

ことから、深部への発展の可能性が大きくなった。

調査の結果をボーリング沿い地質断面図(Fig. II-1-3 ~5)に、解析結果をFig. II-1-6にそれぞれ示す。

①M J M U - 1 孔 (位置: X= 0.47m, Y= 54.23 m, Z= 1208.2m)

0 ~ 3.50	風化砂岩
3.50 ~ 6.10	青緑色細粒砂岩
6.10 ~ 7.00	暗緑灰色細粒閃緑岩 (岩脈)
7.00 ~ 20.55	青緑色細粒砂岩, シルト岩及び頁岩。内 17.80m から 20.00m 間は, 角礫化・粘土化している。
20.55 ~ 46.80	暗緑灰色細粒閃緑岩からなる。内, 20.60m ~ 21.00m 間及び 37.00m ~ 37.60m 間は赤鉄鉱と褐鉄鉱に富む赤色化変質帯, 41.60m ~ 43.85m 間及び 46.20m ~ 46.60m 間は粗粒黄鉄鉱が鉱染する。
46.80 ~ 48.20	変質角礫に富む赤鉄鉱化網状石英脈帯, 脈率50%
48.20 ~ 48.70	黄鉄鉱を含む白色粘土, 交角50°
48.70 ~ 49.90	網状石英脈帯, 脈率35%
49.90 ~ 52.10	乳白色石英脈
52.10 ~ 53.55	暗緑灰色細粒閃緑岩。粗粒黄鉄鉱と細粒黄鉄鉱が鉱染する。
53.55 ~ 64.30	緑灰色細粒砂岩。内, 54.00m ~ 55.20m 間は赤鉄鉱に富む角礫化帯。
64.30 ~ 66.60	乳白色石英脈帯, 緑灰色細粒砂岩の中石を含む。脈率59%。
66.60 ~ 68.30	暗緑灰色細粒閃緑岩
68.30 ~ 74.30	乳白色石英脈
74.30 ~ 84.80	乳白色石英脈帯, 脈率34%
84.80 ~ 87.60	暗緑色細粒閃緑岩
87.60 ~ 88.40	乳白色石英脈帯, 脈率56%
88.40 ~ 146.20	暗緑灰色細粒閃緑岩。内104.30m ~ 108.70m 間は断層角礫帯, 交角70° ~ 75°。
146.20 ~ 148.70	緑れん石化粗面岩 (岩脈)
148.70 ~ 151.40	緑れん石化した暗緑色細粒閃緑岩

②M J M U - 2 孔 (位置: X= 29.91 m, Y= 40.86 m, Z= 1206.6m)

0 ~ 19.40 暗緑灰色細粒閃緑岩。内, 0 ~ 2.70m 間は角礫化, 9.60m

- ～ 12.00m間は一部片岩化を伴う剪断破碎帯，9.00m～9.20m間には石英方解石脈を伴う。また，11.00m～14.40m間は，赤鉄鉱と褐鉄鉱で満たされた節理に富んでいる。
- 19.40 ～ 31.60 珪化した細粒砂岩からなる。内，19.40m～21.10m間は赤鉄鉱と褐鉄鉱に富む石英の細脈帯，22.30m～31.60m間は赤鉄鉱と褐鉄鉱の細脈に富む赤褐色変質帯である。
- 31.60 ～ 46.65 赤褐色変質細粒閃緑岩。内，31.60m～35.20m及び36.80m～38.80m間は赤鉄鉱と褐鉄鉱の細脈に富む赤褐色変質帯，35.20m～36.80m間は最大幅60cmの石英脈を伴う網状石英脈帯（脈率55%），40.50m～46.65m間は最大幅20cmの石英脈を伴う網状石英脈帯（交角40°～70°）である。
- 46.65 ～ 50.80 細粒砂岩・頁岩互層。内46.65m～48.00m間は網状石英脈帯（脈率70%，交角50°～60°），48.00m～49.10m間は乳白色石英脈（交角35°～60°），49.10m～50.20m間は網状石英脈帯（脈率50%，交角35°～65°）である。
- 50.80 ～ 54.60 乳白色石英脈（交角10°～45°）
- 54.60 ～ 80.80 緑灰色変質細粒閃緑岩。内，54.60m～55.55mは網状石英脈帯（脈率45%，交角40°～50°），55.55m～56.20m間は粗粒の黄鉄鉱が鉱染する赤褐色変質帯，63.10m～65.50m間は最大幅10cmの石英脈を伴い赤鉄鉱と褐鉄鉱の細脈に富む赤褐色変質帯である。
- 80.80 ～ 82.60 粗面岩岩脈，交角60°，直径5mm以下のガス孔に富む。
- 82.60 ～ 110.70 暗緑灰色細粒閃緑岩。

③MJMU-3孔（位置：X=150.14m，Y=-16.32m，Z=1207.9m）

- 0 ～ 8.50 風化黒雲母角閃石粗面岩の岩脈である。角閃石の直径は3mm以下，黒雲母の直径は2mm以下である。
- 8.50 ～ 24.00 赤褐色細粒閃緑岩。内16.30m～28.80m間はhydrofracturingと赤鉄鉱-石英の網状細脈（交角25°～70°）に富む。
- 24.00 ～ 92.20 緑灰色～青灰色中粒砂岩，ところどころに青緑色泥質片岩の薄層を挟む。
内，24.00m～28.80m間はhydrofracturingと赤鉄鉱-

石英の網状細脈帯 ($<45^\circ$), 39.10m ~ 41.70m間はhydrofracturing - 赤鉄鉱網状細脈帯, 46.80m ~ 56.50m間は赤鉄鉱・褐鉄鉱・石英網状細脈帯 (交角 $30^\circ \sim 35^\circ$), 65.00m ~ 69.00m間は赤鉄鉱・褐鉄鉱・石英網状細脈帯 (交角 40°), 70.20m ~ 83.80m間は幅3cm以下の赤鉄鉱・褐鉄鉱・石英網状細脈 (交角 $40^\circ \sim 60^\circ$) を伴う珪化帯である。

92.20 ~ 100.60 暗緑灰色細粒閃緑岩。幅0.8cm以下の石英細脈を僅かに伴う。

④MJMU-4孔 (位置: X= 280.14m, Y= 74.50 m, Z= 1203.1m)

0 ~ 8.90 青灰色中粒砂岩。全体に珪化し, 0m ~ 7.80m間は赤鉄鉱・褐鉄鉱・石英細脈が網状に発達する。7.80m ~ 8.40m間はやや細粒でphyllitic schist化している。

8.90 ~ 20.40 暗緑色細粒閃緑岩。内8.90m ~ 11.50m間は片岩化している。全体に僅かではあるが褐鉄鉱・石英細脈を伴う。

20.40 ~ 72.60 青灰色~緑灰色~淡灰色中粒砂岩。内34.80m付近と39.60m ~ 40.80m間は細粒砂岩とシルト岩の互層である。20.40m ~ 24.60m間は石英・褐鉄鉱フィルムに富む。31.00m ~ 31.05m間には幅5cm, 交角 60° の石英脈があり, 25.90m, 26.90m付近には幅0.3cm ~ 0.5cmの石英細脈が認められる。46.30m ~ 46.50m, 50.50m ~ 50.70m, 55.70m ~ 55.90m及び72.50m ~ 72.75mの各区間は剪断破碎帯 (交角 $40^\circ \sim 60^\circ$) である。

72.60 ~ 76.60 茶灰色を呈する多孔質角閃石黒雲母粗面岩の岩脈である。一部hydrofracturingを受け, 赤鉄鉱で膠結されている。

76.60 ~ 79.50 淡青灰色中粒~細粒砂岩である。内76.60m ~ 77.30m間と78.70m ~ 79.50m間は剪断破碎帯 (交角 45°) である。

79.50 ~ 81.20 茶灰色を呈する多孔質角閃石黒雲母粗面岩の岩脈 (交角 $45^\circ \sim 60^\circ$) である。一部hydrofracturingを受け, 赤鉄鉱で膠結されている。

81.20 ~ 87.70 淡灰色中粒~細粒砂岩である。内81.20m ~ 83.50m間と84.40m付近は剪断破碎帯 (交角 $45^\circ \sim 60^\circ$) である。

87.70 ~ 93.60 淡灰色~淡緑色シルト岩である。内89.50m ~ 89.70m間

と 91.25m ~ 91.40m間は剪断破碎帯 (交角 60° 及び 40°) である。

- 93.60 ~ 97.70 暗緑色細粒閃緑岩。全体に僅かではあるが方解石・石英細脈を伴う。
- 97.70 ~ 100.80 緑灰色~青灰色シルト岩である。全体に交角 50° ~ 55° の片理が発達し, phyllitic である。

⑤MJMU-5孔 (位置: X= 582.00m, Y= 35.94 m, Z= 1197.7m)

- 0 ~ 21.60 細粒閃緑岩。内 0~6.30m間は暗緑色を呈する。6.30m ~ 9.50m間は赤鉄鉱化・炭酸塩化赤色変質岩であり, 9.50m ~ 21.60 m間は全体に珪化・脱色され, 赤鉄鉱と褐鉄鉱により赤色~褐色を呈する。
- 21.60 ~ 31.70 角閃石黒雲母粗面岩, 緑れん石化, 交角は 35° である。全体として深部ほど強く変質し, 浅部から深部に向かって褐色, 茶灰色, 灰色, 紫灰色と色調を変化する。31.30m ~ 31.70 m間は, 熱水変質作用を受けた淡灰色断層粘土である。
- 31.70 ~ 48.40 細粒閃緑岩。内 34.10~ 35.50m, 36.90~ 39.15mの各区間は赤鉄鉱と褐鉄鉱に富む強珪化岩。36.00m ~ 36.90m, 39.15 m ~ 40.50mの各区間は黄鉄鉱が鉱染している。
43.25 mには幅 5 cmの石英脈 (交角 30°) が存在する。
- 48.40 ~ 100.10 青灰色~緑灰色中粒~細粒砂岩。内 48.80~ 51.10m間は剪断破碎・赤鉄鉱化され, 赤色を呈する。また, 64.20m ~ 79.70m間には, オロン・オボート断層と推定される交角 50° ~ 80° の断層破碎帯が多数出現した。その中心は, 73.90 m ~ 79.70mの範囲と考えられる。
- 100.10 ~ 100.40 細粒閃緑岩。暗緑色を呈し, 緑れん石化している。

⑥MJMU-6孔 (位置: X= 1551m, Y= 1340m, Z= 1176m)

- 0 ~ 6.00 黒雲母粗面岩質凝灰角礫岩からなる。礫径は30cm以下である。淡緑灰色~淡茶灰色を呈し, 直径 3 mm以下の黒雲母を多量に含む。
- 6.00 ~ 49.80 淡緑灰色~淡茶灰色を呈する緻密質黒雲母粗面岩である。

- 黒雲母の直径は2 mm以下である。内 10.20m～10.50m間は自
 破碎状, 10.50m～14.0m, 16.0m～19.50m, 23.0m～24.5
 m, 47.50m～49.50mの各区間はガス孔を有する。44.80 m
 ～49.80m間は方解石の細脈帯で, そのコアとの交角は5°～
 30°である。
- 49.80～50.60 淡茶灰色を呈する緻密質黒雲母粗面岩質凝灰角礫岩である。
 黒雲母の直径は2 mm以下である。
- 50.60～51.60 黒雲母粗面岩質凝灰岩起源の赤色緻密質化石土壌である。直
 径2 mm以下の黒雲母を含む。
- 51.60～52.90 多孔質粗面玄武岩の礫を含む赤色緻密質凝灰角礫岩である。
 基質はやや風化し, 赤色を呈する。
- 52.90～81.50 灰色～暗灰色を呈する多孔質粗面玄武岩溶岩。内62.8m～64
 .30 m, 77.20m～79.00mの各区間は, 茶灰色を呈する多孔
 質粗面玄武岩質凝灰角礫岩である。粗面玄武岩溶岩のガス孔に
 は, 方解石や石膏の結晶及びマンガン酸化物の薄膜などが普遍的
 に認められる。
- 81.50～83.80 暗灰色を呈する粗面玄武岩質凝灰角礫岩。粗面玄武岩の礫は
 発泡し, 多孔質である。
- 83.80～91.00 茶色～灰色を呈する緻密質火山角礫岩, 礫径は20cm以下であ
 る。礫は, 黒雲母粗面岩, 粗面安山岩及び粗面玄武岩からなる。
 細粒部が示す地層の傾斜は30°である。

⑦MJMU-7孔 (位置: X= -29.98 m, Y= 58.84 m, Z= 1206.6m)

- 0～17.60 青緑色ないし緑灰色を呈する細粒砂岩。内 12.90m～13.80
 m間と 14.40m～14.70m間は青緑色を呈するシルト岩である。
 層理面とコアの交角は70°～80°である。
- 17.60～54.65 暗緑灰色を呈する細粒閃緑岩。内 19.20m～20.20m, 25.6
 0 m～27.50m, 50.40m～54.65mの各区間は, 黄鉄鉱化・
 炭酸塩鉱物化・赤鉄鉱化変質を受け, 褐鉄鉱に汚染されている。
- 54.65～72.45 細粒砂岩。本区間ツァーゲン・トルゴイ鉱床西部相当の網状
 石英脈帯であり, 最大幅 1.1mの石英脈を初めとする15条以上
 の石英脈群 (交角30°～70°, $\Sigma v \geq 6$ m) が認められる。こ
 のため全体に黄鉄鉱化・炭酸塩化変質し, 未酸化の部分は青灰

- 色、酸化した部分は赤褐色を呈する。
- 72.45 ~ 94.85 暗緑灰色を呈する変質細粒閃緑岩。内 78.30m ~ 78.80m 間には細粒砂岩の捕獲岩が認められる。また、72.45m ~ 75.55m, 92.15m ~ 94.85mの各区間は網状石英脈帯である。また78.30m ~ 75.55m, 78.30m ~ 81.00m, 87.70m ~ 94.80mの各区間は、黄鉄鉱の鉱染が顕著である。
- 94.85 ~ 103.50 暗緑灰色を呈する細粒砂岩。内 96.95m ~ 98.50m間は暗緑灰色を呈する変質細粒閃緑岩の岩脈である。また、94.80m ~ 97.32m間は、最大幅40cmの石英脈を含む網状石英脈帯であり、98.90m ~ 100.20m間は微細な黄鉄鉱の鉱染が認められる。

⑧MJMU-8孔 (位置: X= -30m, Y= 0m, Z= 1208.77m)

- 0 ~ 2.60 茶灰色を呈する細粒閃緑岩。やや風化している。コアは無水掘りのため破碎されている。
- 2.60 ~ 5.75 灰色を呈する細粒砂岩である。内4.75mには、炭酸塩鉱物の細脈 (幅 0.5cm, 交角30°) が認められる。
- 5.75 ~ 25.90 暗緑灰色~緑色を呈する変質細粒閃緑岩である。内 19.70m ~ 20.10m, 22.70m ~ 23.20m, 24.60m ~ 24.80mの各区間には乳白色を呈する石英脈が認められる。また、23.00m ~ 25.90m間には黄鉄鉱の鉱染が認められる。
- 25.90 ~ 41.90 熱水作用により赤鉄鉱化・褐鉄鉱化した変質シルト岩・砂岩互層帯である。シルト岩は絹雲母片岩化している。内 28.30m ~ 29.20m間は粗面岩の岩脈 (交角60° ~ 80°) が認められる。
- 41.90 ~ 44.70 茶~暗緑灰色を呈する変質細粒閃緑岩である。
- 44.70 ~ 48.55 茶色を呈する多孔質粗面安山岩~粗面玄武岩質安山岩の岩脈である。内 47.90mから 48.90mまでの1m間は、断層角礫帯 (交角60°) である。
- 48.55 ~ 50.50 灰色を呈する緻密質粗面岩である。内 49.40mから 49.80mまでの0.4m間は、断層角礫帯 (交角45°) である。また50.50mにはシルト岩との境界に沿って石英脈 (幅1cm, 交角85° ~ 90°) が認められる。
- 50.50 ~ 51.10 熱水作用により漂白されたシルト岩である。内 50.75m ~ 50.80m間は角礫岩脈 (交角80°) である。

Table II-1-3 Major Ore Zones caught by the Drillings

NAME	ORE ZONES (m)	WIDTH (m)	ORE GRADE(g/t)		N O T E
			Au	Ag	
MJMU-1	41.20 ~54.10	12.90	2.18	<0.2	Qzv + host r.
	64.30 ~87.60	23.30	2.71	<0.2	Qzv + host r.
	(65.00 ~85.80	20.80	2.97	<0.2	higher grade part)
	(66.60 ~70.00	3.40	5.32	0.3	ditto)
MJMU-2	35.20 ~55.55	20.35	2.79	<0.2	Qzv + host r.
	(40.50 ~49.10	8.60	4.20	<0.2	ditto)
MJMU-7	70.70 ~81.00	10.30	4.56	0.2	Qzv + host r.
	(70.70 ~75.55	4.85	7.89	0.2	ditto)
	87.70 ~94.80	7.10	5.25	<0.2	Qzv + host r.
MJMU-8	22.70 ~26.80	4.10	2.36	<0.2	Qzv + host r.
	(22.70 ~24.80	2.10	3.64	<0.2	ditto)

Abbreviations:

Qzv: Quartz vein, host r.: host rock

51.10 ~54.80	茶色を呈する多孔質粗面安山岩～粗面玄武岩質安山岩の岩脈である。本岩は直径4mmに達する斜長石と直径2mm以下の角閃石を含んでいる。
54.80 ~59.50	熱水変質作用により白色化し、淡灰色を呈する砂岩である。内56.50 m～59.50m間はhydrofracturingに富み、砂岩は白色化し、割れ目は赤鉄鉱により満たされている。
59.50 ~71.20	暗緑灰色を呈する変質細粒閃緑岩である。
71.20 ~73.00	緑灰色を呈する細粒砂岩である。高度に片岩化し原岩の組織をとどめない。
73.00 ~103.30	暗緑灰色を呈する変質細粒閃緑岩である。内78.75mから78.85 mまでと79.65mから79.70mまでの各区間には緑泥石・石英脈ないし白雲母・石英脈が認められる。86.80mから89.00 mまでの区間には粗粒の黄鉄鉱の鉱染が認められる。

1-3-2 鉱化作用

1 鉱化作用の状況

ボーリングにより捕捉された鉱化部は、Table II-1-3のとおりである。

なお、細粒閃緑岩に鉱染する粗粒の黄鉄鉱をハンドピッキングした試料はAu 791ppm, Ag 5.5ppmを示し、細粒閃緑岩中に鉱染する粗粒の黄鉄鉱には高濃度の金が含まれることが分かった。また、石英脈といえども必ずしも金を伴わず、脈際に粗粒の黄鉄鉱が濃集する部分が金に富む傾向が認められる。

この黄鉄鉱の顕微鏡観察結果、微細な自然金が確認された。

2 鉱化年代

ボーリングコアの未風化試料によるK-Ar年代は、下記のとおりであった。

孔名	深度(m)	岩石名	年代(Ma)	地質年代	備考
MJMU-1	48.50	白色粘土	246 ±12	下部三疊系	貧金細粒黄鉄鉱
MJMU-7	87.70 ~89.70	変質閃緑岩	284 ±14	下部二疊系	含金粗粒黄鉄鉱
MJMU-8	96.20 ~96.50	閃緑岩	326 ±16	下部石炭系	非変質

3 均質化温度

ツァーガン・トルゴイの金の濃集部は、流体包有物の均質化温度が148℃～305℃の温度範囲を示し、測定できた150個の平均は216℃であった(Apx. -1-11)。

4 変質

ツァーガン・トルゴイの金の濃集部周辺の脈際変質は、セリサイト・クロライト鉱物

組み合わせが主体であり、少量のカオリナイトが認められた。これは地表の変質鉱物組み合わせと同じである(Apx.1-8)。

1-4 考察

1-4-1 オロン・オボート鉱床

ツァガン・トルゴイ鉱体に対するボーリングの結果、鉱床は地表下50m~60mでも脈の規模や品位は衰えないことが確認された。したがって、本鉱床はさらに深部に連続していると推定される。

また、MJMU-3, MJMU-4, MJMU-8の各ボーリングでは地表の石英脈を捕捉することができなかったが、これらの石英脈についても、そのプランジを明らかにすることにより、鉱床の深部への連続性が確認される可能性が高いと考えられる。

今回、3孔のボーリングで地表下約50mで金の濃集が認められたツァガン・トルゴイ鉱体はさらに地下深部へ連続すると推定され、推定鉱量と予想鉱量の合計で262,800t(Au 3.2g/t)が試算できる(Fig. II-1-6, Table II-1-4)。

オロン・オボート鉱床全体のポテンシャル埋蔵鉱量は、本調査の結果のみで判断することは困難であるが、仮に地表で確認された鉱画がそのままの規模で今回ツァガン・トルゴイ鉱体に対するボーリングで確認された垂直延長の2倍(110 m)連続すると仮定すれば、金品位約3g/tで70万トン程度が見込まれる。なお、周辺の脈や物理探査異常帯の探鉱によりさらに鉱量の増加が期待できる。

1-4-2 物理探査異常

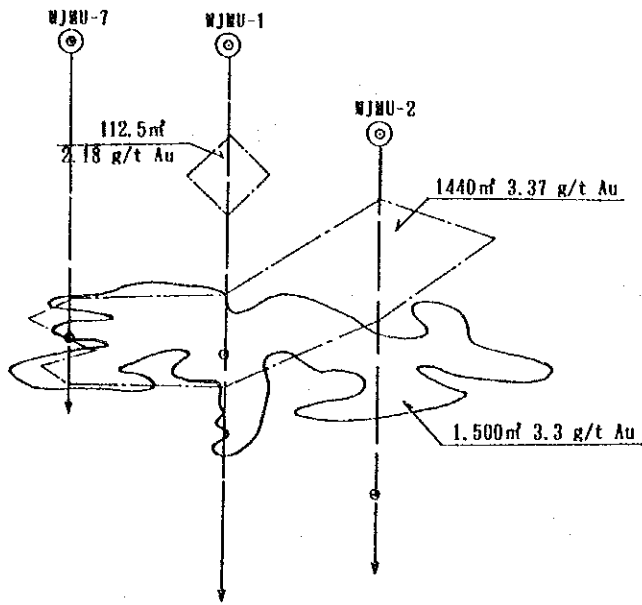
1 ツァガン・トルゴイ南方の高比抵抗異常

MJMU-1, MJMU-2, MJMU-7のいずれも高比抵抗異常帯の核心部分に達しておらず、本高比抵抗異常は未確認となった。この確認には掘削長300mのボーリングが必要である。

2 物理探査地域北東部の低比抵抗・高磁性異常

ボーリング調査の結果、低比抵抗異常帯に相当する深度52.9mから83.80 mまでの区間は、多孔質粗面玄武岩の溶岩が連続した。本溶岩のガス孔は水で満たされており、石膏、方解石及びマンガン酸化物などが広く認められる。また、本溶岩は強い磁性を有することから、物理探査異常は塩類に富む地下水で満たされたジュラ紀の多孔質粗面玄武岩溶岩に由来すると考えられる。

