network veins. From the starting point toward the face, changes of facies under the microscope can be summarized as follows: (The sampling points are located on the south wall, 1~2.3m high)

No.of Sample	Depth	Texture	Alteration & Remarks
60-3-5	11.5m	Holocrystalline equigranular	Sericitized, silicified, carbonitized granodiorite. Remain subhedral quartz.
60-3-11	17.5m	Holocrystalline equigranular	Sericitized, silicified, carbonitized granodiorite. Quartz shows anhedral.
60-3-16	22.5m	Holocrystalline Seriate	Sericitized, silicified, carbonitized granodiorite. Quartz shows anhedral, irregular and weak wavy extinction. Included quartz veinlets.
60-3-23	29.5m	Holocrystalline Seriate	Quartz carbonate vein. Cerusite occurs at margin of galena.

Ore minerals under the microscope are galena, sphalerite, chalcopyrite and pyrite, in addition, tetrahedrite and argentite are confirmed in Sample 60-3-5 and electrum is confirmed in Sample 60-3-23. Galena is frequently accompanied by cerussite rim of irregular shapes around its external margin. Assay of silicified, argillized zones accompanied with veins between 22m and 23.5m points is shown at north wall(sampling length 100cm) Au 1.6g/t, Ag 120.9g/t, Pb 10.94%, Zn 9.62% and Cu 0.39% and south wall(sampling length 170cm) Au 0.8g/t, Ag 127.4g/t, Pb 8.05%, Zn 7.16% and Cu 0.20%. Assay at 28.5m point indicates at north wall (sampling length 15cm) Au 1.8g/t, Ag 160.4g/t, Pb 12.99%, Zn 18.34% and Cu 0.35%, and south wall (sampling length 70cm) Au 1.8g/t, Ag 160.4g/t, Pb 8.63%, Zn 1.18% and Cu 0.12%. On the north wall, these two mineralized zones are united (sampling length 210cm) and assay results are Au 2.1g/t, Ag 208.7g/t, Pb 16.46%, Zn 8.59% and Cu 0.64%.

5.1.5 No.4 waste pit

The starting point of No.4 waste pit corresponds to the 110m point at the northward tunnel. The tunnel depth is expressed in horizontal distance from the survey point at the end of the northward tunnel (112m point, 22,586.270N, 78,198.235E).

Chloritized granodiorite prevails up to 11.5m point of the tunnel. At 4m point, a 1～20cm clay vein is observed whilst calcite veinlets appear at 8m and 10.5m points, all having the strike and dip of almost N-S, 60～80° E. Between 11.5m and 13m, there is a silicified zone including a 50cm wide quartz vein containing galena and sphalerite. Thereafter, argillized granodiorite continues up to the face (18m point). Microscopic observation of the argillized rock sample (60-4-12) indicates that it is of holocrystalline, equigranular texture and that plagioclase and mafic minerals are compeletely altered to sericite,, forming aggregagtes partly including carbonate minerals and opaque minerals. Quartz are found to be mostly anhedral. Orthoclase, partially cericitized, is relatively fresh and partly shows micrographic texture. As for alteration, sericitization, carbonitization, silicification and chloritization are observed. Under the microscope, ore-bearing quartz vein sample (60-4-9.5) mainly contains galena, sphalerite, pyrite and cerussite, with some accessory idiomorphic chalcopyrite. Covelline and chalcocite are observed in slight quantities. Assay of the silicified zone between 16.5m and 18m is at north wall (sampling length 180cm) Au 3.9g/t, Ag 67.5g/t, Pb 5.04%, Zn 2.09% and Cu 0.17% and south wall (sampling length 100cm) Au 1.1g/t, Ag 242.9 g/t, Pb 18.95%, Zn 2.63% and Cu 1.32%.

5.2 Diamond Drilling Survey

A core logging result (1/200 scale) is shown in Apx-12, a geological map by tunnel levels in PL-5, assay results in Apx-13, and a list of mineralized zones in Table 9, respectively. Results of microscopic observation of thin sections appear in Apx-15 and microphotographs are shown in Apx-16.

From the horizontal tunnels developed at 750m level, 14 bore holes, 20 ~40m long, were drilled toward the mineralized zones on the hanging side, all of which indicated almost homogenious facies composed entirely of granodiorite. The survey results by bore holes are listed in the following table.

Hole No.	Location m	Length m	Grade				
			Au g/t	Ag g/t	Pb %	Zn %	Cu %
MJMT- 1	8.4 ~ 8.6	0.20	5.1	115.4	3.97	2.36	0.16
MJMT- 2	9.45~11.85	2.40	0.1	60.1	1.25	0.70	0.03
〃	22.75~23.45	0.70	0.4	44.1	0.54	1.84	0.04
MJMT- 3	17.15~17.45	0.30	5.7	53.9	1.58	0.14	0.10
MJMT- 4	23.15~25.75	2.60	1.9	24.5	0.03	0.03	<0.01
MJMT- 5	31.60~32.50	0.90	6.4	191.7	10.33	8.02	1.05
MJMT- 6	24.55~24.75	0.20	<0.1	112.1	0.03	0.09	<0.01
MJMT- 9	22.40~22.65	0.25	1.3	44.9	3.00	1.61	0.03
〃	27.15~27.50	0.35	2.5	22.5	1.00	3.58	0.07
MJMT- 10	23.20~23.23	0.03	7.2	36.2	0.30	5.04	0.06
〃	29.40~29.55	0.15	2.4	23.2	0.17	0.22	0.05
〃	32.75~32.90	0.15	1.1	40.1	0.43	0.31	0.07
MJMT- 11	19.35~19.55	0.20	1.8	870.5	0.20	6.45	12.81
〃	25.35~27.50	2.15	0.2	249.2	0.07	0.04	<0.01
MJMT- 12	15.60~17.70	2.10	0.1	112.8	0.21	0.40	0.05
〃	30.10~30.35	0.25	1.3	90.2	1.46	16.57	0.19
MJMT- 13	10.20~11.00	0.80	0.5	25.7	0.27	1.95	0.10
〃	31.10~31.65	0.55	0.2	105.0	7.25	6.33	0.32
MJMT- 14	11.45~11.80	0.35	5.1	106.5	8.22	1.87	0.554

Table 9. List of Mineralized zones (Diamond drilling)

5.2.1 MJMT-1

Granodiorite predominates over the whole length of the bore hole. Weak chloritization is observed throughout. In the portions of 2.15～3.45m (of bore hole length), 8.10～11.65m and 19.05～20.15m, medium-grade argillization is observed. The argillized zones are overlapped with pyrite dissemination. Within the altered zone, relatively strong silicification is observed between 8.10m and 11.65m. At the silicified zones, quartz veinlets ～network veins accompanied with galena and sphalerite of several millimeters to 1cm are observed. In a 20cm portion between 8.40m and 8.60m, a mineralized zone assaying Au 5.1g/t, Ag 115.4g/t, Pb 3.97%, Zn 2.36% and Cu 0.16% has been captured. Under the microscope, ore minerals of this mineralized zone are mainly sphalerite and galena with pyrite of a small quantity and also chalcopyrite, pirrhotite and marcasite of very small quantities (Apx-10 and -11; Sample No.1-8.6). Microscopic observation of the vein texture has revealed that coarsegrained quartz (the maximum grain diameter 0.8 x 1.1mm) is disseminated with carbonate minerals (2.9 x 4.2mm), opaque minerals (1.5 x 1.7mm) and some sphalerite (1.1 x 1.2mm), which is cut by fine veins (0.6mm wide) composed of fine grained quartzs (0.01 x 0.04mm) of a later stage, which, in turn, is cut by fine vein (0.1-0.2mm wide) composed of fine-grained carbonate minerals (0.04 x 0.11mm). Sphalerite is accom-panied chiefly with opaque minerals and associated partly with carbonate minerals.

5.2.2 MJMT-2

Granodiorite predominates throughout the bore hole. During the 0～0.8m and 2.0～4.4m, there is fine-grained granodiorite, which may constitute dikes. Weak chloritization is observed over the full length of the bore hole. For most of the 7.5～24.5m section, medium to weak-grade argillization is observed. Silicification is observed in the sections 7.5～8.2m, 9.35～9.65m, 11.15～16.45m and 22.75～23.45m. Strong silicification ～quartz veins appear in the sections 9.45～9.55m, 11.85～12.25m and 22.75～22.80m. The silicified zones are accompanied with quartz veinlets ～network veins, which is predominant between 11.15m and 14.65m. Two mineralized zones have been confirmed by assay, which are the 9.45 ～11.85m section grading Au 0.1g/t, Ag 60.1g/t, Pb 1.25%, Zn 0.70% and Cu 0.03%, and the 22.75 m～23.45m section grading Au 0.4g/t, Ag 44.1g/t, Pb 0.54%, Zn 1.84% and Cu 0.04%.

5.2.3 MJMT-3

The bore hole is dominated throughout by granodiorite with subordinate amounts of andesite in the sections 1.90～3.20m, 6.30～6.60m and 8.0～8.5m. The andesite, with indistinct peripheries, is highly likely to be xenolith. Over the whole length, weak to medium-grade chloritization is observed. Between 16.25m and 29.45m, distributed is weak to medium-grade argillization, of which a 40cm section from 25.35m to 25.75m is a strongly argillized zone. This may be a fault zone. Silicification is observed between 16.25m and 18.9m, in which a 30cm section from 17.15m to 17.45m is constituted with a strongly silicified vein. Assay of this vein has indicated Au 5.7g/t, Ag 53.9g/t, Pb 1.58%, Zn 0.14% and Cu 0.10%. There is little occurrence of quartz veinlets～network veins.

5.2.4 MJMT-4

There occurs granodiorite throughout the bore hole, with some xenolith-like andesite observed between 16.20m and 16.95m and also between 17.35m and 18.50m. Chloritization is distributed mostly through the bore hole. Argillization is distributed intermittently after 23.15m, at 2～4m intervals. Silicification is confirmed in the sections 23.15～29.30m and 35.65～36.35m. A strongly silicified vein and a quartz vein are observed in the sections 28.85～29.0m and 35.65～36.71m, respectively, but assay has revealed that they are of low grades as to all the elements concerned. On the hanging and foot walls of the quartz vein, a strongly argillized zone is formed. Two sections of 22.90～25.75m and 27.45～29.35m are dominated by quartz veinlets and network veins; a 2.6m section between 23.15m and 25.75m proves to be of Au 1.9g/t, Ag 24.5g/t, Pb 0.03%, Zn 0.03% and Cu <0.01%, as well as occurence of auriferous mineralization. From the starting point to 20.8m point, calcite veinlets of several millimeters in width appear every 0.5～1m.

5.2.5 MJMT-5

Granodiorite is dominant, accompanied with xenolith-like andesite in the sections 8.2～9.3m, 15.7～16.2m, 21.15～22.20m, 24.65～25.85m and 26.40～29.05m. Weak chloritization is seen throughout the bore hole. After 29.05m, medium to weak-grade argillization zones are distributed. Bewteen 30.0m and 39.75m, silicification is observed; in a 0.9m section from 31.6m to 32.5m, strongly silicified zones embracing quartz veins of 30cm and 10cm are formed on both walls. Assay of the sample (D-0505) shows Au 6.4g/t, Ag 191.7 g/t, Pb 10.33%, Zn 8.02% and Cu 1.05%, which suggests occurrence of a dominant mineralized zone. Only concern is about the poor core recovery (59.6%) in this section. Under the microscope (Apx-10 and -11; Sample 5-31.8), mainly observed are sphalerite and galena, accompanied by with small amount of chalcopyrite and very small amounts of pyrite and tetrahedrite. Tetrahedrite is observed in the form of fine veins in sphalerite. Quartz veinlets～network veins occur in the sections 20.15～21.15m, 28.75～31.25m and 34.55～36.25m, but form no mineralized zone. In the sections 2.8～5.6m and 7.5～9.3m, there appear zones including calcite veinlets relatively densely (at 10～50cm intervals), whereas relatively coarse ones (intervals 20～100cm) in the sections 15.9～18.3m and 26.2～28.05m. Microscopic observation of weak silicification zone at 34.35m point has revealed that the rocks are of holocrystalline, seriate texture, composed mainly of quartz, plagioclase and orthoclase, with subordinate amounts of thoroughly sericitized biotite, dendritic opaque minerals and carbonate minerals. Most of quartz shows weak wavy extinction, and some of quartz occurs in the as aggregates of crystals presumably recrystallized.

Plagioclase is thoroughly sericitized and accompanied partly with carbonate minerals. Acicular crystals of tourmaline showing weak pleochroism (light green～colorless) occur independently or in radial aggregates.

