PART III

PART III Conclusion of the Third Year Investigation

Chapter 1 Conclusion

1.1 Geophysical Prospecting

(1) Applicability of Geophysical Prospecting

Applicability of the geophysical prospecting methods employed in the current exploration project can be appraised as summarized below, based on the results of the geophysical prospecting and the laboratory testing of rock samples for the El Akhouat-Argoub Adama, Bazina Kebira and Siriana Prospects in the 3rd Year's Campaign as well as the entire results of the geophysical prospecting and drilling exploration carried out during the 3-Year Project period.

① Chargeability is effective to outline mineralized zones, because high chargeability has been indicated in the mineralized rock samples by the laboratory testing and in association with the known ore deposits or the mineralized zones intersected by the drilling.

② Intensity of chargeability can be correlated to intensity of mineralization. Because high chargeability exceeding 20 mV/V is indicated in the vicinity of the drill holes that intersected the mineralized zones, while chargeability is moderate at around 10 mV/V where mineralization is weak and consists mainly of pyrite.

③ The groundwater, which was encountered in the drill hole, MJTK-A1, in the Siriana Prospect and caused difficulty in drilling operation due to its high pour water pressure, indicated high chargeability at around 10 mS/cm. This had been anticipated from the result in the 2nd Year's geophysical prospecting. Low resistivity anomalies at around 1 Ωm have been also located in the vicinity of holes that were drilled in the Bou Khil, Bazina Kebira and Siriana Prospects and were enforced to terminate at shallow depths due to high pour water pressure.

④ The mineralization, with the characteristics of its geophysical signatures, is implied to occur in the proximity of faults intersecting boundaries between the Triassic System and the Cretaceous or Tertiary System.

⑤ It will be possible to locate subsurface Triassic diapirs associated with transition zones by the gravity cross-section analysis combined with the resistivity cross-section analysis of IP measurements.

The above assessment leads to the conclusion that the geophysical prospecting will delineate exploration targets as high chargeability anomalies associated with transition

zones in the vicinity of diapirs where no resistivity anomaly of 1Ωm or less is detected.

(2) Oued Jebes Prospect

The mineral showings in the Oued Jebes Prospect, except the Oued Jebes showing in the OC sector, indicate anomalous chargeability ranging from 5 to 12 mV/V. The chargeability is lower than that of the anomalies in the Bou Khil and El Akhouat-Argoub Adama Prospects surveyed in the 1st Year Campaign, but higher than that of those in the Bazina Kebira and Siriana Prospects surveyed in the 2nd Year Campaign.

The highest chargeability was recorded in association with the Bou Mous showing in the OA sector of the Prospect. This chargeability anomaly was located in the proximity of an E-W fault crosscutting the boundary between the Triassic System and the Cretaceous limestone, where low resistivity and low residual gravity anomalies had been detected in association.

The chargeability anomaly in the vicinity of the Dar Chebka showing in the OB sector is moderate at around 7 mV/V for the maximum reading but outlines a sizable area with the 5 mV/V contour. A low residual gravity anomaly corresponding to a NW-SE trending fault is also associated with the chargeability anomaly and largely superimposed by a high resistivity anomaly. No low resistivity anomaly of 1 Ωm or less has been detected in association. This chargeability anomaly extends to the neighbour of the northeast end of the baseline OB.

A minor chargeability anomaly outlined by the 5 mV/V contour is located in association with the Kef Lasfar showing in the OC sector, near the boundary between the Triassic and the Cretaceous Systems. A zone of low resistivity is also associated and may suggest a possible fault. Although no mineral showing has been indicated on the surface, a chargeability anomaly exceeding 5 mV/V is located at depth in the vicinity of the station OC 1-90. A NW-SE trending fault has been implied in this sector, which appears to be supported by resistivity and residual gravity features. No notable anomaly has been identified in association with the Oued Jebes showing that is marked by the largest old workings in the Oued Jebes Prospect.

A chargeability anomaly is outlined by the 5 mV/V contour, with the maximum exceeding 8mV/V, in association with the Rag el Bagrat showing. As is the case for the Dar Chebka showing in the OB sector, low resistivity and low residual gravity anomalies trend in the NW-SE direction, corresponding to the fault system with same trend in this sector. The fault system bounds this chargeability anomaly from that associated with the Kef Lasfer showing.

(3) El Akhouat-Argoub Adama Prospect

The chargeability anomaly of this prospect, in the center of which the drill hole, MJTK-L2, intersected mineralization, extends in a sizable area outlined by the 10mV/V contour, having high readings exceeding 20 mV/V in the proximity of the drill hole. The geophysical prospecting in this year's field campaign was carried out to verify the northern extension of this anomaly. Chargeability exceeding 10 mV/V was detected along the measuring line L4. However, it is concluded, based on the drilling result and the resistivity and residual gravity features, that the mineralization is limited in the vicinity of the line L3 where the MJTK-L2 were drilled.

The line L6, where chargeability exceeding 20 mV/V had been detected in the 1st year's geophysical prospecting, was extended to the northwest and resurveyed using the IP method in this year. However, the result indicated that the anomaly was in the order of 10 mV/V and proved to decline with depth.

The IP and gravity surveys were conducted along the line L9 to prospect the northern extension of the anomaly on the line L8. An anomaly was outlined by the 10 mV/V contour at the northwestern end of the line.

1.2 Drilling Investigation

A total of 5 holes were drilled in the current year's campaign, namely, MJTK-A1 in the Siriana Prospect, 2 holes, MJTK-C1 and-C2 in the Bazina Kebira Prospect, MJTK-L5 in the El Akhouat-Argoub Adama Prospect, and MJTK-O1 in the Oued Jebes Prospect.

① MJTK-A1 was drilled to explore possible unknown mineralization by verifying the chargeability anomaly. The hole was unable to make advance beyond the depth of 198.80m due to steam blowout, which made it impossible to verify the chargeability anomaly. However, minor Pb and Zn mineralization was encountered at the depths from 112.90 to 119.30m, from 135.00 to 140.00m, from 174.50 to 179.50m and from 190.65 to 197.70m, with the maximum grades of Pb and Zn at 0.33% for 1m section and at 0.64% for 1m section respectively. Therefore, it is confirmed that Pb-Zn mineralization exists between the Mahjoubia and the Siriana showings.

②MJTK-C1 was drilled to identify nature of the H'Zamel Assoued mineralization and to verify the chargeability anomaly. The H'Zamel Assoued mineralization occurs in association with Aptian carbonate rocks of the Cretaceous System. This hole, however, encountered weak Zn mineralization (averaged at 0.29% Zn for 4.0m section) in carbonate rocks of Albian instead of those of Aptian. The chargeability anomaly is proved to be caused by pyrite associated with the mineralization.

③MJTK-C2 was drilled to explore the down-dip extension of the Koudiat Soda ore

deposit and to verify the chargeability anomaly. However, the hole failed to intersect any mineralization other than pyritization associated with Tertiary formations. Therefore, it cannot be expected that the Koudiat Soda ore deposit would extend to the down-dip. Although the hole failed to prove Pb and/or Zn mineralization, it is significant that the geological structure of the ore deposit was well demonstrated in the hole. The cause of the chargeability anomaly may be attributed to pyrite in black, compact shale within the diapir.

④MJTK-L5 was drilled to explore the northern extension of the new mineralization intersected by MJTK-L2, however, terminated at the depth of 242.10m due to a cave encountered. Therefore, this hole verified neither the northern extension of the mineralization nor the cause of the chargeability anomaly. However, calcite-(pyrite)-sphalerite veinlets/networks are intersected at around the depth of 137m, with the average grade of 0.74% Zn for an interval of 2.0m).

⑤MJTK-O1 was drilled to explore to the west of the Dar Chebka showing and to verify the chargeability anomaly. The mineralization was encountered in the interval between 82.50 and 88.70m, and comprised calcite-(pyrite) veinlets carrying minor galena. In addition, minor galena filling fractures was observed in the interval between 272.80 and 276.30m. Other than these mineralized intervals, no notable mineralization was intersected by this hole. It is implied that the cause of the chargeability anomaly was pyrite disseminated in argillaceous limestone.

Chapter 2 Drilling Investigation

2.1 Summary of the Drilling Operation

The drilling operation of the 3nd year campaign comprised one hole for the Siliana prospect (MJTK-A1), two holes for the Bazina Kebira prospect (MJTK-C1 and C2) , one hole for the El Akhouat-Argoub Adama prospect (MJTK-L5) and one hole for the Oued Jebs prospect (MJTK-O1).

The drilling operation results are summarized in Table 10. The drilling program had been originally planned to drill four holes, one hole each for the Siliana and El Akhouat-Argoub Adama and two holes for the Bazina Kebira, totaling 1,450m in length. The program was altered, in the course of the operation, to add one more hole with the length of 300m for the Oued Jebs. However, the one hole each in the Sliana, Bazina Kebira and El Akhouat-Argoub Adama prospect failed to reach the intended depth of 350m and 400m due to operational accidents, such as jamming, and unfavorable ground conditions, such as steam blowout. Accordingly, these holes were immaturely terminated at 198.80m, 311.20m and 242.10m respectively. The achieved total length of drilling resulted in 1,487.10m for the five drill holes.

Table 10 Drilling Operation Result

	MJTK-A1	MJTK-C1	MJTK-C2	MJTK-L5	MJTK-O1
Mobilization Phase	30/8/2001	10/10/2001	1/11/2001	29/11/2001	20/12/2001
Number of Days	3.0	1.5	2.0	3.0	3.0
Preparation Phase	2/9/2001	6/10/2001	3/11/2001	2/12/2001	23/12/2001
Number of Days	4.0	4.0	3.0	3.0	2.0
Drilling (From)	6/9/2001	11/10/2001	5/11/2000	5/12/2001	25/12/2001
(To)	10/10/2001	31/10/2001	28/11/2001	19/12/2001	16/1/2002
Drilling Days	34.5	20.5	14.0	13.5	23.0
Total of Days	41.5	26.0	19.0	19.5	28.0
Planned Depth (m)	350.00	350.00	350.00	400.00	300.00
Drilled Depth (m)	198.80	311.20	386.10	242.10	352.60
Overburden (m)	0.00	24.00	4.70	0.00	0.70
Core Length (m)	186.70	267.90	365.00	232.90	340.20
Recovery (%)	93.9	86.1	94.5	96.2	96.5
HQ Casing (m)	18.0	27.0	18.0	5.0	19.0
NW Casing (m)	120.0	120.0	108.0	0.0	48.0
Meters/Day	5.76	15.18	27.58	17.93	15.33
Meters/Total Days	4.79	11.97	20.32	12.42	12.59

2.2 Procedure of the Drilling Operation

2.2.1 Operation Schedule

The achieved drilling schedule for each drill hole is shown in Table 11. The drilling operation was initially carried out by only one drill machine.

Table 11 Drilling Schedule

	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.
MJTK-A1	30		10			
MJTK-C1			10	31		
MJTK-C2			1	28		
MJTK-L5				29	19	
MJTK-01					19	7

2.2.2 Drilling Work and Work Force

The drilling work was carried out using a wire-line method, being contracted to drilling companies stationed in Tunis, the Republic of Tunisia. The contractors were Sondages Service Travaux.

One drill machine was employed for the drilling work, which was operated on 2-shifts/20-hours a day basis in principle. The work force for each shift comprised one drill engineer and two assistants, together with a worker to take care of drill water supply.

2.2.3 Machines, Tools and Drill Water Supply

The used drill machine and tools are listed in Table 12. The numbers and types of used drill bits, together with the consumed amounts of consumables, are indicated in Table 13. The drill machines used is RESKA30, made in Italy.

Table 12 List of Drill Machines and Tools

Drilling Machines: -RESKA (2 set): model R30, made in Italy, with diesel engine (137HP),
Water Supply Pomp: -HATZ (1 set): made in Tunisia, with diesel engine, -NENZI (1 set): made in Tunisia, with diesel engine,
Water Tank: -3 set (9m3), iron, -2 set (3,000L), iron,
Tractor: -Kubota (2 set): made in Japan,

Table 13 List of Drill Bits and Consumables

Specification	Unit	MJTK-A1	MJTK-C1	MJTK-C2	MJTK-L5	MJTK-O1
Diamond bit (HQ)	pcs.	1	1	1	1	1
Diamond reamer (HW)	pcs.	1	1	1	1	1
Diamond bit (NQ)	pcs.	1	2	1	1	1
Diamond reamer (NW)	pcs.	1	1	1	—	1
Dieseloil	l	1,420	700	920	900	2,920
Lubricant oil	l	140	60	60	80	110
Grease	kg	38	20	17	21	30
Cement	kg	—	—	—	—	—
Bentonite	kg	—	—	—	—	—

Drill water was supplied from the Siliana river in the Siliana prospect, from a spring at the portal of the abandoned in the Bazina Kebira and Oued Jebs prospect and from the irrigation ponds in the vicinity of the drilling sites for that in the El Akhouat -Argoub Adama prospect.