1-4-3 モンゴル・ゴビ地域における金鉱床賦存の可能性について



Total	Line	Line	Line
		1,210mL	1,210mL
		1,210mL 1,500 m³ 3.3 g/t Au	
91,465m³ (224,090t) 3.2 g/t Au	2,250m³ (5,512t) 2.1 g/t Au	89,2150m³ (218,578t) 3.3 g/t Au	
1,586.4m³ 15,864m³ (38,866t) 3.2 g/t Au	112.5m³ 1,125m³ (2,756t) 2.1 g/t Au	1,150mL 1,473.9m³ 3.37 g/t Au 14,739m³ (36,110t) 3.3 g/t Au	1,150mL
	Line	Line	1,130mL

Fig. II-1-6 Ore-blocks of Tsagaan-tolgoi Ore Body

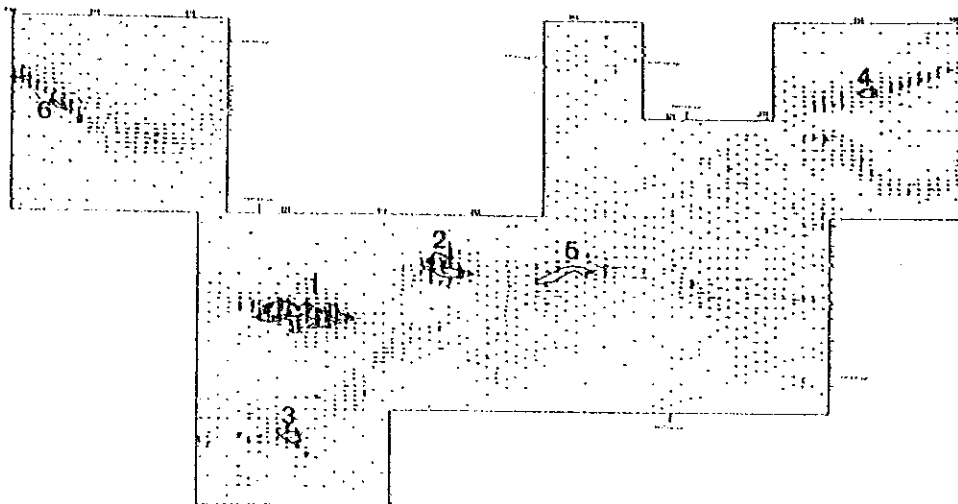
Table II-1-4 Ore-blocks and Ore-grade of the Olon-ovoot Deposit

Block No.	AREA						BLOCK				TOTAL	NOTE
	SURFACE		1150mL		1130 mL		Surface-1150 mL		1150mL-1130mL			
	m ²	g/t Au	m ²	g/t Au	m ²	g/t Au	m ³ (t)	g/t Au	m ³ (t)	g/t Au		
1	1,500	3.3	1,552	3.2	Line	3.2	91,400 (224,000)	3.2	15,800 (38,800)	3.2	107,200m ³ 262,800t 3.2g/t	Tsagaan-toigoï
2	500	2.3	N.D.									
3	140	7.3	N.D.									
4	90	1.9	N.D.									
5	250	2.0	N.D.									
6	50	2.7	N.D.									
TOTAL	2,530	3.2									262,800t 3.2g/tAu	

Note:

- ① Surface level of No.1 ore-block: 1,210 m
- ② Bulk specific gravity of ore: 2.45 (assumption)
- ③ Abbreviation: N.D.: not determined
- ④ Ore-blocks (blocked out by the geochemical survey data in 1992);
 1: Tsagaan-toigoï 2: 150 m west from Tsagaan-toigoï 3: 130 m south from Tsagaan-toigoï 4: 630m northwest from Tsagaan-toigoï
 5: 280m east from Tsagaan-toigoï 6: 250m~330 m northwest from Tsagaan-toigoï
- ⑤ Potential ore reserve; Assuming that the ore bodies captured by geochemical survey continue 110m down from the outcrops, potential ore reserve will be estimated about 700,000tons.

INDEX MAP OF ORAE BLOCKS



第 3 部 結論及び提言

第 1 章 結 論

第 3 年次調査の結果は、以下の結論に要約される。

- ① オロン・オボート鉱床は、石英脈の一部と脈際母岩中に金が濃集したものである。
- ② 鉱床は、地表下 50 m でも規模や品位が衰えない。したがって鉱床はさらに地下深部へ連続する。
- ③ 今回 3 孔のボーリングで地表下約 50 m で金の濃集が認められたツァガン・トルゴイ鉱体では、鉱脈は地表からさらに地下深部へ連続すると推定され、推定鉱量と予想鉱量の合計で 262,800 t (Au 3.2 g/t) が試算できる。
オロン・オボート鉱床全体のポテンシャル埋蔵鉱量は、今回の調査結果のみから判断することは困難であるが、仮に地表で確認された鉱画が今回ツァガントルゴイで確認された垂直延長の 2 倍 (110 m) 連続すると仮定すれば、金品位約 3 g/t で 70 万トン程度が見込まれる。なお、周辺の脈や物理探査異常帯の探鉱によりさらに鉱量の増加が期待できる。
- ④ 鉱量のうちかなりの部分が露天掘可能なことから、オロン・オボート鉱床は、小規模ではあるが有利に稼行できる可能性が大きいといえる。
- ⑤ K-Ar 年代の測定結果、オロン・オボート鉱床は二疊紀の初期に形成されたものであることが確認された。
- ⑥ オロン・オボート鉱床において初生金鉱化作用が十分高品位であることが確認されたことにより、同様の地質条件を有する地域一帯に類似の鉱床が期待できる。
- ⑦ 第 2 年次調査によりオロン・オボート鉱床の北東約 2.5 km に捕捉された低比抵抗・高磁性物理探査異常帯は、ジュラ系多孔質溶岩中の高塩濃度地下水に由来するものであり、磁硫鉄鉱を含むスカルン型硫化物鉱床が存在する可能性は否定された。

第 2 章 将来への提言

以上の調査結果から、モンゴル国においては、下記の調査を実施することが望ましい。

- ・ 鉱量及び品位を確定するためのボーリング調査の実施
- ・ 金のヒーブ・リーチング試験の実施
- ・ これらの結果を踏まえた F/S の実施 (ピットデザインを含む)

以上により、ゴビ地域には古生代末期に金の鉱化作用があったことが証明された。したがって、今後ゴビ地域において金鉱床探査を実施することは有意義なことと考えられる。オーダムタル地域第2年次調査においてウルジート地区で確認された多数の大規模な金鉱徴は、十分その対象となり得るものである。

また、本調査により得られた知見をモンゴル国の今後の資源探査に生かすとすれば、地質構造に沿って東西方向に広く一帯を対象とした金資源調査の実施が考えられる。

参 考 文 献

BIBLIOGRAPHY

I PUBLISHED LITERATURE

- Academy of Research and Science MPR • Bureau of National Geodesy MPR et al.
(1990): Basic Atlas of the Mongolian People's Republic. Ulaanbaatar • Moskva
(in Mongolian).
- Academy of Science MPR (1990) : Information Mongolia. James, C.V. Ed., Pergamon
Press, London, 505p. (in English).
- Kubota, Y. (1991) : Significance of caudrons as potential site of gold deposits.
Mining Geology, vol.41, p.379~386 (in Japanese with English abstract).
- Metal Mining Agency of Japan (1991) : Geology and ore deposits in Mongolian
People's Republic. Mineral Resources Information Center (in Japanese).
- Ministry of geology USSR, Scientific technological laboratory on geology of
foreign countries and Ministry of Geology and Mining MPR(1977) : Geology of
Mongolian People's Republic, vol.3, Usefull Minerals., Marinov, N.A., Hsin,
R.A. and Hurts, Ts. Eds., "Nedra" , Moskva, 703p. (in Russian).
- Miyashiro, A. (1979) : An outline of the tectonics of Asian continent. Iwanami-
kooza Earth Science 16, Miyashiro, A. Ed., Iwanami-syoten, p.237 ~261 (in
Japanese).
- Parker, H. and Gealey, W.K. (1985) : Plate tectonic evolution of the Western
Pacific-Indian Ocean region. Energy, vol.10, p.249-261 (in English).
- Taira, A. and Tashiro, M. (1987) : Late Paleozoic and Mesozoic accretion tecto-
nics in Japan and Eastern Asia. Historical biogeography and plate tectonic
evolution of Japan and Eastern Asia. Taira, A. and Tashiro, M. Eds., Terra
Scientific Publishing Co., Ltd., Tokyo, p.1~43 (in Japanese).
- The Joint Soviet-Mongolian scientific research geological expedition (1985) :
Copper-bearing formations of Mongolia, Transactions, vol.43., Academician
Kuznetov, V.A. Ed., Nauka Siberian division, Nobosibirsk, 212p.
(in Russian).
- T. Tsenden, Satoshi MURAO and D. Dorjgotov(1992): Introduction to Geology of
Mongolia, Bulletin of the Geological Survey of Japan, vol.43(12), p.735-744.
(in English)

II UNPUBLISHED LITERATURE

1. DORNOD DISTRICT

- No. 4037 Долгор, Я. Марченко, Д. Ф. (1986) : Report on the result of exploration and evaluation at Tsav Polymetallic ore deposit and detailed survey at Bayan-Uur ore showings by the scale of 1:10,000 during 1984-1986. Tsav party of Dornod Geological Expedition, Ministry of Mining Industry, MPR.
- No. 1264 Иванова (1952) : Report of gravimetric survey at eastern part of Mongolian People's Republic in 1952. Ministry of Oil Industry, USSR.
- No. 1762 В. И. Блюменталь, А. И. Попов (1967) : Report on aeromagnetic survey on the territory of Mongolian People's Republic in accordance with contract No. 1495.
- No. 2060 Ю. А. Зорки, Е. Х. Турууанов, М. Р. Новоселова (1973) : Study of granitic plutons in the East Mongolia by gravity method. Institute of earth crust academy of science, Joint Soviet Union - Mongolian scientists geological expedition of Academy of Soviet Union and Academy of Science of Mongolia.
- No. 2447 Чирков Л. Д. Самович Д. А. Марков А. И. et al. (1972) : On the result of aero- and auto gamma spectrometric survey, scale 1 : 25,000 (Geological survey МГСЭ-6, in northeast Mongolian People's Republic during 1974-1975).
- No. 2416 Overseas geological survey expedition of USSR (1977) : On the result of preliminary geological survey work on the scale of 1 : 50,000 in the Ugtan volcano tectonic depression area of northeastern region of MPR., Ministry of Geology, USSR.
- No. 2459 Ministry of Geology, USSR, and Mongolian Geological survey Expedition (1989) : Geological structure and ore promising area of North Choibalsan region of East mongolia., Report on the result of serch-evaluation and prospective work during 1986-1989.
- No. 4441 О. Гомбобаатар, В. Цогсайхан (1990) : Report on the results of geological mapping on a scale of 1 : 50,000 with general serch in Tsav-Bayanul ore zone in 1986-1990. Ministry of Energy, Ministry of Mining Industry and Ministry of Geology, MPR. Complexed serch-exploration-geophysical expedition
- No. 4555 East Complexed Geological Expedition (1990) : Result of expectable geological search and evaluation work in the North Choibalsan area, MPR., Ministry of Geolpgy, USSR.

2. TUMURTIIN-OVOO DISTRICT

No. 3465 Mongol-Eastern Germany Cooperative Exploration Party(1980) : Final report on the result of detailed exploration at Tumurtiin-Ovoo zinc ore deposit from the view point of ore-reserve calculation.

3. NUHUT-DAWAA DISTRICT

No. 2576 Жапангаа, Р. et al. (1978) : Rare metal ore deposits around the Tsentr, Report on the geology and wildcat of Tsentr ore deposit and geological survey of the surrounding area on the scale of 1:10,000 by Erdenetsagaan party. Erdenetsagaan Party of Dornod Expedition, Bureau of Geology and Mining, MPR.

No. 3562 Жапангаа, Р. et al. (1983) : Report on the result of exploration at Yuguzer, Tsentr deposits, Arbansar ore showing, and Urt/Nuhut metallogenic belt. Erdenetsagaan Party of Dornod Expedition, Bureau of Geology and Mining, MPR.

4. HAR-AIRAG DISTRICT

No. 2036 Foreign Company Association of Bureau of Geology of USSR/ Fluorite Department of the Mongol Geological Exploration Party(1973) : Report on the result of explorartion and evaluation work on the fluxible spar in Dornogovi aimag, MPR.

No. 2190 Бахаев, А.Т. et al. (1975) : Ore reserve calculation of Budjiger II Fluorite ore deposit from the view point of exploitation at August 1, 1975. Choir Expedition.

No. 2406 Черепнов, А.А. et al. (1976): Dzuun-Tsagaan-Del fluorite ore deposit, Report on the detailed exploration during 1972~76 from the reserve calculation at March 1, 1976. Choir Fluxible Spar Expedition, Bureau of Mining, MPR.

No. 2710 Хичигдэлгэр, М. (1978) : Report on the result of exploration and wildcat at Har-Airag fluorite ore deposit province during 1973~1976. Choir Fluxible Spar Expedition, Bureau of Mining, MPR.

No. 3046 Саланков, В. Я. (1980): Report on the result of preliminary exploration of Hongor ore deposit(from the ore reserve calculation at January 1, 1980). Bureau of Geology and Mining, MPR.

No. 3450 Намуун, Ф.М. et al. (1982): Bor-Undur fluorite ore deposit, on the result of detailed exploration during 1979~1982 from the View point of ore

reserve calculation at July 1, 1982. Whole Soviet Union Geological Expedition in MPR, United Overseas Geological Expedition, "Technoexport" Bureau of Geology, USSR.

No. 3568 Загдана, М. Дакнбас, Б. (1983) : Report on the result of preliminary exploration of Tsagaantakhilch ore deposit during 1980 ~1983. Choir Expedition of Bureau of Geology and Mining, MPR.

No. 3641 Чинэглорж, Ч. et al. (1983) : Report on the exploration work at Budjiger, Hairta, and Haidobal ore deposits and detailed survey on the scale of 1:10,000 at Bor-Tolgoi and Brag area. Choir Expedition of Bureau of Geology and Mining, MPR.

No. 3779 Лажуун, Ф.М. et al. (1984): Bor-Undur metallogenetic province. Report of the result of exploration and wildcat of fluorite during 1981~1984, from the result of ore reserve calculation at July 1, 1984. Whole Soviet Union Geological Expedition in MPR, United Overseas Geological Expedition, "Technoexport" Bureau of Geology, USSR.

No. 4418 Левченко, А.И. (1990): Report on the result of the geological survey at the Bor-Undur fluorite ore deposit zone during 1986~1990 (Summary at August 1, 1990). Bor-Undur Geological Expedition, Bureau of Geology, USSR.

5. LUGIINGOL DISTRICT

э к з No. 5 Барбоад, Д. Уберза, Я. (1990) : Report on the result of exploration and preliminary wildcat at Lugiingol ore deposit during 1984~1989 from the ore reserve calculation at July 1, 1990. Mongol/Polish Cooperative Geological Expedition.

6. TSAGAANSUVRAGA DISTRICT

No. 2724 Southgovi Soviet-Mongol Expedition (1978) : Report on the result of group geological survey on the scale of 1:200,000 in the region of Dornogovi-Dundgovi-Umnugovi, MPR during 1974 ~1977.

No. 3695 Мартин Хован et al. (1983): Report on the result of inspective exploration conducted about the structure of Volcano-Pulmonic rocks at Ih-Shanghai Harmagtai, and Shuten areas.

No. 3965 Delegation to MPR from the standing committee on cooperative work in metallurgical field under the Conference of Mutual Economical Aid (1984) : Technological and economical reasonability for the exploitation of Tsagaansuvraga copper-molybdenum ore deposit.

э к з No.9 Delegation to MPR from the standing committee on cooperative work in metallurgical field under the Conference of Mutual Economical Aid (1984): Verification of technological-economical propriety of the exploitation of Tsagaansuvraga copper-polymetallic ore deposit (a scope of proposal).

7. ULZIIT DISTRICT

No.3676 Bureau of Trade of Whole Soviet Union "Technoexport" Southgovi Soviet-Mongol Expedition(1978) : Report on the result of group geological survey on the scale of 1:200,000 in the region of Dornogovi-Dundgovi-Umnugovi, MPR during 1974 ~1977 (vol.1 ~3).

8. UUDAM TAL AREA

JICA, MMAJ(1992): Report on the mineral exploration in the Uudam Tal Area, Mongolia(Phase I). (in English)

JICA, MMAJ(1993): Report on the mineral exploration in the Uudam Tal Area, Mongolia(Phase II). (in English)

A p p e n d i x

A ppendix 1. Results of Laboratory Works

Appendix 1- 1 List of Laboratory Works

Boring No.	Laboratory Works							Total	Notes
	Testing Items								
	TS	PS	WRCA	OA	XRD	K-Ar	FI		
MJMU-1	3	1	2	41	7	1	5	60	
MJMU-2	-	-	-	31	4	-	1	36	
MJMU-3	1	-	-	30	1	-	-	32	
MJMU-4	1	-	-	17	1	-	-	19	
MJMU-5	-	-	-	21	3	-	-	24	
MJMU-6	2	-	1	0	1	-	-	4	
MJMU-7	2	1	1	34	1	1	1	41	
MJMU-8	1	1	1	27	2	1	3	36	
Total	10	3	5	201	20	3	10	252	

Notes:

TS: Thin section, PS: Polished section, WRCA: Whole rock chemical analysis,
 OA: Ore analysis (Au,Ag), XRD: X-ray diffraction test, K-Ar: K-Ar dating
 FI: Fluid inclusion study

Appendix 1-2 Microscopic Observations of the Thin Sections(1)

(1)

Sample No. : URS001
Boring No. : MJMU-1
Depth(m) : 42.50
Rock name : Meta-diorite
Observation note :

This specimen is light greenish gray, medium grained carbonatized diorite. It consists of plagioclase, calcite, chlorite, pyrite, opaque mineral, quartz and muscovite in a decreasing order. Plagioclase is subhedral, up to 2mm in length, and includes many sericite. Calcite is subhedral, up to 0.3mm in size. Pyrite is euhedral, up to 2mm in size and includes plagioclase and quartz.

(2)

Sample No. : URS002
Boring No. : MJMU-1
Depth(m) : 76.00
Rock name : Meta-diorite
Observation note :

This specimen is light greenish gray, medium grained carbonatized diorite. It consists of plagioclase, sericite, calcite, chlorite, pyrite, quartz, opaque mineral and muscovite in a decreasing order. Plagioclase is subhedral, up to 1.6mm in length, and includes many sericite. Sericite is subhedral, needle shape, 0.01mm in length. Pyrite is broken into small grains.

(3)

Sample No. : URS003
Boring No. : MJMU-1
Depth(m) : 120.00
Rock name : Meta-microdiorite
Observation note :

This specimen is dark greenish gray porphyritic microdiorite. Phenocrysts consist of plagioclase, chlorite, pyrite, quartz, opaque mineral and calcite in a decreasing order. Plagioclase is subhedral, up to 2.8mm in length. Chlorite is anhedral, showing irregular shape, up to 0.6mm in size. Pyrite is euhedral, up to 0.1mm in size. Quartz(xenocrysts?) is anhedral, up to 1.8mm. Groundmass consists of plagioclase, epidote and quartz.

(4)

Sample No. : URS004
Boring No. : MJMU-3
Depth(m) : 85.00
Rock name : Sandstone-schist
Observation note :

This specimen is light greenish gray, fine grained sandstone-schist. It consists of quartz, sericite, lithic fragments, chlorite, feldspar and muscovite in a decreasing order. Quartz is subangular, poor sorted, up to 0.4mm and 0.13mm in average in size.

Appendix 1-2 Microscopic Observations of the Thin Sections(2)

(5)

Sample No. : URS005
Boring No. : MJMU-4
Depth(m) : 75.00
Rock name : Trachyte
Observation note :

This specimen is reddish brown trachyte with biotite phenocryst. Phenocrysts consist of alkali feldspar, biotite and apatite in a decreasing order. Alkali feldspar is euhedral mega-phenocryst, up to 5.5mm in length, showing corroded form and contains biotite and apatite. Apatite is subhedral columnar shape, up to 1.3mm. Biotite is euhedral, up to 1.0mm. Groundmass consists of plagioclase, alkali feldspar, opaque mineral, biotite and apatite in a decreasing order.

(6)

Sample No. : URS006
Boring No. : MJMU-6
Depth(m) : 30.80
Rock name : Phonolite
Observation note :

This specimen is light gray. Phenocrysts consist of augite, biotite, apatite and hypersthene in a decreasing order. Augite is euhedral, up to 1.4mm in size. Biotite is euhedral, up to 1.2mm in size and is opacitized. Apatite is euhedral, showing hexagonal columnar shape, up to 1.0mm in length. Groundmass consists of nepheline, opaque mineral, phlogopite, augite and apatite in a decreasing order. Nepheline is the major constituent of the groundmass.

(7)

Sample No. : URS007
Boring No. : MJMU-6
Depth(m) : 68.20
Rock name : Alkali basalt
Observation note :

This specimen is light reddish gray and drusy. Phenocrysts consist of augite, apatite and biotite in a decreasing order. Augite is subhedral, up to 1.5mm in size and altered. Apatite is euhedral, up to 0.5mm in length and showing reddish brown or brown color. Biotite is subhedral, up to 0.6mm. Groundmass consists of plagioclase, opaque mineral, phlogopite, augite, apatite and alkali feldspar in a decreasing order. Druses are filled with euhedral zeolite.

Appendix 1-2 Microscopic Observations of the Thin Sections(3)

(8)

Sample No. : URS008

Boring No. : MJMU-7

Depth(m) : 64.00

Rock name : Sericite-carbonate rock

Observation note :

This specimen is light grayish green, showing obscure schistosity. It consists of sericite, opaque mineral, epidote, chlorite, calcite, quartz and hematite in a decreasing order. All minerals are anhedral, fine grained. Most grains are smaller than 0.08mm in size.

(9)

Sample No. : URS009

Boring No. : MJMU-7

Depth(m) : 87.80

Rock name : Meta-diorite

Observation note :

This specimen is light greenish gray, medium grained carbonatized diorite. It consists of plagioclase, sericite, calcite, chlorite, pyrite, quartz, opaque mineral and muscovite in a decreasing order. Plagioclase is subhedral, up to 1.2mm in length, and includes many sericite. Sericite is subhedral, needle shape, 0.01mm in length. Quartz is anhedral, up to 1.0mm in size. Pyrite is euhedral, up to 5mm in size.

