Chapter 3 Result of The 3rd Year's Investigation

3-1 Zalturbulak area

Three diamond core drill holes, MJTA-3, -4 and –5, with the total aggregated length of 800m, were placed in Central Zalturbulak Prospect of Zalturbluk Area during the 3rd Year's Field Campaign. The detailed descriptions of the drill cores are presented in the drill hole columns, Plate 1 to 3 attached. The detailed results of the laboratory tests such as microscopic observations of thin and polished sections, X-ray diffraction analysis, homogenization temperature and salinity analysis of fluid inclusions, and chemical analysis of core samples, are also attached in Appendices-1, -2, -3, -4 and –6 respectively. Geology, alteration, mineralization and the laboratory test results for each hole are summarized below.

3-1-1 MJTA-3

Location: Aktau, 48° 29′ 22″ N, 68° 35′ 00″ E
Depth: 250m
Collar Azimuth: 90°
Collar Inclination: 70°
Core Observation

0.0 – 7.7m: surface cover; yellowish brown sandy soil to 6.2m, containing weathered diorite porphyry pebbles with sizes of 5 to 10cm from 6.2 to 7.7m.

7.7 – 17.8m: oxidized zone; brownish dark gray, weathered diorite porphyry containing 2mm long plagioclase phenocrysts within holocrystalline groundmass. Biotite and hornblende in the groundmass are commonly chloritized. Fractures are stained with iron oxides.

17.8 – 44.4m: diorite porphyry; dark gray, containing plagioclase phenocrysts which occupy 60 to 70% of the total volume. Biotite and hornblende in the groundmass are chloritized. A minor amount of pyrite is observed in hairline fractures or as dissemination. The section between 33.9 and 44.4m is weakly silicified, accompanying pyrite veinlets or dissemination as well as quartz veinlets.

44.4 – 140.0m: hornblende-biotite granite; pinkish gray. Hornblende and biotite are partly chloritized. Pyrite, pyrite-chlorite and pyrite-quartz veinlets are developed at 10 to 50cm intervals. Molybdenite is observed at the depth of 137.8m in association with a quartz veinlet. Veinlets and netwoks of quartz and dissemination of pyrite are well developed in the silicified sections between 50.0 and 55.1m, 79.2 and 84.6m, 103.7 and 105.4m, and 121.7 and127.3m, the pyrite contents of which range from 1 to 2% in volume.

140.0 — 239.6m: hornblende-biotite granodiorite; chloritized and partly silicified. Veinlets of chlorite, at 2 to 10cm intervals, and of epidote, at 10 to 100cm intervals, are observed in the granodiorite, which also contains diorite xenoliths, gypsum veinlets, aplite veins and quartz veinlets in places. An intensely chloritized shear zone, located at around 158.8m, contains pyrite and chalcopyrite as dissemination. Quartz, chlorite and pyrite veinlets and pyrite dissemination are associated with the silicified sections between 162.0 and 200.3m, 212.8 and 215.9m, and 232.9 and 239.6m, the pyrite contents of which range from 1 to 3% in volume.

239.6 — 247.0m: andesite dike; dark gray to dark greenish gray, accompanying minor calcite veinlets. No mineralization is observed.

247.0 — 250.0m: granodiorite; chloritized and silicified, accompanying veins and veinlets of chlorite, pyrite and epidote.

Microscopic Observation of Thin Sections

- Diorite Porphyry(at 32.5m): Most phenocrysts are partly sericitized plagioclase, accompanied by a minor amount of quartz. The groundmass comprises chlorite and epidote, alteration minerals after hornblende and biotite, as well as rock forming minerals such as plagioclase, quartz, K-feldspar and opaques. Minor veinlets of epidote and quartz are also observed.
- Hornblende-Biotite Granite(at 72.9m): The core sample is equigranular granite, comprising K-feldspar, plagioclase, quartz, biotite and common hornblende. A part of plagioclase is altered to sericite. Most mafic minerals are replaced by chlorite, epidote or actinolite in part.
- Weakly Silicified Adamellite(at 163.9m): The core sample is equigranular ademellite , comprising plagioclase, K-feldspar, quartz, biotite and common hornblende. Plagioclase is altered to sericite and mafic minerals, to chlorite. Numerous quartz veinlets are observed.

X-ray Diffraction Analysis

Five core samples were submitted for X-ray diffraction analysis. Quartz, chlorite and sericite are identified as alteration minerals in the silicified samples. Unsilicified diorite porphyry contains such alteration minerals as chlorite and minor sericite. Translucent veinlets at 172.5 and 204.6m are identified as gypsum. Chlorite, sericite and chlorite-sericite mixed layers are detected in the samples which were taken from the walls of the gypsum veinlets and treated with hydraulic elutriation.

Microscopic Observation of Polished Sections

Eight polished sections were prepared for the samples selected from chloritized and

weakly silicified diorite porphyry and granodiorite, and were observed under reflecting microscope. In these samples, pyrite is megascopically observed in forms of veinlets and dissemination or in association with quartz veinlets. Some samples contain chalcopyrite in dissemination and molybdenite associated with quartz veins. Pyrite, chalcopyrite, hematite and magnetite are common ore minerals that are observed under microscope. Galena, molybdenite, pyrrhotite, cubanite and goethite are also identified in some polished sections. Descriptions of three polished sections are given below as for representative modes of occurrence.