2.2.4 Drill Core Sampling and Storage

Drill cores of each drilling run was recovered from the core tube and placed in a wooden core box. The drill cores in the core boxes were then photographed, geologically observed and sampled at intervals. The core boxes, bundled in a 30-box batch, was transported to and stored in the storage owned by ONM, after completion of the photographing, geological observation and sampling. The drill core samples were submitted for chemical analysis at the ONM's analytical laboratory in Tunis.

2.3 Result of Drilling Investigation

2.3.1 Siliana Prospect

The geological summary plan of the Sliana prospect is shown in Figure 147, incorporating the drill hole locations. As shown in the figure, the geology of the prospect comprises the Triassic diapir, the Cretaceous carbonates (limestone, marl, limestone-marl and sandstone-argillite alternations), sedimentary rocks (marl, sandstone, argillite and conglomerate) of the Tertiary system (Eocene, Oligocene, Miocene and Pliocene) and the Quaternary system. The Cretaceous system contains the Mahjoubia and Siliana mineral occurences.

One drill hole, MJTK-A1 was put down along the geophysical survey lines, A5 of the 2st Year Campaign in this prospect, in order to locate new prospective ore deposits and

to verify the IP anomaly outlined by the geophysical survey. The columnar hole section and the geological profile along the section including the hole are shown in Figures 156 and 148 respectively.

The geology of this hole comprises marl from 0.00 to 93.20m, marl-limestone alternation from 93.20 to 163.40m, brecciated limestone from 163.40 to 175.30m and marl-limestone alternation from 175.30 to 198.80m, end of the hole, all of which are correlated to the carbonates of the Barremian to Albian stages of the Cretaceous system.

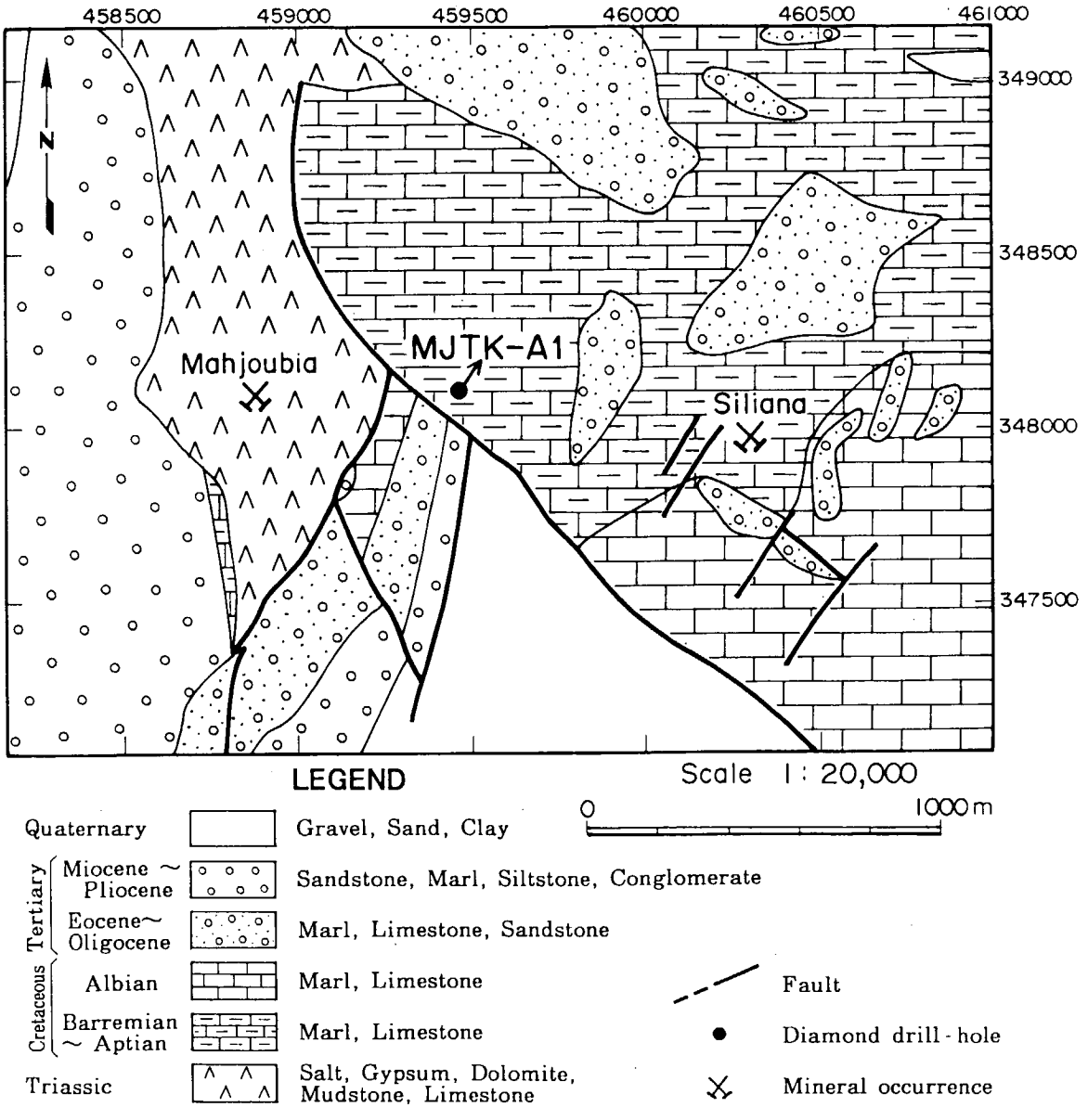


Figure 147 Geology and Drill Hole Location of the Siliana Prospect

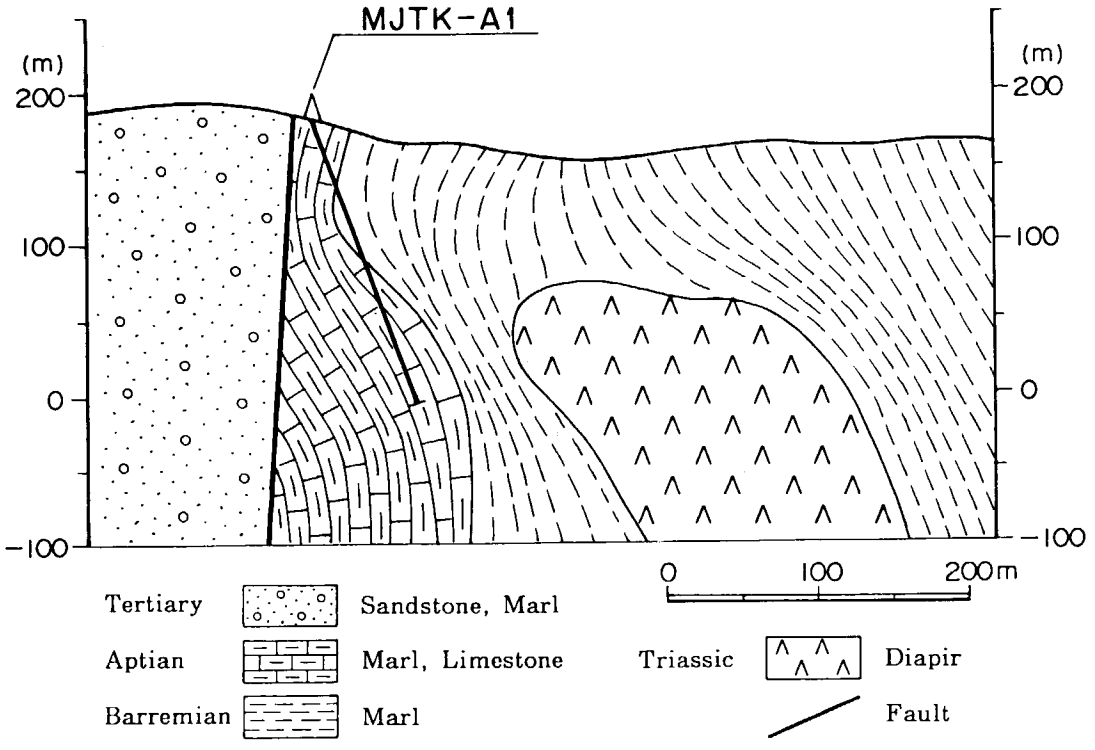


Figure 148 Geological Profile along the Hole, MJTK-A1

The hole was unable to make advance beyond the depth of 198.80m due to steam blowout, which made it impossible to verify the chargeability anomaly. However, minor Pb and Zn mineralization was encountered at the depths from 112.90 to 119.30m, from 135.00 to 140.00m, from 174.50 to 179.50m and from 190.65 to 197.70m, with the maximum grades of Pb and Zn at 0.33% for 1m section and at 0.64% for 1m section respectively. Therefore, it is confirmed that Pb-Zn mineralization exists between the Mahjoubia and the Siriana showings.

2.3.2 Bazina Kebira Prospect

The geological summary plan of the Bazina Kebira prospect is shown in Figure 149, incorporating the drill hole locations. As shown in the figure, the geology of the prospect comprises the Triassic diapir, the Cretaceous limestone and marl, the Tertiary system (Eocene, Oligocene and Pliocene) consisting of mainly of limestone, sandstone, argillite and conglomerate and the Quaternary system. The Cretaceous system contains the Koudiat Soda and Koudiat Safra ore deposit that was mined in the past, H'zama Lassoued mineral occurences.

Two drill holes, MJTK-C1 and MJK-C2 were put down along the geophysical survey lines, C7 and C15, of the 2st Year Campaign in this prospect, in order to locate new prospective ore deposits and to verify the IP anomaly outlined by the geophysical survey. The columnar section of each hole is shown in the figure 157 to 158.

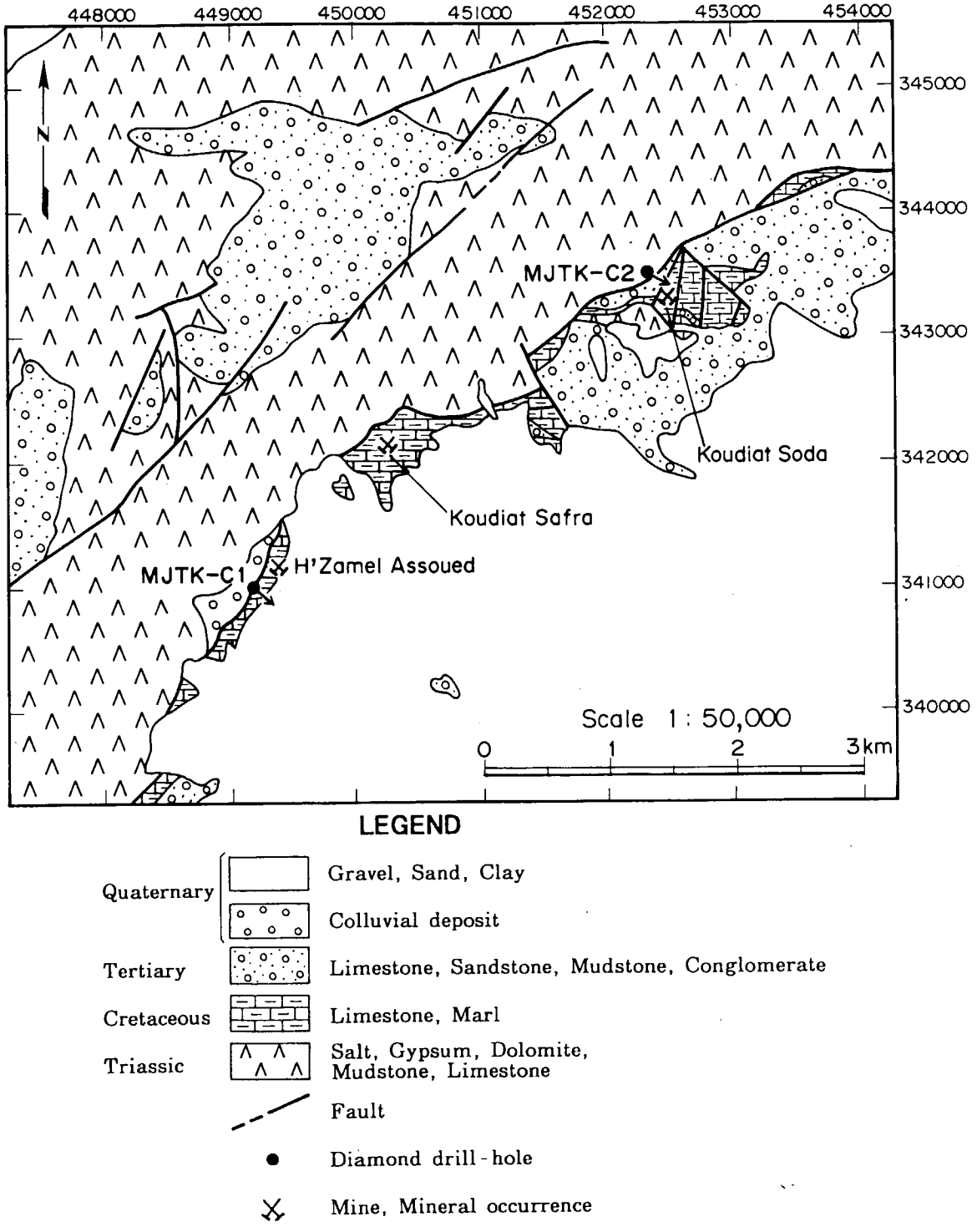


Figure 149 Geology and Drill Hole Location of the Bazina Kebira Prospect

(1) MJTK-C1

The objectives of this hole were to characterize the mineralization associated with the H'zama Lassoued mineral occurences and to verify the IP anomaly outlined by the geophysical prospecting in the 2st Year Campaign. The hole was drilled along the geophysical survey line C7. The columnar hole section and the geological profile along the section including the hole are shown in Figures 157 and 150 respectively.