(10)

Sample No. : URS010

Boring No. : MJMU-8

Depth(m) : 96.00

Rock name : Meta-microdiorite

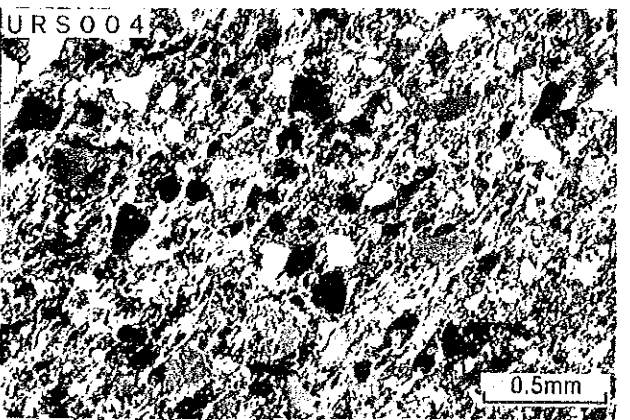
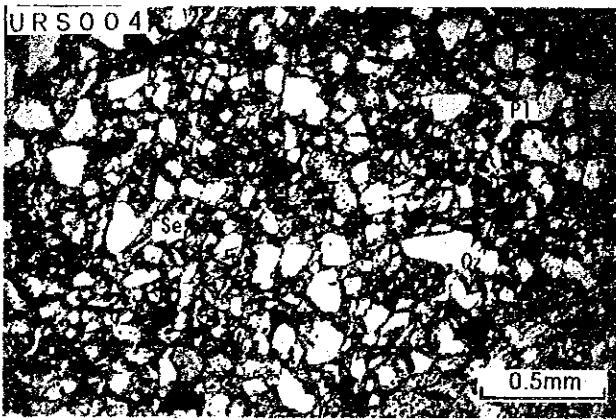
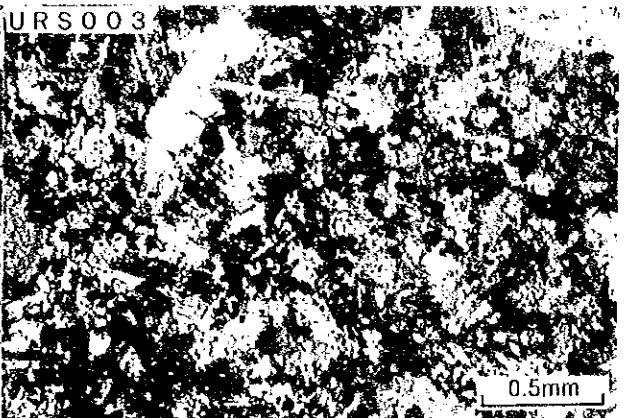
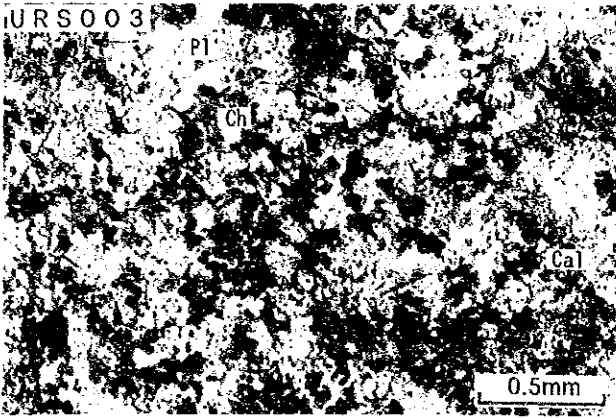
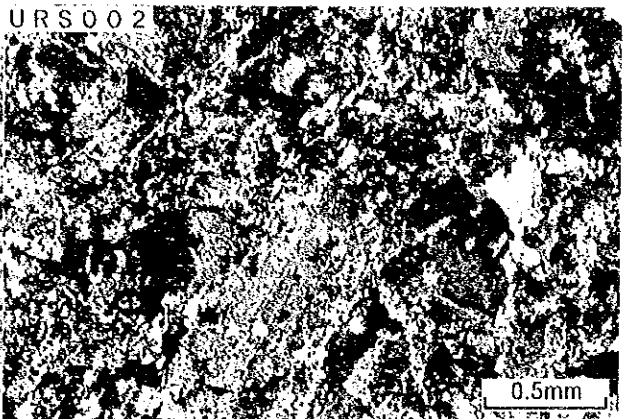
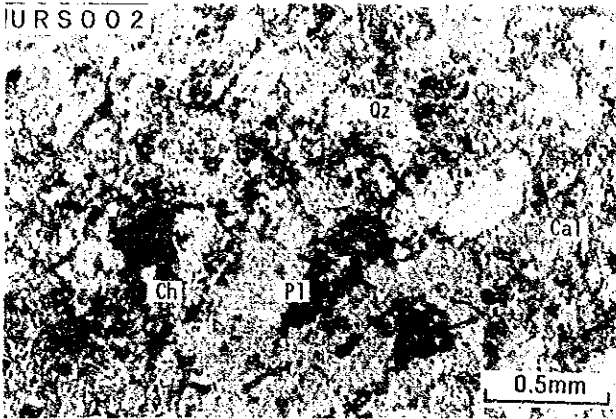
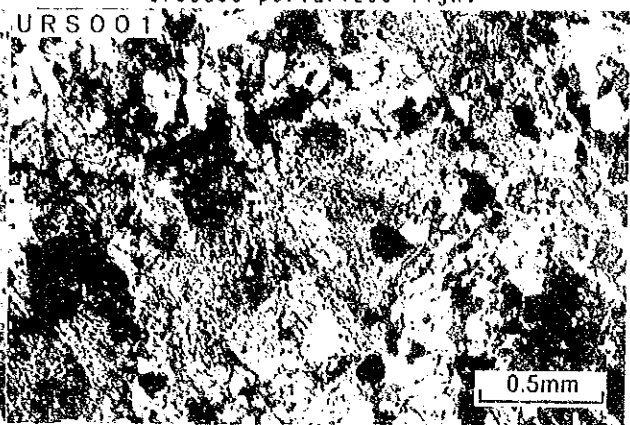
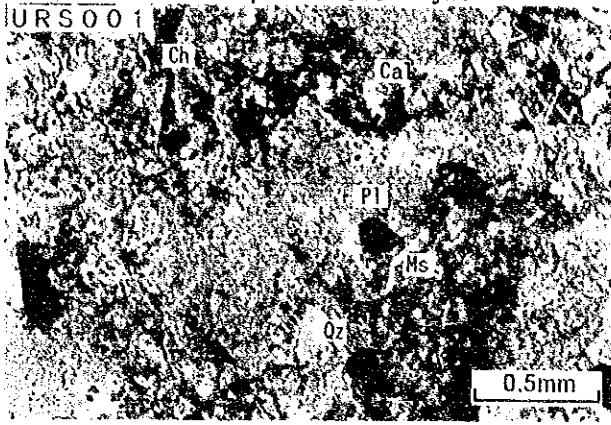
Observation note :

This specimen is dark grayish green. It consists of plagioclase, chlorite, opaque mineral and calcite in a decreasing order. Plagioclase is subhedral, up to 1.6mm in length. Chlorite is anhedral irregular shape. Opaque mineral is irregular grained, 0.1mm in average. Calcite is showing irregular shape, up to 0.4mm in size.

Appendix 1 - 3 Photomicrographs of the Thin Sections(1)

Plane porlarized light

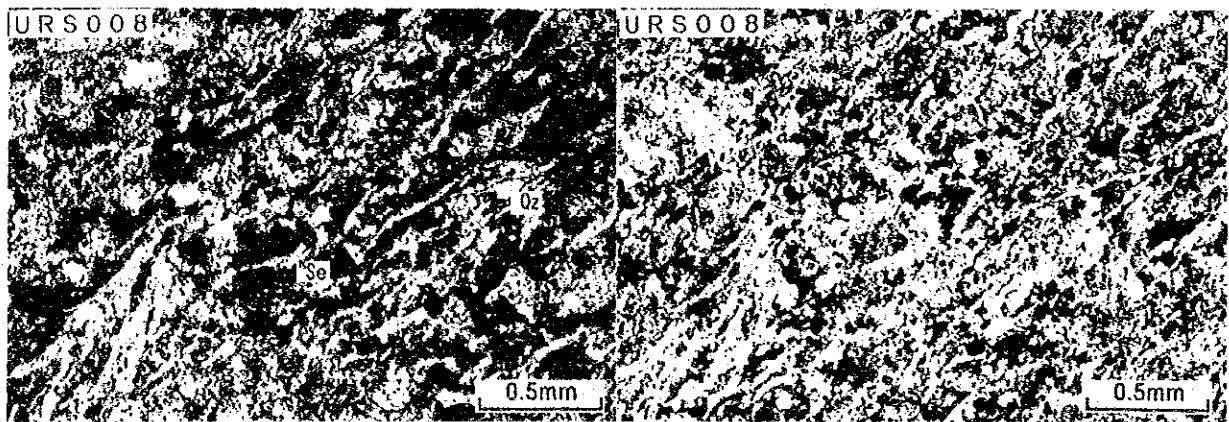
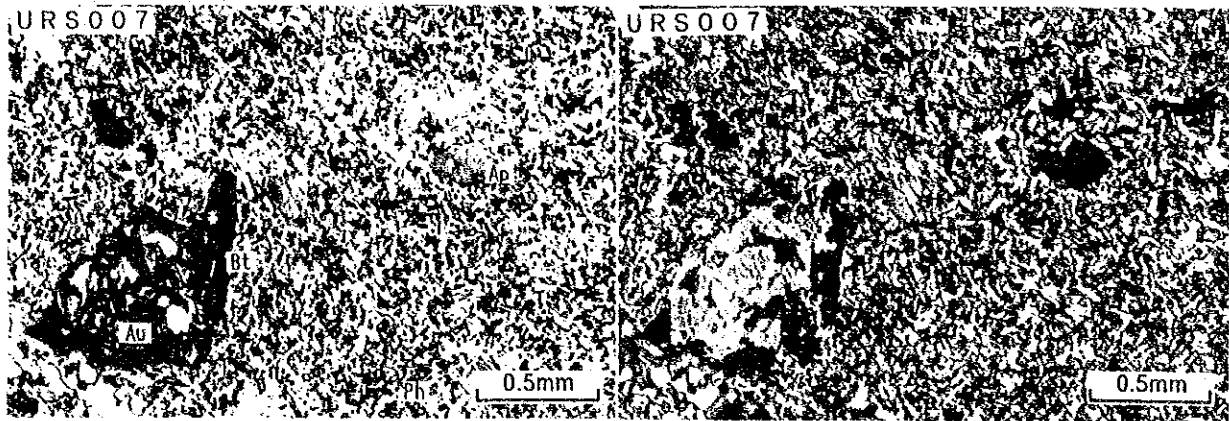
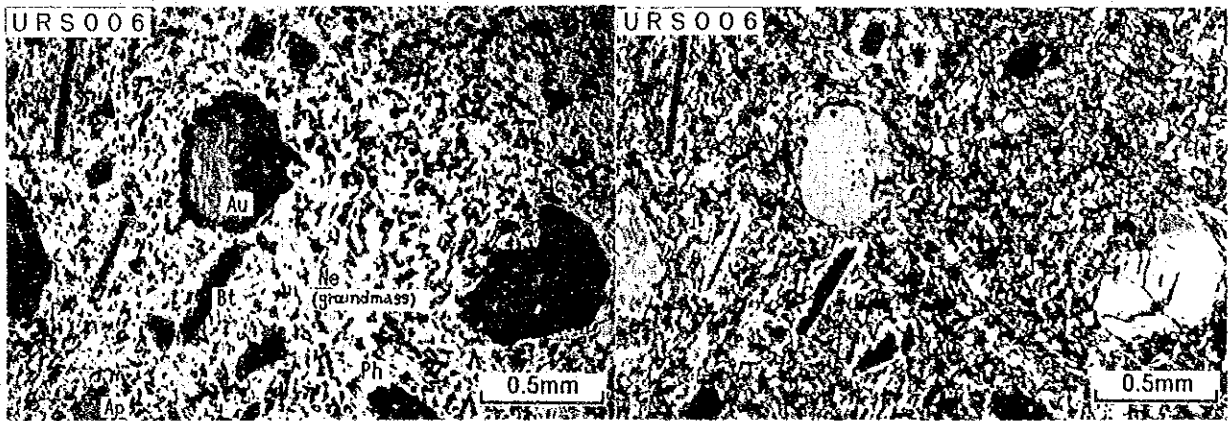
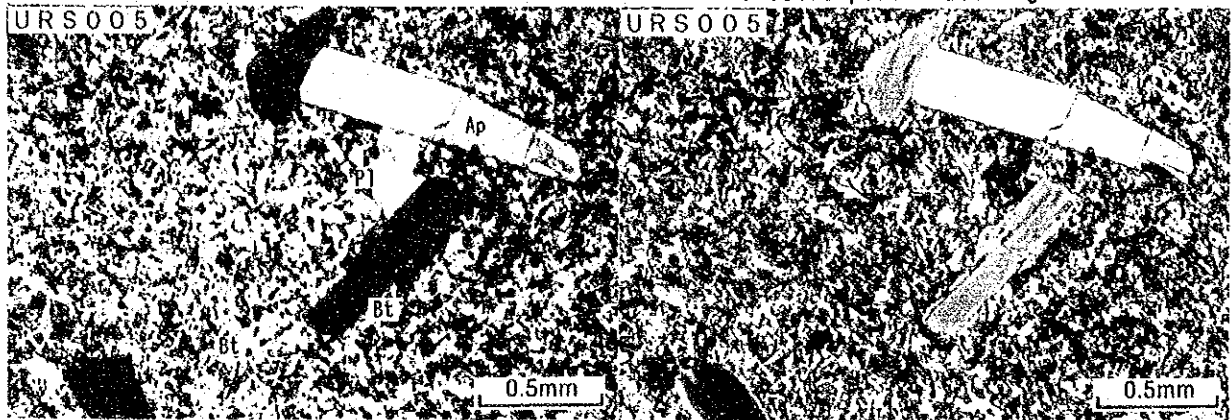
Crossed porlarized light



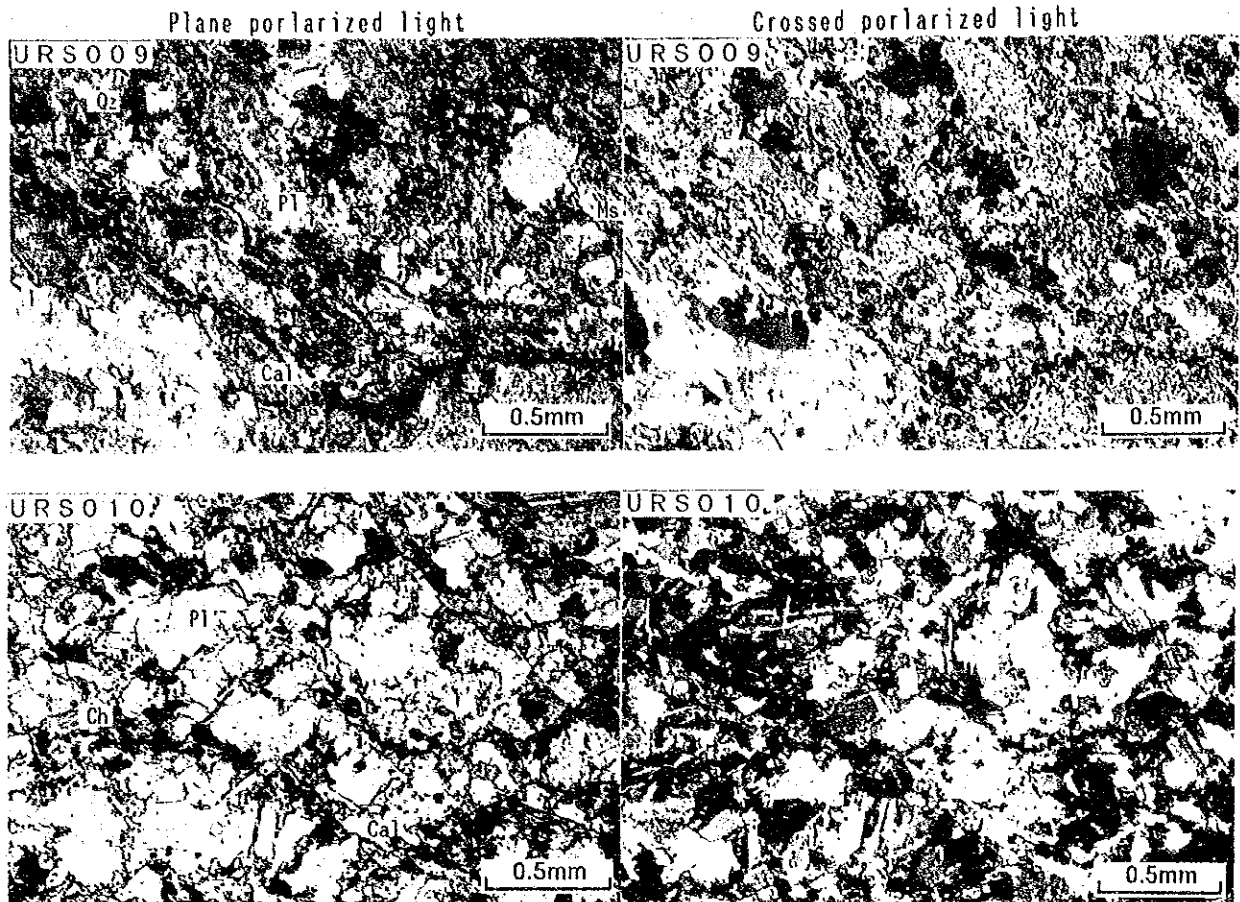
Appendix 1-3 Photomicrographs of the Thin Sections(2)

Plane porlarized light

Crossed porlarized light



Appendix 1 - 3 Photomicrographs of the Thin Sections(3)



ABBREVIATIONS

Ap : Apatite
Au : Augite
Bt : Biotite
Cal : Calcite
Ch : Chlorite
Ms : Mscovite
Ne : Nepheline
Ph : Phlogopite
Pl : Plagioclase
Qz : Quartz
Se : Sericite

Appendix I-4 Microscopic Observations of the Polished Sections(1)

No.	Sample No.	Boring No.	Depth (m)	Mineral	Py	Go	Ccp	Sph	El	Ti	Uk1	Uk2	Uk3	Note
				Rock Name										
1	UPS001	MJMU-1	78.50	Csg py rich qz v	◎	○				△				Abbreviations: Py: pyrite; Go: Goethite; Ccp: Chalcopyrite; Sph: Sphalerite; El: Electrum; Ti: TiO2 mineral; Uk1: Unknown mineral 1 Uk2: Unknown mineral 2 Uk3: Unknown mineral 3
2	UPS002	MJMU-7	73.10	Csg py. zone along qz v	◎	○	•		△					
3	UPS003	MJMU-8	88.00	Blk sulfide-qz v	○	○	○		•	•				
4	UPS004	MJMU-7	87.70	Py conc. by hand picking	◎	•	•		•	△	•			

◎: Abundant ○: Common △: Poor •: Rare

Appendix 1- 4 Microscopic Observations of the Polished Sections(2)

(1)

Sample No. : UPS001

Boring No. : MJMU-1 Depth : 78.50m

Observation note :

This sample was taken from a pyrite rich quartz vein. As a primary ore mineral, only pyrite can be observed. Pyrite crystals are up to 0.5mm in length, forming euhedral crystals and partly replaced by goethite. As secondary ore minerals, goethite and TiO_2 mineral can be observed. Goethite forms veinlets along the cracks of gangue minerals. Grains of TiO_2 mineral of up to 0.1mm in diameter frequently occurs in pyrite crystals.

(2)

Sample No. : UPS002

Boring No. : MJMU-7 Depth : 73.10m

Observation note :

This sample was taken from a pyrite zone of quartz vein. As primary ore minerals, abundant pyrite small amount of chalcopyrite and rare electrum were observed. Pyrite forms euhedral crystals of up to 2.5mm in length. Chalcopyrite grain of up to 0.05mm in diameter was observed in pyrite and gangue minerals. Small grains of electrum, up to 0.05mm in diameter, are rarely observed in pyrite and gangue minerals. As secondary minerals, goethite and TiO_2 mineral can be seen. Goethite forms veinlets along the crack in pyrite and gangue minerals. Grains of TiO_2 mineral of up to 0.1mm in diameter are scattered in pyrite crystals.

(3)

Sample No. : UPS003

Boring No. : MJMU-8 Depth : 88.00m

Observation note :

This sample was taken from a sulfide-quartz vein. Primary ore minerals are pyrite, chalcopyrite and sphalerite. Pyrite forms euhedral crystals of up to 0.1mm in length. Chalcopyrite is observed as anhedral crystals of up to 0.5mm in diameter. Sphalerite forms anhedral crystals of up to 0.15mm in length and closely associates

Appendix 1- 4 Microscopic Observations of the Polished Sections(3)

with chalcopyrite. As a secondary mineral, TiO_2 mineral can be seen. TiO_2 mineral of up to 0.1mm in length rarely occurs in gangue minerals.