- MJTA-3-32.5(at 32.5m): The sample contains pyrite in dissemination or in veiletsin chloritize diorite porphyry. The opaque minerals identified under microscope are abundant pyrite, subordinate magnetite, minor chalcopyrite, very minor cubanite, pyrrhotite and goethite. Pyrite forms euhedral to subhedral crystals with sizes upto 0.2mm. Chalcopyrite occurs as tiny grains upto 50 microns surrounding pyrite crystals. Inclusions of cubanite and pyrrhotite, with sizes of about 10 microns and upto 50 microns respectively, are enclosed within pyrite crystals. Aggregates of tiny goethite grains are formed in rims of magnetite crystals, interstitially filling cleavages.
- MJTA-3-164.8(at 164.8m): The sample contains disseminated pyrite and chalcopyrite in association with chlorite networks. Chalcopyrite, magnetite, hematite, galena and pyrite, in descending order of the amount, are identified under microscope. Chalcopyrite fills 2 to 3mm thick fractures or occurs as discontinuous veinlets. Magnetite, hematite and pyrite are disseminated, with their grain sizes ranging from 0.1 to 0.2mm. Galena occurs in contact with chalcopyrite.
- MJTA-3-174.4(at 174.4): The sample is silicified and contains quartz veinlets carrying pyrite and chalcopyrite. Chalcopyrite, pyrite, magnetite, molybdenite and hematite, in descending order of the amount, are identified under microscope. Chalcopyrite occurs as anhedral crystals, with the maximum grain size of about 3mm, adjacent to euhedral to subhedral pyrite. Magnetite is observed as inclusions within chalcopyrite. Molybdenite occurs either in quartz veins without any other associated sulfides or in contact with chalcopyrite.

Assessment of Chemical Analysis

In order to assess the analytical result, individual assay runs are grouped into sections having common geochemical characteristics in terms of copper and molybdenum values principally in accordance with the following rules;

a) Primary thresholds are set at 200ppm for copper and 10ppm for molybdenum.
b) Higher thresholds may be arbitrarily set, where necessary, in order to highlight sections of significant concentrations in copper and/or molybdenum.
c) Each section comprises at least three consecutive normal assay runs which form a section equal to or longer than 9m.

d) One or two isolated assay runs below the primary thresholds, which occur between two sections above the primary thresholds, are regarded as part of a continuous section above the thresholds.

e) No upper cutoff for high values is applied in estimation of an average for each section defined according to the above rules.

f) The value below the detection limit, specifically below 2ppm for molybdenum, is regarded as nil.

These rules are applied to assessment of the other two holes in Zalturbulak(MJTA-4 and –5) as well as the four holes in Akmola(MJTA-6 through –9).

The result of chemical analysis of core samples is summarized in Table II-2-1-1 below.

Table II-2-1-1 Summary of Assay Result, MJTA-3

Interval(m)		Length	Cu(ppm)			Mo(ppm)			Remarks
From	to	(m)	Max.	Min.	Av.	Max.	Min.	Av.	
0.0	6.2	6.2	--	--	--	--	--	--	Surface Cover, no assay
6.2	23.0	16.8	157.0	16.0	73.4	28.0	3.0	12.7	Au max. 140ppb, 19.0-21.0m
23.0	38.0	15.0	86.0	9.5	36.3	26.0	3.0	7.9	
23.0	55.0	32.0	210.0	70.0	151.8	48.0	7.0	21.9	
55.0	65.0	10.0	150.0	61.5	76.5	10.0	3.0	7.8	
65.0	81.0	16.0	516.0	30.0	159.5	7.0	<2.0	3.3	Au max. 850ppb, 78.0-79.0m
81.0	122.0	41.0	352.0	29.0	92.4	7.0	<2.0	2.3	Au max. 430ppb, 81.0-84.0m
122.0	129.0	7.0	575.0	517.5	553.9	34.0	<2.0	16.1	Au max. 130ppb, 126.0-129.0m
129.0	156.0	27.0	415.0	70.5	143.2	12.0	<2.0	2.1	
156.0	195.0	39.0	569.0	111.5	349.8	400.0	<2.0	14.4	Mo max. ass.w/Cu 541.5ppm
195.0	216.0	21.0	645.0	240.0	428.0	51.0	5.0	13.0	Mo and Au(200ppb) max's. ass.w/Cu m
216.0	231.0	15.0	210.0	81.5	137.8	28.5	26.0	20.0	
231.0	240.0	9.0	605.0	190.0	363.6	3.0	<2.0	0.3	Au max. 100ppb, 231.0-233.0m
240.0	250.0	10.0	299.0	28.5	121.1	<2.0	<2.0	<2.0	

The geochemical features of MJTA-3 are summarized as follows;

a) Mo values are slightly elevated, partly in association with pyritization, silicification and argillization, in the uppermost 48.8m section to 55.0m excluding the surface cover of 6.2m. This section bestrides the contact between diorite porphyry and granite. Although no assay run indicates any significant Cu value in this section, chalcopyrite and cubanite are identified under microscope in the polished section, MJTA-3-32.5. Pyrrhotite is also found in the same polished section.

b) Cu and Mo values above the thresholds erratically occur between 55.0 and 156.0m except for the 7m section between 122.0 and 129.0m, for which averages of Cu and Mo contents are estimated at 553.9ppm and 16.1ppm respectively. This section is characterized by development of quartz networks, intense silicification and moderate pyritization within granite.