5.2.6 MJMT-6

Prevailing granodiorite involves xenolith-like andesite in the sections 0.1～0.5m, 2.15～2.95m, 3.75～4.4m, 4.95～6.05m, 7.2～7.95m, 8.95～9.35m, 12.15～12.7m, 13.75～14.75m and 17.65～19.1m. Medium to weak-grade chloritization is observed almost throughout the bore hole. Between 22.5m and 25.7m, strong to medium argillization is observed; overlapping with silicification is observed in the 22.5~24.0m and 24.55~25.25m sections. Relatively dense distribtuion of calcite veinlets is observed nearly all over the bore hole. Assay of a 20cm section between 24.55m and 24.75m (D-0606) has resulted in Au <0.1g/t, Ag 112.1g/t, Pb 0.03%, Zn 0.09% and Cu <0.01%, which indicates argentiferous mineralization.

5.2.7 MJMT-7

Granodiorite is dominant, with some xenolith-like andesite observed in the sections 5.3~5.85m, 9.65~9.90m, 10.5~10.75m, 11.6~12.35m, 13.3~13.8m, 15.5~16.1m, 17.05~17.55m, 19.35~19.65m and 20.7~21.45m. Chloritization is observed in most part. From 25.0m to the end of bore hole, relatively strong argillization zones are formed. A relatively strong silicification zone appears between 22.6m and 28.95m, accompanied with few quartz veins. Au 0.1~0.2g/t has been detected by assay while the other elements are low in grade. Relatively dense calcite veinlets are distributed over the bore hole.

5.2.8 MJMT-8

The bore hole is dominated by granodiorite involving some xenolith-like andesite in the 12.65~13.05m and 13.10~13.95m sections. Medium to weak chloritization is observed throughout.

In the sections 17.6~20.5m, 21.75~22.85m and 24.75~29.2m, medium-grade argillization is observed, overlapped with medium-grade silicification. Between 3.75m and 7.8m, weakly silicified zones, 20~40cm long, are intermittently distributed, accompanied with quartz veinlets. Calcite veinlets are also observed near the starting point and after 16.0m onward. As the result of assay, no marked mineralization has been found.

5.2.9 MJMT-9

Throughout the bore hole, dominant is granodiorite which underwent medium to weak chloritization. In the sections 7.9~10.6m and 21.5~31.7m (the end of bore hole), there appears relatively strong argillization, overlapped with a silicified zone accompanied with quartz veinlets. Between these two altered zones, calcite veinlets occur. Under the microscope, weakly silicified rocks at 30.2m point are of holocrystalline, equigranular texture, composed mainly of quartz, plagioclase, orthoclase and mafic minerals. Plagioclase and mafic minerals are thoroughly sericitized. Also observed are quartz veinlets accompanied with carbonate minerals, cut by calcite veinlets accompanied by opaque minerals. Microscopic observation of the quartz vein at 22.65m point has revealed that the vein is composed mainly of galena, with accessory pyrite, sphalerite, chacopyrite and covelline of very small quantities. Along the peripheries and cleavages of galena crystals, cerussite is observed, in which covelline occurs in dots, in the form of small aggregates.

Mineralized zones have been captured by assay of samples (D-0906 and D-0913) representing the 25cm section (22.4～22.65m) and the 35 cm section (27.15～27.5m), respectively, as follows;

D-0906 : Au 1.3g/t; Ag 44.9g/t; Pb 3.00%; Zn 1.61%; Cu 0.03%

D-0913 : Au 2.5g/t; Ag 22.5g/t; Pb 1.00%; Zn 3.58%; Cu 0.07%.

However, the latter's core recovery was as low as 42.9%.

5.2.10 MJMT-10

Granodiorite is dominant throughout, with some xenolith-like andesite occurring in the sections 16.7～17.2m and 21.9～23.95m. Weak chloritization is observed in most part of the bore hole. In the sections 6.35～15.4m and 18.75～32.75m, medium-grade argillization is observed. After 19.85m, silicified zones accompanied with quartz veins～veinlets continue. Mineralized zones have been confirmed in the 3cm section between 23.20m and 23.23m (D-1002), the 15cm section between 29.4m and 29.55m (D-1005) and in the 15cm section between 32.75m and 32.90m (D-1007), as follows:

D-1002: Au 7.2g/t; Ag 36.2g/t; Pb 0.30%; Zn 5.04%; Cu 0.05%

D-1005: Au 2.4g/t; Ag 23.2g/t; Pb 0.17%; Zn 0.22%; Cu 0.05%

D-1007: Au 1.1g/t; Ag 40.1g/t; Pb 0.43%; Zn 0.31%; Cu 0.07%

All these assay samples have been taken from the quartz vein occurring in the silicified zone mentioned above. Some samples of silicified zones between each quartz veins have proved to contain 0.1～0.7g/t of Au but the other elements are very low in grade.

5.2.11 MJMT-11

Prevailing is granodiorite throughout the bore hole. Weak chloritization is observed in most part. Relatively strong argillization is observed in the sections 2.55～9.65m and 13.15～29.2m, whereas, in the sections 2.35～2.8m, 5.1～8.35m and 13.3～23.1m, relatively strong silicification accompanied with quartz veinlets is observed. Microscopic observation of a sample taken from the strongly silicified zone at 2.4m point has revealed that it underwent such strong fracture that original rock structure cannot be discriminated. It is also observed that carbonitization, sericitization and silicification are dominant in breccia whilst, in a matrix, dominant are silicification, sericitization and carbonitization. Mineralized zones have been captured in the 20cm section (19.35～19.55m) and in the 2.15m section (23.35～27.5m), the former assaying Au 1.8g/t, Ag 870.5g/t, Pb 0.20%, Zn 6.45% and Cu 12.81%, whereas the latter assaying Au 0.28g/t, Ag 249.2g/t, Pb 0.07%, Zn 0.44% and Cu <0.01%. The former represents a quartz vein and the latter is a weakly silicified zone. Under the microscope, the quartz vein is composed mainly of chalcopyrite and pyrite, with subordinate amounts of sphalerite and tetrahedrite occasionally observed.

Chlalcopyrite has numerous cracks. Along the cracks or the peripheries of crystals, film-like tetrahedrite is observed. Around the periphery of the film-like tetrahedrite, sphalerite is observed in the form of even thinner films. In a part of tetrahedrite, a polybasite-like mineral is also observed.

5.2.12 MJMT-12

Granodiorite is dominant, which embraces xenolith-like andesite between 25.2m and 25.8m. Chloritization is observed in most part. Argillization appears in the sections 10.95～23.9m and 25.8～32.15m. Silicification is distributed in the sections 14.75～18.85m, 23.25～23.9m and 29.5～32.15m, accompanied with quartz veinlets. Mineralized zones have been confirmed in the 2.1m section (15.6～17.7m) and in the 25cm section (30.1～30.35m). The former assays Au 0.1g/t, Ag 112.8g/t, Pb 0.21%, Zn 0.40% and Cu 0.05%, whilst the latter is of Au 1.3g/t, Ag 90.2g/t, Pb 1.46%, Zn 16.57% and Cu 0.19%. The former assay results have to be treated with certain reservation, since the core recovery in the section was merely 37.5%.

5.2.13 MJMT-13

Granodiorite is distributed all over the bore hole. Chloritization is observed in the sections 0～12.9m, 18.5～20.2m, 25.45～28.15m and after 32.9m onward, while, in the sections 9.75～14.9m, 16.3～18.5m, 20.2～25.45 and 30.7～32.9m, there appears silicification. Mineralized zones have been caught by assay in the 0.8m section (10.2～11.0m) grading Au 0.5g/t, Ag 25.7g/t, Pb 0.27%. Zn 1.95% and Cu 0.10%, and also in the 0.35m section (31.3～31.65m) grading Au 0.29g/t, Ag 105.0g/t, Pb 8.22%, Zn 1.87% and Cu 0.54%, both being constituted with a quartz vein and a silicified zone on the hanging side of the quartz vein. Under the microscope, Sample No.13-30.5 is composed mainly of sphalerite, with subordinate quantities of pyrite, galena and covelline and a very small quantity of chalcopyrite. In sphalerite, inclusions of chalcopyrite are seen to scatter. Sphalerite is accompanied with galena and covelline which occur around the peripheries, or along cracks and cleavage of crystals.

5.2.14 MJMT-14

Dominant over the bore hole is granodiorite. Between 16.8m and 20.5m, granodiorite occurs in fine grains, which may represent microgranodiorite dikes of a later stage. Relatively strong chloritization is observed in the sections 0～14.5m and 16.8～end of the bore hole. Argillization is observed after 9.6m onward, whilst silicification is scattered in small scale after 11.45m point. Under the microscope, a sample of the silicified zone at 28.0m point is of holocrystalline, equigranular texture, composed mainly of quartz, plagioclase, orthoclase and mafic minerals, with accessory opaque minerals and sphalerite. Quartz, fractured, assumes wavy extinction and has irregular peripheries. Plagioclase is completely sericitized and chloritized, and partially carbonitized, whereas mafic minerals are so strongly sericitized and carbonitized that they can be identified only by crystalline system or relics of twins. Orthoclase is anhedral, filling intercrystalline of above mentioned minerals and undergoing relatively strong sericitization. Sphalerite assumes either dendritic shapes or shapes like veins accompanying sericite veins.

5.2.15 Summary

Overview of the alteration and mineralization, obtained from the results of underground geological survey in this year, are summarized as follows:

1. Alteration

1) Chloritization is observed not only near the mineralized zone but also in a wide area and is accompanied with carbonitization.

2) Carbonitization, observed nearby orebody is mainly composed of rhodochrosite.

3) Argillized zone predominate near the orebody and is mainly consisting of sericitization.

4) Silicification is overlapping with argilization and appear near by the mineralized zone. Generally, distribution of silification in the surveyed area is predominat in the south of MJMT-10 and the relationship between silification and argilization is not cleared. Thereby, it is necessary to study in future survey.

5) In the north of MJMT-10, quartz veinlets and its network are developed near the mineralized zone.

6) Abovementioned 3) and 4) correspond to Beresite alteration zone of the previous survey.

7) These alteration zones are also suffered supergene alteration.

2. Mineralization

1) The ore shoots of base-metal mineralization do not overlap with the presious metal mineralization. In other wards, in the survey of 20m interval it is difficult to make clear the change of mineralized character.

2) Although base-metal mineralized zone is generally narrow, precious metal mineralized zone is comparatively large. It is possible

that the base-metal quartz veins are originated from the precious metal impregnation or veinlets～network veins.

3) Addition of base-metallic mineralization associating carbonitization is observed duplicating with these mineralization.

4) Supergene alteration is slightly recognizing in 750m level.

5.3 Trenching Survey

A scale of 1/200 trench sketch for the detailed survey of main portion of No.4 vein is exhibited in PL-7, an assay sampling location map in PL-8, a scale of 1/500 geological map in PL-5, a scale of 1/50 trench sketch for the reconnaissance survey at Tsav ore deposit area in PL-10, assay results in Apx-14, an assay map of the detailed survey in PL-9, and an assay map of the reconnaissance survey in PL-11, respectively. Results of microscopic observation of thin sections appear in Apx-15, their microphotographs in Apx-16, results of microscopic observation of polished sections in Apx-17 and their microphotographs in Apx-18.

5.3.1 Detailed survey of main portion of No.4 vein

For the main portion of No.4 vein, a trench excavated in the past runs along the ore deposit, which in turn has crosscut trenches within itself. The crosscut trenches from PK1 in the north through the southernmost PK173 are arranged at intervals of about 5m. Of these crosscut trenches, PK1 through PK74, for which no assay has been conducted of Au, were reopened during this year's survey, for the specific purpose of collecting samples for Au assay. In the detailed survey area, an area between PK1 and PK41 is underlain by andesitic pyroclastic rocks, whereas that bewteen PK42 and PK73 is dominated by granodiorite. In the pyroclastics area, the portion from PK18 thru PK32 is composed of welded tuff ("ignimbrite" by the Mongolian side), where there is an anticlinal structure that the northeast side of the trench along the ore deposit dips northeast while the southwest side dips southwest. Occurrence of mineralized zones is presumably located, in the map, at the axis of anticline. Granodiorite is massive type, in which no foliation is observed. On the southeast wall of the area between PK60 and PK61 where granodiorite is distributed, an approx. 50cm wide dike of fine-grained granodiorite (N20° E, 80° E) is observed. On the hanging side of the dike, there is a weakly fractured argillization zone of some 10cm.

Quartz veins or strongly silicified veins containing gossan and sulfide minerals as observed in the crosscut trenches (hereafter called "mineralized zones") are generally controlled by small-scale fractures with the NNE-SSW or NW-SE trend. The trench along ore deposit extends in the NW-SE direction, whilst the crosscut trenches dug within the former trench are in the NE-SW direction. In case a mineralized zone is observed in a trench, however, its extension is rather rarely caught in the neighboring trenches. In some part on the hanging or foot walls, or on both walls, occurrence of quartz veinlets or network veins, several to less than 1 millimeter wide, is seen. In these veinlet～network vein zones, in general, dissemination with sulfide minerals are observed. The occurrence of quartz veinlets or network veins is controlled generally by small-scale fractures with the NNE-SSW and NW-SE trens.