(4)

Sample No. : UPS004

Boring No. : MJMU-7 Depth : 87.80m

Observation note :

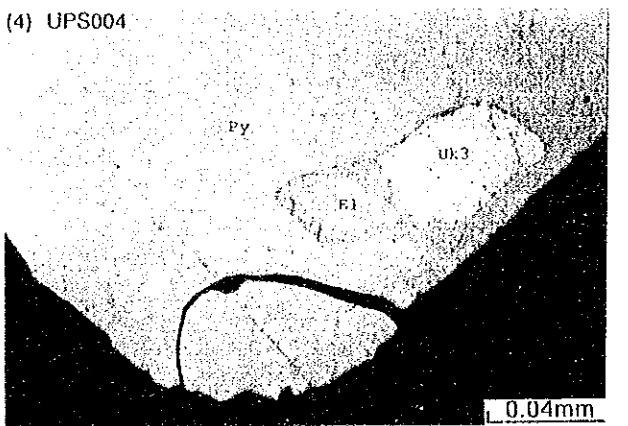
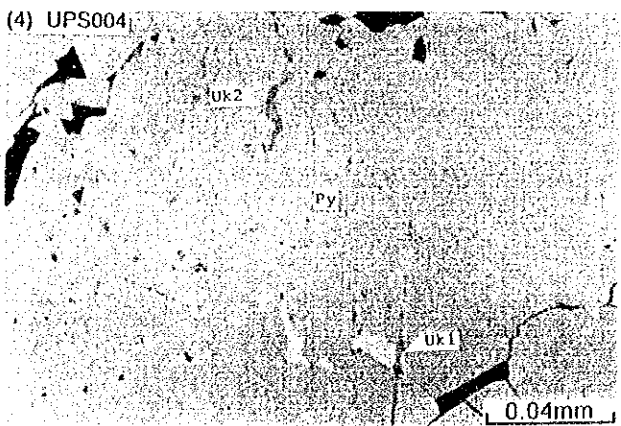
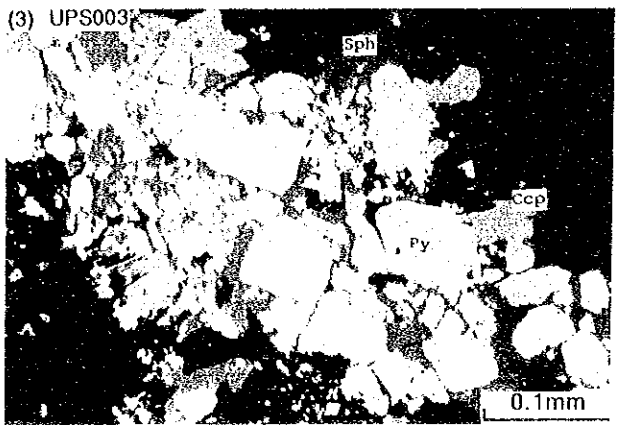
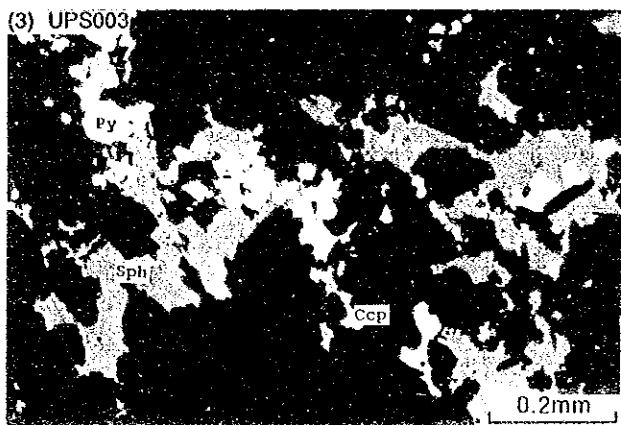
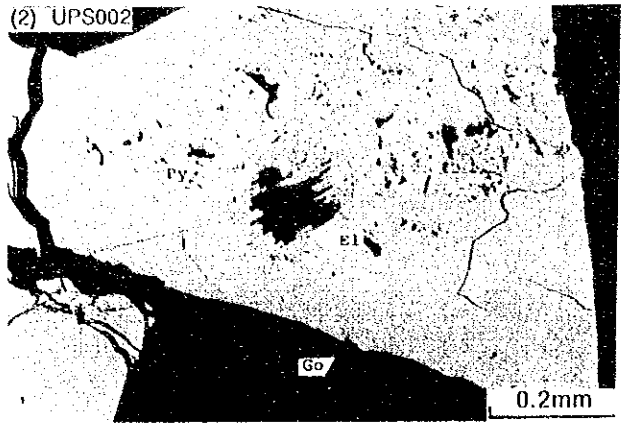
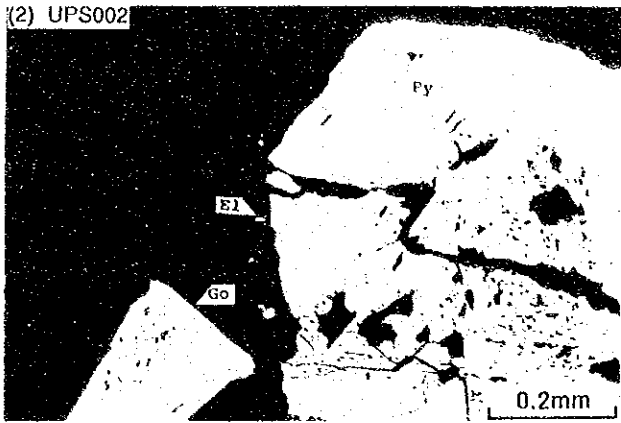
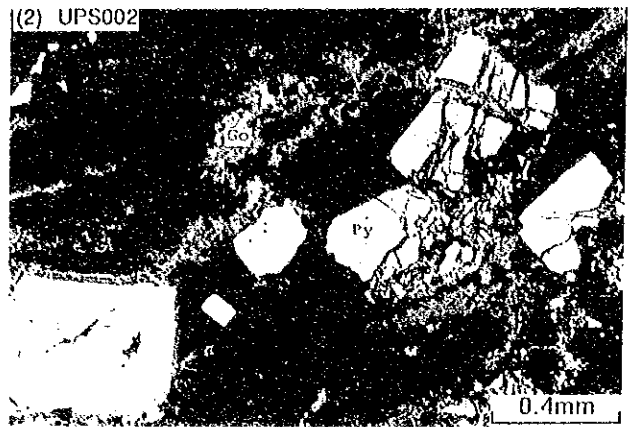
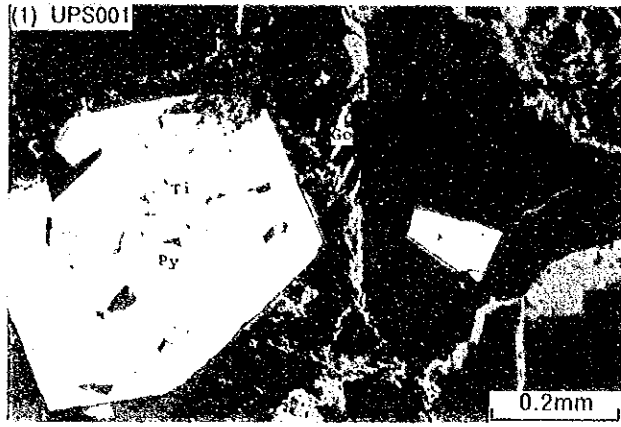
This sample is pyrite concentrate obtained by hand picking from pyritized diorite. It consists principally of pyrite and a small amount of TiO_2 mineral, chalcopyrite, electrum and three kinds of unknown minerals. Pyrite forms euhedral crystals of up to 1.5mm in length. Small amount of TiO_2 mineral of up to 0.1mm in diameter, occurs in pyrite crystals, which is probably formed as a secondary mineral. Grain of chalcopyrite of up to 0.05mm in diameter, rarely occurs in pyrite crystals. Electrum dots of up to 0.06mm in diameter are rarely presents in pyrite crystals. Unknown mineral 1 of up to 0.04mm in diameter, forming anhedral crystals is present in pyrite crystals. It shows yellowish grey color and weak anisotropism, but does not show bireflectance and internal reflection. Unknown mineral 2, up to 0.01mm in diameter, forming anhedral crystals is present in pyrite crystals, which shows bluish grey color, but does not show anisotropism, bireflectance and internal reflection. Only one crystal of unknown mineral 3 which is 0.05mm in length, can be observed in pyrite crystal. It shows grey color and weak anisotropism ,but does not show bireflectance and internal reflection. Unknown mineral 3 closely associated with electrum.

Appendix 1- 4 Microscopic Observations of the Polished Sections(4)

Abbreviations

Py :	Pyrite
Go :	Goethite
Ccp :	Chalcopyrite
Sph :	Sphalerite
El :	Electrum
Ti :	TiO ₂ mineral
Uk1 :	Unknown mineral 1
Uk2 :	Unknown mineral 2
Uk3 :	Unknown mineral 3

Appendix 1- 5 Photomicrographs of the Polished Sections



Appendix 1- 6 Results of Whole Rock Chemical Analyses

No.	SAMPLE No.	BORING No. DEPTH(m) ROCK NAME	SiO2	TiO2	Al2O3	Fe2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	Total
1	UWA001	MJMU-1 42.50-42.68 Microdiorite	47.69	1.06	12.78	5.08	6.43	0.16	4.10	6.24	2.76	1.37	0.14	9.23	97.04
2	UWA002	MJMU-6 30.80-30.90 Trachyte	54.68	1.20	14.97	4.84	0.87	0.08	3.80	5.93	4.46	5.19	0.99	0.83	97.84
3	UWA003	MJMU-7 87.80-87.86 Microdiorite	47.50	1.29	12.56	5.19	6.57	0.19	3.56	5.42	3.40	1.07	0.14	7.89	94.78
4	UWA004	MJMU-8 96.00-96.10 Microdiorite	44.37	1.70	16.81	5.37	8.14	0.20	4.10	4.58	6.50	0.14	0.31	6.90	99.12
5	UWA005	MJMU-1 48.50 White clay	38.50	1.48	18.43	3.13	4.10	0.20	3.89	8.19	1.34	2.71	0.08	15.81	97.86

Appendix 1-7 Chemical Compositions and CIPW Norms of the Rocks

No. SAMPLE No.	1 UWA001	2 UWA002	3 UWA003	4 UWA004	5 UWA005
BORING No.	MJMU-1	MJMU-6	MJMU-7	MJMU-8	MJMU-1
DEPTH(m)	42.50-42.68	30.80-30.90	87.80-87.86	96.00-96.10	48.50
ROCK NAME	Microdiorite	Trachyte	Microdiorite	Microdiorite	White clay
SiO ₂	47.69	54.68	47.50	44.37	38.50
TiO ₂	1.06	1.20	1.29	1.70	1.48
Al ₂ O ₃	12.78	14.97	12.56	16.81	18.43
Fe ₂ O ₃	5.08	4.84	5.19	5.37	3.13
FeO	6.43	0.87	6.57	8.14	4.10
MnO	0.16	0.08	0.19	0.20	0.20
MgO	4.10	3.80	3.56	4.10	3.89
CaO	6.24	5.93	5.42	4.58	8.19
Na ₂ O	2.76	4.46	3.40	6.50	1.34
K ₂ O	1.37	5.19	1.07	0.14	2.71
P ₂ O ₅	0.14	0.99	0.14	0.31	0.08
LOI	9.23	0.83	7.89	6.90	15.81
Total	97.04	97.84	94.78	99.12	97.86
FeO*	11.00	5.23	11.24	12.97	6.92
FeO*/MgO	2.68	1.38	3.16	3.16	1.78
SOLODIFY INDEX	21.32	20.35	18.47	17.29	
CIPW NORM					
Q	7.00	0.00	6.55	0.00	0.00
C	0.00	0.00	0.00	0.00	0.00
or	8.10	30.67	6.32	0.83	16.02
ab	23.35	33.48	28.77	38.99	11.05
an	18.44	5.50	15.85	16.28	36.27
lc	0.00	0.00	0.00	0.00	0.00
ne	0.00	2.31	0.00	8.67	0.15
kp	0.00	0.00	0.00	0.00	0.00
ac	0.00	0.00	0.00	0.00	0.00
tr-wo	0.00	0.00	0.00	0.00	0.00
di-wo	4.85	7.11	4.23	1.85	1.61
di-en	2.87	6.14	2.41	1.00	1.13
di-fs	1.73	0.00	1.63	0.79	0.34
hy-en	7.34	0.00	6.45	0.00	0.00
hy-fs	4.42	0.00	4.37	0.00	0.00
fo	0.00	2.33	0.00	6.46	6.00
fa	0.00	0.00	0.00	5.63	1.96
cs	0.00	0.00	0.00	0.00	0.00
mt	7.37	0.00	7.53	7.79	4.54
hm	0.00	4.84	0.00	0.00	0.00
il	2.01	2.01	2.45	3.23	2.81
ru	0.00	0.00	0.00	0.00	0.00
ap	0.33	2.34	0.33	0.73	0.19
Σ femic	30.93	24.77	29.41	27.48	18.57
D. I.	38.46	66.46	41.65	48.49	
SERIES	TH	CA	TH	TH	

Appendix 1-8 Assay Results of the Au, Ag Analyses (1)

No. 1

No.	sample No.	Rock Name	Boring No.	Locality		Au ppb	Ag ppm	Notes
				Depth(m)	Width(m)			
1	U0A001	argil-alt ss.	MJMU-1	1.30-1.90	2.00	4	<0.2	
2	U0A002	hema-limo alt red ss.	MJMU-1	1.30-2.00	1.90	1053	<0.2	
3	U0A003	blu-grn alt microdio.	MJMU-1	3.30-3.70	2.00	1	<0.2	
4	U0A004	alt microdio. py rich	MJMU-1	3.30-3.70	2.00	320	<0.2	
5	U0A005	alt microdio. py rich	MJMU-1	3.30-3.70	2.00	5	<0.2	
6	U0A006	dk-grn-grv alt microdio	MJMU-1	3.30-3.70	2.00	138	<0.2	
7	U0A007	blu-grn alt microdio.py	MJMU-1	4.10-4.30	1.60	2390	<0.2	
8	U0A008	blu-grn alt microdio.py	MJMU-1	4.30-4.85	0.65	27	<0.2	
9	U0A009	blu-grn alt microdio	MJMU-1	4.30-4.85	2.35	1920	<0.2	
10	U0A010	white alt clay. py-rich	MJMU-1	4.60-4.85	0.65	4633	<0.2	41.20-54.10 (12.90 m) Au 2.18 g/t
11	U0A011	alt-brec rich qz v	MJMU-1	4.60-4.85	1.10	950	<0.2	
12	U0A012	qz-network zone	MJMU-1	4.60-4.85	1.10	4670	<0.2	
13	U0A013	milky white qz v	MJMU-1	4.60-4.85	1.10	566	<0.2	
14	U0A014	milky white qz v	MJMU-1	4.60-4.85	1.10	155	<0.2	
15	U0A015	pale-grn alt microdio	MJMU-1	4.60-4.85	1.10	3915	<0.2	
16	U0A016	grn-grv alt ing ss	MJMU-1	5.40-5.40	1.00	50	<0.2	
17	U0A017	grn-grv alt ing ss	MJMU-1	5.40-5.40	2.00	888	<0.2	
18	U0A018	grn-grv alt ing ss	MJMU-1	5.40-5.40	2.00	888	<0.2	
19	U0A019	grn-grv alt ing ss	MJMU-1	5.40-5.40	2.00	888	<0.2	
20	U0A020	grn-grv alt ing ss. pv	MJMU-1	6.00-6.20	2.00	50	<0.2	
21	U0A021	milky white qz v	MJMU-1	6.20-6.40	2.00	200	<0.2	
22	U0A022	milky white qz v	MJMU-1	6.20-6.40	2.00	548	<0.2	
23	U0A023	alt icrodio. with qz-net	MJMU-1	6.20-6.40	2.00	7820	<0.2	64.30-87.60 (23.30 m) Au 2.71 g/t
24	U0A024	milky white qz v	MJMU-1	6.20-6.40	2.00	325	<0.2	
25	U0A025	alt microdio. csg-py	MJMU-1	6.20-6.40	2.00	1895	<0.2	
26	U0A026	milky white qz v	MJMU-1	6.20-6.40	2.00	1800	<0.2	
27	U0A027	milky white qz v	MJMU-1	6.20-6.40	2.00	488	<0.2	
28	U0A028	milky white qz v	MJMU-1	6.20-6.40	2.00	1800	<0.2	
29	U0A029	milky white qz v	MJMU-1	6.20-6.40	2.00	488	<0.2	
30	U0A030	alt microdio. csg-py	MJMU-1	6.20-6.40	2.00	8200	<0.2	65.00-85.80 (20.80 m) Au 2.97 g/t
31	U0A031	qz-net w. in alt dio	MJMU-1	7.40-7.60	1.00	1440	<0.2	
32	U0A032	qz-net w. in alt dio	MJMU-1	7.60-7.80	1.00	2960	<0.2	
33	U0A033	dk-grn alt microdio	MJMU-1	7.60-7.80	1.00	487	<0.2	
34	U0A034	qz-net w. in alt dio	MJMU-1	7.60-7.80	1.00	4924	<0.2	
35	U0A035	milky qz v / alt dio	MJMU-1	8.00-8.20	1.00	2940	<0.2	
36	U0A036	milky white qz v	MJMU-1	8.20-8.40	1.00	2927	<0.2	
37	U0A037	dk-grn alt microdio	MJMU-1	8.20-8.40	1.00	1195	<0.2	66.60-70.00 (3.40 m) Au 5.32 g/t
38	U0A038	dk-grn alt microdio	MJMU-1	8.20-8.40	1.00	1600	<0.2	
39	U0A039	milky qz v / alt dio	MJMU-1	8.20-8.40	1.00	242	<0.2	
40	U0A040	dk-grn alt microdio	MJMU-1	8.20-8.40	1.00	211	<0.2	

Appendix 1- 8 Assay Results of the Au, Ag Analyses (2)

No.	sample No.	Rock Name	Locality		Au ppb	Ag ppm	Notes
			Boring No.	Depth (m)			
41	UOA041	dk-grn alt microdio	WJMU-1	90.30-92.30	637	<	
42	UOA042	grn alt microdio	WJMU-2	1.00-1.30	1	<	
43	UOA043	grn alt microdio	WJMU-2	1.30-1.40	3	<	
44	UOA044	grn-grv alt ss/qz net	WJMU-2	1.90-2.10	1	<	
45	UOA045	dk-grn-grv alt ss	WJMU-2	2.10-2.20	2	<	
46	UOA046	hema-red-brn fng ss	WJMU-2	2.20-2.30	1	<	
47	UOA047	red-brn alt fng ss	WJMU-2	2.40-2.60	1	<	
48	UOA048	dk gry-brn alt fng ss	WJMU-2	2.60-2.80	1	<	
49	UOA049	dk gry-brn alt fng ss	WJMU-2	2.80-3.00	3	<	
50	UOA050	red-brn alt fng ss/dio	WJMU-2	3.00-3.30	<	<	
51	UOA051	blu-gray alt microdio	WJMU-2	3.30-3.40	42	<	
52	UOA052	red-brn alt microdio	WJMU-2	3.40-3.50	740	<	
53	UOA053	qz-v zone in microdio	WJMU-2	3.50-3.60	2940	<	
54	UOA054	hema-red alt microdio	WJMU-2	3.60-3.80	2590	<	
55	UOA055	blu-gray alt microdio	WJMU-2	3.80-4.00	148	<	
56	UOA056	qz-v zone in microdio	WJMU-2	4.00-4.20	7810	<	
57	UOA057	qz-v zone in microdio	WJMU-2	4.20-4.40	2780	<	
58	UOA058	qz-v zone in microdio	WJMU-2	4.40-4.60	936	<	
59	UOA059	qz-v zone in microdio	WJMU-2	4.60-4.80	4090	<	
60	UOA060	qz-netw in altn ss/sh	WJMU-2	4.80-4.90	6740	<	
61	UOA061	milky white qz v	WJMU-2	4.90-5.10	186	<	
62	UOA062	qz-netw in altn ss/sh	WJMU-2	5.10-5.30	4790	<	
63	UOA063	red-brn alt mdg ss	WJMU-2	5.30-5.50	301	<	
64	UOA064	milky white msv qz v	WJMU-2	5.50-5.70	1720	<	
65	UOA065	qz netw in alt microdio	WJMU-2	5.70-5.80	7220	<	
66	UOA066	red alt microdio, py	WJMU-2	5.80-6.00	116	<	
67	UOA067	grn-grv alt microdio	WJMU-2	6.00-6.20	240	<	
68	UOA068	grn-grv alt microdio	WJMU-2	6.20-6.40	1320	<	
69	UOA069	grn-grv alt microdio	WJMU-2	6.40-6.60	110	<	
70	UOA070	grn-grv alt microdio	WJMU-2	6.60-6.80	110	<	
71	UOA071	hema-red alt microdio	WJMU-2	6.80-7.00	221	<	
72	UOA072	grn-grv alt microdio, py	WJMU-2	7.00-7.20	5	<	
73	UOA073	kahki weath trachyte	WJMU-3	0.00-0.20	15	<	
74	UOA074	red-brn weath trachyte	WJMU-3	0.20-0.40	1	<	
75	UOA075	red-brn weath trachyte	WJMU-3	0.40-0.60	1	<	
76	UOA076	red-brn alt microdio	WJMU-3	0.60-0.80	90	<	
77	UOA077	red-brn alt microdio	WJMU-3	0.80-1.00	10	<	
78	UOA078	hema-chl alt microdio	WJMU-3	1.00-1.20	62	<	
79	UOA079	hema-chl alt microdio	WJMU-3	1.20-1.40	1	<	
80	UOA080	hema-chl alt microdio	WJMU-3	1.40-1.60	1	<	

35.20-55.55
(20.35 m)
Au 2.79 g/t

40.50-49.10
(8.60 m)
Au 4.20 g/t

Appendix 1-8 Assay Results of the Au, Ag Analyses (3)

No.	sample No.	Rock Name	Boring No.	Locality		Au ppb	Ag ppm	Notes
				Depth (m)	Width (m)			
10081	LOA081	hema-qz net in microdio	WJMU-3	15.30	1.8	<	<	
10082	LOA082	hema-qz net in microdio	WJMU-3	18.30	2.0	<	<	
10083	LOA083	hema-qz net in microdio	WJMU-3	20.30	2.2	188	<	
10084	LOA084	hema-qz net in microdio	WJMU-3	22.30	2.4	212	<	
10085	LOA085	hema-qz net in ss	WJMU-3	24.30	2.6	4	<	
10086	LOA086	hema-qz net in ss	WJMU-3	26.30	2.8	25	<	
10087	LOA087	hema net gray ss	WJMU-3	29.10	4.9	6	<	
10088	LOA088	hema-limo net in sil ss	WJMU-3	4.0	1.0	<	<	
10089	LOA089	hema-limo net in sil ss	WJMU-3	4.0	1.0	<	<	
10090	LOA090	hema-limo net in sil ss	WJMU-3	5.15	1.3	<	<	
10091	LOA091	hema-limo net in sil ss	WJMU-3	5.15	1.5	<	<	
10092	LOA092	hema-limo net in sil ss	WJMU-3	5.15	1.5	<	<	
10093	LOA093	hema-limo net in sil ss	WJMU-3	5.6	1.7	<	<	
10094	LOA094	blu-gry alt mdg ss	WJMU-3	6.9	0.9	1	<	
10095	LOA095	blu-gry alt mdg ss	WJMU-3	6.9	0.9	2	<	
10096	LOA096	hema-limo net in sil ss	WJMU-3	7.2	1.2	<	<	
10097	LOA097	hema-limo net in sil ss	WJMU-3	7.4	1.4	4	<	
10098	LOA098	hema-limo net in sil ss	WJMU-3	7.4	1.6	3	<	
10099	LOA099	hema-limo net in sil ss	WJMU-3	7.8	1.8	3	<	
10100	LOA100	hema-limo net in sil ss	WJMU-3	8.0	2.0	2	<	
10101	LOA101	hema-limo net in sil ss	WJMU-3	8.0	2.0	1	<	
10102	LOA102	hema-limo net in sil ss	WJMU-3	8.0	2.0	1	<	
10103	LOA103	blu-gry sil ss	WJMU-4	2.0	0.2	<	<	
10104	LOA104	blu-gry sil ss	WJMU-4	2.0	0.2	<	<	
10105	LOA105	qz netw in gry sil ss	WJMU-4	4.0	0.4	<	<	
10106	LOA106	qz netw in gry sil ss	WJMU-4	6.0	0.6	<	<	
10107	LOA107	blu-grn-gry phyl shc	WJMU-4	6.0	0.8	<	<	
10108	LOA108	limo-sil ss & microdio	WJMU-4	8.0	1.0	<	<	
10109	LOA109	dk-grn alt microdio	WJMU-4	10.0	1.2	<	<	
10110	LOA110	dk-grn alt microdio	WJMU-4	11.0	1.4	<	<	
10111	LOA111	dk-grn alt microdio	WJMU-4	12.0	1.6	<	<	
10112	LOA112	dk-grn gry alt microdio	WJMU-4	14.0	1.8	<	<	
10113	LOA113	dk-grn gry alt microdio	WJMU-4	16.0	2.0	<	<	
10114	LOA114	qz film rich gry mdg ss	WJMU-4	20.0	2.4	<	<	
10115	LOA115	qz film rich gry mdg ss	WJMU-4	22.0	2.6	<	<	
10116	LOA116	brn-gry porous trachyte	WJMU-4	24.0	2.8	<	<	
10117	LOA117	brn-gry porous trachyte	WJMU-4	26.0	3.0	<	<	
10118	LOA118	light blu-gry mdg ss	WJMU-4	7.6	0.76	<	<	
10119	LOA119	brn-gry porous trachyte	WJMU-4	7.9	0.79	<	<	
10120	LOA120	dk grn alt microdio	WJMU-5	0.0	0.0	<	<	

Appendix 1-8 Assay Results of the Au, Ag Analyses (4)