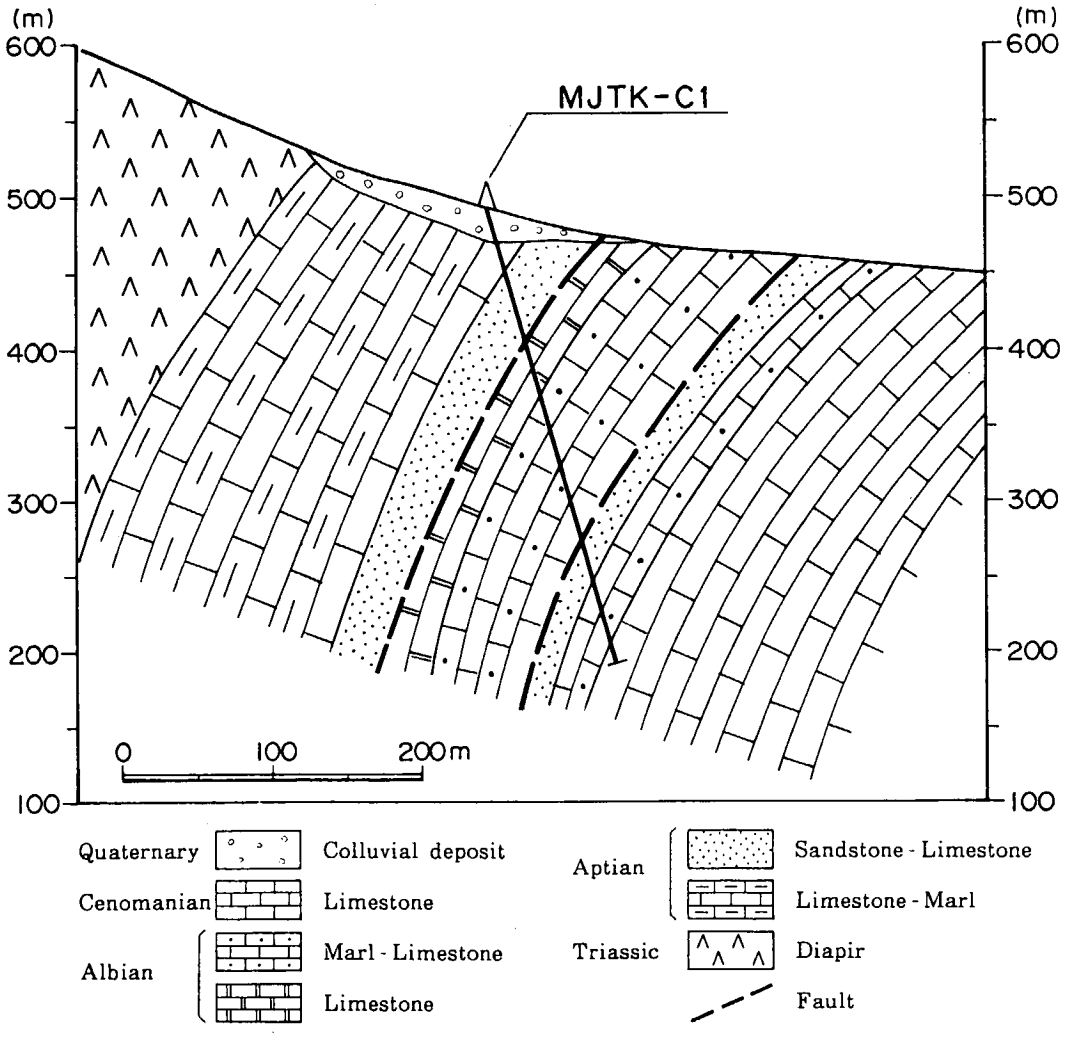


Figure 150 Geological Profile along the Hole, MJTK-C1

The geology of this hole comprises the Cretaceous system and the Quaternary system.The Cretaceous system is observed in sections of the intervals from 24.00 to 311.20m and consists of limestone-marl alternation. Quaternary system comprises colluvial. Colluvial deposits consist of Triassic gravel, sand and clay.

Two mineralized zones are intersected in this hole, in the intervals from 281.50 to 286.50m and from 301.70 to 304.70m, and consist of pyrite-calcite veinlets or networks carrying minor amounts of sphalerite and galena, however, without forming any significant concentrations.

The H'Zamel Assoued mineralization occurs in association with Aptian carbonate rocks of the Cretaceous System. This hole, however, encountered weak Zn mineralization (averaged at 0.29% Zn for 4.0m section) in carbonate rocks of Albian instead of those of Aptian. The chargeability anomaly is proved to be caused by pyrite associated with the mineralization.

(2) MJTK-C2

The objectives of this hole were to characterize the mineralization associated with the Koudiat Soda ore deposit and to verify the IP anomaly outlined by the geophysical prospecting in the 2st Year Campaign. The hole was drilled along the geophysical survey line C15. The columnar hole section and the geological profile along the section including the hole are shown in Figures 158 and 151 respectively.

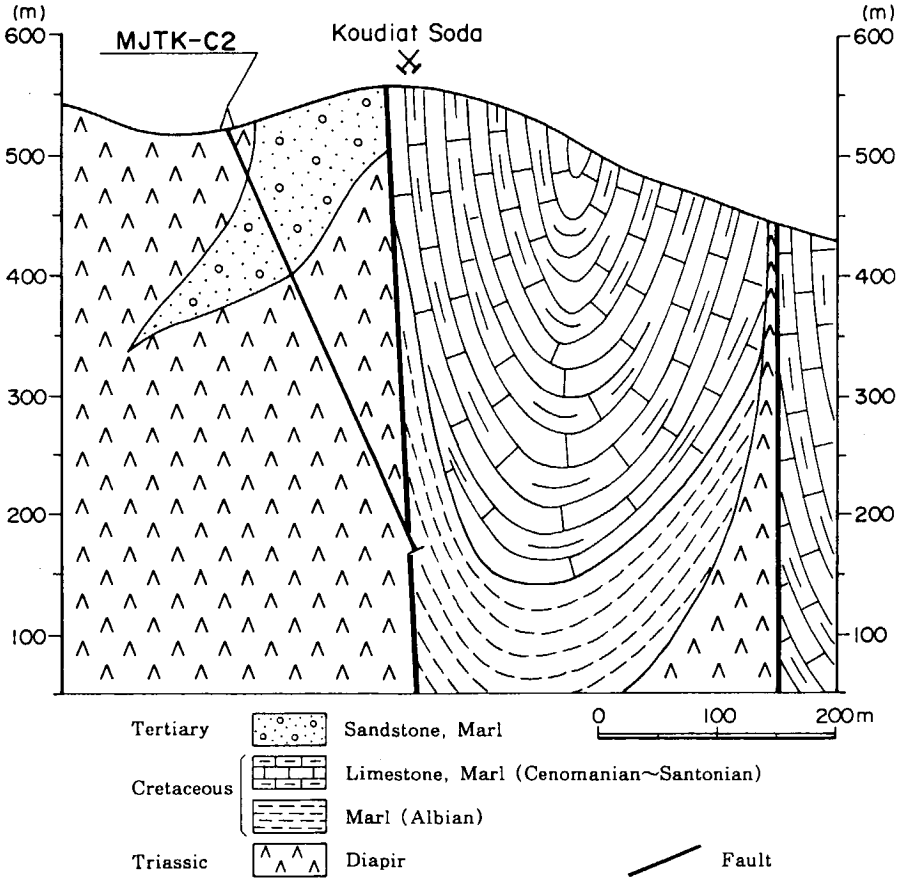


Figure 151 Geological Profile along the Hole, MJTK-C2

The geology of this hole comprises the Triassic diapirs, the Cretaceous system that are often brecciated and Tertiary system. The Triassic system is observed in sections of the intervals from 4.70 to 46.60m and from 126.10 to 359.30m, consisting of sedimentary complexes that include gypsum, limestone, dolomite, arenite and argillite. The Cretaceous system occurs in sections of the intervals from 360.40 to 386.10m and consists of marl. The Tertiary system occurs in sections of the intervals from 46.60 to 126.10m and consists of sandstone-marl alternation.The fault is developed in the intervals from 359.30 to 360.40m.

This hole was drilled to explore the down-dip extension of the Koudiat Soda ore deposit and to verify the chargeability anomaly. However, the hole failed to intersect any mineralization other than pyritization associated with Tertiary formations. Therefore, it cannot be expected that the Koudiat Soda ore deposit would extend to the down-dip. Although the hole failed to prove Pb and/or Zn mineralization, it is significant that the geological structure of the ore deposit was well demonstrated in the hole. The cause of the chargeability anomaly may be attributed to pyrite in black, compact shale within the diapir.

2.3.3 El Akhouat-Argoub Adama Prospect

The geological summary plan of the El Akhouat-Argoub Adama prospect is shown in Figure 152, incorporating the drill hole locations. As shown in the figure, the geology of the prospect comprises the Triassic diapir, the Cretaceous limestone and marl, the Tertiary system (Eocene, Oligocene and Miocene) consisting mainly of limestone, sandstone, argillite and conglomerate, and the Quaternary system. The Cretaceous system contains the El Akhouat ore deposit that was mined in the past and produced some 55 thousand tons of ores.

One drill hole, MJTK-L5 was put down along the geophysical survey lines, L4 of the 3st Year Campaign in this prospect, in order to explore the nortern extension of the new mineral indication that had been confirmed by the hole, MJTK-L2. The columnar hole section and the geological profile along the section including the hole are shown in Figures 159 and 153 respectively.

The geology of this hole comprises limestone from 0.00 to 116.00m, lamina limestone and limestone from 116.00 to 173.35m and lamina limestone from 173.35 to 242.10m, end of the hole, all of which are correlated to the carbonates of the Albien to Turonian stages of the Cretaceous system.