On the whole, alteration of the surface is dominated by chloritization but, in the vicinity of mineralized zones and quartz veinlet zones, argillization is dominant. Silicification is distributed in small scale, overlapping the mineralized zones and quartz veinlet～network vein zones. Argillization and silicification are controlled generally by small-scale fractures with the NNE-SSW trend. Out of the silicification, strongly silicified zones are classified into mineralized zones. As to medium and weak silicification zones, their relationship with mineralization is unclear. Quartz veinlet～network vein zones occur in both medium and weak silicification zones. Under the microscope, Sample No. 41502 (taken at the sampling point No. 2, PK 15), which is classified into the medium-grade silicification zone in pyroclastics area, is rich in sericite in the form of approx. 1 x 2mm aggregates, and quartz grains are of seriate texture in which crystal grains of 0.2 x 0.4mm or less gradually change in the grain diameter. As relics of euhedral zircon and apatite are observed, it can be known to be of igneous origin but the source rock is unidentified. Sample No. 41802 (sampling point No. 2, PK18), which is classified in to the strong silicification zone, is a combination of quartz or quartz aggregates showing wavy extinction and brecciated sericite aggregates, which, apparently, suggests mylonitic texture. Accompanied with carbonate minerals and acicular or radiated micro-crystalline tourmaline, it may be inferred as a relatively high temperature, hydrothermal alteration zone. As regards structure of the quartz veins in pyroclastics (Sample No. 44002), it has been observed that colloform carbonate are deposited in the cavities of quartz with seriate texture and that breccia of sericite aggregates is included. Granodiorite which underwent relatively weak alteration (Sample No. 45701) is composed of completely sericitized, euhedral~subhedral plagioclase, partly sericitized, micorogpraphic and anhedral orthoclase, anhedral quartz with weak wavy extinction, and chloritized, partly sericitized or epidotized mafic minerals. The quartz vein containing sulfide minerals (galena) in the granodiorite area (Sample No. 45302) is accompanied with three types of carbonate minerals and acicular and radiated tourmaline. Among the carbonate minerals, those which are of the highest indices and in colloform texture or aggregate crystals tend to occur in the periphery of galena (opaque minerals), which are presumably cerussite. The other two types have indices similar to each other but one of them assumes green color. As green copper minerals are megascopically, some addition of copper is presumable. The carbonate minerals are products of a later age, compared with quartz veins, since the former occurs cutting the latter.

Under the microscope, galena-replacing or vein-like cerussite, pyrite, a very small quanity of sphalerite (Sample No. 43601), chalcopyrite and tetrahedrite (Sample No. 44403) are identified as ore minerals. Covelline, an oxide of copper, has been found in four samples Nos. 41102, 43601, 44403 and 45302, out of the five samples observed. Black minerals occurring in association with quartz veins (Samples Nos. 43601 and 44002) are identified as oxides of manganese but the type of mineral is unspecified.

Assay of Sample No. 46506 has indicated the highest grade of Au 33.9 g/t, which was pursued by the survey. Grade distribution of the 256 pieces of collected samples is: 12 samples of Au 10g/t or more; 16 of 5g/t to less than 10g/t; 29 of 2g/t to less than 5g/t; 33 of 1g/t to less than 2g/t; 156 of 0.1g/t to less than 1g/t and 10 of less than 0.1g/t, the detection limit. It may generally be said that the northern part of the area prevailed by pyroclastic rocks is of low grade, whereas a high-grade zone is the southern part prevailed by granodiorite.

5.3.2 Reconnaissance survey at Tsav ore deposit area

In Tsav ore deposit area, many crosscut trenches were cut during past surveys. During this year's survey, a part of these existing trenches which are related to the veins Nos. 1, 2, 4, 6, 8 and 10 were reopened for the purpose of collecting samples for the assay of Au.

1) No.1 vein

In this zone, 19 samples were collected at 17 points of 7 existing trenches, of which 13 points of 5 northern trenches are located in an area prevailed by granite or granodiorite while the other 4 points of a southern trench are in an altered rock area. In general, alteration within the trenches is mainly chloritization, with a subordinate degree of argillization. Silicification is generally small in scale, rarely extending over 1m or more in width within a trench. Quartz veins accompanied with gossan and sulfide minerals are generally as small as several decimeters in width. The mentioned silicified zones are distributed in the width of 1m or less, on the hanging or foot walls, or both walls of the gossan and quartz veins, generally overlapped with argillization. Occurrence of quartz veins accompanied by these altered zones or sulfide minerals is controlled by small fractures mainly with the NS trends including the NE-SW and, partially, NW-SE trends. Visible sulfide minerals are galena, sphalerite and pyrite. Under the microscope, chalcopyrite is also observable (Sample No.0116), as well as cerussite which replaces galena, iron oxides which replaces pyrite, and covelline. The highest assay of Au is 3.5 g/t (No.0114), whilst three samples are of Au grades exceeding 1g/t, all the rest being higher than 0.1g/t.

2) No.2 vein

16 samples were taken from 14 points of 12 existing trenches, of which 3 points of 2 northern trenches are in a granite-prevailing area, 7 points of 6 north-central and southern trenches in a pyroclastics area, whilst the remaining 4 points of 4 south-central trenches are in an area dominated by granodiorite.

Alteration observed within the trenches is mainly chloritization, which is followed by argillization. Overlapped with argillization, rather weak silicification is observed on the hanging or foot walls, or on both walls of quartz veins accompanied with gossan or sulfide minerals in a width of 1～0.5m. Quartz veins and strong silicification zones accompanied with gossan and sulfides (hereafter called "mineralized zones") are 1～0.5mm wide (No.0204A) and slighly more dominant than other veins. These altered or mineralized zones occur, controlled by small fractures mainly with the NW-SE and N-S trends and rarely with the NE-SW trend. Under the microscope, galena, sphalerite, chalcocite, and covelline of a very small quantity are observable as ore minerals. In Sample No.0209, however, a large quantity of cerussite is observed in Sample No.0205, as well as relatively large quantities of oxides of manganese and iron hydroxides. The highest assay of Au is 6.8g/t of Sample No.0208. Six samples are of Au grades exceeding 1g/t and all the samples collected exceeded Au 0.1g/t. This vein is believed to be of the highest Au grade in Tsav ore deposit area, after No4. vein.

3) No.4 vein

5 samples were collected at 4 points of 3 existing trenches; more precisely, at 2 points of a trench in the north of the detailed survey area and at 2 points of 2 trenches in the south. The 2 points in the north are located in an area dominated by granodiorite and the 2 points in the south are in a pyroclastics area. Alteration within the trench is mainly chloritization, with a subordinate degree of argilization. Silicification is distributed merely over 1～0.5m either on the hanging or foot walls, or on both walls, of the mineralized zones. A 1.5m mineralized zone has been confirmed at the 0403 point in the south area but, in general, the other mineralized zones are several decimeters in size. Distribution of these altered and mineralized zones is controlled by small fractures with the NW-SE occasionally NE-SW trends. The highest assay of Au is 1.2g/t (No.0404) and all the samples collected are of Au over 0.2g/t.

4) No.6 vein

As all the past trenches in the area of the main ore deposit had been filled up, 5 samples were collected in the south of the main area, at 5 points of 5 existing trenches, where pyroclastics prevail. Alteration within the trenches is mainly chloritization, with a subordinate degree of argillization. Silicification of several decimeters appears on the hanging or foot walls, or on both walls, of mineralized zones. Distribution of these altered or mineralized zones are controlled by small fractures with the N-S and NW-SE trends. The highest assay of Au is 0.9g/t (No.0601). Two samples assay 0.2g/t, a sample 0.1g/t and a sample less than 0.1g/t, the detection limit. These indicate that the No.6 vein is generally of low grade.

5) No.8 vein

15 samples were collected at 14 points of 11 existing trenches, which are located in the pyroclastics area, except 2 southern trenches located in the area dominated by granodiorite. Generally, alteration within the trenches is mainly chloritization overlapped with argillization. Silicification in the order of 1～0.5m is distributed on the hanging or foot walls, or on both walls, of mineralized zones. Mineralized zones are generally several decimeters in size, with an exception of a sulfide-bearing gossan zone of 1.9m observed at the 0812 point. These altered and mineralized zones are distributed, controlled by small fractures with the NE-SW trend. Under the microscope, only oxides of manganese and iron hydroxides have been confirmed as ore minerals. Assay of Au has shown grades below 0.6g/t (No.0812A). The No.8 vein is generally considered to be of low grade.

6) No.10 vein

3 samples were collected at 3 points of 3 existing trenches, all of which are located in an area of metamorphic rocks. Chloritization is dominant, which is, in the vicinity of mineralized zones, accompanied with argillized and silicified zones. Silicified zones are as small as several decimeters wide. Mineralized zones are also several decimeters. Assay of Au falls within a range of 0.1～0.2g/t with an exception of 1.3g/t of Sample No.1001.

5.4 Analysis of Existing Data

5.4.1 Cut-off grade

Normally, cut-off grade is determined on the basis of operating cost

; however, operating cost at Tsav deposit is not yet known, nor indices which may serve as the basis of estimation. As an alternative, it was tried to minimize the cut-off grade as long as continuity of the ore deposit can be confirmed, to the lower limit that the average grade of ore reserves, as expressed in minenable ore value, should not be lower than US$50.00 per ton. As the result of many trials and errors, the cut-off grade was fixed at either Au ≧1g/t or Ag ≧100g/t, or Pb+Zn+Cu≧2%. As mentioned in Conclusion of this Report, the cut-off grade is believed to be appropriate in the light of the fact that, in the subject rea, polymetallic mineralization and auri-argentiferous mineralization occurred in different stage, though partially overlapped.

5.4.2 Ratio of occurrence of ore deposit

With a change in cut-off grade, the ore deposit area changes accordingly; therefore, a new occurrence ratio of the ore deposit was obtained by calculating a ratio between the strike extension of the ore deposit and that of the area of the trench along the ore deposit and the tunnel prospecting area. The previous occurrence ratio of 52.8% has been increased by this year's survey to 66.8%, which is 1.3 times as high as the previous one.

With the change in the occurrence ratio of ore deposit, sizes of respective ore bodies change accordingly. Average strike extension in the previous ore reserve calculation was 24m (= ore deposit extension 1,205m /51 ore bodies), while the new calculation increased it by 1.7 times to 37m (=1,775m/48). Average vein width which previously was 0.88m also increased to 1.1m (1.3 times).

Location	Strike side Length	Ore body Extension (Ratio of occurrence)			
		Cut off		Previous Cut off	
No.4 Vein Trench	860 m	595 m	(69.2%)	455 m	(52.9%)
No.4 Vein 750m level	374	253	(67.6)	-	
No.4 Vein 630m level	725	529	(73.0)	478	(65.9)
No.6 Vein Trench	540	282.5	(48.7)	243	(45.0)
No.8 Vein 630m level	158	115.5	(73.1)	29	(18.4)
Total	2,657	1,775	(66.8)	1,205	(52.8)

5.4.3 Ore reserve calculation

The new probable ore reserve calculation is summarized in the Table below. Calculation details of respective ore blocks are shown in Apx -10. Compared with the previous probable ore reserve (43,200t; Au 1.61g/t, Ag 259g/t, Pb 9.43%, Zn 3.78%), the ore reserves is increased by 2.2 times, whereas Pb grades declines some 30% and the other elements also suffer certain decline. Nevertheless, the value of probable ore reserves, roughly calculated on the basis of the current metal market, is still maintained at a level of US$70.00 per ton. From this, it may be concluded that the new cut-off grade serves to improve evaluation of Tsav deposit but never to lower it.

	Volume	S.F	S.G	Reserves	Grade				
					Au	Ag	Pb	Zn	Cu
	m^3	%	g/cm^3	t	g/t	g/t	%	%	%
No.4 Vein	31,397.5	100	3	94,194	1.91	171.96	7.00	3.34	0.29
No.6 Vein	3,604.5	100	3	10,814	0.55	149.43	10.17	0.87	0.13
No.8 Vein	3,090.0	100	3	10,989	0.07	637.81	1.49	3.98	0.03
Total	38,665.0	100	3	115,997	1.61	213.48	6.78	3.17	0.25

S.F; Safety factor S.G; Specific gravity

The differences between this calculation and previous one are as follows:

		this calculation	Previous calculation
Probable reserves	cut off	Pb+Zn+Cu≧2% Au ≧ 1 g/t Ag ≧100 g/t	Pb+Zn≧4% Au not evaluate Ag not evaluate
	hight	Maximam height 30m, limited by orebody extension	Maximam height 10m, limited orebody extension
	Volume Calcul-tion	The other side of the known level is line.	The other side is the same area of the known level.
Possible reserves	Safety Factor	45 %	25 %

5.4.4 Reassessment of previous ore reserves

In the previous calculation, possible ore reserves was based on the safety factor of 50% and 25%. By the change in cut-off grade, the safety factor of possible ore naturally changes. The following table compares the previous and new reserves of probable ore block area in the detailed survey area of No.4 vein, on which data available at present are most abundant.