No.	sample No.	Rock Name	Locality			Au ppb	Ag ppm	Notes
			Boring No.	Depth (m)	Width (m)			
121	U0A121	dk grn alt microdio	MJMU-5	2.00-4.00	2.00	<		
122	U0A122	dk grn alt microdio	MJMU-5	4.00-6.30	2.30	<		
123	U0A123	hema-red alt microdio	MJMU-5	6.30-8.30	2.30	<		
124	U0A124	carbo-hema alt microdio	MJMU-5	8.30-10.30	2.00	<		
125	U0A125	sil-hema alt microdio	MJMU-5	10.30-12.30	2.00	<		
126	U0A126	sil-hema alt microdio	MJMU-5	12.30-14.30	2.00	<		
127	U0A127	sil-hema alt microdio	MJMU-5	14.30-16.30	2.00	<		
128	U0A128	sil-hema alt microdio	MJMU-5	16.30-18.30	2.00	<		
129	U0A129	sil-hema alt microdio	MJMU-5	18.30-20.30	2.00	<		
130	U0A130	sil-hema alt microdio	MJMU-5	20.30-22.30	2.00	<		
131	U0A131	hema-red alt microdio	MJMU-5	22.30-24.30	2.00	<		
132	U0A132	limo-hema sil alt r.	MJMU-5	24.30-26.30	1.40	<		
133	U0A133	grn-gry alt microdio	MJMU-5	26.30-28.30	1.40	<		
134	U0A134	limo-hema sil alt r.	MJMU-5	28.30-30.30	1.40	<		
135	U0A135	dk grn alt microdio	MJMU-5	30.30-32.30	1.40	<		
136	U0A136	dk grn alt microdio	MJMU-5	32.30-34.30	1.40	<		
137	U0A137	dk grn alt microdio	MJMU-5	34.30-36.30	1.40	<		
138	U0A138	dk grn alt microdio	MJMU-5	36.30-38.30	1.40	<		
139	U0A139	dk grn alt microdio	MJMU-5	38.30-40.30	1.40	<		
140	U0A140	red brn alt ss	MJMU-5	40.30-42.30	1.40	<		
141	U0A141	sil-carbo alt microdio	MJMU-7	42.30-44.30	1.40	<		
142	U0A142	hema-limo alt microdio	MJMU-7	44.30-46.30	1.40	<		
143	U0A143	hema-limo alt microdio	MJMU-7	46.30-48.30	1.40	<		
144	U0A144	blu-gry fng ss, py-rich	MJMU-7	48.30-50.30	1.40	<		
145	U0A145	qz-v zone in ss	MJMU-7	50.30-52.30	1.40	<		
146	U0A146	blu-dk gry fng ss	MJMU-7	52.30-54.30	1.40	<		
147	U0A147	qz-v zone in ss	MJMU-7	54.30-56.30	1.40	<		
148	U0A148	qz-v zone in ss	MJMU-7	56.30-58.30	1.40	<		
149	U0A149	milky white qz-v	MJMU-7	58.30-60.30	1.40	<		
150	U0A150	qz-v zone in ss	MJMU-7	60.30-62.30	1.40	<		
151	U0A151	qz-v zone in ss	MJMU-7	62.30-64.30	1.40	<		
152	U0A152	qz-v zone in ss	MJMU-7	64.30-66.30	1.40	<		
153	U0A153	qz-vlets bearing ss	MJMU-7	66.30-68.30	1.40	<		
154	U0A154	milky white qz-v	MJMU-7	68.30-70.30	1.40	<		
155	U0A155	qz-v zone in microdio	MJMU-7	70.30-72.30	1.40	<		
156	U0A156	dk grn alt microdio	MJMU-7	72.30-74.30	1.40	<		
157	U0A157	qz-v zone in microdio	MJMU-7	74.30-76.30	1.40	<		
158	U0A158	dk grn alt microdio, py	MJMU-7	76.30-78.30	1.40	<		
159	U0A159	dk grn alt microdio, py	MJMU-7	78.30-80.30	1.40	<		
160	U0A160	dk grn alt microdio, py	MJMU-7	80.30-82.30	1.40	<		

70.70-81.00
(10.30 m)
Au 4.56 g/t

70.70-75.55
(4.85 m)
Au 7.89 g/t

Appendix i- 8 Assay Results of the Au, Ag Analyses (5)

No.	sample No.	Rock Name	Boring No.	Locality		Au ppb	Ag ppm	Notes
				Depth (m)	Width (m)			
161	U01161	dk grn alt microdio. py	MJMU-7	8.8	2.0	<	<	
162	U01162	dk grn alt microdio	YJMU-7	0.0-8.5	0.0	15	2	
163	U01163	dk grn alt microdio	YJMU-7	0.0-8.5	0.0	2	0	
164	U01164	dk grn alt microdio	YJMU-7	0.0-8.7	0.0	3	0	
165	U01165	cs-g-py alt microdio	MJMU-7	7.7	0.0	84	2	
166	U01166	cs-g-py alt microdio	MJMU-7	7.7	0.0	640	2	
167	U01167	milky qz-v in microdio	YJMU-7	9.9	1.5	230	2	87.70-94.80
168	U01168	milky qz-v in microdio	YJMU-7	9.9	2.5	1620	2	(7.10 m)
169	U01169	milky white qz-v	YJMU-7	9.9	2.80	832	2	Au 5.25 g/t
170	U01170	milky qz-v in microdio	YJMU-7	9.9	2.4	76	2	
171	U01171	dk-grn alt microdio/ss	MJMU-7	9.9	2.0	950	2	
172	U01172	dk-grn mdg ss	MJMU-7	9.9	2.2	470	2	
173	U01173	dk-grn mdg ss	YJMU-7	9.9	2.2	1	2	
174	U01174	brn-grn alt microdio	YJMU-8	10.1	2.0	37	2	
175	U01175	brn-grn alt microdio	YJMU-8	10.1	2.0	3	2	
176	U01176	grv ing ss	MJMU-8	9.5	2.5	<	2	
177	U01177	grv ing ss & microdio	YJMU-8	9.5	2.5	1	2	
178	U01178	dk-grn alt microdio	YJMU-8	10.0	2.5	16	2	
179	U01179	dk-grn alt microdio	YJMU-8	10.0	2.5	16	2	
180	U01180	brn weath alt microdio	YJMU-8	10.0	2.5	9	2	
181	U01181	pale grn alt microdio	YJMU-8	11.5	2.0	3	2	
182	U01182	milky white mono-qz v	YJMU-8	11.7	2.0	37	2	
183	U01183	pale grn alt microdio	YJMU-8	11.5	2.0	13	2	
184	U01184	py-bearing milky qz v	YJMU-8	20.2	2.0	13	2	
185	U01185	py-dissem alty microdio	YJMU-8	23.2	2.0	430	2	
186	U01186	milky white qz vein	YJMU-8	23.2	2.0	897	2	22.70-24.80
187	U01187	mdg-py dissem dio/silts	YJMU-8	24.6	2.0	890	2	(2.10 m)
188	U01188	hema-red alt silts	YJMU-8	24.6	2.0	101	2	Au 3.64 g/t
189	U01189	light-brn bdd silts	YJMU-8	24.6	2.0	1	2	
190	U01190	brn-grn mdg ss / silts	YJMU-8	24.6	2.0	1	2	
191	U01191	brn-grn mdg ss / silts	YJMU-8	24.6	2.0	1	2	
192	U01192	brn-grn mdg ss / silts	YJMU-8	24.6	2.0	1	2	
193	U01193	brn-dk-grn alt microdio	YJMU-8	31.4	2.0	1	2	
194	U01194	brn trachyand-bas. por	YJMU-8	42.6	2.0	1	2	
195	U01195	brn trachyand-bas. / silts	YJMU-8	44.7	2.0	1	2	
196	U01196	brn trachyte / silts	YJMU-8	44.7	2.0	1	2	
197	U01197	hema-alt ss. hydrofrac	YJMU-8	45.6	2.0	1	2	
198	U01198	hema-alt ss. hydrofrac	YJMU-8	45.6	2.0	1	2	
199	U01199	grn alt microdio/qz v	YJMU-8	45.6	2.0	1	2	
200	U0200	alt microdio, cs-g-py	YJMU-8	46.8	2.0	285	2	

Appendix 1-9 Results of X-ray Diffraction Analyses (whole rock)

No.	Sample No.	Boring No.	Depth (m)	Mineral	Qz	Kao	Ser	Chl	Sme	Cri	Tri	Cal	Ank	Sid	Py	Hem	Pl	Note
				Rock Name														
1	UXR001	MJM-1	25.00	dk grn-gry alt microdio	○			○				△					◎	
2	UXR002	MJM-1	48.50	white clay	◎		△						◎					
3	UXR003	MJM-1	69.50	alt microdio	△	△							○				△	
4	UXR004	MJM-1	89.50	grn shear fault clay	◎	△		△					△	△?			△	
5	UXR005	MJM-1	110.00	dk grn alt microdio	△	△		△									○	
6	UXR006	MJM-1	130.00	dk grn alt microdio	◎			△					△				◎	
7	UXR007	MJM-1	150.00	epidotized alt microdio	◎			△									△	
8	UXR008	MJM-2	15.00	dk grn-gry alt microdio	◎			△									○	
9	UXR009	MJM-2	45.00	grn-gry ali microdio .py	○			△					△				○	
10	UXR010	MJM-2	75.00	grn alt microdio	◎			△					○				○	
11	UXR011	MJM-2	105.00	dk grn-gry alt microdio	○			△									○	
12	UXR012	MJM-3	95.00	dk grn-gry alt microdio	◎			△									○	
13	UXR013	MJM-4	20.00	dk grn-gry alt microdio	○			△									○	
14	UXR014	MJM-5	76.20	grn alt microdio	◎			△									◎	
15	UXR015	MJM-6	29.85	yellow clay in trachyte				△									△	
16	UXR016	MJM-5	54.00	dk grn alt microdio	○			○									○	
17	UXR017	MJM-5	80.00	shear fault clay	○			△									○	
18	UXR018	MJM-7	20.70	csg-py imp alt microdio	◎			△									○	
19	UXR019	MJM-8	60.00	bleached alt microdio	○			△									○	
20	UXR020	MJM-8	88.00	dk grn microdio	△			△									◎	

Abbreviations:
 Qz: Quartz; Kao: Kaolinite;
 Ser: Sericite; Chl: Chlorite;
 Sme: Smectite; Cri: Cristobalite;
 Tri: Tridymite; Cal: Calcite;
 Ank: Ankerite; Sid: Siderite;
 Pl: Plagioclase

◎: Abundant ○: Common △: Poor ·: Rare

Appendix 1-10 Results of Dating (K-Ar method)

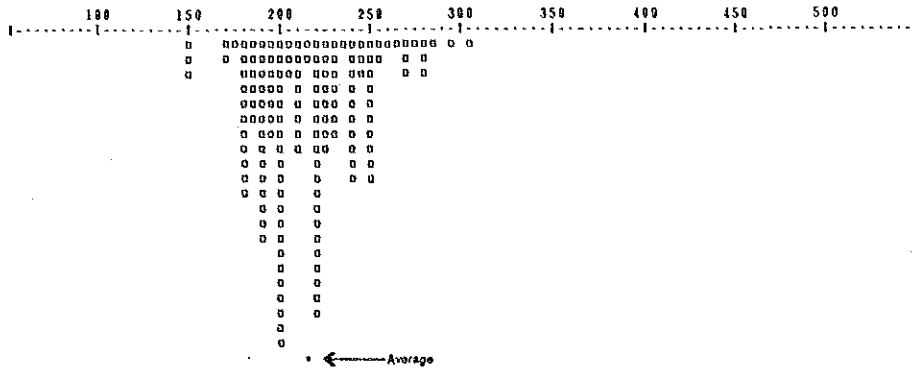
No.	Sample No.	Locality		Rock	Media	^{40}Ar ($\text{scc/gm} \times 10^{-5}$)	$\%^{40}\text{Ar}$	% K	Isotopic Age Ma
		Boring No.	Depth(m)						
1	UAD001	MJMU-1	48.50	White clay (Qz-Se-Ank)	Whole rock	1.69	97.8	1.69	246±12
						1.79	97.2	1.68	
						1.70	95.3		
2	UAD002	MJMU-7	87.70-89.70	Microdiorite csg Py disse	Whole rock	1.06	93.6	0.89	284±14
						1.08	81.4	0.90	
3	UAD003	MJMU-8	96.20-96.50	Microdiorite unaltered	Whole rock	0.112	49.5	0.8	326±16
						0.112	68.9	0.8	
						0.108	50.2		
						0.112	48.9		

Abbreviations:

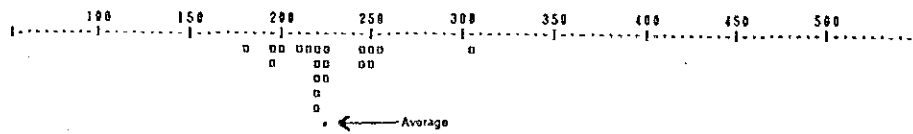
Qz: quartz Se: sericite Ank: ankerite Py: pyrite csg: coarse grained

Appendix 1-11 Homogenization Temperatures of the Fluid Inclusions(1)

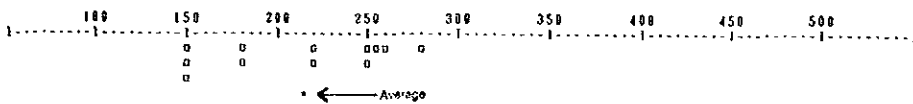
No. TOTAL																							
Homogenization Temp.	148	151	152	171	172	174	179	179	180	180	181	181	181	181	181	181	182	185	185	185	186	187	
188	189	189	189	190	190	191	191	191	191	192	192	192	192	193	194	195	195	197	197	197	198	199	199
199	200	200	200	200	200	201	201	201	201	201	202	202	202	202	202	203	205	205	208	208	210	210	211
215	218	219	219	219	219	219	220	220	220	220	220	220	220	220	221	221	221	222	222	223	223	223	224
225	228	228	229	229	230	230	231	235	238	238	238	239	240	241	242	242	242	242	245	246	247	248	249
252	252	252	252	255	256	262	264	268	271	272	275	282	282	282	282	287	296	305					
Number of measuring	150																						
Minimum Temperature	148																						
Maximum Temperature	305																						
Average Temperature	216																						
Standard Deviation	30																						



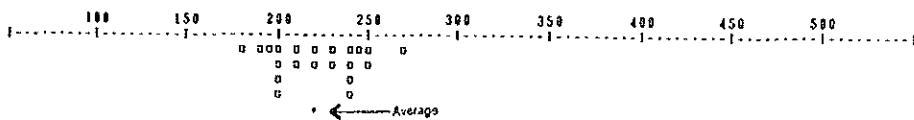
No. VF1001																				
Homogenization Temp.	181	194	197	200	212	215	219	219	220	220	222	223	223	224	245	246	252	252	256	305
Number of measuring	20																			
Minimum Temperature	181																			
Maximum Temperature	305																			
Average Temperature	226																			
Standard Deviation	27																			



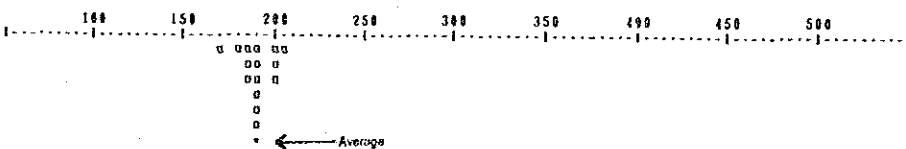
No. F1-1												
Homogenization Temp.	148	151	152	179	191	221	221	251	252	255	262	282
Number of measuring	12											
Minimum Temperature	148											
Maximum Temperature	282											
Average Temperature	213											
Standard Deviation	47											



No. VF1003																					
Homogenization Temp.	181	192	197	200	201	201	202	210	211	219	220	228	229	238	238	239	241	247	248	251	271
Number of measuring	21																				
Minimum Temperature	181																				
Maximum Temperature	271																				
Average Temperature	222																				
Standard Deviation	23																				

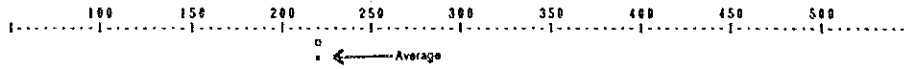


No. VF1004															
Homogenization Temp.	172	181	185	186	187	188	189	190	190	191	192	199	199	201	205
Number of measuring	15														
Minimum Temperature	172														
Maximum Temperature	205														
Average Temperature	190														
Standard Deviation	8														

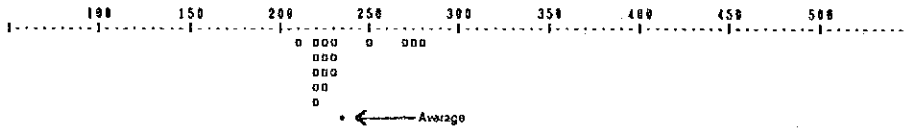


Appendix 1-11 Homogenization Temperatures of the Fluid Inclusions(2)

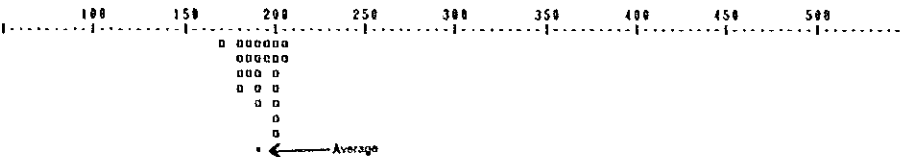
No. UF1005
 Homogenization Temp. 220
 Number of measuring 1
 Minimum Temperature 220
 Maximum Temperature 220
 Average Temperature 220
 Standard Deviation 0



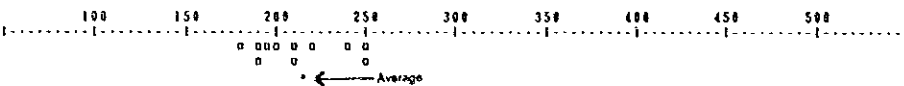
No. UF1006
 Homogenization Temp. 210 219 219 220 220 221 223 224 225 225 228 230 231 251 272 275 282
 Number of measuring 17
 Minimum Temperature 210
 Maximum Temperature 282
 Average Temperature 234
 Standard Deviation 21



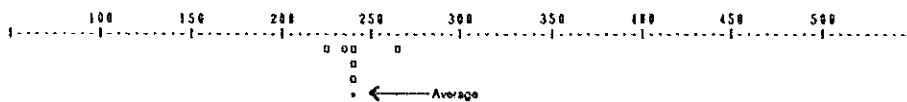
No. UF1007
 Homogenization Temp. 171 179 180 180 182 185 185 185 189 191 191 191 192 195 195 199 199 199 200 200 201 202 203
 Number of measuring 24
 Minimum Temperature 171
 Maximum Temperature 205
 Average Temperature 192
 Standard Deviation 9



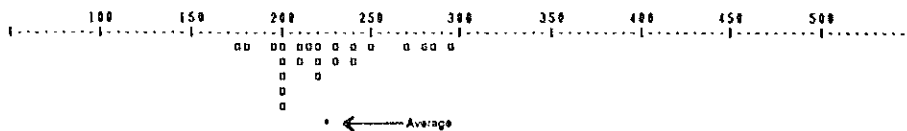
No. UF1008
 Homogenization Temp. 181 189 192 197 199 208 212 222 242 249 252
 Number of measuring 11
 Minimum Temperature 181
 Maximum Temperature 252
 Average Temperature 213
 Standard Deviation 24



No. UF1009
 Homogenization Temp. 223 235 240 242 242 264
 Number of measuring 6
 Minimum Temperature 223
 Maximum Temperature 264
 Average Temperature 241
 Standard Deviation 12



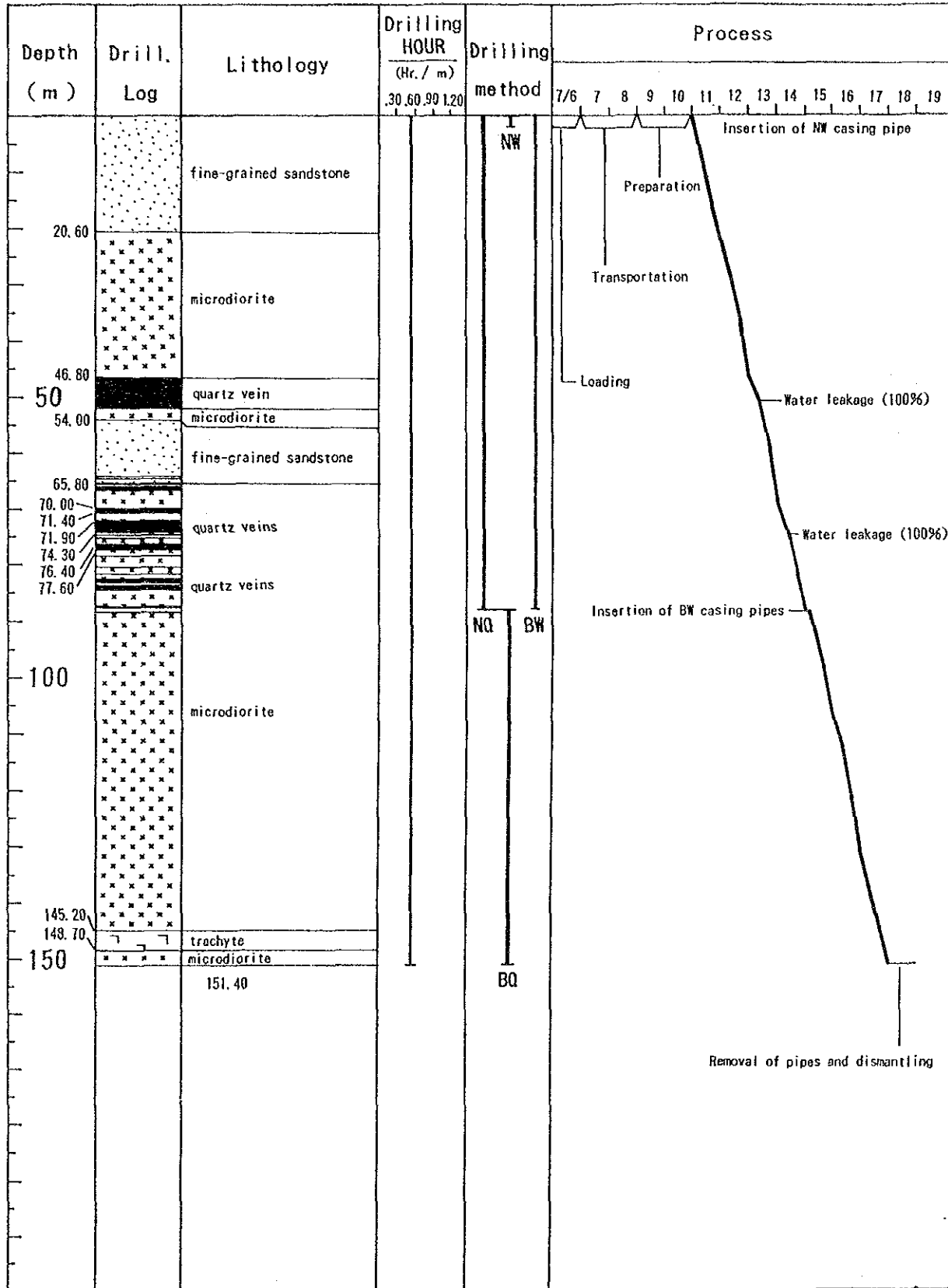
No. UF1010
 Homogenization Temp. 174 181 193 198 200 201 202 202 208 210 215 218 219 220 229 230 238 242 252 268 282 287 296
 Number of measuring 23
 Minimum Temperature 174
 Maximum Temperature 296
 Average Temperature 225
 Standard Deviation 33