c) Au values are significantly increased to an average of 430ppb in the 6m section

which includes an assay run indicating a Cu value of 516.0ppm. The host granite is invarianly chloritized, partly silicified and pyritized.

d) The 60m section between 156.0 and 216.0m occurs within granodiorite, starting 16m below the contact to granite, and indicates moderate increase in Cu and Mo values with their averages of 377.2ppm and 13.9ppm respectively. In the upper 39m section, however, occurrence of high Mo values is extremely erratic, including the highest of 400.0ppm for an one meter section, 171.0-172.0m. The alteration feature of this section is characterized by moderate to intense silicification, accompanying local concentrations of pyrite.

e) No significant Cu value is indicated in the section between 216.0 and 231.0m, although moderately elevated Mo values continue to the end of this section. Silicification and pyritization are generally weak.

f) The 9m section between 231 and 240m indicates an average Cu value of 363.6ppm in association with moderate to intense silicification and pyritization. However, no Mo value of any significance is detected.

g) Neither Pb nor Zn value is elevated to a degree of any significance even in a geochemical sense throughout this hole.

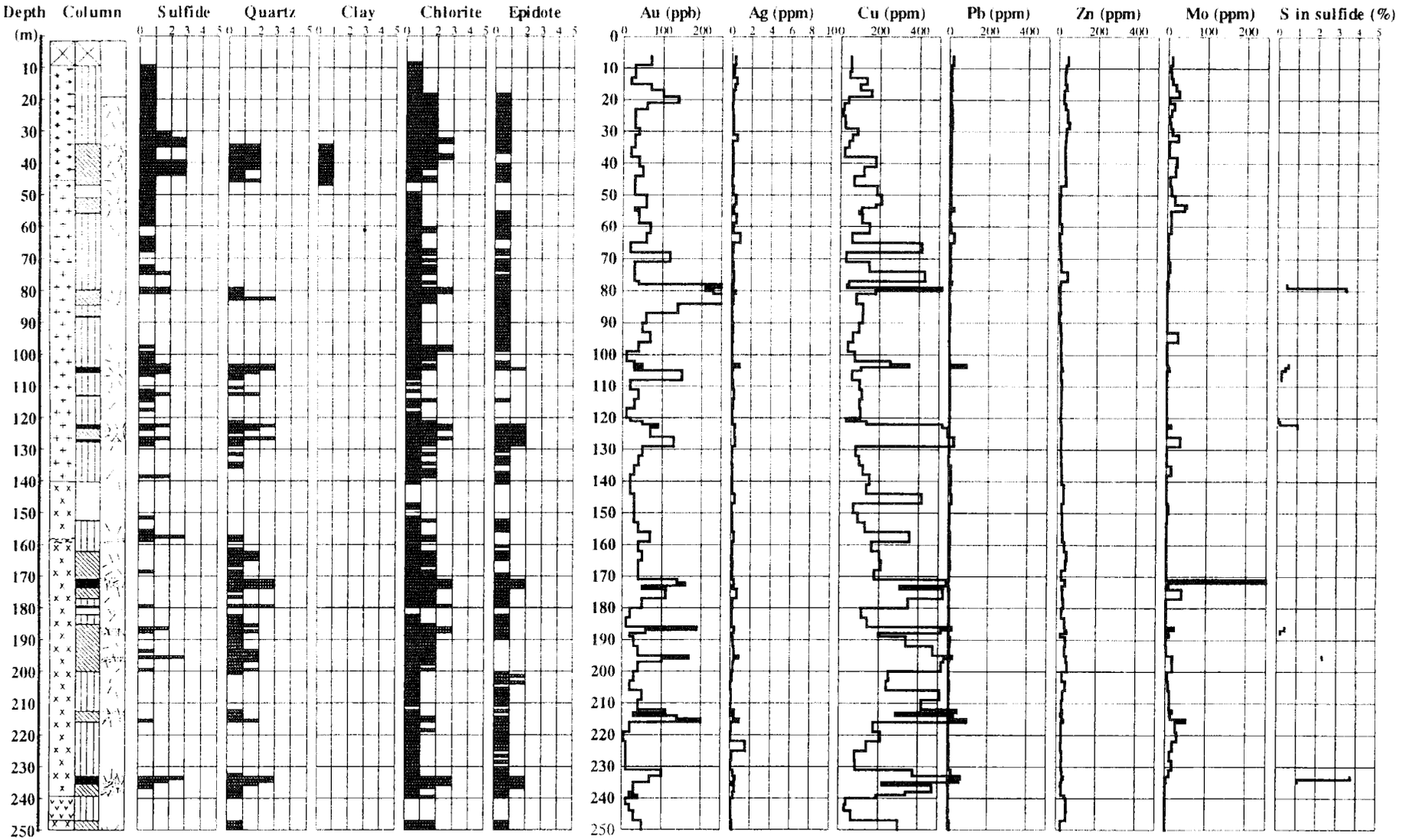
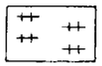
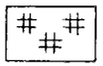


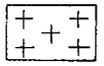
Figure Ⅱ-3-1-1 Alteration mineral assemblage and assay results of the drill core samples from MJTA-3