		Volume m^3	S.F %	S.G	Reserve t
This year's Ore Reserves	Probable	14,886.0	100	3	47,659
Previous ore Reserves	Probable	4,083.38	100	3	12,170
	Possible	16,581.6	50	3	24,860
	Total	20,664.98	59.7	3	37,030

S.F: Saftey facter S.G: Specific gravity

As seen in the above table, the total new ore reserve is 1.29 times as large as the previous one. As for the previous ore blocks calculated on the basis of safety facter of 50%, the new safety facter of 65% (=50% x 1.29) is applied, in order to calculate a new possible ore reserves.

In the previous possible ore reserves calculation, an safety facter of 25% was also assumed, on the groud that, since occurence the ratio in the strike is 50%, the ratio in the dip is inferred to be 50%. If this calculation is applied to the new occurence ratio of 66.8%, new safty facter of possible ore reserves comes to 44.6%. In the new calculation of possible ore reserves, therefore, a ratio of 45% is applied to the ore blocks, to which 25% was previously applied. The newly calculated possible ore reserve is summarized as follows:

	Volume	S.F	S.G	Reserve	Grade		
					Ag	Pb	Zn
	m^3	%		t	g/t	%	%
No. 1 Vein	143,435.7	45	3	193,638	164	5.05	6.68
No. 2 Vein	232,624.3	45	3	314,043	231	7.86	2.67
No. 4 Vein	268,979.1	48	3	388,739	206	7.32	4.22
No. 6 Vein	163,572.8	45	3	220,823	207	7.69	3.98
No. 8 Vein	162,096.9	48	3	234,807	547	5.76	3.75
No.10 Vein	6,440.5	45	3	8,695	1,305	4.81	2.98
Total	977,149.3	46	3	1,360,745	272	6.90	4.08

S.F: Saftey facter S.G: Specific gravity

Table 10 shows the summary of total ore reserves, including the probable ore as discussed in 5.4.3 and the possible ore discussed in 5.4.4, whereas, in Table 11 shows the previous calculation summary.

5.5 Summary of Survey Findings

5.5.1 Geology

Through the trenching survey, and the tunneling and drilling surveys at 750m level, occurrence of upper Proterozoic metamorphic rocks and middle to upper Jurassic pyroclastic rocks has been confirmed, as well as upper Jurassic granite porphyry, granite and granodiorite, which intrude into the former two. Metamorphic rocks are observed in 3 trenches of No.10 vein and in 2 southern trenches of No.1 vein. In the 3 trenches of No.10 vein, there occurs relatively massive semischist derived from pyroclastics, whilst, in 2 trenches of No.1 green schist is observed with relatively clear schistosity (N-S trend, 40~50° W). Pyroclastics rocks are observed in 4 trenches in the central part of No.2 vein, 3 trenches in the southern part, 2 trenches north of the detailed survey area of No.4 vein and southern part of the reconnaissance survey area respectively, 5 trenches of No. 6 vein and 9 trenches of No.8 vein. In general, the pyroclastics are accompanied mainly with andesitic tuff and lapilli tuff, and occasionally with lava, tuff breccia and welded tuff. The welded tuff observed in the detailed survey area of No.4 vein has the NW-SE strike, where a gentle anticlinal structure that the northeast side dips northeast while the southwest side dips southwest is observed.

Category	Vein		Length m	Width m	Hight m	Volume m3	Safty factor%	S.G.	Reserve t	Grade Au g/t	Grade Ag g/t	Grade Pb %	Grade Zn %	Grade Cu %	Quantity of metal Au g	Quantity of metal Ag kg	Quantity of metal Pb t	Quantity of metal Zn t	Quantity of metal Cu t
Probable ore reserve	No.4	trench	693	1.2	25.1	8,700.8	100	3	26,102	2.87	137.16	9.20	0.89	0.28	74,852.25	3,580.06	2,400.64	232.63	73.41
		750m upper	266	1.1	24.3	3,230.5	100	3	9,692	1.73	117.25	5.48	3.14	0.26	16,809.50	1,136.39	531.41	304.52	25.58
		750m lower	266	1.1	29.7	3,955.0	100	3	11,865	1.69	117.85	5.49	3.16	0.26	19,995.90	1,398.31	651.98	375.43	30.66
		630m	559	1.0	55.5	15,511.5	100	3	46,535	1.46	217.64	6.42	4.84	0.31	67,716.07	10,127.94	2,986.09	2,250.73	144.77
		total	1,784	1.1	35.2	31,397.8	100	3	94,194	1.90	172.44	6.98	3.36	0.29	179,373.72	16,242.70	6,570.12	3,163.31	274.42
	No.6	trench	252	0.9	28.6	3,604.5	100	3	10,814	0.55	149.42	10.17	0.87	0.13	5,912.83	1,615.81	1,100.25	94.25	13.64
	No.8	630m	135	1.2	54.3	3,663.0	100	3	10,989	0.07	637.81	1.49	3.98	0.03	813.16	7,008.93	163.60	437.86	2.77
		total	2,171	1.1	35.6	38,665.3	100	3	115,997	1.60	214.38	6.75	3.19	0.25	186,099.71	24,867.44	7,833.97	3,695.42	290.83
Possible ore reserve	Vein		Area m2	Width m		Volume m3	Safty factor%	S.G.	Reserve t	Grade Au g/t	Grade Ag g/t	Grade Pb %	Grade Zn %	Grade Cu %	Quantity of metal Au g	Quantity of metal Ag kg	Quantity of metal Pb t	Quantity of metal Zn t	Quantity of metal Cu t
	No.1	No.1	122,450	0.47		57,733.1	45	3	77,940		206	5.37	8.39			16,055.58	4,185.36	6,539.14	
		No.1A	175,510	0.40		70,431.3	45	3	95,082		141	4.74	6.18			13,406.60	4,506.90	5,876.08	
		No.1B	45,060	0.34		15,271.3	45	3	20,616		110	5.29	2.56			2,267.79	1,090.60	527.78	
		total	343,030	0.42		143,435.7	45	3	193,638		164	5.05	6.68			31,729.97	9,782.86	12,943.00	
	No.2	No.2	184,920	0.94		173,359.6	45	3	234,035		267	8.78	2.37			62,487.47	20,548.31	5,546.64	
		No.2A	29,970	0.74		22,094.5	45	3	29,828		131	3.07	4.29			3,907.41	915.71	1,279.60	
		No.2B	27,500	0.56		15,403.0	45	3	20,794		107	5.63	0.86			2,224.96	1,170.71	178.83	
		No.2HW	23,660	0.92		21,767.2	45	3	29,386		129	6.99	4.66			3,790.76	2,054.06	1,369.37	
		total	266,050	0.87		232,624.3	45	3	314,043		231	7.86	2.67			72,410.60	24,688.79	8,374.44	
	No.4	630m upper	58,290	0.73		42,695.7	65	3	83,257		205	8.44	5.48			17,056.16	7,027.79	4,558.33	
		630m lower	56,670	1.35		76,278.2	45	3	102,975		154	5.33	4.86			15,869.74	5,490.98	5,006.21	
		North	84,360	0.51		42,803.7	45	3	57,784		75	4.63	1.91			4,317.95	2,677.92	1,103.33	
		total	199,320	0.81		161,777.6	50	3	244,016		153	6.23	4.37			37,243.85	15,196.69	10,667.87	
	No.4A		265,850	0.40		107,201.5	45	3	144,723		295	9.17	3.96			42,763.30	13,274.96	5,733.65	
	No.6		178,900	0.91		163,572.8	45	3	220,823		207	7.69	3.98			45,699.05	16,989.94	8,779.40	
	No.8	No.8	151,600	0.94		142,736.2	49	3	208,084		488	4.93	3.64			101,488.38	10,256.98	7,567.11	
		No.8A	27,060	0.37		10,106.7	47	3	14,230		398	6.73	2.94			5,659.16	958.30	418.75	
		No.8FW	26,440	0.35		9,254.0	45	3	12,493		1708	18.51	6.64			21,337.87	2,312.44	829.53	
		total	205,100	0.79		162,096.9	48	3	234,807		547	5.76	3.75			128,485.41	13,527.72	8,815.39	
	No.10		22,710	0.28		6,440.5	45	3	8,695		1305	4.81	2.98			11,346.55	418.21	259.10	
		total	1,480,960	0.66		977,149.3	46	3	1,360,745		272	6.90	4.08			369,678.73	93,879.17	55,572.85	
		Grand total	1,483,131	0.68		1,015,814.6	48	3	1,476,742		267	6.89	4.01			394,546.17	101,713.14	59,268.27	

Table. 10 Summary of Ore Reserves

Reserve class	Vein		Length m	Width m	Hight m	Volume m3	Safty factor%	S.G.	Reserve t	Grade Au g/t	Grade Ag g/t	Grade Pb %	Grade Zn %	Quantity of metal Au g	Quantity of metal Ag kg	Quantity of metal Pb t	Quantity of metal Zn t
Probable ore reserve	No.4	trench	465	0.92	9.52	4,083.38	100	3	12,170	3.05	194	13.11	1.12	37,080.0	2,359.890	1,595.399	136.736
		750m	510	0.89	17.40	7,900.00	100	3	23,570	1.37	247	7.48	5.59	32,278.3	5,821.750	1,763.678	1,318.700
		total	975	0.90	13.64	11,983.38	100	3	35,740	1.94	229	9.40	4.07	69,358.3	8,181.640	3,359.077	1,455.436
	No.6	trench	250	0.74	9.86	1,813.95	100	3	5,410	0.70	187	12.43	0.96	3.783	1,013.22	672.654	51.702
	No.8	630m	30	1.14	20.00	684.00	100	3	2,050	0.07	976	2.13	6.24	0.114	2,000.80	43.665	127.920
		total	1,255	0.88	13.15	14,481.33	100	3	43,200	1.61	259	9.43	3.78	69,362.227	11,195.66	4,075.396	1,635.058
Possible ore reserve	Vein		Area m2	Width m		Volume m3	Safty factor%	S.G.	Reserve t	Au g/t	Ag g/t	Pb %	Zn %	Au g	Ag kg	Pb t	Zn t
	No.1	No.1	122,460	0.47		57,733.10	25	3	43,250		206	5.37	8.39		8,902.21	2,322.36	3,628.70
		No.1A	175,510	0.40		70,431.30	25	3	52,810		141	4.74	6.18		7,436.98	2,500.78	3,264.04
		No.1B	45,060	0.34		15,271.30	25	3	11,430		110	5.29	2.56		1,263.01	604.49	292.10
		total	343,030	0.42		143,435.70	25	3	107,490		164	5.05	6.68		17,602.20	5,427.63	7,184.85
	No.2	No.2	184,920	0.94		173,359.60	25	3	129,990		267	8.78	2.37		34,735.82	11,412.35	3,076.39
		No.2A	29,970	0.74		22,094.50	25	3	16,560		131	3.07	4.29		2,174.73	508.87	709.70
		No.2B	27,500	0.56		15,403.00	25	3	11,540		107	5.63	0.89		1,238.00	649.73	102.81
		No.2HW	23,660	0.92		21,767.20	25	3	16,320		129	6.99	4.66		2,105.28	1,140.77	760.51
		total	266,050	0.87		232,624.30	25	3	174,410		231	7.86	2.67		40,253.83	13,711.72	4,649.41
	No.4	630m upper	89,130	0.79		70,315.1	50	3	105,430		239	9.84	5.66		25,213.00	10,373.73	5,971.81
		630m lower	68,580	1.32		91,008.0	25	3	68,230		174	5.44	4.87		11,857.68	3,709.96	3,322.31
		North	84,360	0.51		42,803.7	25	3	32,090		75	4.63	1.91		2,394.93	1,486.86	612.63
		total	242,070	0.84		204,126.8	34	3	205,750		192	7.57	4.81		39,465.61	15,570.55	9,906.75
	No.4A		265,850	0.40		107,201.5	25	3	80,380		296	9.17	3.96		23,753.65	7,373.43	3,184.67
	No.6		183,740	0.92		169,768.00	25	3	127,310		204	7.77	4.00		26,034.17	9,887.82	5,094.46
	No.8	No.8	153,240	0.94		143,474.20	30	3	127,360		540	4.83	3.75		68,738.21	6,154.19	4,773.56
		No.8A	27,060	0.37		10,106.70	27	3	8,260		416	6.47	2.99		3,438.43	534.06	246.62
		No.8FW	26,440	0.35		9,254.00	25	3	6,940		1,708	18.51	6.64		11,853.52	1,284.59	460.82
		total	206,740	0.79		162,834.90	29	3	142,560		589	5.59	3.84		84,030.16	7,972.84	5,480.99
	No.10		22,710	0.28		6,440.50	25	3	4,820		1,305	4.81	2.98		6,291.84	231.84	143.65
		total	1,530,190	0.67		1,026,431.7	27	3	842,720		282	7.14	4.23		237,431.46	60,175.84	35,644.77
Grand total						1,040,913.03	28	3	885,920		281	7.25	4.21		248,627.12	64,251.236	37,279.828

Table. 11 The Previous caluclating Summary

Granite porphyry is observed at the northern tip of No.1 vein, which is characterized by coarse-grained quartz phenocrysts. Granite in the form of light pink-colored, medium grained, equigranular rocks is observed in the 2 trenches north of No.2 vein. Granodiorite is observed in the north of No.1 vein, the south-central part of No.2 vein, the south of detailed survey area of No.4 vein, at the tunnels and drill holes at 750m level, and in the south of No.8 vein. Granodiorite is generally shown medium grained equigrnuler texture. In the underground drill cores, relatively large amounts of andesitic pyroclastics as xenolith are observed, which are under the microscope composed of plagioclase, quartz, orthoclase and mafic minerals. The orthoclase assumes micrographic texture in part. The plagioclase and mafic minerals are so completely altered to sericite and, occasionally, to carbonate minerals, chlorite and epidote that they can be identified only by the crystalline systems and the relics of twins.