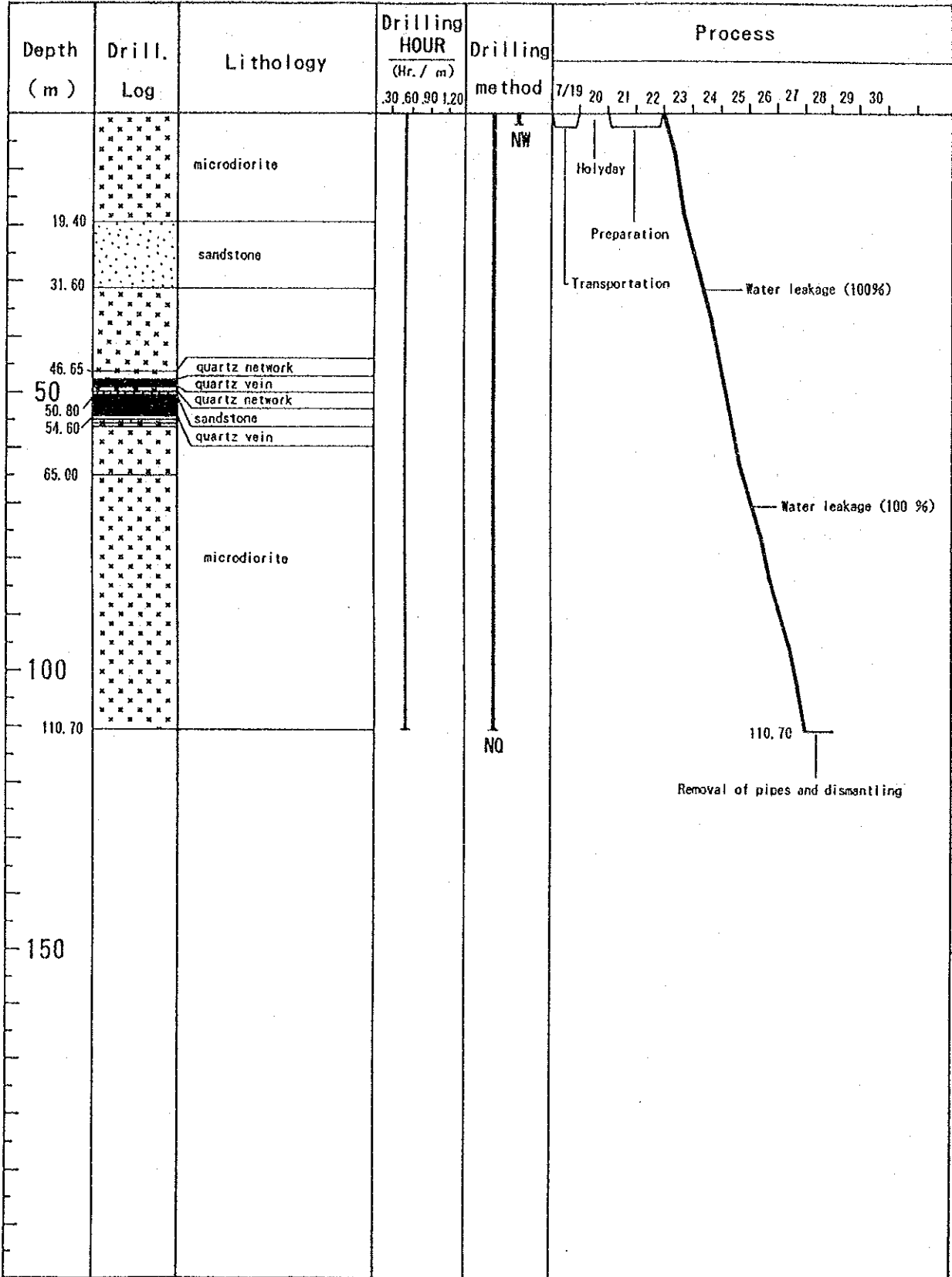
Appendix 2. Miscellaneous Data for the Drilling Survey