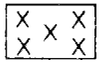
LEGEND OF LOG SYMBOLS

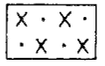
Rock facies symbols

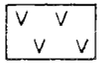

Diorite porphyry

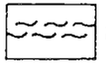

Diorite


Granite

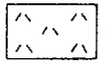

Granodiorite

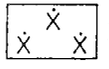

Altered granodiorite


Andesite

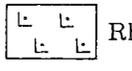

Shear zone

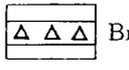

Fine grained tuff


Coarse grained tuff, Porphyritic tuff


Porphyry


Dacite


Rhyolite porphyry


Breccia dyke


Quartz vein

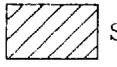
Alteration symbols


Propyritic alteration


Argillic alteration


Silicification


Strong silicification

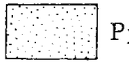

Sericitization + Chloritization
(only MJTA-2)

Mineralization symbols


Quartz(+ Pyrite)veinlets
Pyrite veinlets


Quartz(+ Pyrite)network
Pyrite network


Pyrite dissemination (< 3 %)


Pyrite dissemination (≧ 3 %)


Zone of Tourmalinization

3-1-2 MJTA-4

Location: Aktau, 48° 29′ 40″ N, 68° 35′ 16″ E
Depth: 250m
Collar Azimuth: 135°
Collar Inclination: 70°
Core Observation

0.0－15.0m: surface cover; yellowish brown soil to 6.0m and yellowish brown pebbly soil from 6.0 to 15.0m.

15.0－30.5m: bed rocks; intensely weathered. The upper section to 20.4m is strongly stained by iron oxides, while the lower section contains both iron oxides and pyrite, indicating a red-ox transition zone.

30.5－94.2m: fine grained tuff; generally chloritized and containing a number of chlorite and quartz veinlets at several centimeter intervals. Pyrite is commonly associated with these veinlets. Minor epidote and calcite veinlets are also observed. Pyritic quartz veinlets, as well as disseminated pyrite, are well developed where silicification superimposes these alterations.

94.2－127.4m: porphyritic andesite; containing plagioclase phenocrysts of 2mm long, and fine grained diorite. The rocks have undergone both silicification and chloritization, with development of pyritic quartz and chlorite veinlets at intervals of several centimeters. Minor epidote and calcite veinlets are also observed. Calcite veinlets crosscut those of quartz, chlorite and epidote. Quartz and pyrite veinlets are well developed where silicification is intense.

127.4－160.2m: fine grained tuff; chloritized and interbedded with thin layers of siltstone. Chlorite and quartz veinlets, as well as minor calcite veinlets, are observed at several centimeter intervals. Quartz veinlets carrying pyrite are well developed, together with pyrite dissemination in part, in the section between 127.4 and 138.9m where weak silicification is observed.

160.2－221.6m: fine grained diorite; chloritized. Chlorite veinlets carrying pyrite are developed at several to 20cm intervals. Minor quartz, epidote calcite veinlets are also observed. Pyrite is disseminated where silicification is intense in part of the weakly silcicified section between 203.2 and 218.0m.

221.6－250.0m: fine grained tuff; chloritized. Chlorite veinlets carrying pyrite are developed at intervals of several to 20cm, together with minor pyrite, epidote, quartz and calcite veinlets.

Microscopic Observation of Thin Sections

- Hornfels(at 40.9m): The core sample is dark gray, fine grained and similar in appearance to fine grained tuff. Under microscope, euhedral or subeuhedral plagioclase laths, about 0.2mm long, and anhedral quartz grains are arranged indicating indistinct preferred orientation. Mafic minerals are commonly chloritized and plagioclase are mostly sericitized. Fine quartz grains are interstitially formed as the result of recrystallization. Quartz veinlets are abundant while calcite veinlets are minor.
- Fine Grained Diorite(at 187.5m): The core sample is greenish dark gray, fine grained, holocrystalline and equigranular in appearance. Under microscope, it mainly comprises equigranular plagioclase and common hornblende with grain sizes ranging from 0.5 to 0.8mm, and subordinate biotite, augite and quartz. Original textures are obliterated due to chloritization(partly epidotization) of mafic minerals, sericitization of plagioclase and pervasive silicification.

X-ray Diffraction Analysis

Six core samples were submitted for X-ray diffraction analysis. Alteration minerals such as quartz, chlorite, sericite and pyrite are identified in the samples of silicified rocks. Veinlets in the silicified rocks are determined as those of calcite, clay(containing sericite/smectite mixed layers, smectite etc.) or gypsum according to the result of the X-ray diffraction analysis of the relevant samples after hydraulic elutriation.

Microscopic Observation of Polished Sections

Seven polished sections were prepared for the selected samples of fine grained tuff which contained pyrite in veinlets, in association with quartz veinlets and/or as dissemination, and were observed under reflecting microscope. Disseminated chalcopyrite was also megascopically identified in some of the samples. Common ore minerals which are determined under microscope are pyrite, chalcopyrite and goethite, occasionally with subordinate hematite, pyrrhotite, magnetite and galena. Descriptions of three polished sections are given below as for representative modes of occurrence.

- MJTA-4-40.9(at 40.9m): The sample is of silicified andesite containing abudant pyrite in dissemination. The opaque minerals observed under microscope are abundant pyrite, minor pyrrhotite, very minor chalcopyrite, hematite and goethite. Euhedral to subhedral pyrite crystals are often aggregated into 'poikilitic' grains with sizes upto 0.5mm. Pyrite veinlets are also common. Pyrrhotite occurs as anhedral crystals with sizes upto 0.1mm in association with pyrite. Chalcopyrite is enclosed within pyrite crystals as inclusions. Anhedral grains of hematite and goethite, both with sizes upto 50 microns, are always observed in clos proximity to pyrite.
- MJTA-4-62.0(at 62.0m): The sample was collected from a silicified part of fine grained tuff which contained pyrite in veinlets and as dissemination. Pyrite,

chalcopyrite and goethite, in descending order of the amount, are identified under microscope. Pyrite forms veinlets with thicknesses of about 4mm. Chalcopyrite occurs as anhedral inclusions, with the maximum grain size of 40 micron, within pyrite.