This hole was drilled to explore the northern extension of the new mineralization intersected by MJTK-L2, however, terminated at the depth of 242.10m due to a cave

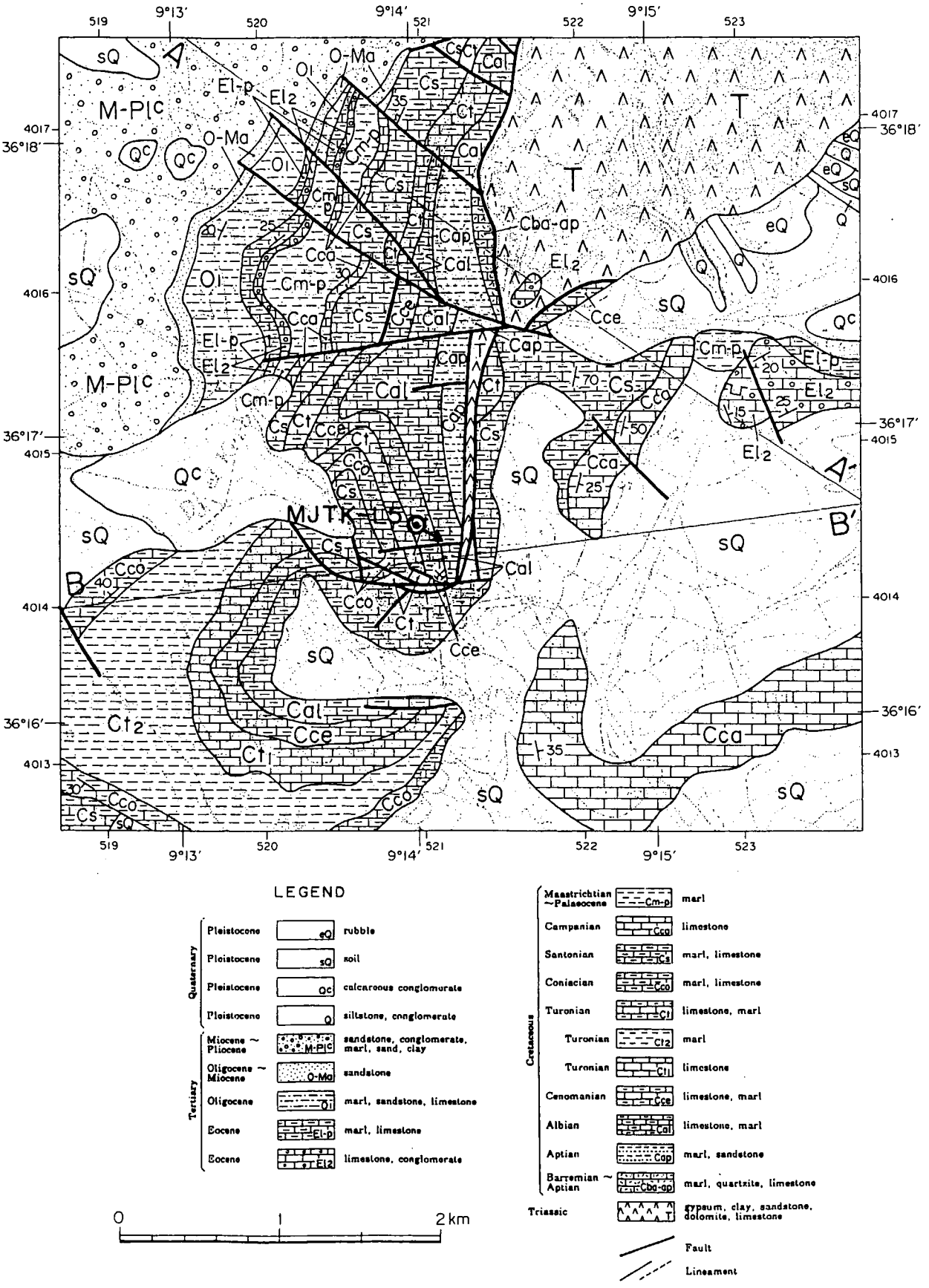


Figure 152 Geology and Drill Hole Location of the El Akhouat - Argoub Adama Prospect

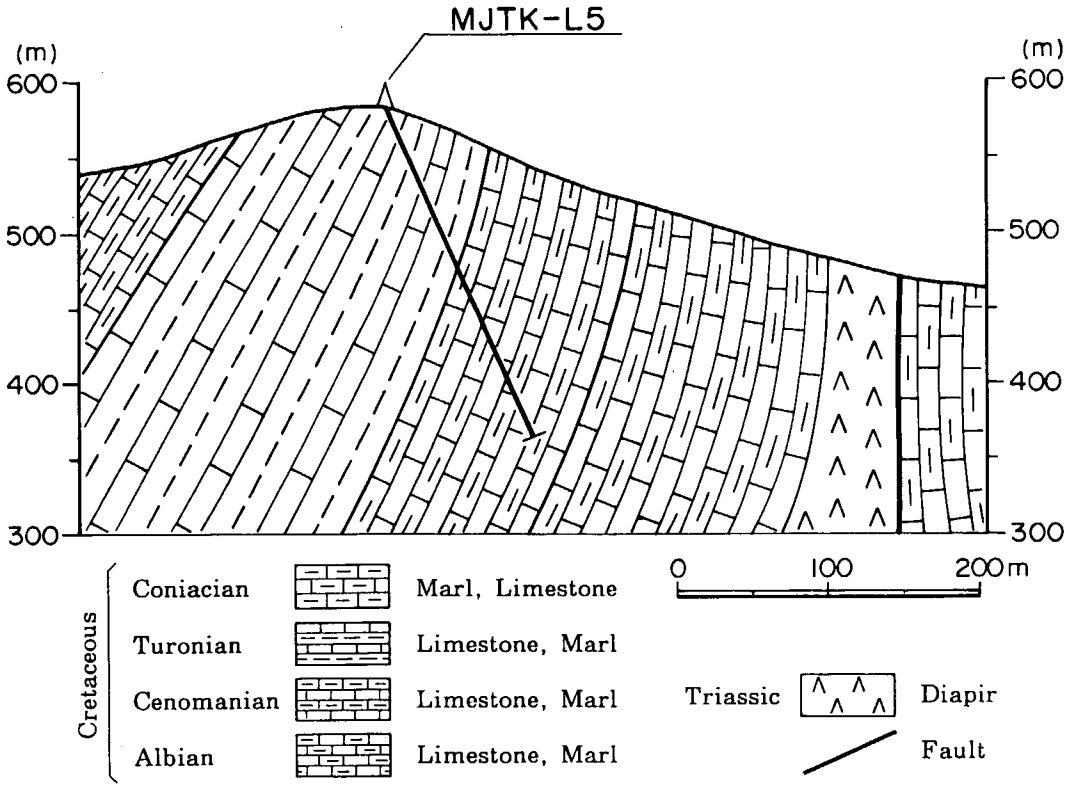


Figure 153 Geological Profile along the Hole, MJTK-L5

encountered. Therefore, this hole verified neither the northern extension of the mineralization nor the cause of the chargeability anomaly. However, calcite-(pyrite)-sphalerite veinlets/networks are intersected at around the depth of 137m, with the average grade of 0.74% Zn for an interval of 2.0m.

2.3.4 Oued Jebs Prospect

The geological summary plan of the El Akhouat-Argoub Adama prospect is shown in Figure 154, incorporating the drill hole locations. As shown in the figure, the geology of the prospect comprises the Triassic diapir, the Cretaceous limestone and marl, the Tertiary system (Eocene, Oligocene Miocene and pliocene) consisting mainly of limestone, marl, sandstone and argillite, and the Quaternary system. The Cretaceous system contains the Jebel Bou Mouse, Dar Chebka and Kef Lasfar mineral occurences.

One drill hole, MJTK-O1 was drilled along the geophysical survey line, OB3 in order to verify the new mineral indication that had been located in the 3st Year Campaign. The columnar hole section and the geological profile along the section including the hole are shown in Figures 160 and 155 respectively.

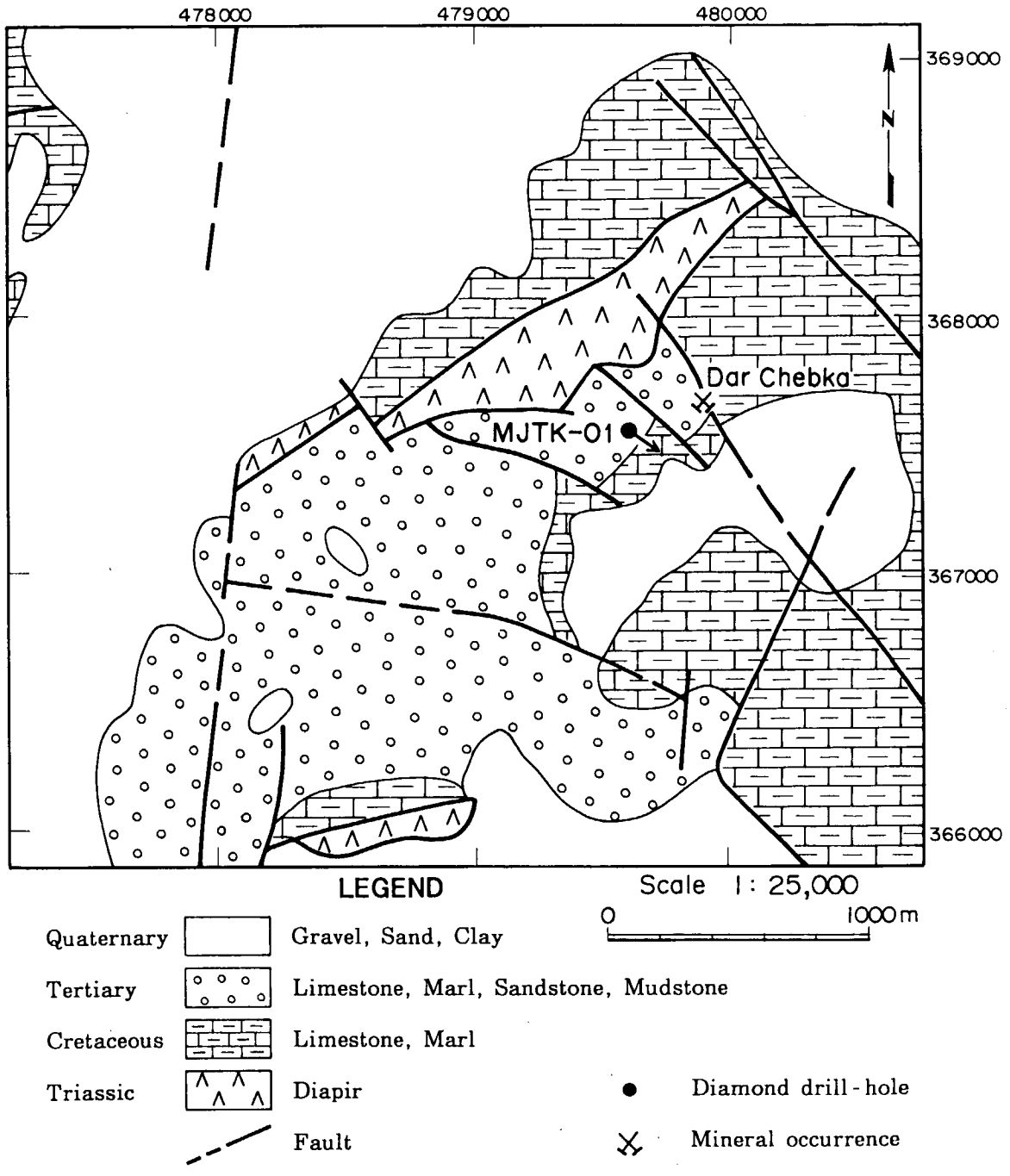


Figure 154 Geology and Drill Hole Location of the Oued Jebs Prospect

The geology of this hole comprises the Cretaceous system and the Tertiary system.The Cretaceous system is observed in sections of the intervals from 0.70 to 72.70m and from 81.45 to 352.60m, consists of limestone and marl.The Tertiary system is observed in sections of the intervals from 72.70 to 81.45m and consists of sandstone-limestone alternation.