Appendix 2- 1 Progress Record of Diamond Drillings

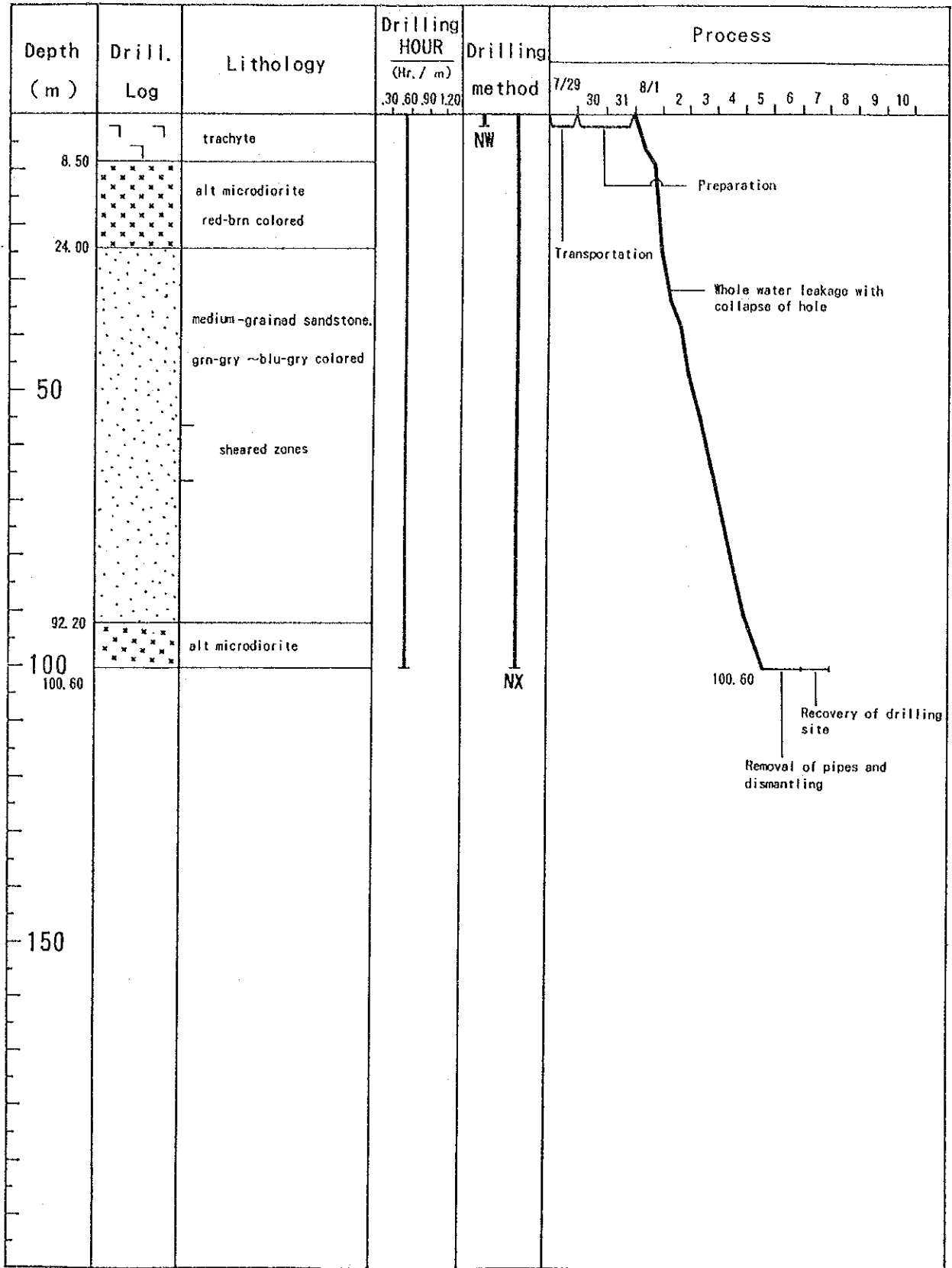
PROGRESS RECORD OF DIAMOND DRILLING MJMU-1



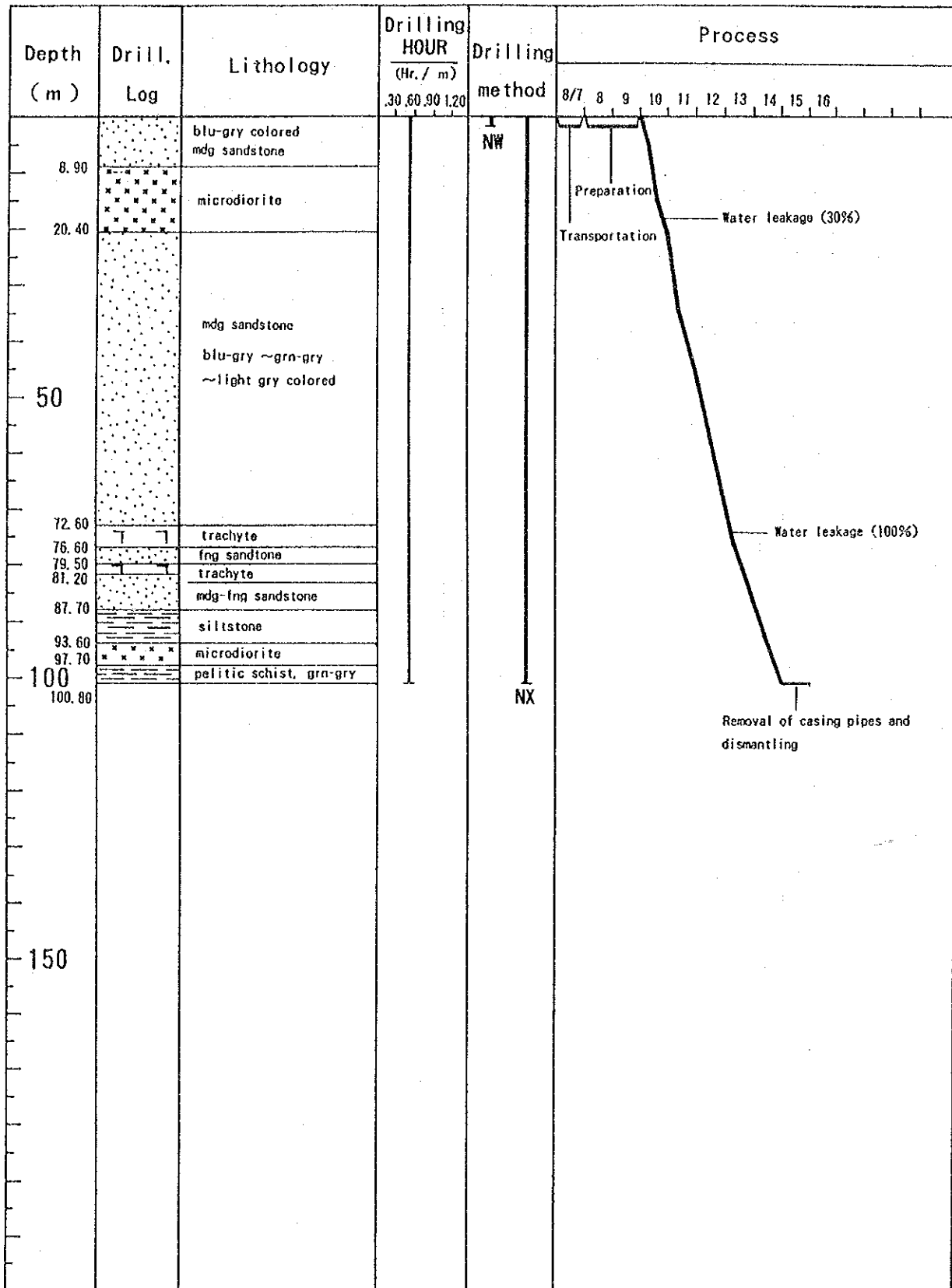
PROGRESS RECORD OF DIAMOND DRILLING MJMU-2



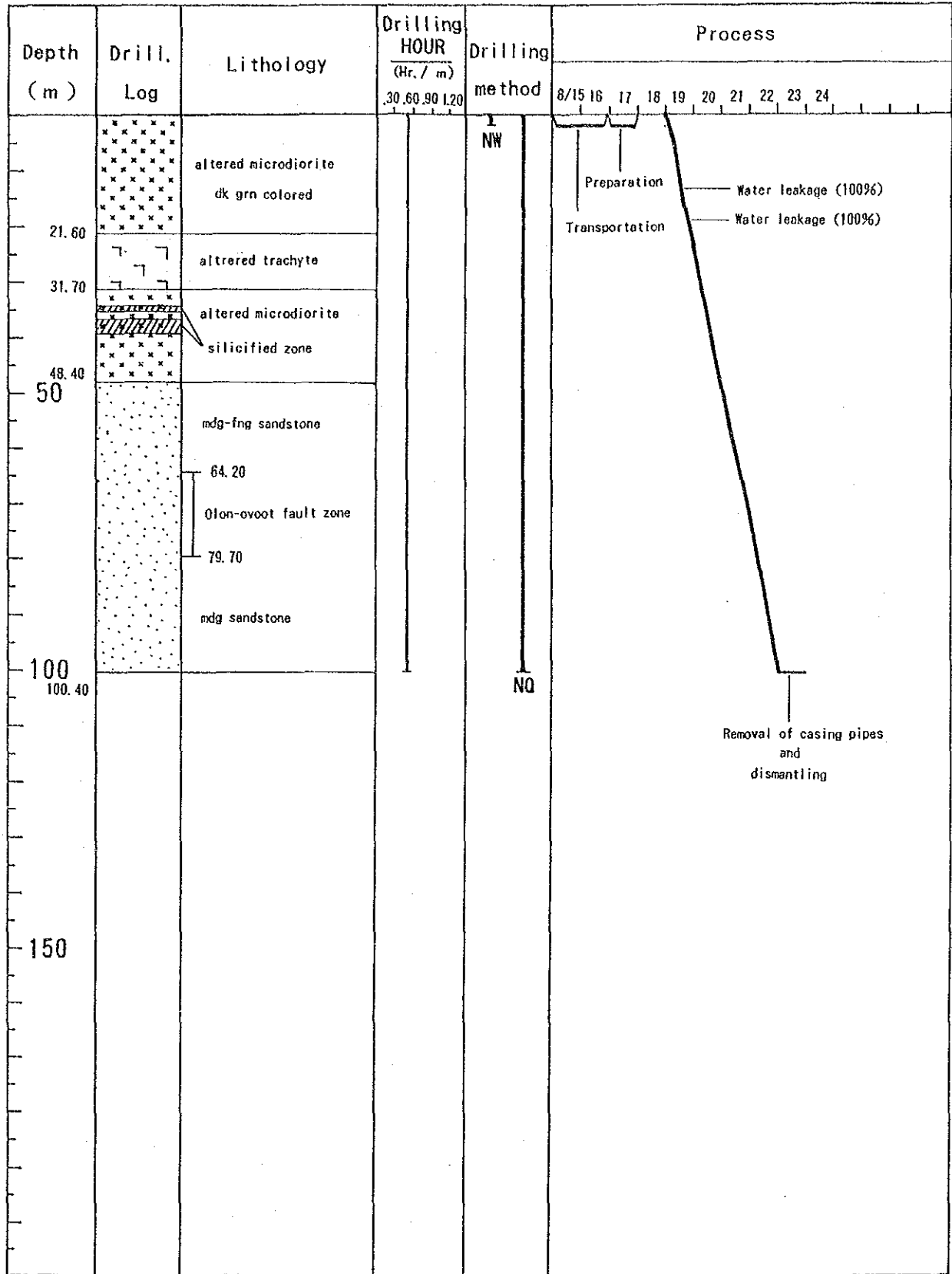
PROGRESS RECORD OF DIAMOND DRILLING MJMU-3



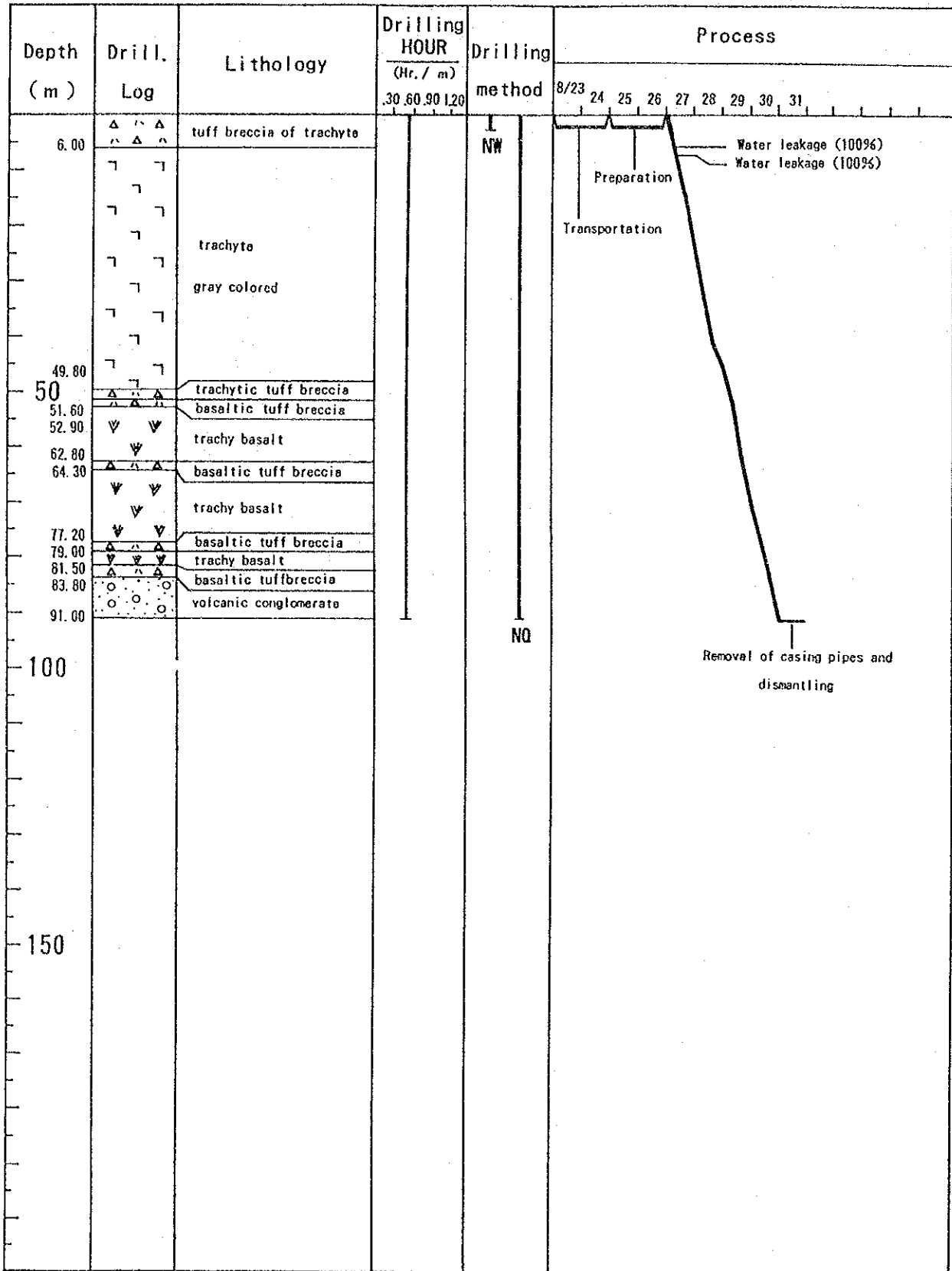
PROGRESS RECORD OF DIAMOND DRILLING MJMU-4



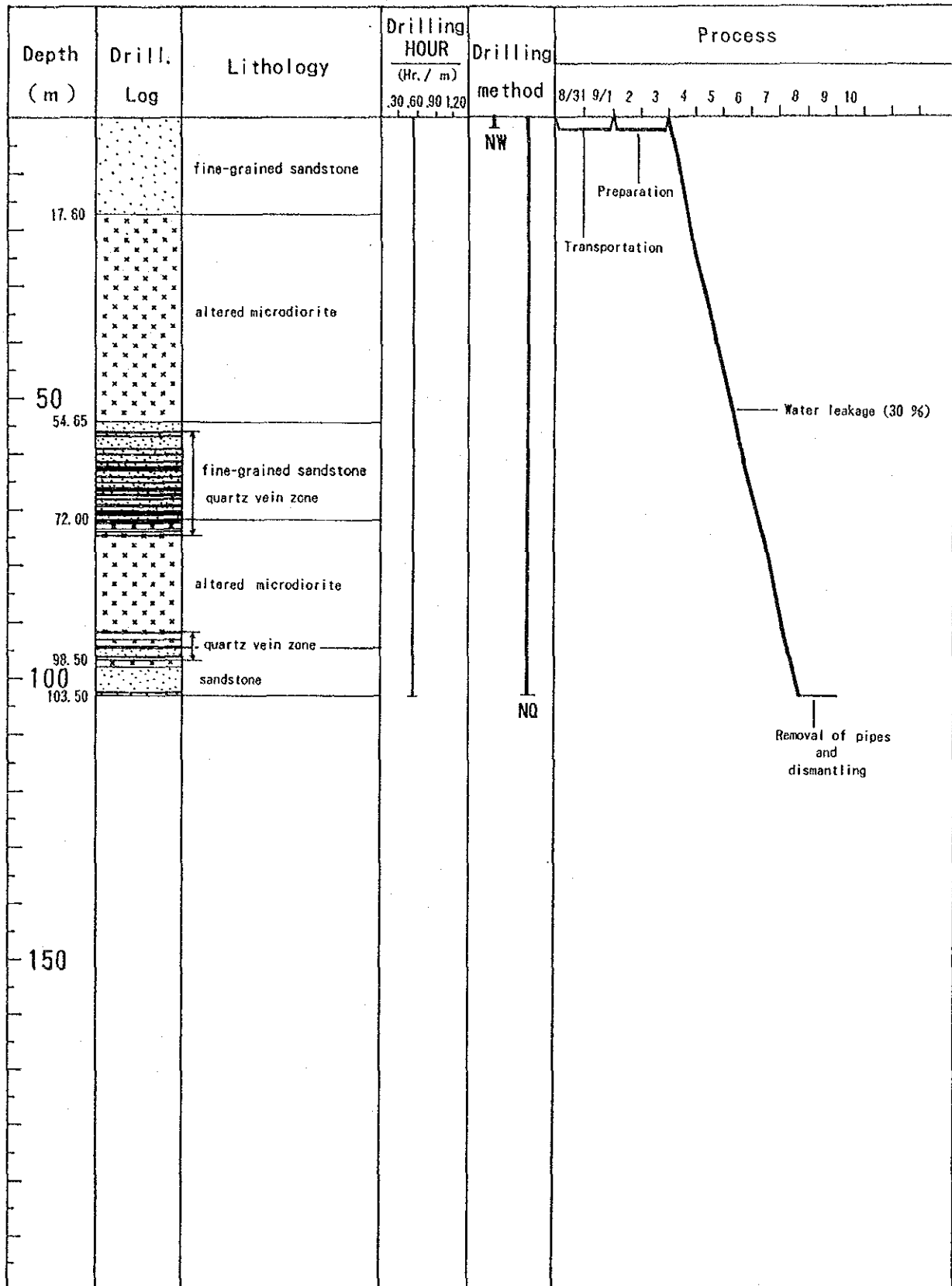
PROGRESS RECORD OF DIAMOND DRILLING MJMU-5



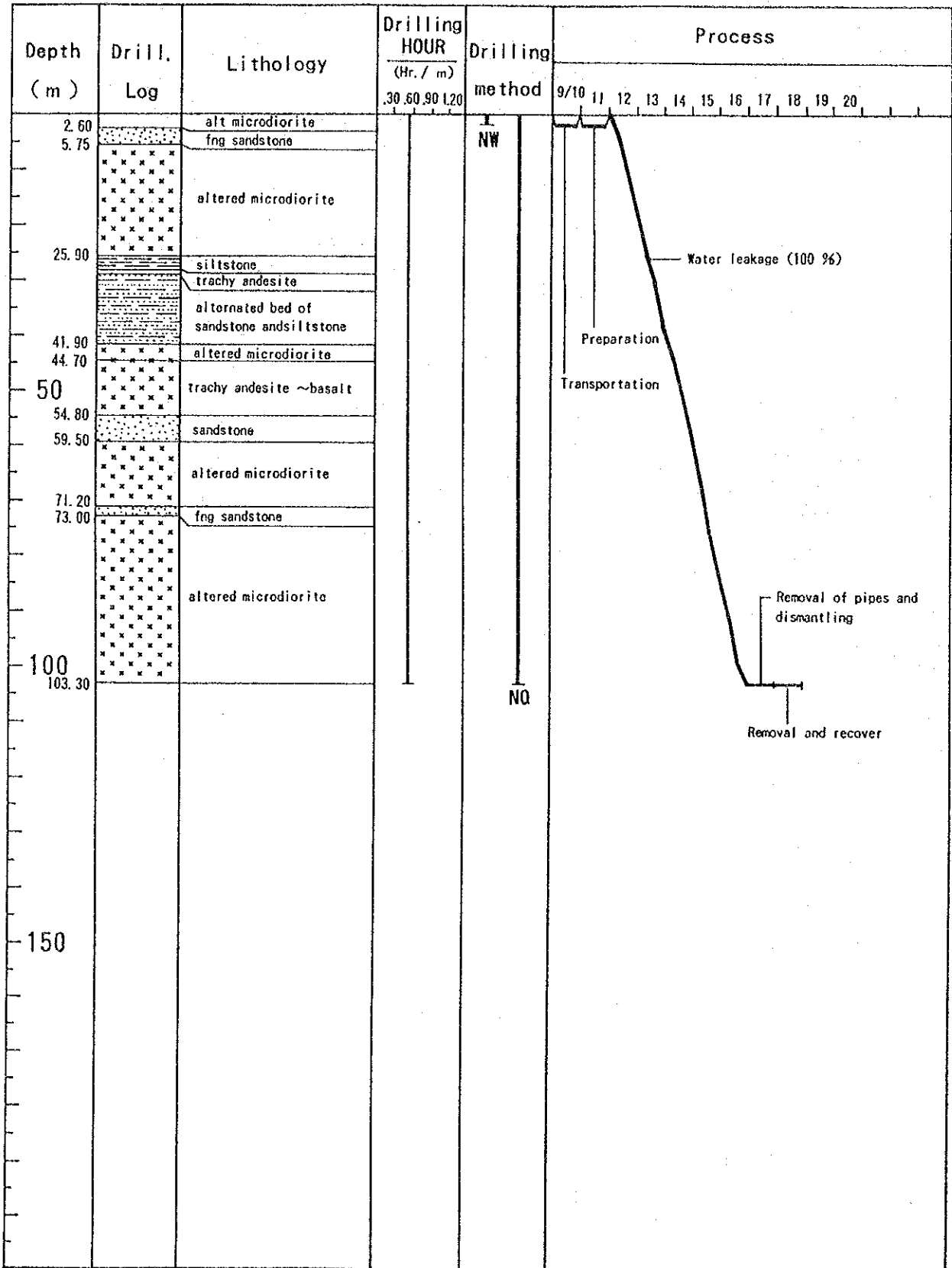
PROGRESS RECORD OF DIAMOND DRILLING MJMU-6



PROGRESS RECORD OF DIAMOND DRILLING MJMU-7



PROGRESS RECORD OF DIAMOND DRILLING MJMU-8



Appendix 2- 2 List of the Used Equipment for Drilling

Item	Model	Quantity	Capacity, Type, and Specification
Drilling Machine	L-38-98	1	Capacity NQ 565m, BQ 660m Inner Diameter of Spindle 98mm Weight (except engine)
Pump	MG-15h	1	Pistone $\phi 68\text{mm}$ Capacity Pressure 22-70kg/ cm^2
Pump	ND-50D	1	Capacity 700l/min 3600rpm/3.8 PS
Welder/Generator	YW-240BL	1	7.5 KVA, 3,000 rpm/200v 50/60 HZ
Hand Mixc			
Rod Holder	HD-Type	1	
	LH-Type	1	
Drill Rods	NQ-WL	40	3.00 m/pc
'	NQ-WL	1	1.50 m/pc
Drill Rods	BQ-WL	60	3.00 m/pc
'	BQ-WL	4	1.50 m/pc
Casing pipes	NW	6	1.00 m/pc
'		10	0.50 m/pc
Casing pipes	BW	30	3.00 m/pc
'	BW	6	1.00 m/pc
'	BW	4	0.50 m/pc
Inner tube	NQ-WL	2	1.50 m/pc
Inner tube	NQ-WL	2	3.00 m/pc
Outer tube	NQ-WL	2	1.50 m/pc
Outer tube	NQ-WL	2	3.00 m/pc
Inner tube	BQ-WL	2	1.50 m/pc
Inner tube	BQ-WL	2	3.00 m/pc
Outer tube	BQ-WL	2	1.50 m/pc
Outer tube	BQ-WL	2	3.00 m/pc

Appendix 2- 3 Drilling Meterage of Diamond Bits

Item	Size	Type	Bit NO.	Drilling meterage by drill hole. Unite meter									
				NJMU-1	NJMU-2	NJMU-3	NJMU-4	NJMU-5	NJMU-6	NJMU-7	NJMU-8		
Bit	IX			2.00									
	NW				2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
		NQ-WL	232001	28.90									
			232002	36.40									
			232003		35.80								
			232004			36.10							
			232005		38.20								
			232006		34.70								
			232007					31.90					
			232008				29.10						
			232009				33.40						
			232010					34.80					
			KAP1432						31.80				
			2785596						34.40				
			28744						33.10				
			28745							42.40			
			13188							27.50			
			232011								39.40		
			232012								29.00		
			232013								32.80		
			KAP1433	20.60									
		KAP1434					32.10						
		KAP1438							18.60				
		13187									36.50		
		3240211									36.80		
		3240212									28.00		
	BQ-WL	AP4403	34.00										
		232015	29.50										
		Total		151.40	110.70	100.60	100.80	100.40	91.00	103.50	103.30		

Appendix 2- 4 Consumable Articles

Item	Specification	Unit	Quantity								#
			MJMU-1	MJMU-2	MJMU-3	MJMU-4	MJMU-5	MJMU-6	MJMU-7	MJMU-8	
Light oil		ℓ	1,580	1,200	1,235	1,250	1,070	1,040	1,240	1,335	9,950
Gasoline			1,578	1,217	1,316	1,228	1,083	1,174	1,178	1,368	10,142
Mobil oil		ℓ	30	15	15	20	13	15	10	15	133
Hydraulic oil											
Grease		kg	6	9	6	4	8	7	6	7	53
Mission oil											
TK-60		kg	15	17	20	20	35	21	20	28	176
Horel 20L		ℓ	2	3	2.5	3	2	2.5	3	2	20
Tel-stop		kg	-	-	-	10	10	12	12	6	50
Wire line core barrel	NQ-WL								1		
Outer tube	NQ-WL 3.0m									1	
Outer tube	NQ-WL 1.5m							1			
Inner tube	NQ-WL 3.0m					1					
Inner tube	BQ-WL 1.5m		1								
Chuck jaws	BQ-WL						1				
Drill Rod	NQ-WL 3.0m									3	
Drill Rod	NQ-WL 1.5m				3						
Caicing Pipe	NW 1.0m								4		
Caicing Pipe	NW 0.5m								2		
Chuck wrench					1						
Rod Hold Jaws	NQ-WL									2	
Rod Hold Jaws	BQ-WL			2							
Latch Spring	NQ-WL						2			2	
Latch	NQ-WL						2				
Thrust Ball Bearing	NQ-WL						2			2	
Core Liffer Case	NQ-WL		2	1	2	1	2	1	2	1	
Core Liffer Case	BQ-WL		2								
Core Liffer	NQ-WL		2		2		2		2		2
Core Liffer	BQ-WL		2								
Adaptor Coupling	NQ-WL					1					
Locking Coupling	NQ-WL					1					
Shear pin	NQ-WL							1		1	
Shear pin	NQ-WL									8	
V-Packing	HD W/S							14			
Core Box	NQ-WL		14	17	16	15	15	14	16	16	
Core Box	BQ-WL		6								
MG-15 V Packing										8	

Appendix 3. Geologic Core Logs of the Drillings

GEOLOGIC CORE LOG OF MJMU-1 (1/4)

DEPTH (m)	GEOLOGICAL COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS														
					Ore Analysis Au ppm	Ag ppm	XRD	T-S	F-I	WRCA	P-S	K-Ar							
0		bluish gray colored sandstone medium to fine-grained																	
3.50		fragmental weathered red colored 2.10m																	
6.10		bluish green colored fine-grained sandstone, 60																	
7.00		altered microdiorite greenish gray colored 50																	
		dark greenish gray colored siltstone 50																	
		greenish gray colored fine-grained sandstone, intercal thin beds of siltstone 80																	
10																			
		breccia dike cemented by goethite Wt=1.5cm 60																	
		bluish green colored siltstone intercal thin beds of fine-grained sandstone 60																	
		greenish gray colored alternated bed of ss/silt/sh 70																	
17.80		shear fault clay, kahki tinted Wt=20cm 60	17.30																
		fine-grained sandstone, sheared, fractured and argillized	19.30	UOA001	4	< 0.2													
20																			
		hematite-goethite rich altered zone 30	20.90	UOA002	1055	< 0.2													
		dark greenish gray colored altered fine-grained diorite, cut by many carbonate veinlets (calcite-siderite-ankerite)									UXR001								
30																			
		quartz-calcite vein Wt=1cm 5																	
		bluish green colored altered microdiorite									URS001								
			35.00	UOA003	18	< 0.2													
		red tinted brecciated zone milky white quartz vein Wt=2cm	37.00	UOA004	320	< 0.2													
		quartz vein bearing brecciated zone, pyrite-hematite rich altered and brecciated zone 10	37.60	UOA005	5	< 0.2													
40		silicified zone 60	39.60																
		bluish green colored altered microdiorite, disseminated by coarse-grained pyrite $\phi_{py} \leq 2mm, S < 0.3\%$ csg py 50	41.20	UOA006	18	< 0.2													
			43.20	UOA007	2390	< 0.2													
			43.85	UOA008	27	< 0.2													
			46.20	UOA009	1920	< 0.2													
46.80		white argillic alteration zone, quartz vein rich in altered breccias disseminated by pyrite $V_{py} = 50\%$ pyrite bearing white clay 80	46.85	UOA010	463	< 0.2													
48.20			48.20	UOA011	950	< 0.2													
48.70		quartz network zone, $V_{qtz} = 35\%$ 50	48.20	UOA012	4670	< 0.2													
49.90			49.90																

GEOLOGIC CORE LOG OF MJMU-1 (2/4)

DEPTH (m)	GEOLOGICAL COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS							
					Ore Analysis	XRD	T-S	F-I	WRCA	P-S	K-Ar	
50		milky white quartz vein	51.00	UOA013	766	< 0.2						
52.10		pale green colored altered microdiorite fng py +csg py	52.10	UOA014	585	< 0.2						
53.55		greenish gray colored fine-grained sandstone, hematite rich brecciated zone	54.10	UOA015	3910	< 0.2						
		hematite films occur along joints greenish gray colored sandstone, schistose	56.10	UOA016	30	< 0.2						
			58.10	UOA017	8	< 0.2						
				UOA018	8	< 0.2						
60		silicified sandstone	60.10	UOA019	59	< 0.2						
		quartz vein W=2cm, limonite bearing	62.10	UOA020	200	< 0.2						
		hematite pseudomorph after pyrite milky white quartz vein W=70cm	64.30	UOA021	948	< 0.2						
		greenish gray colored sandstone	65.00	UOA022	2740	0.2			UF1003			
		milky white quartz vein W=25cm, csg py dissem quartz vein W=40cm	66.60	UOA023	7820	0.4						
		quartz network zone in altered microdiorite	68.30	UOA024	3110	0.3						
		milky white quartz vein altered microdiorite, csg py dissem	69.30	UOA025	5150	< 0.2	UXR003					
		milky white quartz vein altered microdiorite, csg py dissem	70.00	UOA026	1895	< 0.2						
		milky white quartz vein	71.40	UOA027	1800	0.3						
		milky white quartz vein	71.90	UOA028	482	0.2						
		milky white quartz vein	72.90	UOA029	8700	< 0.2						
		red colored altered diorite fresh csg py dissem	74.30	UOA030	2960	0.2						
		green colored altered fine-grained sandstone, quartz-hematite zone	76.30	UOA031	1440	< 0.2		URS002				
		dark green colored altered microdiorite milky white quartz vein	77.30	UOA032	487	< 0.2			UF1004			
			78.70	UOA033	524	< 0.2					UPS001	
		milky white quartz vein, W=25cm	80.55	UOA034	2940	< 0.2						
		milky white quartz vein, W=15cm, py dissem	82.55	UOA035	2790	< 0.2						
		milky white quartz vein, W=60cm	83.75	UOA036	1740	< 0.2				UF1005		
		silver black? band bearing milky white quartz vein	84.80	UOA037	1195	< 0.2						
		dark green colored altered microdiorite	85.80	UOA038	660	< 0.2						
		milky white quartz vein W=40cm	87.60	UOA039	242	< 0.2						
		milky white quartz vein W=5cm	88.40	UOA040	211	< 0.2	UXR004					
		dark greenish gray shear fault clay lost core 40cm/110cm	90.30	UOA041	637	< 0.2						
		greenish gray colored shear fault clay W=5cm crushing	92.30									
		dark greenish gray alt microdiorite										
100		pyrite bearing quartz films										

GEOLOGIC CORE LOG OF MJMU-1 (3/4)

DEPTH (m)	GEOL. COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS							
					Ore Analysis Autopb/Ag ppm	XRD	T-S	F-I	WRCA	P-S	K-Ar	
100		dark green alt microdiorite										
		dark green shear fault clay shear fault zone										
		core loss 80cm										
		shear fault breccia										
110		mylonitized microdiorite										
		dark green colored altered microdiorite, chloritized										
		core loss 40cm										
120		dark greenish gray colored altered microdiorite (porphyritic)										
		$\phi, < 3mm$										
		calcite vein $W=0.2cm$										
		calcite vein $W=0.2cm$										
		calcite vein $W=0.6cm$										
130		greenish gray colored schistose microdiorite										
		dark greenish gray colored altered microdiorite (chl-py alt)										
135.30		mylonitized										
140		greenish gray colored pelitic schist, hematite bearing, phyllitic										
		dark green colored altered microdiorite										
143.70		bleached microdiorite quartz vein $W=1cm$										
		bleached medium grained sandstone										
146.20		shear fault clay										
148.40		epidotized trachyte, crushed core loss 70cm										
149.10		core loss 20cm										
150		epidotized diorite,										

GEOLOGIC CORE LOG OF MJMU-1 (4/4)

DEPTH (m)	GEOL. COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS														
					Ore Analysis		XRD	T-S	F-I	WRCA	P-S	K-Ar							
					Au (ppb)	Ag (ppm)													
150 151.40	35	quartz vein W=0.3 cm dark green epi-chl alt fng diorite 151.40 THE END																	
160																			
170																			
180																			
190																			
200																			

GEOLOGIC CORE LOG OF MJMU-2 (1/3)

DEPTH (m)	GEOLOGICAL COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS														
					Ore Analysis			XRD	T-S	F-I	WRCA	P-S	K-Ar						
Au (ppb)	Pb (ppm)	Ag (ppm)																	
0		dark green altered microdiorite core is crushed.																	
2.70		core loss 50cm																	
4.60		dark green altered microdiorite core loss 30cm																	
7.10		jointy, crushed																	
9.00-9.20		quartz-calcite vein																	
11.00		green colored altered microdiorite, schistose	11.00																
12.00		shear fault zone, partly hematite-limonite rich	13.00	UOA042	13	< 0.2													
			14.40	UOA043	2	< 0.2													
		dark greenish gray colored altered microdiorite																	
		microdiorite																	
19.40		shear fault breccia	19.40																
21.10		dark greenish gray colored sandstone, silicified and cut by quartz veinlets (network like)	21.10	UOA044	18	< 0.2													
22.30		hematite bearing shear fault W=5cm	22.30	UOA045	2	< 0.2													
		hematite rich shear fault breccia	24.30	UOA046	1	< 0.2													
		fine-grained sandstone, reddish brown altered	26.30	UOA047	2	< 0.2													
		dark gray-brown colored altered sandstone int-cal thin beds of siltstone	28.30	UOA048	< 1	< 0.2													
		brown sandstone, shered and limonitized limonitized breccia dike W=30cm	30.30	UOA049	3	< 0.2													
31.60		reddish brown limonite-hematite network zone	31.60	UOA050	< 1	< 0.2													
		31.40-31.60 red colored clayey shear fault	32.30	UOA051	42	< 0.2													
		reddish brown colored altered microdiorite	34.50	UOA052	740	< 0.2													
35.20		bluish gray colored altered microdiorite	35.20	UOA053	2940	< 0.2													
35.80		reddish brown colored altered microdiorite	36.80	UOA054	2390	< 0.2													
		milky white quartz vein	38.80	UOA055	148	< 0.2													
		quartz network zone, five veins, Vv=25%	40.50	UOA056	7810	< 0.2													
		hematite pseudomorphs after pyrite are disseminating along joints	42.50	UOA057	2780	< 0.2													
		bluish gray colored altered microdiorite, disseminated by fine-grained pyrites	44.50	UOA058	936	< 0.2													
		shear fault W=15cm oxidized	46.65	UOA059	4090	< 0.2													
		42.15-42.35 quartz vein W=20cm	48.00	UOA060	6740	< 0.2													
		quartz vein W=1.5cm	49.10	UOA061	186	< 0.2													
		42.55 quartz vein W=2cm																	
		42.90-44.00 altered and weathered brown colored microdiorite, disseminated by coarse grained pyrite																	
		44.00-45.80 quartz network zone Dv=5-10cm, Vv=3%, disseminated by csg-fng pyrites																	
		45.80-46.65 red colored altered microdiorite																	
		quartz network zone in alternated bed of sandstone and shale, Vv=70%																	
		milky white quartz vein																	
		quartz network zone in alternated bed of sandstone and shale, Vv=50%																	

GEOLOGIC CORE LOG OF MJMU-2 (2/3)

DEPTH (m)	GEOLOGIC COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS								
					Ore Analysis		XRD	T-S	F-I	WRCA	P-S	K-Ar	
Au (ppb) / Ag (ppm)													
50.20		altered medium-grained sandstone	50.20	U0A062	4790	< 0.2							
50.80		50.50 quartz vein, W=1.5cm, <65°	50.80	U0A063	301	< 0.2							
		milky white massive quartz vein											
			52.80	U0A064	172	< 0.2							
54.60		54.60-55.55 quartz network zone, V _{qz} =45%	54.60	U0A065	7220	< 0.2							
56.20		55.55-56.20 red colored alteration zone, disseminated by coarse-grained pyrites	55.55	U0A066	716	0.3							
			56.20	U0A067	240	< 0.2							
		greenish gray colored altered microdiorite	58.20	U0A068	1320	< 0.2							
60			60.20										UPS003
				U0A069	161	< 0.2							
			62.20	U0A070	10	< 0.2							
63.10		hematite jointy zone, disseminated by pyrite	63.10	U0A071	221	< 0.2							
		py-chl-hema-qz v. W=10cm	65.00										
		pale green colored shear fault clay, W=5cm											
		palegreen colored altered microdiorite											
70		shear zone W=20cm											
		shear zone W=20cm											
71.80		quartz vein W=1cm											
72.40		quartz vein, W=3cm											
72.80		quartz vein, W=1.5cm											
		crushing											
		schistose microdiorite, looks like alternated bed of sandstone and shale											
80													
80.80		shear fault clay W=20cm											
		trachyte dike, porous, φ... ≤ 5mm											
		core loss 30cm											
82.60		dark green colored microdiorite, schistose											
		shear zone, W=3cm											
		shear zone, W=15cm											
		shear zone W=20cm, core loss 10cm											
		dark green colored altered microdiorite, schistose											
90													
		shear fault clay, W=3cm											
		shear zone W=10cm											
		shear fault breccia, W=90cm											
		palegreen shear fault clay, W=5cm											
		dark green altered microdiorite calcite film zone											
100													

GEOLOGIC CORE LOG OF MJMU-2 (3/3)

DEPTH (m)	GEOL. COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS								
					Ore Analysis		XRD	T-S	F-I	WRCA	P-S	K-Ar	
Au	Pb	Ag	gpm										
100		palegreen colored altered microdiorite fine-grained											
		dark greenish gray colored microdiorite, disseminated by fine-grained pyrite											
		calcite vein W=0.3cm calcite vein, W ≤ 2mm											
		dark green colored chloritized altered microdiorite											
		greenish gray colored altered microdiorite, pyritized and chloritized. core is crushed		108.90	UOA072	34	< U. 2						
110 110.70m		110.70 THE END	110.70										
120													
130													
140													
150													

GEOLOGIC CORE LOG OF MJMU-3 (1/3)