- MJTA-4-248.6(at 248.6m): The sample was collected from fine grained tuff which, having undergone chloritization and epidotization, contained abundant pyrite in veinlets and as dissemination. Disseminated chalcopyrite was also observed but uncommon. Pyrite, magnetite and chalcopyrite, in descending order of the amount, are identified under microscope. Pyrite, forming euhedral crystals with the maximum grain size of 2mm, occurs in veinlets or as dissemination. Euhedral or subhedral magnetite crystals are often integrated into aggregates with sizes of about 2mm and are disseminated. Chalcopyrite occurs as inclusions, with the maximum grain size of 0.2mm, within pyrite or forms fine veinlets crosscutting pyrite.

Assessment of Chemical Analysis

The result of chemical analysis of core samples is summarized in Table II-2-1-1 below.

Table II-2-1-1 Summary of Assay Result (MJTA-4)

Interval(m) From	to	Length (m)	Cu(ppm) Max.	Min.	Av.	Mo(ppm) Max.	Min.	Av.	Remarks
0.0	6.0	6.0	--	--	--	--	--	--	Surface Cover, No Assay
6.0	30.0	24.0	860.0	194.0	326.2	50.0	<2.0	2.1	Au max 160ppb 18.0-20.0
30.0	41.0	11.0	182.0	80.0	119.3	10.0	<2.0	1.5	
41.0	50.0	9.0	370.0	168.0	267.8	10.0	<2.0	6.7	Au max 200ppb, 41.0-43.0
50.0	67.0	17.0	346.0	112.0	174.5	50.0	<2.0	19.6	Au max 310ppb, 50.0-53.0
67.0	95.0	28.0	202.4	27.1	98.6	21.0	<2.0	3.3	
95.0	107.0	12.0	1308.0	148.7	464.9	33.0	<2.0	5.8	Au max 470ppb, 95.0-98.0, ass.w/Cu max
107.0	184.0	77.0	934.0	31.5	151.3	28.0	<2.0	4.4	Au max 137ppb, 151.0-154.0, ass.w/Cu max
184.0	203.0	19.0	680.0	188.0	286.2	19.0	2	10.3	Au max 170ppb, 184.0-187.0, ass.w/Cu max
203.0	250.0	47.0	436.0	52.0	121.3	14.0	<2.0	3.7	Cu max. at the bottom of hole

The geochemical features of MJTA-4 are summarized as follows;

a) The top 24m section below the 6m soil cover, which is within a zone of oxidation, is relatively enriched in copper without notable Mo values. Copper minerals in this section possibly comprise copper oxides, although their species have not been determined.

b) Cu values are somewhat elevated in the 9m section between 41.0 and 50.0m which consists of weakly silicified and pyritized andesite. Pyrrhotite and chalcopyrite, besides pyrite, are identified under microscope in the polished section, MJTA-4-40.9, which is regarded as representing the uppermost part of this section as far as the mineralization is concerned.

c) The uppermost 12m section, between 95.0 and 107.0m, of porphyritic andesite underlying aphanitic andesite includes some assay runs indicating high Cu values

upto 1308.0ppm in association with moderate to weak silicification and pyritization.

d) Occurrence of Cu and Mo values above the thersholds is generally erratic throughout the hole. No apparent relationship can be seen between the two elements.

e) High Au values exceeding 100ppb often occur associated with anomalous Cu values, which may suggest a positive geochemical relationship between the two elements.

f) Neither Pb nor Zn value of any significance is recorded within this hole.