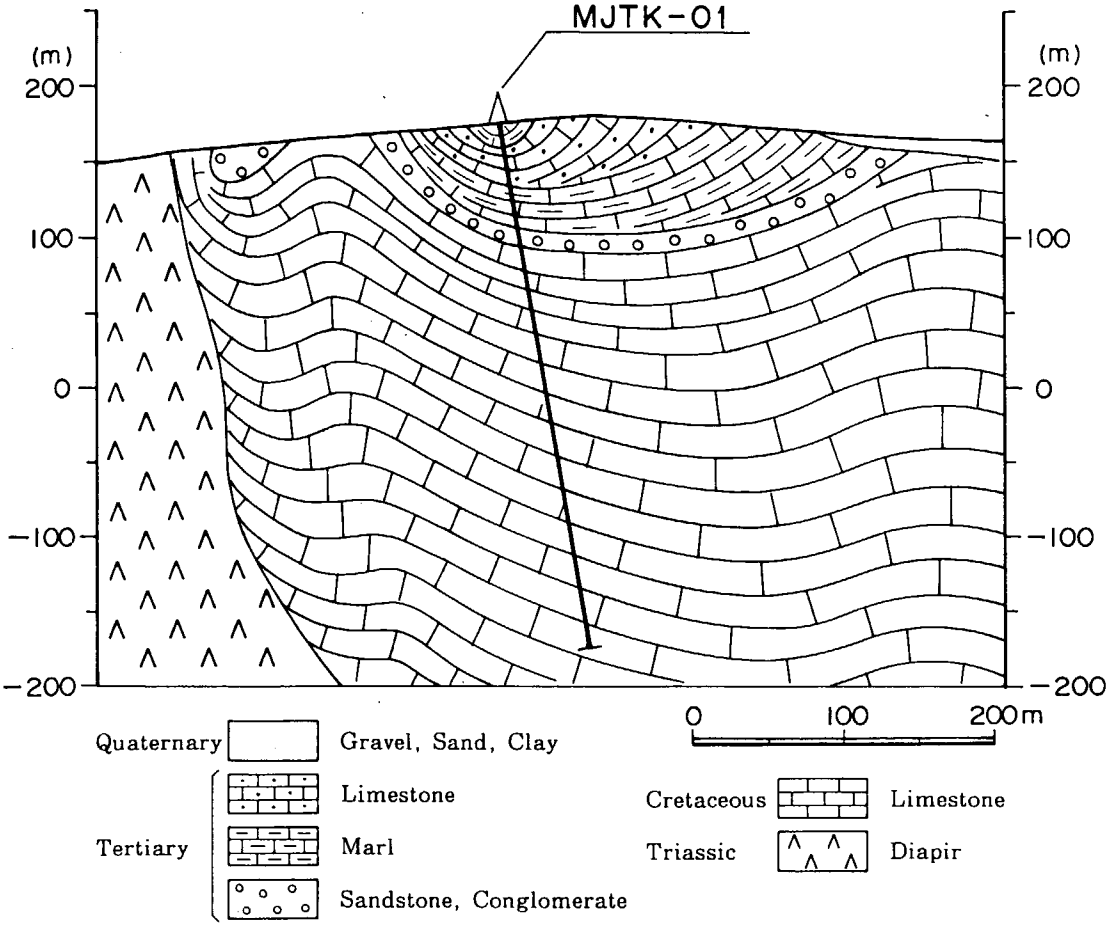


Figure 155 Geological Profile along the Hole, MJTK-O1

The mineralization was encountered in the interval between 82.50 and 88.70m, and comprised calcite-(pyrite) veinlets carrying minor galena. In addition, minor galena filling fractures was observed in the interval between 272.80 and 276.30m. Other than these mineralized intervals, no notable mineralization was intersected by this hole. It is implied that the cause of the chargeability anomaly was pyrite disseminated in argillaceous limestone.

GEOLOGIC LOG

Hole : MJTK−A1
Machine Model : RASKA30
Elevation : 181.09m
Drilled Length : 198.80m

Site Name : Siliana
Period : 2001. 9. 6~10. 10
Inclination : 70°
Direction : 35. 5°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
5			Marl ligth brownish gray, weakly weathered, limonite and hematite are found in the fissures.												96.7
															90.0
		7.10	Marl dark gray, calcareous, contain pyrite nodules.												100.0
10			16.10m calcite veinlets (width 5mm).												100.0
															100.0
15															90.0
															80.0
20		21.80	Marl gray, argillaceous, has lamina structures,												100.0
		25.40	contains calcareous part, with pyrite nodules and calcite veinlets~network.												100.0
25		27.00 27.80	25.40~27.00m calcareous marl. 27.00~27.80m fault clay.												100.0
		29.70 30.40 31.00	27.80~29.70m calcareous marl.												93.3
30		31.80	30.40~31.00m calcareous marl.												
		32.80	31.80~32.80m calcareous marl.												
		33.70	33.70~34.80m calcareous marl.												86.7
35		34.80 35.60	35.60~36.20m fault clay.												
		36.20	Marl gray, argillaceous, has lamina structure, contains pyrite nodules,												70.0
			with small amounts of calcite veinlets~network (width 1mm±).												87.0
40		40.80 41.30	40.80~41.30m fault clay.												85.7
															86.7
45		47.20	47.20~47.50m fault clay.												63.3
		47.50	Marl gray, friable and crumbly, fossiliferous, contains pyrite nodules.												75.0
50		50.80 51.00	50.70m calcite veinlets (width 1cm). 50.80~51.00m fault clay.												61.1
															83.3
55			54.40m calcite veinlets (width 1cm).												100.0
															100.0
60															

Figure 156 Columnar section of the drill hole, MJTK-A1

GEOLOGIC LOG

Hole : MJTK-A1
Machine Model : RASKA30
Elevation : 181.09m
Drilled Length : 198.80m

Site Name : Siliana
Period : 2001. 9. 6~10. 10
Inclination : 70°
Direction : 35.5°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
60			Marl gray, calcareous, extremly friable and crumbly, with pyrite nodules,												100.0
65															100.0
															70.0
70															93.3
															100.0
			75.80m calcite-sphalerite veinlets~network,												100.0
75															93.3
			80.60~80.80m calcite-sphalerite veinlets~network,												100.0
80			84.00~86.00m calcite-(sphalerite) veinlets~network, 87.40~88.40m calcite-(sphalerite) veinlets (width 1-5mm),												100.0
85			89.10m calcite-(sphalerite) veinlets (width 7mm),												100.0
			91.40~91.60m calcite-sphalerite veinlets (width 2mm),												100.0
90															100.0
		93.20	Altanating of limestone and marl (Ls=Mal) limestone : grayish white, finely crystalline, has lamina structure, with pyrite striation and calcite veinlets, marl : gray, argillaceous, pyrite rich, 93.50~93.90m calcite-sphalerite network, 95.10m calcite-(sphalerite) veinlets (width 2mm±), 99.30~100.00m fault clay,												100.0
95															76.5
		99.30													76.9
100		100.00	Limestone grayish white, finely crystalline, contains minor amounts of pyrite striation and nodule, with calcite veinlets, 104.20m calcite-sphalerite veinlets,												90.0
															75.0
105		105.00	Altanating of limestone and marl (Ls>>Mal) limestone : grayish white, finely crystalline, with calcite veinlets~network, marl : gray, argillaceous, very thin beded, 112.90m sphalerite veinlets with pyrite and galena, 114.50m barite-galena-sphalerite vein (width 3cm), 114.60m sphalerite-calcite veinlets (width 1mm),												100.0
															83.3
110				253	<5.0	6.47	1.92	901	8.12	0.32	8.26	203.9	154	112.00	100.0
				1839	60.6	<0.5	4.24	1154	<1.0	0.47	2.04	130.0	301	113.00	
				2855	60.0	<0.5	3.70	1608	<1.0	0.35	6.33	1111	445	114.00	100.0
115		115.70	Altanating of marl and limestone (Mal>>Ls) 113.00~114.10m barite-galena vein with a small amount of sphalerite, 116.10~116.50m calcite-(sphalerite)-(galena) network, 119.00~119.30m calcite-pyrite-(sphalerite)-(galena) network,	94.3	80.6	<0.5	4.25	1675	<1.0	0.46	4.36	225.6	582	115.00	
				604	<5.0	<0.5	5.30	2844	<1.0	0.77	2.04	168.9	824	116.00	100.0
				<10	<5.0	<0.5	9.40	3739	2.15	0.77	0.90	1337	84.1	117.00	
				1116	40.0	34	4.16	1130	4.10	0.48	0.81	212.3	268	118.00	
				57.8	40.2	1.5	4.37	1513	<1.0	0.52	2.04	179.2	270	119.00	100.0
120														120.00	

Figure 156 Columnar section of the drill hole, MJTK-A1

GEOLOGIC LOG

Hole : MJTK-A1
Machine Model : RASKA30
Elevation : 181.09m
Drilled Length : 198.80m

Site Name : Siliana
Period : 2001. 9. 6~10. 10
Inclination : 70°
Direction : 35.5°

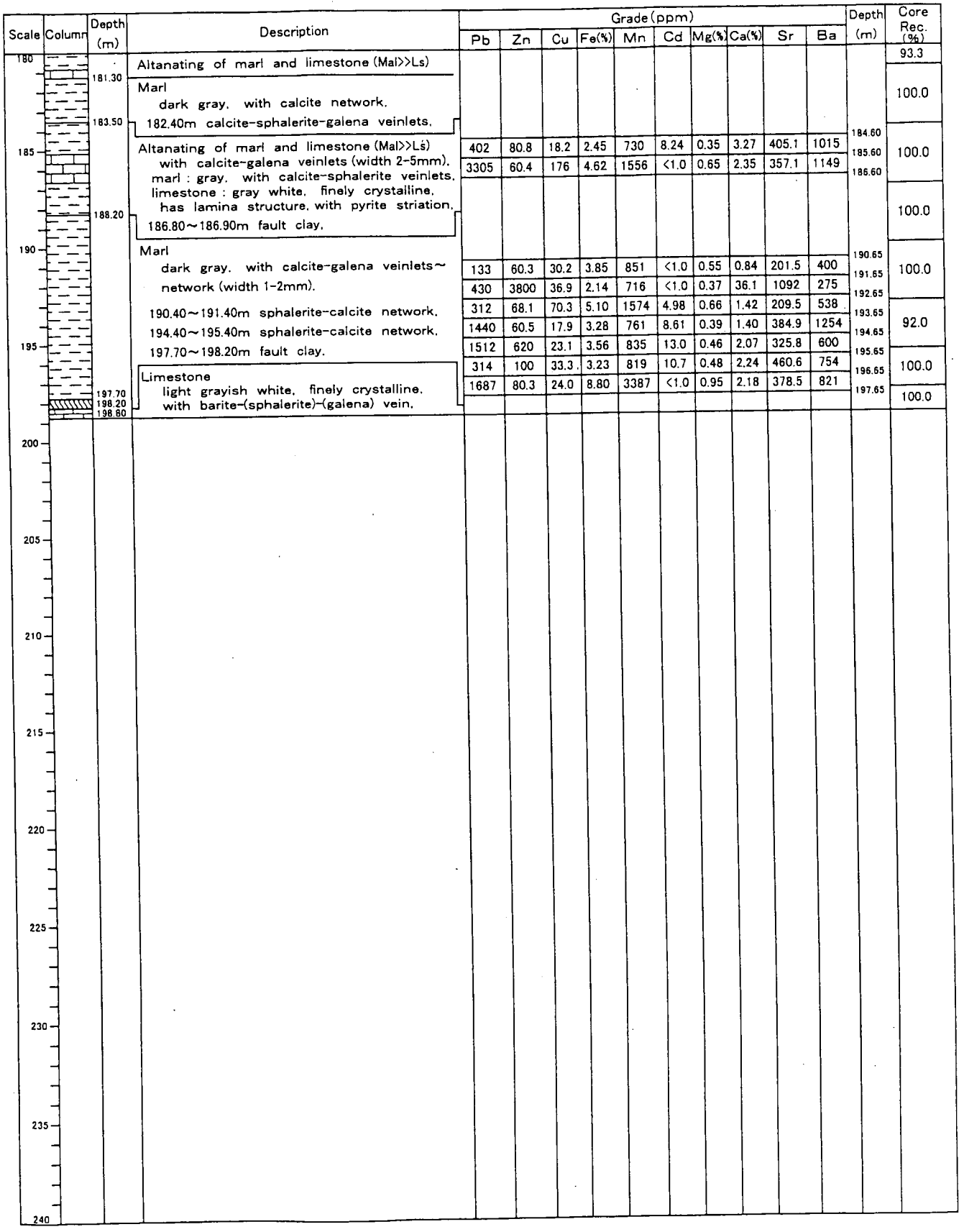
Scale	Column	Depth (m)	Description	Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
				Grade (ppm)											
120			Altanating of marl and limestone (Mal>>Ls) with calcite-(sphalerite) veinlets~network. 121.40~121.60m fault breccia.												100.0
		123.80	Limestone light grayish white, mussive, finely crystalline, with drusy calcite veinlets.												73.3
125		125.80	Marl dark gray, with calcite network.												73.3
			Limestone light grayish white, mussive, finely crystalline, with calcite veinlets~network. 133.00m sphalerite-(calcite) veinlets~network.												100.0
130		131.60													90.0
		134.00	Marl dark gray, calcareous, with calcite-(sphalerite) veinlets~network.	96.5	<5.0	45.8	6.30	2070	<1.0	0.84	1.65	649.0	657	135.00	100.0
135				<10.0	<5.0	53.4	8.30	3534	<1.0	0.97	1.93	195.7	313	136.00	
				10.7	40.0	28.3	4.25	1048	<1.0	0.76	1.74	359.1	1088	137.00	
		138.30	Limestone light grayish white, mussive, has pyrite striation and nodules, with calcite veinlets (width 2-5mm).	<10.0	40.0	11.6	3.72	771	3.59	0.94	2.99	314.1	1806	138.00	
				12.0	40.0	23.0	3.16	474	1.96	0.58	1.26	254.2	1140	139.00	
140		140.40	Marl dark gray, friable and crumbly, with calcite veinlets~network. 142.60~142.90m calcite-sphalerite veinlets (width 2-10mm). 145.10m sphalerite-calcite veinlets (width 2-5mm). 145.60m fault clay. 146.20m fault clay. 146.60~147.00m sphalerite-calcite veinlets~network. 148.70~149.00m sphalerite-calcite network.												140.00	96.7
															100.0
145															100.0
															100.0
150															100.0
															100.0
		155.30	Altanating of marl and limestone (Mal>>Ls) marl : gray, argillaceous, limestone : light grayish white, mussive. 156.10~156.40m calcite-sphalerite veinlets (width 2-4mm). 156.90~157.00m sphalerite-(calcite) veinlets (width 5mm). 158.00~158.80m calcite-sphalerite vein~veinlets.												93.3
155															100.0
		159.70	Marl dark gray, with calcite veinlets. 162.10~162.40m calcite-sphalerite veinlets (width 3-5mm).												100.0
160		163.40	Limestone grayish white, recrystalized, brecciated, lime mud matrix. 163.60m calcite-(sphalerite) vein (width 3cm). 165.10~165.60m calcite-sphalerite veinlets~network. 167.10~167.30m calcite-sphalerite matrix. 168.60~169.30m calcite-(sphalerite) veinlets (width 2-5mm). 170.80m calcite-(sphalerite) vein (width 2cm). 172.30m calcite-sphalerite vein (width 1cm). 174.50~175.30m calcite-sphalerite-galena veinlets~network.												100.0
165															100.0
															100.0
170															100.0
															100.0
175		175.30	Altanating of marl and limestone (Mal>>Ls) with calcite veinlets~network. 175.20~176.20m calcite-sphalerite-(galena) network. 179.00~179.40m calcite-sphalerite veinlets~network.	473	40.0	<0.5	8.05	3410	<1.0	1.37	24.4	1055	<1.0	174.50	
				<10.0	40.0	<0.5	6.30	2496	<1.0	0.68	1.12	1223	45.3	175.50	100.0
				54.3	80.1	38.5	3.33	854	12.5	0.53	1.03	282.7	514	176.50	
				32.6	200	32.6	4.27	749	<1.0	0.66	3.11	287.8	1053	177.50	
180				55.1	6400	210	7.78	1381	24.4	0.84	3.19	310.0	1422	178.50	
														179.50	93.3