5.5.2 Alteration

As to the geological units confirmed by the year's survey, observation has been made only in and around mineralized zones. It is questionable, therefore, if they represent the entire area.

Medium-grade chloritization is observed megascopically nearly all over the area, which is increasingly overlapped by argillization as it nears gossan zones, quartz veins, quartz veinlets～network veins. As argillization increases, chloritization diminishes. Generally, argillized zones are several meters in size. Silicification is often accompanied with quartz vein zones. Weak to medium-grade silicification zones often overlap argillized zones. Strongly silicified zones on the surface tend to gradually change into gossan zones or to be accompanied with sulfide minerals such as copper, lead and zinc. Most of silicified zones are less than 1m in size.

Under the microscope, sericitization is remarkable. Observation of thin sections indicates that plagioclase and mafic minerals are completely replaced by sericite, no original minerals being existent. Silicification is characterized by recrystallization of quartz grains and also by minute veinlets of 0.1mm or less in width, which are megascopically observed as network veins. The recrystallization of quartz has been described as seriate texture, but some quartz grains show wavy extinction, which suggests a possibility that there were at least two stages of silicification. Chloritization has been observed only in relics of mafic minerals in the trench sample No.457 01; in samples of the other silicified or argillized zones, chloritization is unobservable/unconfirmed. Therefore, chloritization so far identified with greenish-colored rocks may have been confounded partially with sericitization. With regard to the microscopic observation, worthy of special mention is carbonitization which is megascopically unobservable. Under the microscope, relatively strong carbonitization and thin veins composed of carbonate minerals are observed, which are presumably carbonate of some metal heavier than Mg, in view of the fact that an on-the-spot test with dilute hydrochloric acid resulted in no foaming. Since examination of silicified veins by reflecting microscope has detected a large amount of manganese minerals, and the interim report on the minerals test decribes rhodochrocite, the carbonate minerals are inferred to be rhodochrocite.

5.5.3 Mineralization

Six mineralized zones distributed in the survey area, ie., vein Nos. 1, 2, 4, 6, 8 and 10, are described in past records. The six veins were summarily investigated during this year's survey. In these mineralized zones, observed as ore minerals were sulfide minerals such as galena, sphalerite, chalcopyrite, tetrahedrite and pyrite, as well as cerussite, green copper, limonite, oxides of manganese, etc. Such ore minerals are generally observed at gossan zones, quartz veins, strongly silicified zones and quartz veinlet～network vein zones, and these form mineralized zones. Some of the mineralzed zones have a width of several meters but most of them are in the order of several decimeters.

Under the microscope, argentite, electrum, chalcocite, covelline, pyrrhotite, marcasite are observed, besides those megascopically identified. Two tyeps of sphalerite, one including microlite of chalcopyrite and the other not including it, are discriminated, the llater of which is dominant. Blackish brown-colored and light brown-colored sphalerite is megascopically, of which the former is dominant. The blackish brown-colored shpalerite presumably corresponds to sphalerite including no chalcopyrite. Galena tends to be replaced by cerussite, which indicates that supergene alteration extends down to 60m below surface. Some chalcopyrite occurs independently or in association with galena or sphalerite in gangue minerals, whereas the others occur as dot-like inclusions of sphalerite. Tetrahedrite is often associated with chalcopyrite but, occasionally, occurs in a film-like shape which covers the periphery of chalcopyrite or in a thin vein form in sphalerite, or, inversely, tetrahedite is covered by film-like sphalerite. Argentite is associated with chalcopyrite or tetrahedrite in some cases, while, in other cases, it is associated with chalcocite or covelline and surrounds sphalerite. Electrum occurs independently in gangue minerals. Two or more types each of Mn oxides and Fe oxides, which constitute gossan zones, are observable, but the types of minerals cannot be specified.

Behavior of metallic elements in the survey area is analysed below, based upon the assay. As for trench samples, for which only the Au assay has been conducted, the past assay data are referred to.

1) Samples of high Au grade tend to be high in Ag grade, too, with some exceptions which are of low grades in Ag, Pb, Zn and Cu.

2) Samples of high Ag grade tend to be high in Pb and Au, as well. In some samples, however, only Ag and Cu grades are high.

3) Samples of high Pb grade are generally high in Ag and sometimes in Zn, too.

4) Samples of high Zn grade tend to be high in Pb and, occasionally in Cu, too.

5) Samples of high Cu grade are usually high in the other four elements; in some cases, however, Ag and/or Zn grades are extremely low.

From the behavior of the five elements, combined with the microscopic observation, the mineralization in the subject area may be classified, as follows:

1) Polymetallic mineralization with noble metals which occurs in

quartz veins.

2) Auri-argentiferous mineralization drived from quartz veinlets～network veins. Argentiferous minerals and tetrahedrite occur in argentiferous mineralization.

3) Base-metallic mineralization drived from carbonitization (disseminated mineralized zones).

4) Pb and Cu enrichment by supergene alteration(cerussite, covelline, chalcocite)

5.5.4 Ore reserve

By lowering cut-off grade to the extent that mineable ore value of the ore deposit comes down to US$50.00 per ton, presumably the minimum workable level of Tsav deposit, the ratio of occurrence of the ore deposit increases by 26% in total average. Ratio of the newly calculated ore reserve between the surface and 750m level (47,659t) to the previous one (37,030t) is equivalent to 1.29 times. Reasseseed with these data, the total ore reserve including probable and possible ores at Tsav deposit area comes to 1,480,000t, 1.67 times of the previous 880,000t. The lowering of cut-off grade affects the reserve ore grade; Pb grade of possible ores declines nearly 30%, whilst the other elements also suffer some decline if not so much as that of Pb. However, an overall decline in grade is not as large as offsetting the increment in the value of ore deposit resulting from the addition of ore reserve. In terms of metal content, the total value of the ore deposit increases by more than 1.6 times, e.g., Au by 2.7 times, Pb by 1.9 times and Zn by 1.6 times, which is believed to be more than offset the lowering of reserve ore grade (lowering of profitability).

The reserve ore grade, if evaluated at current metal market prices, is equivalent roughly to US$70.00 per ton. Approximate operating costs of the deposit, very roughly estiamted on a reference basis of those in Japan (assuming a ratio of Mongolian and Japanese labor costs at $2.00 : $220.00 per shift) comes to $39.20 for mining, $6.00 for ore dressing, and $5.60 for transportation of concentrates from Mongolia to Japan, totaling $50.80, although adjustment is required for amortization of initial investment costs. (refer to table in next page)

5.6 Problems and Recommendations for Future Survey

Although this fiscal year's geological survey has revealed a conceptual outline of the mineralization, details of occurrence of the deposit are yet to be studied. Occurrence of quartz veins and strongly silicified zones which represent an ore shoot of the deposit is generally diagonal with the strike of the deposit as drawn based on the grade distribution. Since intervals between the trenches are 5m in average, the ore shoot possibly occurs in a form of echelon veins with an extension of about 5m. To confirm it, the strike of mineralized zones has to be surveyed.

Extension of average ore bodies at Tsav deposit is 37m. In the new ore reserve calculation, therefore, height of the probable ore block is assumed to be either 30m or the midpoint of the interval between survey tunnel levels, whichever be lower, since the ore reserve calculation has been made on an assumption that, between the surface and the 750m level, the ore bodies thin out at the midpoints. Investigation of the mid-points may therefore cause the ore reserve to increase and will serve to clarify vertical continuity of the deposit. This indicates the necessity of surveys conducted at tunnel levels of 30m or less, in a lower part of the ore deposit, as well.

In the drilling survey, core recovery was very poor in several locations near mineralized or altered zones. It will be required therefore to apply a larger drill diameter in future drilling surveys, thereby minimizing loss of drill cores. In order to verify influence the core losses migh have caused to the assay of core samples collected during the fiscal year, it will be necessary to drive a crosscut tunnel along bore holes, to compare the drill core grades and the tunnel grades. Such comparative data will possibly allow the assay of drill cores to be reassessed.

This year's prospect tunneling was unable to break through an argillized sheared zone at the No.3 waste pit. The sheared zone holds such abundant water that rocks cannot support themselves. The problem has to be solved for future development of the deposit. It is desirable

The value of Crude Ore

Grade of Ore

Au	Ag	Pb	Zn
1.60 g/t	220 g/t	6.79 %	3.19 %

Results of Mineral Dressing

	Grade				Quantity of Metal				Recovery			
	Au	Ag	Pb	Zn	Au	Ag	Pb	Zn	Au	Ag	Pb	Zn
	g/t	g/t	%	%	g	g	t	t	%	%	%	%
Pb-C (0.0872t)	9.17	1,766	70		0.800	154.0	0.0611		50	70	90	-
Zn-C (0.0521t)	-	-	-	55	-	-	-	0.0287	-	-	-	90
Tailing (0.8607t)	0.93	757	0.008	0.004	0.800	66.0	0.0068	0.0032	50	30	10	10
Total (1.0000t)	1.60	220	6.79	3.19	1.600	220.0	0.0679	0.0319	100	100	100	100

Price of Concentrates/t

Sales Conditions

Price		T/C & R/C		Recovery	
Au	380 $/TOZ	Au R/C	5¢/TOZ	Au	96.5 %
Ag	5 $/TOZ	Ag R/C	40¢/TOZ	Ag	94.0 %
Pb	600 $/t	Pb T/C	140 $	Pb	95.0 %
Zn	1,100 $/t	Zn T/C	180 $	Zn	85.0 %

Pb-C

		$
Au	0.800g×(380-0.05)$/TOZ×(1/31.1035)×0.965=	9.43
Ag	154g×(5.0-0.4)$/TOZ×(1/31.1035)×0.94 =	21.41
Pb	0.0611t×600×0.95 =	34.83
T/C	0.0872t×140$ =	△12.21
	Sub-total	53.46

Zn-C

		$
Zn	0.0287t×1,100$/t×0.85 =	26.83
T/C	0.0521t×180$ =	△ 9.38
	Sub-total	17.45
	Total	70.91$/t

Cost

	Cost of except Wage + Wage	$
Mining Cost	39$+26$×(2$/220$)	=39.2 (Refer to Operating cost of H-mine)
Dressing Cost	6$+4$×(2$/220$)	= 6.0 (Refer to Operating cost of K-mine)
Transpor. Cost	40$×(0.0872+0.0521)	= 5.6 (40$/t: ERDENET → JAPAN)
		50.8

for the next year's tunneling survey to include a crosscut tunnel to be driven under the No.3 waste pit at 720m level, which is 30m below the level of this year's tunnelling, in order to verify water conditions in the deposit at 750m level.

Excepting above mentioned, the following surveys are advisable to be conducted for completing Pre Feasible Study.

1) Exploration for north and south extension of orebody in 750m to acquire additional probable ore reserves.

2) The cut off grade of probable ore reserves has been revised in this year. Revision of cutt off grade was not applied to the old diamond drill holes which have no available Au assay. A proper ore reserves estimate as well as revision of ore grade in old diamond drill holes are to be conducted.

3) Drifting to make clear details of orebody and its grade.

4) Mineral processing test to estimate operationl data.

5) Survey for environment.