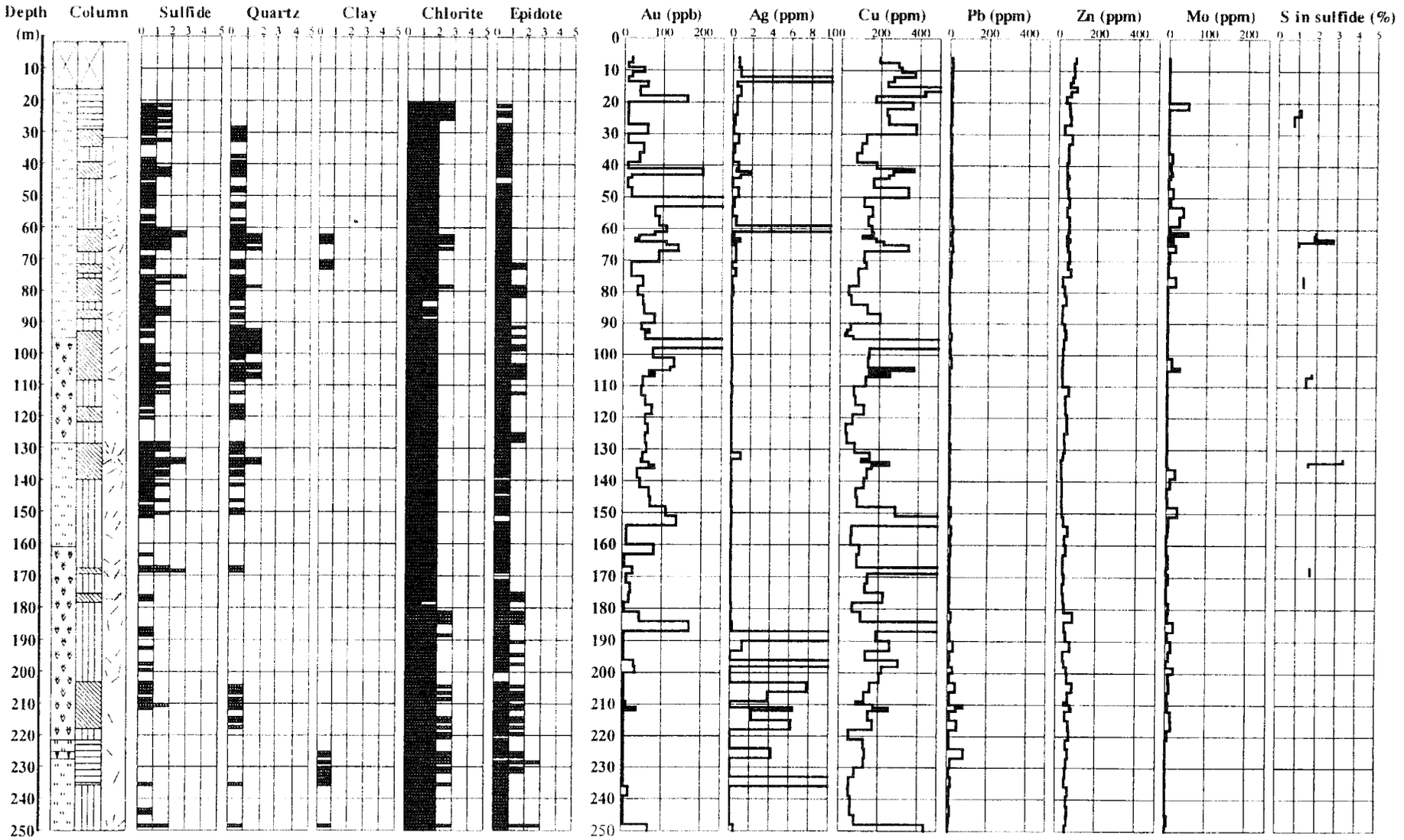


Figure Ⅱ-3-1-2 Alteration mineral assemblage and assay results of the drill core samples from MJTA-4

3-1-3 MJTA-5

Location: West Zalturblak, 48° 28′ 44″ N, 68° 34′ 03″ E

Depth: 300m

Collar Inclination: 90°

Core Observation

0.0—8.5m: surface cover; brown, coarse sandy soil to 2.0m and alluvial deposits from 2.0 to 8.5m, containing pebbles of fresh granite and intensely weathered granodiorite.

8.5—33.0m: oxidized zone; equigranular biotite-hornblende granodiorite with grain sizeranging from 3 to 5mm. Open cracks, stained by iron oxides, are well developed at intervals of 5 to 20cm. Minor chlorite, epidote and quartz veinlets are observed in places. Pyrite is associated with quartz veinlets.

33.0—135.0m: hornblende-biotite granite; generally weak in alteration. Rocks with minimal alteration alternate with those chloritized, epidotized and/or weakly argillized at intervals of 2 to10m. The overall pyrite content does not exceed 1% in volume. Numerous chlorite and epidote veinlets are developed in the altered rocks; as well as minor quartz, pyrite and calcite veinlets. In the sections from 68 to 85m and from102 to 104m, a small amount of chalcopyrite is observed in association with pyrite, quartz and chlorite veinlets. A minor amount of molybdenite, together with chalcopyrite and pyrite, also occurs associated with quartz veinlets in these sections. Altered rocks with widths of several to several tens centimeters that prevail in the entire section contain altered feldspars tarnished to reddish color and are characterized by development of epidote networks.

135.0—152.6m: biotite-hornblende granodiorite; with minor chlorite and quartz veinlets. Quartz veinlets contain pyrite. Chlorite and epidote networks are well developed in the section from142.5 to147.5m, where plagioclase is weakly argillized and mafic minerals are replaced by chlorite. Feldspars are generally tarnished to reddish brown. A gray clay vein with a width of 3cm crosscuts altered rocks at 147.0m.

152.6—176.6m: hornblende-biotite granite; equigranular with grain sizes ranging from 3 to 4mm. The section between 135.0 and 169.3m, containing altered feldspars tarnished to reddish brown, accompanies epidote, chlorite, quartz and subordinate calcite veinlets. Most mafic minerals are replaced by chlorite in this section. The section between 169.3 and 176.6m comprises fresh hornblende-biotite granite.

176.6—186.0m: granite; dark gray and silicified. Pyrite and very minor chalcopyrite

are disseminated throughout the section. Quartz and chlorite veinlets, containing pyrite, are also observed. The overall sulfide content is estimated at 1 to 2% in volume.

186.6—208.0m: hornblende-biotite granite; medium grained generally weak in alteration. Veins of altered rocks, with widths of several centimeters, are developed at intervals of 20 to 70 cm and contain abundant chlorite and epidote networks. Feldspars in the proximity to the veins are tarnished to reddish brown.