Figure 156 Columnar section of the drill hole, MJTK-A1

GEOLOGIC LOG

Hole : MJTK−A1
Machine Model : RASKA30
Elevation : 181.09m
Drilled Length : 198.80m

Site Name : Siliana
Period : 2001. 9. 6~10. 10
Inclination : 70°
Direction : 35. 5°



Grade (ppm)										Depth (m)	Core Rec. (%)
Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba		93.3
											100.0
										184.60	
402	80.8	18.2	2.45	730	8.24	0.35	3.27	405.1	1015	185.60	100.0
3305	60.4	176	4.62	1556	<1.0	0.65	2.35	357.1	1149	186.60	
											100.0
										190.65	
133	60.3	30.2	3.85	851	<1.0	0.55	0.84	201.5	400	191.65	100.0
430	3800	36.9	2.14	716	<1.0	0.37	36.1	1092	275	192.65	
312	68.1	70.3	5.10	1574	4.98	0.66	1.42	209.5	538	193.65	
1440	60.5	17.9	3.28	761	8.61	0.39	1.40	384.9	1254	194.65	92.0
1512	620	23.1	3.56	835	13.0	0.46	2.07	325.8	600	195.65	
314	100	33.3	3.23	819	10.7	0.48	2.24	460.6	754	196.65	100.0
1687	80.3	24.0	8.80	3387	<1.0	0.95	2.18	378.5	821	197.65	100.0

Figure 156 Columnar section of the drill hole, MJTK-A1

GEOLOGIC LOG

Hole : MJTK−C1
Machine Model : RASKA30
Elevation : 486. 99m
Drilled Length : 311. 20m

Site Name : Bazina Kebira
Period : 2000. 10. 11~10. 31
Inclination : 75°
Direction : 130°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
			Colluvial deposits yellowish brown, weathered, consists of Trias gravel, sand and clay, calcite cement.												50.0
5															83.3
															66.7
10															83.3
															83.3
15															40.0
															33.3
20															43.3
		24.00	Altanating beds of limestone and mudstone limestone : yellowish brown~light gray, argillaceous, oxicidized, with calcite veinlets, a small amount of pyrite is almost invariably present, limonite is found in the fissures, mudstone : brown, oxicidized, wholly crushed.												63.3
25															63.3
															93.3
30															100.0
															93.3
35															90.0
		40.50	Sandstone light gray~yellowish brown, fine-grained, calcareous, partially oxicidized, with calcite veinlets (width 1-2mm), contains organic materials, limonite is found in the fissures,												100.0
40															100.0
															100.0
45															100.0
															100.0
50															90.0
															96.7
55															
60															

Figure 157 Columnar section of the drill hole, MJTK-C1

GEOLOGIC LOG

Hole : MJTK−C1
Machine Model : RASKA30
Elevation : 486. 99m
Drilled Length : 311. 20m

Site Name : Bazina Kebira
Period : 2000. 10. 11~10. 31
Inclination : 75°
Direction : 130°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
60			Sandstone light gray~yellowish brown, fine-grained, calcareous, partially oxicidized, contains pyrite nodules and micas, with calcite veinlets (width 1-2mm), limonite is found in the fissures.												100.0
65															100.0
		66.50	Limestone gray~reddish brown, argillaceous, has lamina structure, partially oxcidized (hematitized and limonitized).												90.0
70															83.3
		72.00	Non core												0.0
		73.00	Sandstone yellowish brown, fine-grained, angular~subangular calcite granulars, has lamina structire, interbeded with thin beded argillaceous limestone,												100.0
75															93.3
			75.00~75.50m argillaceous limestone, partillaly oxicidized,												33.3
80			Limestone brownish yellow~gray, mussive, finely crystalline, arenaceous, calcite cement,												45.0
		83.10													100.0
		84.50	Limestone light grayish white, mussive, fossiliferaous, partially brecciated,												100.0
85		87.00	Limestone light brownish yellow, mussive, fossiliferaous, brecciated, oxicidized lime mud matrix,	589	320	<0.5	0.78	1706	<1.0	0.20	46.5	821.1	352	87.00	
				488	280	<0.5	0.69	1632	<1.0	0.20	50.1	860.2	70.5	88.00	90.0
				507	920	<0.5	2.54	1641	<1.0	0.17	46.8	582.9	95.9	89.00	
90		90.90												90.00	96.7
			Limestone gray, mussive, interbeded with thin beded mudstone, with pyrite nodules, striations and calcite veinlets (width 2-10mm), limonite is found in the fissures,												83.3
95															80.0
			94.00~94.70m brownish yellow mudstone, 95.90~96.80m brownish yellow mudstone, 100.40~101.30m sheared zone,												93.3
100		101.30	Limestone gray, mussive, contains arenaceous limestone part, with calcite veinlets (width 2-5mm), limonite is found in the fissures,												96.7
															96.7
105			110.40~112.30m cruck dominant,												100.0
110															100.0
			116.50~119.40m cruck dominant,												90.0
115															63.3
120															

Figure 157 Columnar section of the drill hole, MJTK-C1

GEOLOGIC LOG

Hole : MJTK−C1
Machine Model : RASKA30
Elevation : 486.99m
Drilled Length : 311.20m

Site Name : Bazina Kebira
Period : 2000. 10. 11~10. 31
Inclination : 75°
Direction : 130°

Scale	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
120		Limestone gray, mussive, contains arenaceous limestone part, with drusy calcite veinlets~network (width 2-5mm). limonite is found in the fissures.												76.7
125														100.0
		123.20m calcite veinlets (width 1.5cm). 125.90~126.70m arenaceous part. 128.10~128.50m arenaceous part.												100.0
130	130.70													100.0
	132.00	Non core (cavity)												0.0
	133.50	Sandstone light yellowish brown, fine-grained, oxicidized.												100.0
135		Limestone grayish white, fossiliferaous, brecciated, partilly oxicidized, lime mud and limonit-hematite matrix, pyrite disseminated.	319	40.4	<0.5	0.71	2103	<1.0	0.23	50.4	690.6	67.8	134.50	
			217	140.9	<0.5	0.82	1073	13.9	0.26	43.7	915.0	93.2	135.50	93.3
			195	160.7	<0.5	0.75	847	8.43	0.28	47.3	1029	37.5	136.50	
			280	420.6	<0.5	1.28	1318	<1.0	0.21	50.1	817.0	56.4	137.50	
140	140.40												138.50	100.0
		Altanating beds of marl and limestone marl : dark gray, mussive, calcareous, partially crushed, limestone : light grayish white, mussive, arenaceous, thin beded.												100.0
145														100.0
		140.40~150.30m a minor amount of pyrite is almost invariably present.												100.0
150														100.0
														90.0
155		156.00~156.30m wholly crushed. 156.50~159.00m cruck dominant.												83.3
160														100.0
		162.80~164.20m sheared. 164.80~165.00m fault clay.												83.3
165														100.0
														100.0
170														100.0
175														100.0
														100.0
180		179.50~180.90m sheared.												100.0

Figure 157 Columnar section of the drill hole, MJTK-C1

GEOLOGIC LOG

Hole : MJTK−C1
Machine Model : RASKA30
Elevation : 486. 99m
Drilled Length : 311. 20m

Site Name : Bazina Kebira
Period : 2000. 10. 11～10. 31
Inclination : 75°
Direction : 130°

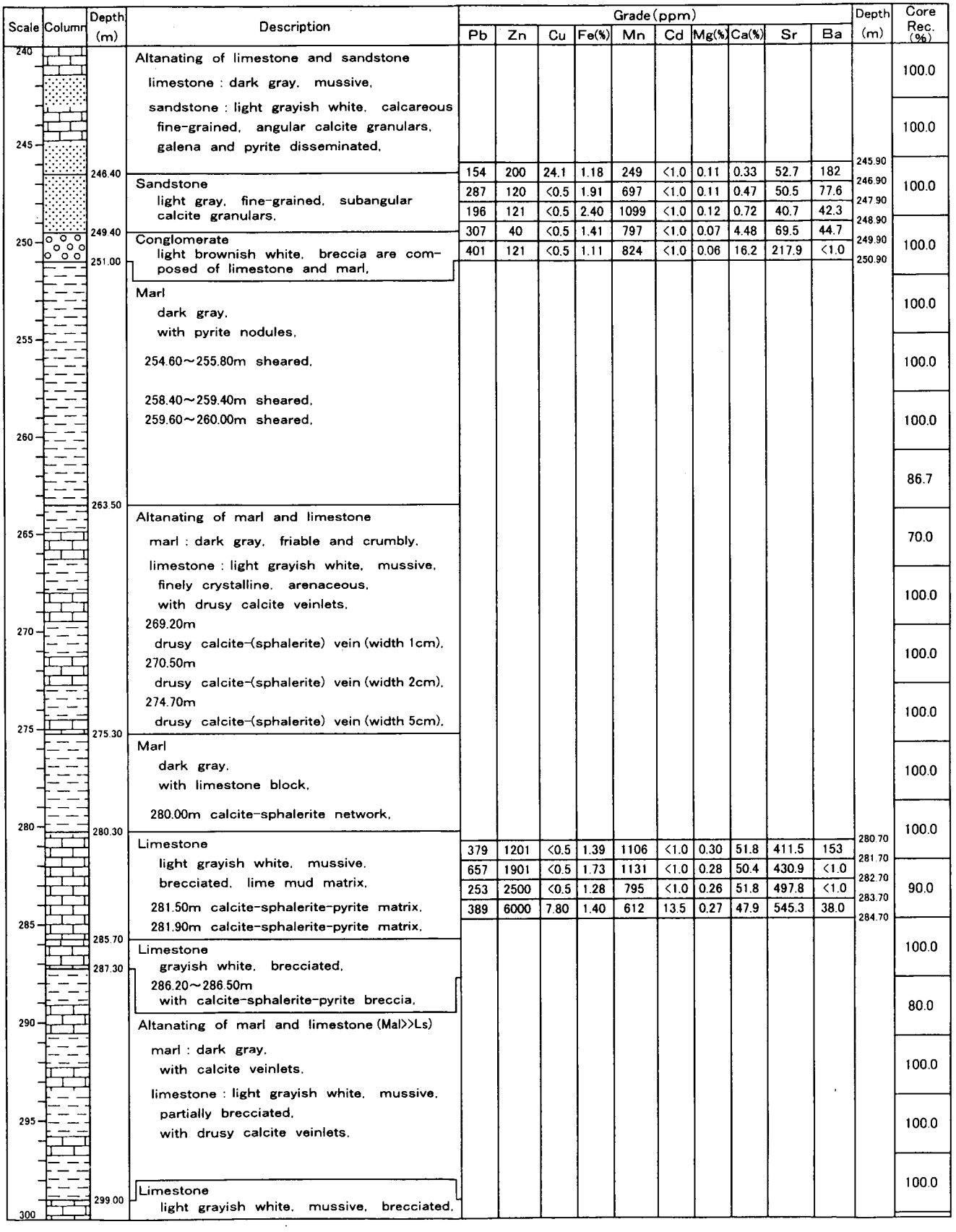
Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
180			Altanating beds of marl and limestone marl : dark gray, mussive, calcareous, limestone : light grayish white, mussive, arenaceous, thin beded.												100.0
185			179.50～180.90m sheared, 182.70～183.30m fault clay.												100.0
															100.0
190		189.70	Altanating beds of marl and limestone has lamina structure, marl : dark gray, argillaceous, hematite is found in the fissures, limestone : light grayish white, mussive, finely crystalline, arenaceous, with druzy calcite vein～veinlets (width 2-15mm).												100.0
195															100.0
															100.0
200															100.0
															100.0
205															100.0
															100.0
210			212.30～213.30m sheared,												100.0
															100.0
215															100.0
															100.0
220			220.00～220.10m sheared, 223.70～224.00m wholly crushed, 224.60～225.10m cruck dominant.												100.0
															100.0
225		225.40													100.0
			Altanating beds of marl and sandstone has lamina structure, marl : dark gray, arenaceous, sandstone : light grayish white, calcareous fine-grained, angular calcite pebbles, calcite cement, galena and pyrite disseminated, with minor amounts of pyrite nodule and striation, 232.50～235.70m sheared,												83.3
230															100.0
235			Altanating beds of limestone and sandstone limestone : dark gray, mussive, finely crystalline, sandstone : light grayish white, calcareous fine-grained, angular calcite pebbles, galena and pyrite disseminated,												90.0
		236.30													100.0
240															