III. Attached Data

No.	Content of Study	Quantity	July	August	September	October	November	December	January	Febrary	March	Note
1	Mobilization		28–	–1 15–19 Tunneling Geologist	14–17 25 28 Boring	4 7 Geologist						
	Withdrawal				17–18 Geologist		2–5 16 20 Tunneling Others					
2	Transportation		Depart from Yokohama									Arrive at Tsav on 19, 21 august and 5 september seperately
	outward trip		9–	–––	–5							
	inward trip			19 21	Arrive at Tsav							
3	Temporary Construction											
	Electric			1–	–––	–––	–15					
	Dranage			1–	–––	–––	–15					
	Ventilation			9–	–––	–––	–1					
4	Tunneling											
	Drift North	112.0m		17–	–––	–15						
	South	194.0		9–	–30							
	Cross-Cut	23.0				17–22						
	Pump Station	15.0		29 31								
	No,3 Waste Pit	24.0				3 5						
	No,4 Waste Pit	15.0				24–29						
	Transformer Station	$15.0m^3$		9								
	Geological Survey			20–	–11	29–	–15					
	Core Boring					18–	–15					
5	Report						21–	–––	–––	–15		
6	Delegates											
	General Manager	1person	28–	–––	–––	–––	–20					
	Administor	1	28–	–––	–––	–––	–20					
	Chief Tunneling	3	28–	–––	–––	–––	–5					
	Assistant Tunneling	3	28–	–––	–––	–––	–5					
	Chief Mechanical	1	28–	–––	–––	–––	–20					
	Chief Electrical	1	28–	–––	–––	–––	–5					
	Chief Geologist	1		15–	–18	4–	–20					
	Chief Geologist	1				25–	–20					
	Chief Boring	3				14–	–20					

Apx- 1. Progress schedule of Tunnelling

Starting Date	1994.08.01						
Tunnel Starting Date	1994.08.09						
Tunnel completing Date	1993.10.29						
Completing Date	1993.11.02						

	up-to-1994.10.29			up-to-1994.11.02			Note
	day	rate (%)		day	rate (%)		
Tunnel	70	82.4	72.2	70	79.6	69.3	7days are double
Construction	15	17.6	15.4	15	17.0	14.8	
Others				3	3.4	3.0	
Sub-total	85	100.0	87.6	88	100.0	87.1	
Day off	12		12.4	13		12.9	
Total	97		100.0	101		100.0	

		Tunnel	Construction	Others	Note
Worker	Interior Exterior	462 1,618	293	-	
Engineer	Interior Exterior	1,432	224	66	
Total	Interior Exterior	1,894 1,618	517	66	
Total		3,512	517	66	

	up-to-1994.10.29	up-to-1994.11.02	Note
per working day	4.51	4.35	
per tunneling day	5.47	5.47	
per required day	3.95	3.79	
per required man	0.095	0.094	
number of timbering	46	46	
length of timbering(%)	56.4m (14.7%)	56.4m (14.7%)	

Apx- 2. Tunnelling Prospecting

Works		Period of tunneling							Breakdown		Additional construction					
		Construction	day	tunnel	day	Dismantle	day	Total	working	day off	Generator	day	Workshop	day		
Preparation		8/ 1～ 8/16	day 15		day		day	day 15	day 15	day 1	8/ 1～ 8/16	day 15		day		day
Second Transformer Station				8/ 9	1			1	1							
Pump Station				8/29 ～ 8/31	4			4	3	1						
Southern Tunnel				8/9 ～ 9/30	40			40	36	4						
Northern Tunnel				8/17 ～ 10/15	18			18	15	3						
Third Waste Pit				10/3 ～ 10/5	7			7	5	2						
Cross Cut Tunnel				10/17 ～ 10/22	6			6	5	1						
Fourth Waste Pit				10/24 ～ 10/29	6			6	5	1						
demobization						10/30 ～11/2	4	4	3	1						
Total			15		82		4	101	88	13						

Apx- 3. Details of required days for Tunnelling

Works		Number of shift		Number of person		Each Working Time									
		Tunneli-ng Shift	Total Shift	Engineer	Worker	Driling	Loading Hauling	Other's Interior	Other's Exterior						Total
Preparation		Shifts	Shifts 15	persons 224	persons 293	h	h	h	h 2,432						h
Second Transformer Station		1	1	20	29	3	3	22	200						
Pump Station		9	9	61	89	59	36	73	696						
South Tunnel		72	72	736	1.070	405	269	1.622	8.128						
North Tunnel		56	56	307	446	313	270	1.138	3.888						
Third Waste Pit		15	15	102	148	60	35	506	1.272						
Cross Cut Tunnel		18	18	103	150	69	48	408	1.232						
Fourth Waste Pit		18	18	103	148	54	45	412	1.224						
Demobilization			3	66					992						
Total		189	207	1.722	2.373	963	706	4.181	19.072						

Apx- 4 Each work progressive efficiency of Tunnelling

Article	Specifications	Quantity	Note
Bit		pieces	
	51m/mφ R32	62	
	89m/mφ R32	12	
	38m/mφ R28	30	
	insert	-	
Rod			
	38m/mHEX L=3,700	39	
	32m/mHEX L=2,365	16	
Shankrod			
	38m/mφ HD-150	41	
Sleeve			
	38m/mφ	33	
	38/32m/mφ	11	
Explosive			
Ammonita		11,725 Kg	
Detonator		8,853 pieces	
Timberings			
	Type 2	46 set	
Rock-bolt	22m/mφ L=2.0m	2,031 pieces	
Pipe			
	2inch	260 m	
	4inch	-	
Light Oil		267,808 ℓ	
Gasoline		5,033	
Kerosene		7,760	
Lubricant			
	Engine Oil 10#	16,000	
	Engine Oil 30#	20,000	
	Engine Oil 40#	-	
	Hydraulic Oil 32#	1,200	
	Ger Oil 75#	200	

Apx- 5. Item of consumptive materials of Tunnelling

	Content of Study		October	November	Note
1	Mobilization (Narita～Peijin～ Ulaanbaatar～Tsav)		14 — 17		
2	Opening Cargos		18		
	Transportation(Interior)		18		
3	Drilling				
	MJMT－ 1	20.15m	19 — 20		
	MJMT－14	40.80m	20 — 22		
	MJMT－13	33.35m	22 — 24		
	MJMT－12	32.35m	24 — 25		
	MJMT－11	30.70m	25 — 27		
	MJMT－10	33.65m	27 — 29		
	MJMT－ 2	25.45m	29 — 31		
	MJMT－ 3	30.25m	31	2	
	MJMT－ 4	37.05m		2 — 3	
	MJMT－ 5	40.50m		3 — 5	
	MJMT－ 9	31.75m		5 — 7	
	MJMT－ 8	30.25m		7 — 8	
	MJMT－ 7	30.10m		8 — 10	
	MJMT－ 6	31.10m		10 — 11	
4	Transportation(Interior)			12 — 14	
	Packing			14	
5	House			14	
6	Withdrawal (Tsav～Ulaanbaatar～ Peijing～Narita)			15 — 20	

Apx- 6. Progress schedule of Boring

D.D Hole No.	Preparation Demobi	Period of drilling							Breakdown		Additional Work drilling						Breakdown	
		Rig-up	day	Dri-lling	day	Rig-down	day	Total	Workin	Day off	Mobili-zation	day	Demobi-lization	day			Working	Day off
	Prepa-ration		days		days		days	days	days	days	0.5	days 0.5		days			days 0.5	days
MJMT－1		10/18	0.5	10/19 ～ 10/20	0.8	10/20	0.2	1.5	1.5									
MJMT－2		10/29	0.1	10/29 ～ 10/31	1.2	10/31	0.1	1.4	1.4	0.6								
MJMT－3		10/31	0.1	10/31 ～ 11/2	1.3	11/2	0.1	1.5	1.5									
MJMT－4		11/2	0.05	11/2 ～ 11/3	1.4	11/3	0.05	1.5	1.5									
MJMT－5		11/3	0.1	11/3 ～ 11/5	1.5	11/5	0.1	1.7	1.7									
MJMT－6		11/10	0.1	11/10 ～ 11/11	1.2	11/11	0.1	1.4	1.4	0.3								
MJMT－7		11/8	0.1	11/8 ～ 11/10	1.3	11/10	0.1	1.5	1.5									
MJMT－8		11/7	0.1	11/7 ～ 11/8	1.2	11/8	0.1	1.4	1.4									

Apx. 7-1 Details of required days for Boring

D.D Hole No.	Prepa-ration Demobi	Period of drilling							Breakdown		Additional Work drilling						Breakdown	
		Rig-up	day	Dri-lling	day	Rig-down	day	Total	Workin	Day off	Mobili-zation	day	Demobi-lization	day			Working	Day off
MJMT－9		11/5	days 0.1	11/5 ～ 11/7	days 1.2	11/7	days 0.1	days 1.4	days 1.4	days 0.7		days		days			days	days
MJMT－10		10/27	0.05	10/27 ～ 10/29	1.7	10/29	0.05	1.8	1.8									
MJMT－11		10/25	0.1	10/25 ～ 10/27	1.8	10/27	0.1	2.0	2.0									
MJMT－12		10/24	0.05	10/24 ～ 10/25	1.5	10/25	0.05	1.6	1.6									
MJMT－13		10/22	0.1	10/22 ～ 10/24	1.85	10/24	0.05	2.0	2.0	0.2								
MJMT－14		10/20	0.1	10/20 ～ 10/22	1.8	10/22	0.1	2.0	2.0									
Demobilization	Demobi lization												11/12 ～ 11/14	2.0			2.0	1.0
Total			1.65		19.75		1.3	22.7	2.7	1.8		0.5		2.0			2.5	1.0

Apx. 7-2 Details of required days for Boring

Name of holes	Diamond drilling			Numb. of shift		Number of person				Earch Working Time								
	Dia. Bit	Drill length	Core length	Drill shift	Total shift	Engi-neer	Worker	Inter-preter	Others	Drill-ing	Others	Troub. & Res.	Total	Set & Disman	Open & Pack	Carry & Out	Access Others	Gran Total
Mobilization	mm	m	m	Shifts 4.0	Shifts 4.0	Person 12	Person	Person	Person	h	h	h	h	h	h	h	h	h
MJMT − 1	66 BQ	1.50 18.65	1.50 18.65	4.5	4.5	6	13			11.50	9.50	—	21.00	4.50	3.00	4.50	5.00	30.00
MJMT − 2	66 BQ	1.50 23.95	1.50 21.15	4.0	4.0	4	8			14.25	9.75	—	24.00	4.00	—	—	4.00	32.00
MJMT − 3	66 BQ	1.30 28.95	1.30 26.95	4.5	4.5	6	9	4		16.50	11.50	—	28.00	3.00	—	—	4.00	35.00
MJMT − 4	66 BQ	1.50 35.55	1.50 34.10	4.5	4.5	5	9	4		17.75	12.25	—	30.00	2.00	—	—	5.00	37.00
MJMT − 5	66 BQ	1.00 39.50	1.00 36.35	5.5	5.5	7	11	5		22.50	12.50	—	35.00	3.00	—	—	5.00	43.00
MJMT − 6	66 BQ	1.30 29.80	1.30 29.60	5.5	5.5	6	11	5		18.25	9.75	—	28.00	3.00	—	—	12.00	43.00
MJMT − 7	66 BQ	1.40 28.70	1.40 28.40	4.5	4.5	6	9	4		17.75	11.25	—	29.00	3.00	—	—	5.00	37.00
MJMT − 8	66 BQ	1.95 28.30	1.95 28.05	4.0	4.0	5	8	4		15.25	10.75	—	26.00	2.00	—	—	4.00	32.00
MJMT − 9	66 BQ	1.30 30.40	1.30 29.20	3.5	3.5	5	7	2		14.75	8.25	—	23.00	2.00	—	—	4.00	29.00