208.0—222.7m: intensely silicified rocks for the most part; characterized by abundant pyrite as dissemination, in veinlets or in association with chlorite or quartz veinlets, occasionally containing minor chalcopyrite and molybdenite as dissemination. The quartz veinlets are accompanied by pyrite, minor chalcopyrite and molybdenite. Dark gray clay veins crosscut these veinlets. Original textures of the rocks are completely obliterated due to intense alteration. The overall sulfide content is estimated at 2 to 3% in volume.

222.7—300.0m: hornblende-biotite granite; medium grained. Original textures are well preserved with minimal alteration, though plagioclase and mafic minerals are partly argillized and chloritized respectively. A number of quartz veinlets, carrying pyrite, are well developed throughout the section, often with molybdenite alongside. The overall sulfide content is estimated at around 1% or less in volume.

Microscopic Observation of Thin Sections

- Hornblende-Biotite Granite(at 104.2m): The core sample is medium grained, equigranular granite, with grain sizes of about 3mm, comprising such rock forming minerals as K-feldspar, plagioclase, quartz, biotite and common hornblende. Mafic minerals are entirely altered to chlorite and epidote, and most plagioclase to sericite.

X-ray Diffraction Analysis

Six core samples were submitted for X-ray diffraction analysis. Alteration minerals such as chlorite, epidote and subordinate sericite are identified in these samples. Sericite/smectite mixed layers, instead of sericite, are identified in the sample at 122.0m.

Microscopic Observation of Polished Sections

Five polished sections were prepared for the selected samples of granite which contained pyrite in veinlets and/or quartz veinlets, and were observed under reflecting microscope. Minor chalcopyrite and molybdenite were megascopically identified in association with pyrite and quartz veinlets. Common ore minerals which are observed

under microscope are pyrite, chalcopyrite, molybdenite and goethite, occasionally with subordinate magnetite, hematite, galena and (?)bismuthinite. Descriptions of two polished sections are given below as for representative modes of occurrence.

- MJTA-5-134.2(at 134.2m): The sample was collected from a quartz veinlet which contained blebs of chalcopyrite. Ore minerals , identified under microscope, are chalcopyrite, subordinate pyrite, molybdenite, magnetite, goethite and minor (?)bismuthinite. Euhedral to subhedral crystals of pyrite, magnetite and goethite, ordinarily with grain sizes of about 0.1mm, sporadically distribute throughout microscopic visual fields, often surrounding chalcopyrite grains. Molybdenite is characteristically observed as euhedral flakes, with the maximum grain size of 3mm, in close association with quartz veinlets.
- MJTA-5-280.0(at 280.0m): The sample was collected from a part where pyrite and quartz networks, carrying molybdenite, were developed. The major ore minerals, identified under microscope, are pyrite, molybdenite, magnetite, chalcopyrite and hematite in descending order of the amount. Euhedral molybdenite flakes, with the maximum grain size of 0.5mm. are associated with pyrite or pyritic quartz veinlets. Magnetite forms euhedral crystals, with sizes upto 0.3mm, and is partly altered to hematite. Chalcopyrite occurs as inclusions within pyrite, with the maximum grain size of 20microns, or fills cleavages of pyrite.

Assessment of Chemical Analysis

The result of chemical analysis of core samples is summarized in Table II-2-1-3 below.

Table II-2-1-3 Summary of Assay Result (MJTA-5)

Interval(m)		Length	Cu(ppm)			Mo(ppm)			Remarks
From	to	(m)	Max.	Min.	Av.	Max.	Min.	Av.	
0.0	6.0	6.0	122.0	59.0	90.5	<2.0	<2.0	<2.0	Surface Cover
6.0	18.0	12.0	1249.0	251.0	534.5	<2.0	<2.0	<2.0	
18.0	98.0	80.0	261.0	20.0	107.2	68.0	<2.0	5.3	High Mo, erratic
98.0	144.6	46.6	206.0	24.0	72.1	66.0	<2.0	21.4	
144.6	174.0	29.4	113.0	19.0	47.8	54.0	<2.0	15.6	High Mo, erratic
174.0	195.0	21.0	183.0	22.0	94.1	34.0	11	21.1	Au max 140ppb, ass.w/Cu-Pb-Zn
195.0	204.0	9.0	36.0	17.0	26.7	<2.0	<2.0	<2.0	
204.0	214.0	10.0	192.0	37.0	109.8	26.0	<2.0	19.3	Aumax 130ppb, 211.0-214.0m
214.0	229.0	15.0	2064.0	119.0	391.9	695.0	8	87.7	Au max 280ppb, 219.0-220.0m, ass.w/Cu-Mo-Pb-Zn
229.0	250.0	21.0	202.0	108.0	213.8	452.0	<2.0	50.3	High Mo, in the top assay run only
250.0	300.0	50.0	268	12	96.5	96	<2.0	30.2	

The geochemical features of MJTA-5 are summarized as follows;

a) The uppermost 12m section of oxidized granodiorite from 6.0 to 18.0m includes anomalous Cu values upto 1249.0ppm with no Mo value exceeding the detection limit. Copper minerals in this section possibly comprise copper oxides, although their species have not been determined.

b) Mo values in the 80m section from 18.0 to 98.0m are mostly less than the detection limit with a few exceptions indicating anomalous values upto 68.0ppm. Pyritization and silicification in this section are generally inconspicuous or very weak if any. The contact between overlying granodiorite and granite is located at 33.0m, which is the approximate bottom of the oxidation zone.