Figure 157 Columnar section of the drill hole, MJTK-C1

GEOLOGIC LOG

Hole : MJTK−C1
Machine Model : RASKA30
Elevation : 486.99m
Drilled Length : 311.20m

Site Name : Bazina Kebira
Period : 2000. 10. 11~10. 31
Inclination : 75°
Direction : 130°



Depth (m)	Description	Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
	Altanating of limestone and sandstone limestone : dark gray, mussive, sandstone : light grayish white, calcareous fine-grained, angular calcite granulars, galena and pyrite disseminated.												100.0
													100.0
246.40		154	200	24.1	1.18	249	<1.0	0.11	0.33	52.7	182	245.90	
	Sandstone light gray, fine-grained, subangular calcite granulars.	287	120	<0.5	1.91	697	<1.0	0.11	0.47	50.5	77.6	246.90	100.0
		196	121	<0.5	2.40	1099	<1.0	0.12	0.72	40.7	42.3	247.90	
249.40		307	40	<0.5	1.41	797	<1.0	0.07	4.48	69.5	44.7	248.90	
251.00	Conglomerate light brownish white, breccia are composed of limestone and marl,	401	121	<0.5	1.11	824	<1.0	0.06	16.2	217.9	<1.0	249.90	100.0
												250.90	
	Marl dark gray, with pyrite nodules, 254.60~255.80m sheared, 258.40~259.40m sheared, 259.60~260.00m sheared,												100.0
													100.0
													100.0
													86.7
263.50													
	Altanating of marl and limestone marl : dark gray, friable and crumbly, limestone : light grayish white, mussive, finely crystalline, arenaceous, with drusy calcite veinlets, 269.20m drusy calcite-(sphalerite) vein (width 1cm), 270.50m drusy calcite-(sphalerite) vein (width 2cm), 274.70m drusy calcite-(sphalerite) vein (width 5cm),												70.0
													100.0
													100.0
													100.0
275.30													
	Marl dark gray, with limestone block, 280.00m calcite-sphalerite network,												100.0
280.30													
	Limestone light grayish white, mussive, brecciated, lime mud matrix, 281.50m calcite-sphalerite-pyrite matrix, 281.90m calcite-sphalerite-pyrite matrix,	379	1201	<0.5	1.39	1106	<1.0	0.30	51.8	411.5	153	280.70	100.0
		657	1901	<0.5	1.73	1131	<1.0	0.28	50.4	430.9	<1.0	281.70	
		253	2500	<0.5	1.28	795	<1.0	0.26	51.8	497.8	<1.0	282.70	90.0
		389	6000	7.80	1.40	612	13.5	0.27	47.9	545.3	38.0	283.70	
285.70												284.70	
	Limestone grayish white, brecciated, 286.20~286.50m with calcite-sphalerite-pyrite breccia,												100.0
287.30													
	Altanating of marl and limestone (Mal>>Ls) marl : dark gray, with calcite veinlets, limestone : light grayish white, mussive, partially brecciated, with drusy calcite veinlets,												80.0
													100.0
													100.0
299.00													
	Limestone light grayish white, mussive, brecciated,												100.0

Figure 157 Columnar section of the drill hole, MJTK-C1

GEOLOGIC LOG

Hole : MJTK−C1
Machine Model : RASKA30
Elevation : 486. 99m
Drilled Length : 311. 20m

Site Name : Bazina Kebira
Period : 2000. 10. 11~10. 31
Inclination : 75°
Direction : 130°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
300			Limestone light grayish white, mussive, partially brecciated. 301.70m with calcite-sphalerite-pyrite breccia. 304.70m calcite veinlets with trace amounts of sphalerite.												100.0
305															100.0
		307.20	Limestone light grayish white, brecciated, pyrite rich lime mud matrix, wholly crushed.												50.0
310															13.3
		311.20													0.0
315															
320															
325															
330															
335															
340															
345															
350															
355															
360															

Figure 157 Columnar section of the drill hole, MJTK-C1

GEOLOGIC LOG

Hole : MJTK−C2
Machine Model : RASKA30
Elevation : 540. 17m
Drilled Length : 386. 10m

Site Name : Bazina Kebira
Period : 2000. 11. 5~11. 28
Inclination : 65°
Direction : 122°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
			Overburden												36.7
5		4.70													70.0
		6.50	Mudstone-Gypsum-Carbonate Rocks Complex light gray~gray, composed mainly of of calcareous mudstone, gypsum and brecciated limestone.												86.7
10			Mudstone-Gypsum Complex light gray~pale greenish gray, with calcite network, 8.60m gypsum vein (width 3cm), 9.00~9.20m mussive gypsum, 11.10~11.30m mussive gypsum,												93.3
15		15.80													86.7
			Mudstone-Gypsum-Carbonate Rocks Complex pale greenish white~reddish brown, composed mainly of brecciated mudstone gypsum, limestone and dolomite,												100.0
20															100.0
															100.0
		23.50	Gypsum white, mussive, partially brecciated (especially upper part),												86.7
25															100.0
30															93.3
															100.0
35															100.0
															100.0
40															100.0
		42.30	Mudstone-Gypsum-Carbonate Rocks Complex light grayish white~reddish brown, composed mainly of calcareous mudstone gypsum, dolomite and limestone.												100.0
45		46.60													86.7
		47.70	Marl black, loosely consolidated, very pasty, 46.60~47.70m interbeded with fine sandstone (loosely consolidated).												93.3
50															90.0
		53.10	Sandstone yellowish brown, weathered, fine-grained angular~subangular calcite granular, oxicidized.												86.7
55		58.50	Marl black, loosely consolidated, very pasty,												100.0
60		59.80													100.0

Figure 158 Columnar section of the drill hole, MJTK - C2

GEOLOGIC LOG

Hole : MJTK−C2
Machine Model : RASKA30
Elevation : 540. 17m
Drilled Length : 386. 10m

Site Name : Bazina Kebira
Period : 2000. 11. 5~11. 28
Inclination : 65°
Direction : 122°

Depth (m)	Description	Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
	Sandstone yellowish brown, weathered, fine-grained subangular calcite granular, calcareous, limonite is found in the fissures,												100.0
64.00													100.0
	Marl dark gray, friable and crumbly,												
66.00	with calcite veinlets,												83.3
	Sandstone yellowish brown, weathered, fine-grained subangular calcite granular, oxicidized, with calcite veinlets (width 1-2mm), limonite is found in the fissures,	121	60.8	7.09	1.35	457	6.8	0.48	1.68	5708	687	68.20	
		75.2	200	6.51	1.32	877	26.4	0.10	0.82	5446	587	69.20	93.3
		54.4	140	5.63	1.16	659	16.4	0.09	0.72	2095	449	70.20	
		45.3	160	4.95	1.30	963	2.3	0.08	0.53	5693	620	71.20	
		232	200	7.08	1.13	459	27.7	0.22	0.95	7737	645	72.20	93.3
73.00	73.00~74.00m interbeded with marl,	106	152	6.25	1.25	683	15.9	0.20	0.94	5336	597	73.20	
74.00												74.20	
74.50	Sandstone light grayish white, fine-grained, calcareous, partially brecciated, contains organic materials, cruck dominant, 78.70~79.00m fault clay, 79.40~79.50m fault clay, 80.50~80.60m fault clay, 87.60~87.70m fault clay, 88.00~88.20m fault clay, 88.20~88.50m strongly oxicidized, 88.80~89.40m limonite is found in the fissures,												93.3
													100.0
													90.0
													100.0
													100.0
90.30	Sandstone light grayish white, fine-grained, calcareous, angular~subangular calcite granular, calcite cement, has lamina structure,												100.0
													100.0
95.20	Marl black, loosely consolidated, very pasty, interbeded with calcareous sandstone, contain brecciaes of mussive limestone, 101.80~102.60m fine-grained sandstone, 104.40~104.60m mussive limestone breccia,												90.0
													96.7
													90.0
													86.7
107.50	Fault Clay												86.7
109.20	Sandstone light gray~grayish white, fine-grained, subangular calcite granular, contains glauconite, pyrite disseminated, interbeded with thin beded marl,												96.7
													100.0
115.80	Marl dark gray~black, friable and crumbly, sheared, contain brecciaes of limestone,												100.0
													100.0

Figure 158 Columnar section of the drill hole, MJTK-C2

GEOLOGIC LOG

Hole : MJTK−C2
Machine Model : RASKA30
Elevation : 540. 17m
Drilled Length : 386. 10m

Site Name : Bazina Kebira
Period : 2000. 11. 5~11. 28
Inclination : 65°
Direction : 122°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
120			Marl dark gray~black, friable and crumbly, sheared, contain brecciaes of limestone. 120.20m barite vein (width 3cm). 121.80m calcite vein (width 2cm).												100.0
125		126.10	Gypsum-Carbonate Rocks Complex light grayish white, composed mainly of gypsum, dolomite and lime mud.												100.0
															100.0
130															100.0
															100.0
135															100.0
			140.70~151.00m fault breccia.												76.7
140			159.20~159.60m cotains hydrozincite.												100.0
															100.0
145															100.0
															100.0
150															100.0
															100.0
155															100.0
															100.0
160															100.0
		162.00	Gypsum-Carbonate Rocks Complex light grayish white, composed mainly of gypsum, dolomite and lime mud. contain brecciaes of calcareous mudstone												83.3
165															100.0
															100.0
170															100.0
															100.0
175															100.0
															100.0
180															

Figure 158 Columnar section of the drill hole, MJTK - C2

GEOLOGIC LOG

Hole : MJTK−C2
Machine Model : RASKA30
Elevation : 540. 17m
Drilled Length : 386. 10m