Apx. 8-1 Each Work Progressive Efficiency of Boring

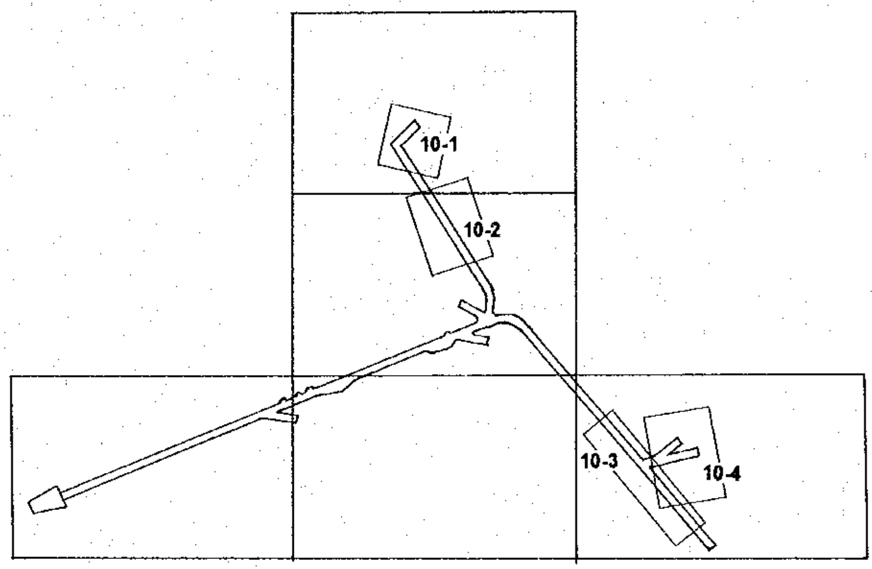
Name of holes	Diamond drilling			Numb. of shift		Number of person				Earch Working Time								
	Dia. Bit	Drill length	Core length	Drill shift	Total shift	Engi-neer	Worker	Inter-preter	Others	Drill-ing	Others	Troub. & Res.	Total	Set & Disman	Open & Pack	Carry & Out	Access Others	Gran Total
	mm	m	m	Shifts	Shifts	Person	Person	Person	Person	h	h	h	h	h	h	h	h	h
MJMT − 10	66 BQ	1.40 32.25	1.40 29.40	5.5	5.5	5	11			19.50	16.00	−	35.50	2.50	−	−	6.00	44.00
MJMT − 11	66 BQ	1.40 29.30	1.40 26.50	6.0	6.0	6	12			20.25	16.75	−	37.00	3.00			5.00	45.00
MJMT − 12	66 BQ	1.50 30.85	1.50 28.65	5.0	5.0	5	10			18.75	13.25	−	32.00	3.00	−	−	5.00	40.00
MJMT − 13	66 BQ	1.50 31.85	1.50 30.50	4.0	4.0	4	8			15.75	12.25	−	28.00	1.00	−	−	4.00	33.00
MJMT − 14	66 BQ	1.00 39.80	1.30 38.30	6.0	6.0	6	12			22.50	16.50	−	39.00	3.00			6.00	48.00
Carry out & Storage	−	−	−	Mongolian Stuff 2.0	2.0	143 8	Mongol side 12	3	225 26									
Demobilization	−	−	−	6.0	6.0	24												
Total				79.0	79.0	267	150	31	281	245.25	170.25	−	415.50	39.00	6.00	8.50	83.00	552.00

Apx. 8-2 Each Work Progressive Efficiency of Boring

Item	Specification	Quantity	Specification
Light oil		30,400ℓ	
Single Cor tube	66mm×0.5m	1PC	
WL Core barrel	BQ×1.50m	1PC	
Outer tube	BQ×1.50m	1PC	
Inner tube	BQ×1.50m	2PC	
Guide pipe	BQ	1PC	
Guide coupling	BQ	1PC	
Core lifter case	BQ	10PC	
Care lifter	BQ	12PC	
W-swivel packing	Q-U	18PC	
W-swivel spindle	Q-U	1PC	
Piston rod	MG-5h	1PC	
Piston rubber	MG-5h	2PC	
Cylinder liner	MG-5h	1PC	
V-packing	MG-5h	16PC	
Rod	BQ×1.50m	4PC	
Wire rope	5mm×50m	1Roll	
Core box	66mm	14PC	
〃	BQ	44PC	
Diamond bits	66mm	2PC	
〃	BQ	14PC	
Diamond Reamer	66mm	1PC	
〃	BQ	2PC	

Apx. 9 Item of Consumptive Materials in Boring

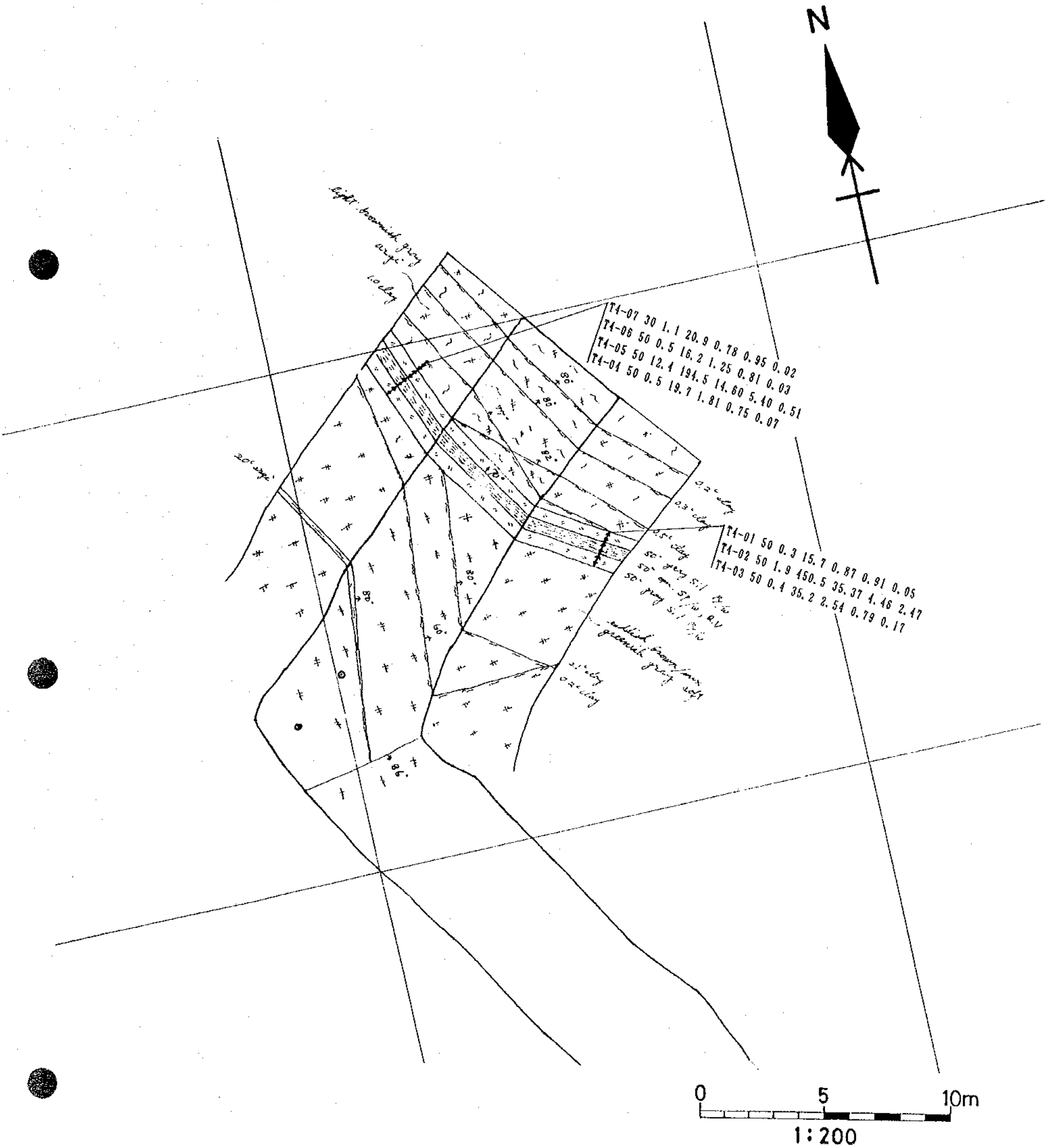
Apx. 10 Locality Map of the Tunnel Samples



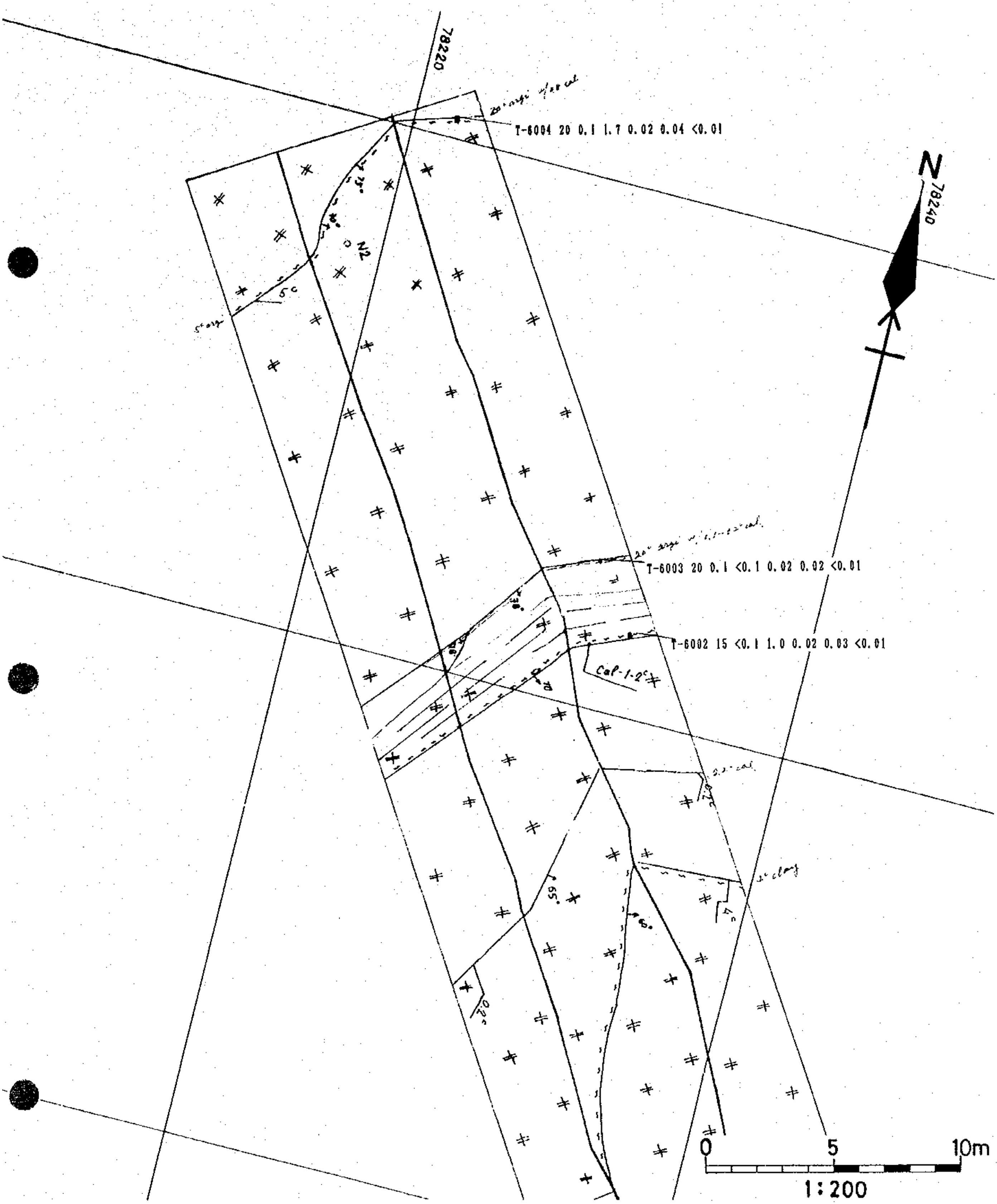
LEGEND

✗ ✗	Granodiorite		Sheared zone
	Silicified		Joint
~ ~	Argilized		Joint with clay
	Veinlet with carbonate		Breccia
k	Kaolinite		Dip and strike
*	Limonite		Sampled channel