DEPTH (m)	GEOL. COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS								
					Ore Analysis		XRD	T-S	F-I	WRCA	P-S	K-Ar	
Al	Fe	Ag	ppm										
0		kahki colored weathered trachyte	0.00	U0A073	5	< 0.2							
		reddish brown weathered trachyte, hb-bio bearing, $\phi_{hb} < 3mm$, $\phi_{hb} < 2mm$	2.00	U0A074	< 1	< 0.2							
			4.00	U0A075	< 1	< 0.2							
			6.00	U0A076	9	< 0.2							
8.50		bleached altered microdiorite, cut by quartz - limonite veinlets	8.00	U0A077	10	< 0.2							
10		10.80-10.86 quartz vein W=6cm	10.00	U0A078	62	< 0.2							
		reddish brown colored altered microdiorite, hematitized	12.00	U0A079	7	< 0.2							
		hematite rich crushed zone, base: hematite + chlorite, joints: hematite	14.00	U0A080	< 1	< 0.2							
16.30		16.30-28.80 hydrofracturing + hematite-quartz film zone	16.30	U0A081	< 1	< 0.2							
		hematite-quartz vein, W=0.6cm	18.30	U0A082	1	< 0.2							
		hematite-rich quartz vein, W=2cm											
20		21.20-21.30 hematite-rich quartz vein, W=10cm, brecciated	20.30	U0A083	188	< 0.2							
		quartz-hematite-rich shear zone	22.30	U0A084	212	< 0.2							
		22.90-22.95 hematite-quartz vein, W=6cm											
		23.60 quartz vein W=2.5cm, hematite rich											
24.00		24.45-24.48 quartz vein, W=3cm	24.30	U0A085	4	< 0.2							
		chlorite-hematite bearing shear zone											
		greenish gray colored, medium grained sandstone, intercalating thin beds of pelitic schist	26.30	U0A086	25	< 0.2							
28.80			28.80										
30		30.30-30.50 hematitized altered zone											
		30.80-32.30 palegreen phyllitic schist intercalating thin beds of sandstone											
		medium-grained sandstone, light greenish gray colored, fractured and hematitized											
		bluish gray pelitic schist, phyllitic											
		36.80-37.20 bluish green colored phyllitic schist											
39.10		39.10-41.70 medium-grained sandstone, hematite network bearing hydrofracturing	39.10	U0A087	1	< 0.2							
40													
41.70		light greenish gray colored medium-grained sandstone with a few hematite veinlets	41.70										
46.80		quartz vein W=1cm x 2											
		light gray colored medium-grained sandstone brecciated, silicified and cemented by hematite and limonite	47.10	U0A088	6	< 0.2							
50			49.10										

GEOLOGIC CORE LOG OF MJMU-3 (2/3)

DEPTH (m)	GEOLOGICAL COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS									
					Ore Analysis		XRD	T-S	F-I	WRCA	P-S	K-Ar		
					Au(ppb)	Ag(ppm)								
50		light gray colored medium-grained sandstone, fractured, pyritized and cemented by hematite-limonite-quartz veinlets	51.10	UOA089	< 1	< 0.2								
			53.10	UOA090	< 1	< 0.2								
			55.10	UOA091	< 1	< 0.2								
			56.50	UOA092	< 1	< 0.2								
56.50		55.50 bluish gray colored phyllitic schist, sheared	56.50											
		bluish gray colored sandstone												
		58.80-59.20 sheared												
60		quartz films												
		61.30-61.50 fractured, silicified and limonitized zone												
		62.30-62.50 fractured, silicified and limonitized zone												
		63.50-64.00 sheared zone												
		64.30-64.70 sheared zone												
65.00		66.30-66.70 sheared zone	65.00	UOA093	< 1	< 0.2								
		medium-grained sandstone, bluish gray colored	67.00	UOA094	11	< 0.2								
		69.00	69.00	UOA095	< 1	< 0.2								
70		70.20 medium-grained sandstone, light gray colored	70.20	UOA096	2	< 0.2								
		silicified, hematitized and limonitized, crushed and micro-drusy	72.20	UOA097	6	< 0.2								
		75.30 quartz vein, W=2cm hematite-limonite network	74.20	UOA098	49	< 0.2								
		78.10 quartz vein, W=1cm, limonitic	76.20	UOA099	3	< 0.2								
		80.20 quartz vein, W=1cm	78.20	UOA100	25	< 0.2								
80		81.20 quartz vein, W=1cm	80.20	UOA101	16	< 0.2								
		81.30 quartz vein, W=2cm, <35°	82.20	UOA102	9	< 0.2								
		81.45 quartz vein, W=3cm, <50°												
		81.50 quartz vein, W=1cm, <85°												
83.80		bluish gray colored sandstone	83.80						URS004					
		87.50 quartz vein, W=0.5cm												
		87.65 quartz vein W=2cm, <50°												
		87.80 quartz vein W=1cm, <50°												
		88.50 limonite vein, W=0.3cm, <35°												
90		quartz vein, W=1cm												
		90.50-90.70 phyllitic schist, bluish gray colored												
		91.20 quartz vein W=1cm												
		93.90 quartz vein W=1cm, <50°												
		dark greenish gray colored altered microdiorite							UXR012					
		calcite film W=0.1~0.2cm, <40°												
		99.40 quartz vein, W=0.4cm												
		99.60 quartz vein, W=0.8cm, <45°												
100		dark green altered microdiorite												

GEOLOGIC CORE LOG OF MJMU-3 (3/3)

DEPTH (m)	GEOLOGICAL COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS							
					Ore Analysis Au ppm Ag ppm	XRD	T-S	F-I	WRCA	P-S	K-Ar	
100		dark green altered microdiorite 100.60 THE END										
110												
120												
130												
140												
150												


GEOLOGIC CORE LOG OF MJMU-4 (1/3)

DEPTH (m)	GEOL. COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS										
					Ore Analysis		XRD	T-S	F-I	WRCA	P-S	K-Ar			
Au	ppb	Ag	ppm												
0		bluish gray colored medium-grained sandstone, silicified	0.00	UOA103	6	< 0.2									
		0-2.00m limonite rich, crushed quartz vein W=0.8cm-1.5cm	2.00	UOA104	8	< 0.2									
		3.50-4.00 quartz network zone	4.00	UOA105	6	< 0.2									
6.30		5.50-7.80 quartz network zone, Vv≤2%, hematite-limonite film rich	6.00	UOA106	3	< 0.2									
		bluish-greenish gray colored phyllitic schist	7.80	UOA107	< 1	< 0.2									
8.90		8.40-8.90 silicified sandstone, rich in limonite veinlets	8.40	UOA108	3	< 0.2									
10		schistose microdiorite	10.00	UOA109	7	< 0.2									
		dark green colored altered microdiorite	12.00	UOA110	7	< 0.2									
		limonite-quartz vein, W=0.2cm	14.00	UOA111	< 1	< 0.2									
		limonite-quartz vein, W=0.1cm	16.00	UOA112	11	< 0.2									
		dark greenish gray colored altered microdiorite	18.00	UOA113	5	< 0.2									
20		dark greenish gray colored shear fault clay, W=2cm	20.40				UXR013								
20.40		medium-grained sandstone, gray colored quartz-limonite film rich zone	22.40	UOA114	2	< 0.2									
		quartz vein, W=0.5cm	24.60	UOA115	8	< 0.2									
		quartz vein, W=0.3cm													
		limonite films													
30		31.00-31.05 quartz vein, W=5cm													
		medium-grained sandstone, gray colored													
		siltstone													
		37.60-37.80 epidote-quartz rich vein along sheared zone													
40		alternated bed of fine-grained sandstone and siltstone, bluish gray colored													
		41.20 shear fault, W=2cm													
		medium-grained sandstone, bluish gray colored													
		light greenish gray clay, swelling, montmorillonite?													
50		light greenish gray colored sandstone, argillic alteration													

GEOLOGIC CORE LOG OF MJMU-4 (2/3)

DEPTH (m)	GEOLOGIC COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS							
					Ore Analysis Al ₂ O ₃ (%) Fe ₂ O ₃ (%)	XRD	T-S	F-I	WRCA	P-S	K-Ar	
50		shear fault <?										
		light gray colored medium-grained sandstone										
		54.70-58.10 cemented old fault breccia zone										
		55.70-55.90 shear zone										
		56.20-56.25 light green-gray colored shear fault: clay										
		gray colored medium-grained sandstone										
60		shear fault clay, W=3cm										
		greenish gray colored medium-grained sandstone										
		64.90 brown siltstone										
		brown siltstone										
		gray colored medium-grained sandstone										
70		light greenish gray colored medium-grained sandstone										
72.60		72.50-72.75 dark green colored shear fault	72.60									
		brownish gray colored hb-bi trachyte, porous φ < 3mm φ < 1cm		U0A116	< 1	< 0.2						
		fractured and hematitized trachyte		U0A117	< 1	< 0.2	URS005					
		light bluish gray colored medium to fine-grained sandstone		U0A118	< 1	< 0.2						
		light gray colored fine-grained sandstone, bleached and sheared		U0A119	< 1	< 0.2						
80		sheared, crushed and bleached										
81.20		shear fault W=5cm	81.20									
		medium grainsized sandstone, light gray colored										
87.70		light gray to brown colored siltstone (pelitic schist)										
		light gray shear fault clay										
		91.25-91.40 shear fault clay										
		light green colored siltstone (schistose)										
93.60		milky white calcite-quartz vein calcite vein, W=0.5cm										
		dark green colored fine-grained diorite										
		calcite veinlet W=0.2cm										
97.70		greenish gray colored pelitic schist										
100		bluish green colored pelitic schist										

GEOLOGIC CORE LOG OF MJMU-4 (3/3)

DEPTH (m)	GEOLOGICAL COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS								
					Ore Analysis Au Ag Pb Zn	XRD	T-S	F-I	NRCA	P-S	K-Ar		
100 100.80m		bluish-green colored pelitic schist THE END											
110													
120													
130													
140													
150													

GEOLOGIC CORE LOG OF MJMU-5 (1/3)

DEPTH (m)	GEOL. COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS							
					Ore Analysis Au(ppb) Ag(ppm)		XRD	T-S	F-I	WRCA	P-S	K-Ar
0		crushed core by dry boring	0.00	UOA120	< 1	< 0.2						
		dark green colored altered microdiorite	2.00	UOA121	3	< 0.2						
		calcite vein W=0.2cm	4.00	UOA122	4	< 0.2						
6.30		5.00-5.30 sheared and crushed microdiorite calcite vein W=0.3cm	6.30	UOA123	4	< 0.2						
		calcite vein W=1cm	8.30	UOA124	11	< 0.2						
9.50		calcite vein W=2.2cm	10.30	UOA125	10	< 0.2						
10		carbonate-hematite altered microdiorite	12.30	UOA126	< 1	< 0.2						
		9.50 black silicified rock W=2cm	14.30	UOA127	1	< 0.2						
		silicified, hematitized, altered microdiorite	16.30	UOA128	23	< 0.2						
		12.40m red-kahki colored ring str.	18.30	UOA129	51	< 0.2						
		6.30-21.60 hematite-carbonate bearing altered microdiorite, red colored	20.30	UOA130	10	< 0.2						
20		silicified and hematitized altered microdiorite	21.60									
21.60		kahki										
		altered hb-bio trachyte, epidotized										
		brownish gray										
		gray										
		purplish gray										
30		29.80-31.30 brownish gray colored sheared trachyte										
31.70		31.30-31.70 light gray fault clay, hydrothermally altered	32.00	UOA131	152	< 0.2						
		red-yellow ocher colored fault clay	34.10	UOA132	< 1	< 0.2						
34.10		32.00-39.15 pyritized, limonitized, hematitized and silicified microdiorite	35.50	UOA133	4	< 0.2						
35.50		34.10-35.50 altered rock, limonitized, hematitized and silicified	36.90	UOA134	< 1	< 0.2						
36.90		35.50-36.90 light greenish gray colored altered rock, shered, pyritized, hematitized	39.15									
39.15		quartz vein W=0.8cm <50°										
40		altered rock, sheared, silicified, hematitized, limonitized										
		dark green colored altered microdiorite epidotized and pyritized	41.15	UOA135	< 1	< 0.2						
		calcite vein, W=0.3cm	43.15	UOA136	5	< 0.2						
		dark green colored altered microdiorite	45.15	UOA137	< 1	< 0.2						
45.50		quartz vein, W=5cm	47.15	UOA138	< 1	< 0.2						
		calcite veinlets ~films are sporadically distributed	48.80	UOA139	2	< 0.2						
		bleached microdiorite		UOA140	2	< 0.2						
48.40		48.80-51.10 altered sandstone, sheared, crushed, hematitized										
50												

GEOLOGIC CORE LOG OF MJMU-5 (2/3)

DEPTH (m)	GEOL. COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS									
					Ore Analysis		XRD	T-S	F-I	WRCA	P-S	K-Ar		
Au	Ag													
50		reddish brown colored sandstone, sheared, crushed, sheared and hematitized	51.10											
51.10		bluish gray colored medium to fine-grained sandstone					UXR016							
		56.45~56.55 shear fault W=10cm, <50°												
		59.55-59.65 shear fault												
60		62.10-62.25 shear fault bluish gray medium to fine-grained sandstone												
		core loss 60cm 64.20												
		siltstone												
		shear fault <50°												
		69.20-69.30 shear fault W=10cm, <60°												
70		Olon Oyoot Fault is not mineralized here												
		greenish gray colored shear fault clay					UXR014							
		core loss												
		79.20-79.70 shear fault breccia 79.70												
80		medium to fine grain sized sandstone, light gray colored												
		81.70m quartz vein W=1cm												
		greenish gray colored siltstone												
		greenish gray colored siltstone												
		85.20-85.30 shear fault clay												
		calcite-quartz vein W=0.8cm												
		86.50 calcite-quartz vein W=0.4cm												
		greenish gray colored medium-grained sandstone, calcite film bearing												
90		bluish green medium-grained sandstone, crushed												
		calcite vein W=0.5cm												
		calcite film bearing black shale W=10cm												
		calcite vein W=0.2cm												
		calcite vein, W=0.3cm												
		quartz vein, W=1cm												
100														

GEOLOGIC CORE LOG OF MJMU-5 (3/3)

DEPTH (m)	GEOLOGICAL COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS									
					Ore Analysis Au (ppm)	Ag (ppm)	XRD	T-S	F-I	WRCA	P-S	K-Ar		
100		medium-grained sandstone 45 dark green colored microdiorite, epidotized 100.40m THE END												
110														
120														
130														
140														
150														

GEOLOGIC CORE LOG OF MJMU-6 (1/2)

DEPTH (m)	GEOL. COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS										
					Ore Analysis Au, Fe, Pb, Ag, Zn	XRD	T-S	F-I	WRCA	P-S	K-Ar				
0	△ ^ ^ △ △ ^ ^ △ △ ^	tuff breccia of light brown to gray colored trachyte. ϕ brec < 30cm light green-gray colored tuffbreccia of biotite trachyte ϕ bio < 3mm													
6.60	┌─┐ └─┘	45 light greenish gray colored biotite trachyte, compact lava													
10 10.20 10.50	┌─┐ └─┘	40 light greenish gray colored tuffbreccia of biotite trachyte, (autobrecciated lava ?)													
20 22.90	┌─┐ └─┘	gray colored biotite trachyte lava ϕ pl < 3mm ϕ bio < 3mm ROD=100, Dj=20~100cm													
30	┌─┐ └─┘	gray colored biotite trachyte ROD=100, Dj=25 ~150cm													
40	┌─┐ └─┘	fissure < 30cm													
44.80 45.20	┌─┐ └─┘	5 quartz-calcite vein, W=1cm 30 calcite film W=1~2mm 0-10 calcite films calcite vein W=0.2cm													
50	┌─┐ └─┘	30 49.80													

UXR015
URS006
UMA002

GEOLOGIC CORE LOG OF MJMU-6 (2/2)

DEPTH (m)	GEOL. COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS							
					Ore Analysis Au(ppb) Ag(ppm)	XRD	T-S	F-I	WRCA	P-S	K-Ar	
50	△△△											
50.60	△△△	red colored fossilized soil										
51.60	△△△	red colored tuff breccia compact										
52.90	△△△	calcite film W=0.2cm										
	▽○	gray colored trachybasalt, porous.										
	▽○	calcite, gypsum, Mn-oxide are seen in gas pores, porosity =10~25%										
60	▽○											
62.80	△△△	brownish gray colored tuff breccia of trachybasalt										
64.30	▽○	dark gray colored lava of trachybasalt										
	▽○	porosity 15%~25%.										
70	▽○	calcite, gypsum, Mn-oxide are formed in gas pores										
	▽○											
	▽○											
77.20	△△△	brownish gray colored tuff breccia of trachybasalt										
79.00	△△△											
80	▽○	dark gray colored porous lava of trachybasalt										
81.50	△△△	dark gray colored tuffbreccia of trachybasalt, porous										
83.80	▽○	brown to gray colored volcanic conglomerate, breccia: biotite trachyte trachyandesite trachybasalt										
90	▽○											
91.00		91.00 THE END										
100												

GEOLOGIC CORE LOG OF MJMU-7 (1/3)

DEPTH (m)	GEOLOG. COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS									
					Ore Analysis		XRD	T-S	F-I	WRCA	P-S	K-Ar		
Au	ppb	Ag	ppm											
0		pale green colored fine-grained sandstone, crushed by dry boring						UXR018						
		core loss 1.0m												
		shear zone												
		crushing												
		bluish gray colored fine-grained sandstone												
10		thin bed of blue siltstone												
12.90		bluish green colored siltstone												
13.80		bluish gray colored fine-grained sandstone												
		14.40-14.70 bluish green colored siltstone												
		bluish gray colored fine-grained sandstone												
		network of carbonate												
17.60		epidote-carbonate bearing altered microdiorite												
		18.80-18.90 shear fault breccia W=10cm	19.20											
		shear zone filled by quartz and carbonate W=3cm	20.20	UOA141	< 1	< 0.2								
		19.20-20.20 silicified and carbonatized bluish gray colored altered microdiorite carbonate-veinlets bearing												
		calcite vein W=3mm <15°												
		23.80 shear W=5cm <70°												
		24.05 calcite-quartz vein W=0.6cm												
		quartz vein W=1cm microdiorite												
		dark greenish gray colored altered iron oxide bearing after carbonate minerals												
		chlorite-hematite-carbonate calcite-siderite?-ankelinite?												
		28.40 quartz-calcite vein W=0.8cm												
		29.40 quartz-calcite vein W=0.2cm												
		hematite rich red colored shear zone												
		30.40 calcite vein W=0.4cm <55°												
		33.30 calcite vein W=0.5cm <45°												
		33.80 calcite vein W=1cm <70°												
		dark greenish gray colored altered microdiorite epidotized along old fissures												
		39.20 calcite vein W=0.2cm <35°	39.00											
40		dark greenish gray colored altered microdiorite												
		jointy zone, <40° ~80°												
		45.00												
		46.70 ~47.20 bleached and sheared zone												
		46.70 quartz-calcite vein, W=2cm												
		46.72 quartz vein W=0.3cm <45°												
50														

GEOLOGIC CORE LOG OF MJMU-7 (2/3)

DEPTH (m)	GEOL. COLUMN	DESCRIPTION	Depth (m)	Sample No.	LABORATORY TESTS							
					Ore Analysis Au ppm Ag ppm	XRD	T-S	F-I	WRCA	P-S	K-Ar	
50		50 light gray colored clay W=0.5cm shear zone, W=5cm	50.40									
		51.50 quartz vein, W=5cm <70°		UOA142	59	< 0.2						
		51.70 quartz vein, W=0.5cm <50°										
52.50		pyrite rich	52.40	UOA143	1045	< 0.2						
		52.85 pyrite rich quartz vein W=2.5cm zone										
		53.05 quartz vein W=1.5cm										
54.65		53.75 quartz vein W=1cm	54.40	UOA144	37	< 0.2						
		siltstone										
		sandstone										
56.40		56.40-56.70 quartz vein W=30cm <40°	56.40	UOA145	24	< 0.2						
57.20		56.90-70.20 quartz vein W=30cm <40°	57.20	UOA146	7	< 0.2						
		bluish dark gray colored fine-grained sandstone										
59.40		59.40-59.68 quartz vein W=20cm <35°	59.40	UOA147	< 1	< 0.2						
60		shale bed										
		61.60-61.70 quartz vein W=60cm <30	60.70	UOA148	31	< 0.2						
		61.50 quartz vein W=1cm <60										
		61.75-62.05 quartz vein W=30cm <30°										
		fine-grained sandstone										
		63.00-63.10 red colored sandstone, pyritized	62.50	UOA149	248	< 0.2						
		dark green colored sandstone	63.60									
		64.30-64.75 quartz vein W=45cm <45° ~50°		UOA150	327	< 0.2	URS008					
		64.75-65.35 red colored altered sandstone										
		65.35-65.80 quartz vein W=45cm <70° ~60°	65.60	UOA151	507	< 0.2						
		66.45 quartz vein W=4cm <50°										
		66.70-67.10 quartz vein W=40cm <30° ~40°	67.60	UOA152	232	< 0.2						
		67.50-67.55 quartz vein W=5cm <60°										
68.60		67.80-67.90 quartz vein W=10cm <? crushed	68.60	UOA153	315	< 0.2						
		68.25-68.60 quartz vein W=35cm <50° ~60°										
		69.30 quartz vein W=1cm <30°										
		69.65 quartz vein W=3cm <40°										
70		70.70 red colored altered sandstone, quartz veinlets bearing	70.70	UOA154	3160	0.2						
		70.70-71.70 quartz vein W=1m <50° ~55°	71.70	UOA155	5120	0.3			UF1007			
		72.00-72.20 quartz vein W=20cm <60°										
72.45		72.30-72.45 quartz vein W=15cm <40°	73.00	UOA156	3260	0.2						
73.00		72.75-73.00 quartz vein W=25cm <40°	73.85									
		73.85-74.00 quartz vein W=15cm <50°										
		74.25-74.30 quartz vein W=5cm <50°		UOA157	15100	< 0.2						
		74.55-74.65 quartz vein W=10cm <60°	75.55	UOA158	473	< 0.2						
75.55		74.95-75.00 quartz vein W=5cm <50°										
		75.10 quartz vein W=1.5cm <40°										
		75.40 quartz vein W=5cm <40°										
		75.55 quartz vein W=5cm <40°	77.55	UOA159	970	< 0.2						
78.30		dark green colored altered microdiorite, quartz veinlets bearing Dj=5-30cm										
78.80		78.30 xenolith of fine-grained sandstone	79.55									
80		pyrite-quartz vein W=1cm <40°	81.00	UOA160	4930	< 0.2						
		dark greenish gray colored altered microdiorite, quartz-veinlets bearing Dj=3-20cm	83.00	UOA161	15	< 0.2						
			85.00	UOA162	2	< 0.2						
				UOA163	13	< 0.2						
		87.00 quartz vein W=7cm <60° Vv≤2%	87.00	UOA164	84	< 0.2						
		87.70 pyrite disseminating	87.70	UOA165	6440	< 0.2	URS009		URA003	UPS004	UAD002	
		coarse grain sized pyrite disseminating Py=0.5~0.8%, φ≤5mm	89.70									
90		90.80 quartz vein W=1.5cm <35°	91.25	UOA166	2730	< 0.2						
92.15		92.15-92.65 milky white quartz vein W=50cm <55°	92.65	UOA167	1620	< 0.2						
		93.55-93.70 quartz vein W=15cm <40°		UOA168	8320	< 0.2						
94.85		94.80 boundary	94.80	UOA169	76	< 0.2						
		94.80-95.20 quartz network zone W=40cm <30°	95.20									
		medium grained sandstone, dark green colored		UOA170	960	< 0.2						
96.95		96.60-96.95 quartz vein W=35cm <40°, pyrich	97.32	UOA171	470	< 0.2						
		97.25-97.32 quartz vein W=7cm <40°										
		pyrite-bearing										
98.50		98.50 boundary										
100		dark green colored sandstone, medium-grained and disseminated by fine grained pyrites	99.32									