c) Most assay runs of the 46.6m section from 98.0 to 144.6m indicate Mo values better than 10ppm with the maximum value of 66.0ppm. K-feldspar selvages are occasionally observed, though pyritization and silicifiaction are invariably inconspicuous. Granodiorite is intercalated between 135.0 and 142.5m.

d) No notable increase in values of any analyzed elements is recorded in the 29.4m section between 144.6 and 174.0m except for a couple of assay runs indicating 40.0 and 54.0ppm Mo. Neither silicification nor pyritization is obvious in this section.

e) Mo values are moderately elevated in the 21m section from 174.0 to 195.0m. The top 9m section indicates slight to moderate increase in Cu, Pb and/or Zn values in association with quartz-pyrite veinlets carrying very minor chalcopyrite.

f) The 9m section between 195.0 and 204.0m appears to be completely barren in any analyzed elements.

g) The section from 204.0m to the bottom of hole is enriched in molybdenum to variable degrees. Silicification and pyritization are notable throughout the section and particularly intense for the 15m section between 214.0 and 229.0m where Cu, Pb, Zn and Mo values are significantly elevated. Increase in Pb and Zn values is, however, limited only in the 2m section between 219.0 and 221.0m, in which Cu and Mo values indicate their maxima of 2064.0 and 695.0 ppm respectively. High Au values are also associated with increase in these elements.

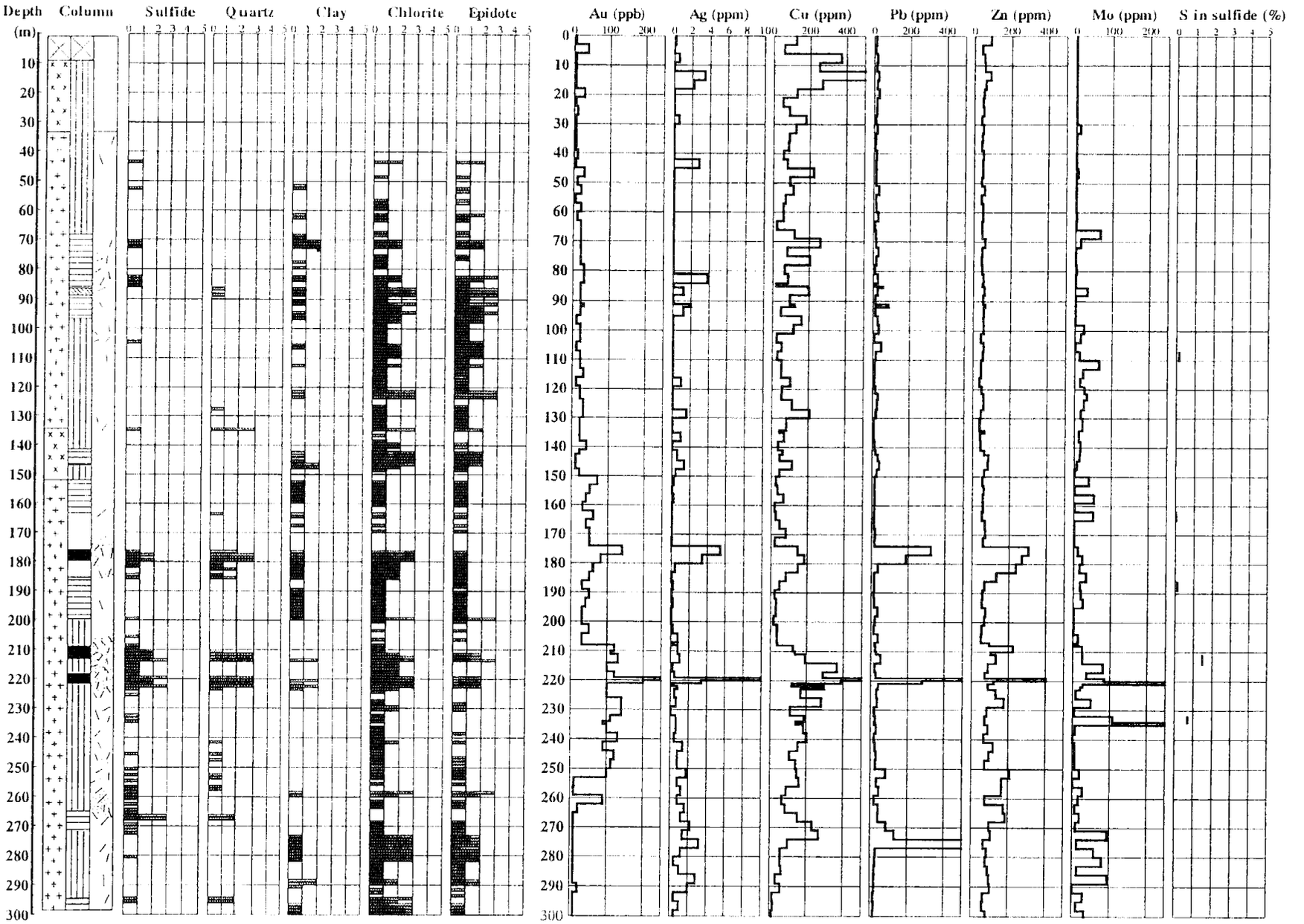


Figure Ⅱ-3-1-3 Alteration mineral assemblage and assay results of the drill core samples from MJTA-5