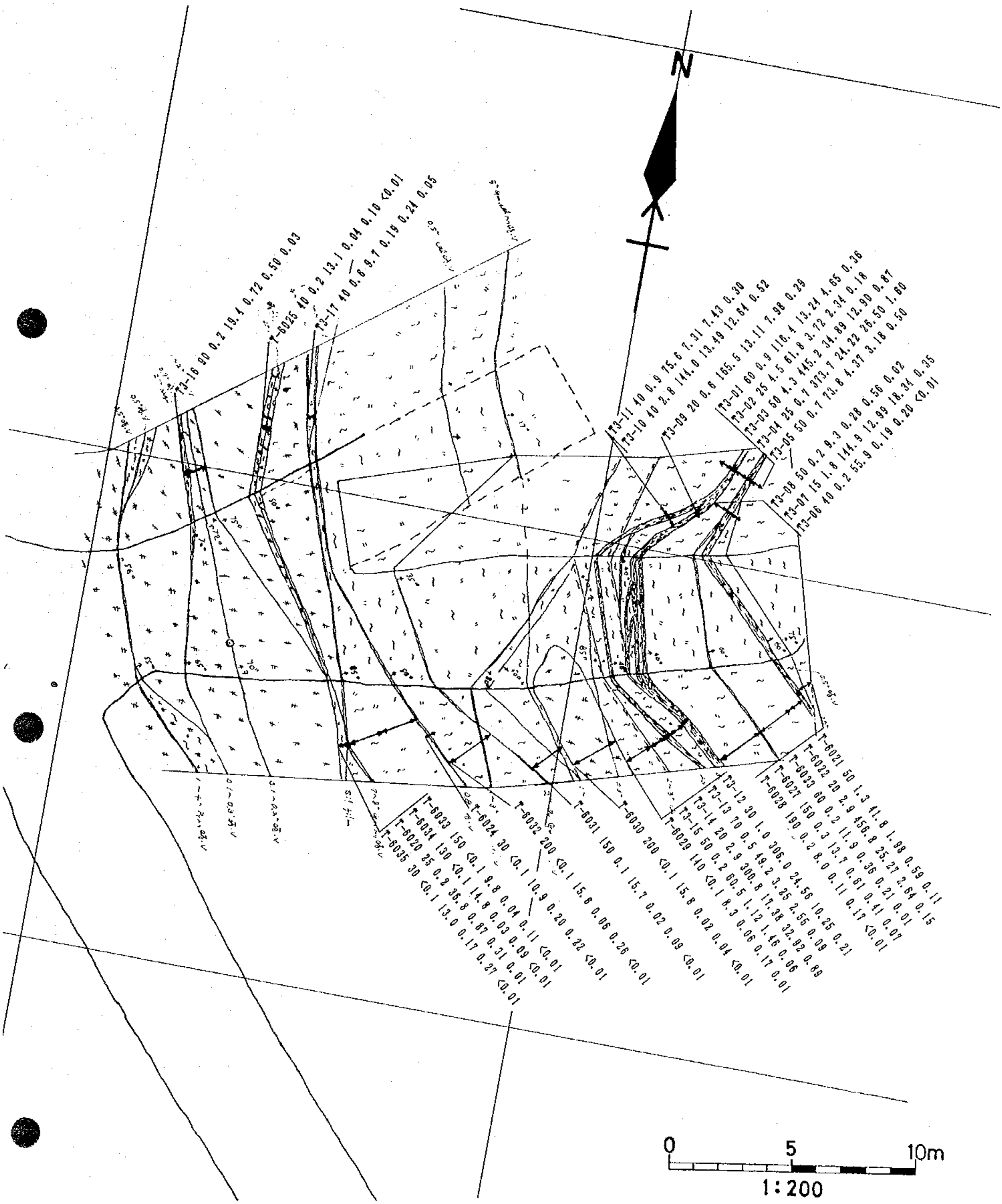
T －6013 140 0.1 13.5 0.12 0.15 <0.01
Sample number, width and assay
(Au, Ag, Pb, Zn and Cu)



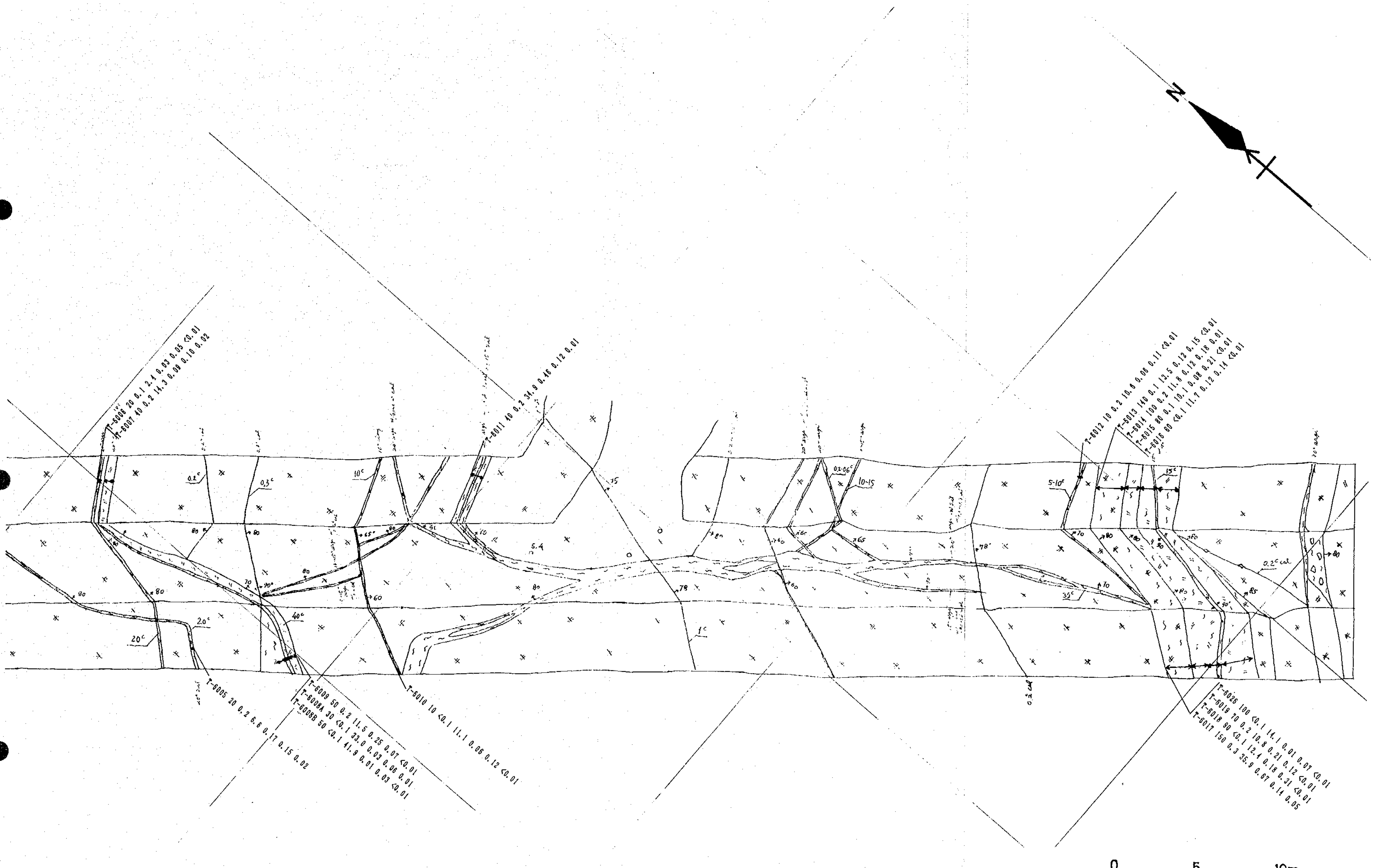
Apx. 10 - 1 No.4 Waste pit



Apx. 10 - 2 North drift



Apx. 10 - 4 No.3 Waste pit



Apx. 10 - 3 South drift

Apx. 11 Assay Results of the Tunnel Samples

Assay Result of the Tunnel Sample (1)

Sample No.	Length (cm)	Locality Tunnel,Dist	Assay Result Au(g/t)	Ag(g/t)	Pb(%)	Zn(%)	Cu(%)		Remarks
T4-04	50	4WPr, 9.1	0.5	19.7	1.81	0.75	0.07	#	
T4-05	50	4WPr, 9.7	12.4	194.5	14.60	5.40	0.51	#	180/ 3.9 67.5
T4-06	50	4WPr, 10.3	0.5	16.2	1.25	0.81	0.03	#	5.04 2.09 .17
T4-07	30	4WPr, 11.0	1.1	20.9	0.78	0.95	0.02	#	
T4-03	50	4WPl, 8.8	0.4	35.2	2.54	0.79	0.17	#	100/1.1 242.9
T4-02	50	4WPl, 9.3	1.9	450.5	35.37	4.46	2.47	#	18.95 2.63 1.32
T4-01	50	4WPl, 9.8	0.3	15.7	0.87	0.91	0.05		
T-6004	20	NDr, 78.5	0.1	1.7	0.02	0.04	<0.01		
T-6003	20	NDr, 59.3	0.1	<0.1	0.02	0.02	<0.01		
T-6002	15	NDr, 57.7	<0.1	1.0	0.02	0.03	<0.01		
T3-16	90	3WPl, 8.5	0.2	19.4	0.72	0.50	0.03		
T-6025	40	3WPl, 10.7	0.2	13.1	0.04	0.10	<0.01		
T3-17	40	3WPl, 13.5	0.6	9.7	0.19	0.24	0.05		
T3-11	40	CCl, 14.5	0.9	75.6	7.31	7.43	0.30	#	100/1.6 120.9
T3-10	40	CCl, 15.5	2.8	144.0	13.49	12.64	0.52	#	10.94 9.62 .39
T3-09	20	CCl, 16.5	0.6	165.5	13.11	7.98	0.29	#	
T3-08	50	CCl, 18.0	0.2	9.3	0.28	0.56	0.02		
T3-07	15	CCl, 19.5	1.8	144.9	12.99	18.34	0.35	#	
T3-06	40	CCl, 20.0	0.2	55.9	0.19	0.20	<0.01		
T3-01	60	CCl, 14.5	0.9	116.4	13.24	4.65	0.36	#	
T3-02	25	CCl, 16.5	4.5	61.8	3.72	2.34	0.18	#	210/2.1 208.7
T3-03	50	CCl, 18.0	4.3	445.2	34.89	12.90	0.87	#	16.46 8.59 .64
T3-04	25	CCl, 19.5	0.7	373.7	24.22	26.50	1.60	#	
T3-05	50	CCl, 20.0	0.7	73.8	4.37	3.18	0.50	#	
T-6035	30	CCr, 3.8	<0.1	13.0	0.17	0.27	<0.01		
T-6020	25	CCr, 4.8	0.2	36.8	0.87	0.31	0.01		
T-6034	130	CCr, 5.3	<0.1	14.8	0.03	0.09	<0.01		
T-6033	150	CCr, 6.0	<0.1	9.8	0.04	0.11	<0.01		
T-6024	30	CCr, 6.5	<0.1	10.9	0.20	0.22	<0.01		
T-6032	200	CCr, 7.3	<0.1	15.6	0.06	0.26	<0.01		
T-6031	150	CCr, 10.0	0.1	15.7	0.02	0.09	<0.01		
T-6030	200	CCr, 13.0	<0.1	15.8	0.02	0.04	<0.01		
T-6029	140	CCr, 14.5	<0.1	8.3	0.06	0.17	0.01		
T3-15	50	CCr, 15.0	0.2	60.5	1.12	1.46	0.06	#	
T3-14	20	CCr, 15.2	2.9	300.8	17.38	32.92	0.89	#	170/ .8 127.4
T3-13	70	CCr, 15.5	0.5	49.2	3.25	2.55	0.09	#	8.05 7.16 .20
T3-12	30	CCr, 16.3	1.0	306.0	24.56	10.25	0.21	#	
T-6028	190	CCr, 18.0	0.2	8.0	0.11	0.17	<0.01		
T-6027	150	CCr, 20.0	0.3	13.7	0.61	0.41	0.07		
T-6023	60	CCr, 21.5	0.2	11.9	0.36	0.21	0.01		
T-6022	20	CCr, 21.8	2.9	456.8	25.27	2.64	0.15	#	70/ 1.8 160.4
T-6021	50	CCr, 22.3	1.3	41.8	1.98	0.59	0.11	#	8.63 1.18 .12

Dist:distance(cm), 4WP:No.4 waste pit, 3WP:No.3 waste pit, ND:north drift, CC:cross cut, r:wall on the riht hand(facing the end of the tunnel), l:wall on the left hand, #:sample for reserve estimation, 210/2.1 208.7 16.468.59 .64:total width/average grade of Au,Ag,Pb,Zn and Cu.

Assay Result of the Tunnel Sample (2)

Sample No.	Length (cm)	Locality Tunnel, Dist	Assay Result Au(g/t)	Ag(g/t)	Pb(%)	Zn(%)	Cu(%)	Remarks
T-6006	20	SDl, 103.9	0.1	2.4	0.03	0.05	<0.01	
T-6007	40	SDl, 104.6	0.2	14.3	0.09	0.10	0.02	
T-6005	20	SDr, 102.7	0.2	6.6	0.17	0.15	0.02	
T-6008B	50	SDr, 113.7	<0.1	41.9	0.01	0.03	<0.01	
T-6008A	30	SDr, 114.0	<0.1	33.0	0.03	0.06	0.01	
T-6009	50	SDr, 114.2	0.2	11.5	0.25	0.07	<0.01	
T-6010	10	SDr, 120.4	<0.1	11.1	0.06	0.12	<0.01	
T-6011	40	SDl, 125.9	0.2	34.9	0.46	0.12	0.01	
T-6012	10	SDl, 162.2	0.2	10.6	0.06	0.11	<0.01	
T-6013	140	SDl, 165.5	0.1	13.5	0.12	0.15	<0.01	
T-6014	100	SDl, 166.3	0.2	11.8	0.12	0.18	0.01	
T-6015	80	SDl, 167.0	0.1	10.1	0.08	0.21	<0.01	
T-6016	60	SDl, 167.8	<0.1	11.7	0.12	0.14	<0.01	
T-6017	150	SDr, 168.1	0.3	35.9	0.67	0.14	0.05	
T-6018	90	SDr, 169.2	<0.1	12.4	0.18	0.31	<0.01	
T-6019	70	SDr, 170.2	0.2	10.8	0.21	0.12	<0.01	
T-6026	100	SDr, 171.5	<0.1	14.1	0.01	0.07	<0.01	

Dist:distance(cm), SD:south drift, r:wall on the right hand(facing the end of the tunnel), l:wall on the left hand