Site Name : Bazina Kebira
Period : 2000. 11. 5~11. 28
Inclination : 65°
Direction : 122°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
180			Gypsum-Carbonate Rocks Complex light grayish white, composed mainly of gypsum, dolomite and lime mud, contain brecciaes of calcareous mud-stone, with gypsum vein.												100.0
185															100.0
															100.0
190															66.7
		192.00	Fault clay												
		192.60	Gypsum-Carbonate Rocks Complex light grayish white, composed mainly of gypsum, dolomite and lime mud, contain brecciaes of calcareous mud-stone.												100.0
195															100.0
200															100.0
															100.0
205															100.0
															100.0
210															100.0
		211.50	Mudstone reddish brown, calcareous.												
		213.80	Mudstone-Gypsum-Dolomite Complex dark greenish white~light greenish gray, composed mainly of mudstone, gypsum, dolomite and lime mud,												100.0
215															100.0
															100.0
220															100.0
															100.0
225															100.0
															100.0
230															100.0
		230.80	Mudstone-Carbonate Rocks Complex pale green, composed mainly of mudstone, dolomite and gypsum vein,												100.0
235															100.0
															100.0
240															

Figure 158 Columnar section of the drill hole, MJTK-C2

GEOLOGIC LOG

Hole : MJTK−C2
Machine Model : RASKA30
Elevation : 540. 17m
Drilled Length : 386. 10m

Site Name : Bazina Kebira
Period : 2000. 11. 5~11. 28
Inclination : 65°
Direction : 122°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
240			Mudstone-Carbonate Rocks Complex												100.0
		241.50	Mudstone reddish brown, calcareous,												100.0
		242.50	Mudstone-Carbonate Rocks Complex pale green (patially reddish brown), composed mainly of mudstone and dolomite, with gypsum and calcite veinlets,												100.0
245															100.0
															100.0
250															100.0
															100.0
255															100.0
															100.0
260															100.0
		261.70	Mudstone-Carbonate Rocks-Gypsum Complex pale green, composed mainly of mudstone, dolomite and gypsum vein, with calcite network,												100.0
265															100.0
		268.40	Mudstone-Carbonate Rocks Complex pale green, composed mainly of mudstone, dolomite and gypsum vein~veinlets, with calcite network, dolomite contain crystals of anhedral pyrite,												100.0
270															100.0
															100.0
275															100.0
															100.0
280															100.0
		284.20	Mudstone-Gypsum-Carbonate Rocks Complex light greenish gray, composed mainly of mudstone, gypsum and dolomite, dolomite contains pyrite and with calcite veinlets, 284.20~285.30m mussive gypsum, 289.00~290.10m mussive gypsum, 292.20~293.00m mussive gypsum,												100.0
285															100.0
															100.0
290															100.0
															100.0
295															100.0
		296.70	Mudstone-Carbonate Rocks Complex pale green,												100.0
300															

Figure 158 Columnar section of the drill hole, MJTK - C2

GEOLOGIC LOG

Hole : MJTK−C2
Machine Model : RASKA30
Elevation : 540. 17m
Drilled Length : 386. 10m

Site Name : Bazina Kebira
Period : 2000. 11. 5~11. 28
Inclination : 65°
Direction : 122°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
300			Mudstone-Carbonate Rocks Complex pale green, composed mainly of mudstone and dolomite, with Fe-rich calcite veinlets~network,												100.0
305															100.0
310		310.30													100.0
			Gypsum-Dolomite-Mudstone Complex grayish white~pale green, composed mainly of gypsum, dolomite and calcareous mudstone, contain brecciaes of fine calcareous sandstone,												100.0
315		316.60													100.0
			Mudstonbe-Carbonate Rocks Complex grayish white (partially reddish brown), composed mainly of mudstone and dolomite,												100.0
320		321.70													100.0
			Gypsum-Dolomite Complex grayish white, composed mainly of gypsum and dolomite, contain brecciaes of calcareous mudstone,												100.0
325															100.0
330															100.0
															100.0
335															100.0
															100.0
340		341.50													100.0
			Gypsum-Mudstone-Carbonate Rocks Complex grayish white, composed mainly of gypsum, mudstone and dolomite, contain brecciaes of Cretaceous marl and limestone,												100.0
345															90.0
		348.20													100.0
			Mudstone-Carbonate Rocks-Gypsum Complex grayish white (partially reddish brown), composed mainly of mudstone, dolomite, and Cretaceous marl and limestone,												100.0
350															100.0
355															100.0
															93.3
360		359.30	Fault clay												

Figure 158 Columnar section of the drill hole, MJTK-C2

GEOLOGIC LOG

Hole : MJTK−C2
Machine Model : RASKA30
Elevation : 540. 17m
Drilled Length : 386. 10m

Site Name : Bazina Kebira
Period : 2000. 11. 5~11. 28
Inclination : 65°
Direction : 122°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn(%)	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
360		360.40	Fault clay												100.0
			Marl dark gray~black, loosely consolidated, pasty, contain brecciaes of limestone, with calcite veinlets.												100.0
		364.10													83.3
365			Fault clay												
		365.80	Marl dark gray, friable and crumbly.												73.3
370															53.3
															66.7
375															53.3
															66.7
380															63.3
															100.0
385		386.10													
390															

Figure 158 Columnar section of the drill hole, MJTK-C2

GEOLOGIC LOG

Hole : MJTK−L5
Machine Model : RASKA30
Elevation : 585. 38m
Drilled Length : 245. 10m

Site Name : El Akhouat
Period : 2000. 12. 5~12. 19
Inclination : 65°
Direction : 118°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
			Limestone light brownish white, massive, weathered, oxicidized, with calcite veinlets, limonite and hematite are found in the fissures,												43.3
5															73.3
															100.0
10															100.0
															100.0
15															100.0
		16.30	16.30~16.50m fault clay,												
		16.50	Limestone grayish white~light gray, massive, weakly weathered, with calcite network, limonite is found in the fissures,												100.0
20															100.0
			20.40~21.90m wholly crushed,												100.0
25															100.0
															100.0
		29.50	29.50~29.70m fault clay,												
30		29.70	Limestone light yellowish white (partially gray), massive, weakly weathered, consists mostly limestone but contains some intercalated marl, limonite is found in the fissures,												100.0
															100.0
35															100.0
															100.0
40															100.0
		43.10	43.10~44.30m gray marl,												100.0
		44.30	44.50m calcite veinlets (width 5cm),												
45															100.0
		48.10	48.10~48.70m gray marl,												
		48.70	49.40m calcite veinlets (width 1cm),												100.0
50															
		53.20	53.20~54.10m gray marl,												100.0
		54.20	54.40m calcite veinlets (width 1cm),												
		54.80	54.90~55.50m gray marl,												100.0
55		55.50													
															100.0
60															

Figure 159 Columnar section of the drill hole, MJTK - L5

GEOLOGIC LOG

Hole : MJTK−L5
Machine Model : RASKA30
Elevation : 585. 38m
Drilled Length : 245. 10m

Site Name : El Akhouat
Period : 2000. 12. 5~12. 19
Inclination : 65°
Direction : 118°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
60			Limestone light grayish white~light yellow, massive, weakly weathered. 63.20~63.75m limonite is found in the fissures. 68.90m calcite veinlets (width 3mm). 69.10m calcite veinlets (width 5mm).												100.0
65															100.0
															100.0
70															100.0
		73.85													100.0
75			Limestone light whitish gray~gray, massive, partially oxicidized, has lamina structure, interbeded with thin beded marl, with calcite veinlets, limonite is found in the fissures. 78.15~78.50m oxicidized. 81.10m calcite veinlets (width 3mm). 82.25m calcite veinlets (width 4mm). 85.00~86.35m oxicidized. 87.35m calcite-(pyrite) vein (width 3cm). 88.30~88.75m calcite-pyrite veinlets (width 1-3mm). 89.00m calcite veinlets (width 7mm). 90.45m calcite veinlets (width 1mm). 96.10m calcite veinlets (width 2-5mm). 98.70~99.10m oxicidized. 99.40~99.90m oxicidized. 102.20~102.70m has lamina structure.												100.0
80															100.0
															86.7
85															90.0
															100.0
90															100.0
															100.0
95															100.0
															100.0
100		102.70													100.0
			Limestone light whitish gray~gray, massive, partially oxicidized, interbeded with thin beded marl, limonite is found in the fissures. 103.50~103.80m oxicidized. 104.90~105.30m oxicidized. 112.00~113.25m has lamina structure.												100.0
105															100.0
															100.0
110															100.0
															100.0
115		116.00													100.0
			Limestone dark gray, has lamina structure, contain pyrite nodules.												100.0
120															

Figure 159 Columnar section of the drill hole, MJTK - L5

GEOLOGIC LOG

Hole : MJTK−L5
Machine Model : RASKA30
Elevation : 585. 38m
Drilled Length : 245. 10m

Site Name : El Akhouat
Period : 2000. 12. 5~12. 19
Inclination : 65°
Direction : 118°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
120			Limestone												
		121.20	dark gray, has lamina structure.												100.0
			Limestone												
		123.65	light brownish white, weekly weathered, limonite is found in the fissures.												100.0
125			Limestone												
			light gray~light yellowish gray, mussive, limonite is found in the fissures.												100.0
			124.60m calcite veinlets (width 3-10mm).												
			130.65m												
130			calcite-pyrite-(sphalerite) network.												100.0
			131.00~131.60m												
			calcite-(sphalerite)-limonite matrix.												
			131.70m calcite-pyrite veinlets (width 2mm).												
		132.70													100.0
			Limestone												
			light gray, mussive, interbeded with												
135			very thin beded marl, a minor amount												
			of pyrite is almost invariably present.	96.3	280.6	10.1	0.82	352	9.23	0.22	53.2	1112	128	136.00	100.0
			limonite is found in the fissures.	121	2700	10.0	0.82	352	21.5	0.31	48.7	1356	106	137.00	
			133.00~133.50m	1226	1.2%	9.8	1.14	415	24.8	0.48	46.2	1349	209	138.00	
			calcite-(sphalerite)-(pyrite) network.	154	<5.0	10.2	7.40	2679	5.42	0.64	1.04	204	425	139.00	90.0
140			134.70m											140.00	
			calcite-sphalerite-pyrite veinlets(width 5mm)												
			134.90~135.10m												100.0
			calcite-(pyrite)-hematite veinlets (width 1cm)												
			135.90~136.30m calcite network.												
145		145.00	136.45~136.90m												100.0
		145.40	calcite-pyrite-(sphalerite) network.												
			137.25~137.45m												
			calcite-sphalerite network with a trace amount of galena.												100.0
			137.60~137.80m calcite-(pyrite) network.												
150			137.80~138.00m calcite-sphalerite network.												100.0
			138.10~138.70m												
			calcite-(sphalerite)-(pyrite) network.												
			140.65~140.75m												
			calcite-(sphalerite) veinlets (width 2-3mm).												100.0
155			142.10m, 142.60m, 143.25m, 143.40m												
			calcite-(pyrite) veinlets (width 3mm).												
			144.90~145.40m oxicidized.												96.7
			147.20~147.35m calcite-(sphalerite) network.												
			148.45~148.55m calcite veinlets with trace												
160			amounts of sphalerite.												86.7
			149.90m, 152.00m												
			calcite veinlets (width 2-3mm).												
			156.15~156.50m												100.0
			drusy calcite veinlets with trace amounts of sphalerite (width 1-3mm).												
165			158.25~158.70m calcite-(pyrite) network.												
			159.10m calcite vein (width 1.5cm).												100.0
			159.30~159.50m calcite network.												
			163.00m calcite veinlets with trace amounts												
			of galena (width 3mm).												100.0
170			165.35m calcite veinlets (width 5mm).												
			168.10~170.25m calcite veinlets~network.												
			172.70~173.35m												100.0
			drusy calcite-(pyrite) network.												
		173.35													
			Limestone												
175			light gray (partially gray), mussive,												100.0
			has lamina structure.												
			with pyrite striations.												
															100.0
180															

Figure 159 Columnar section of the drill hole, MJTK - L5

GEOLOGIC LOG

Hole : MJTK－L5
Machine Model : RASKA30
Elevation : 585. 38m
Drilled Length : 245. 10m

Site Name : El Akhouat
Period : 2000. 12. 5～12. 19
Inclination : 65°
Direction : 118°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
180			Limestone light gray (partially gray), mussive, finely crystalline, has lamina structure,												100.0
			183.05m calcite-sphalerite veinlets (width 1-3mm),												100.0
185			183.90m calcite-(sphalerite) veinlets (width 1-3mm),												100.0
			184.70～184.80m calcite-(pyrite) veinlets (width 1mm),												100.0
190			185.10m calcite-(sphalerite) veinlets (width 1-3mm),												100.0
			188.10～188.15m calcite-pyrite veinlets,												100.0
			188.55m, 189.00m, 190.55～191.00m calcite veinlets (width 1-3mm),												100.0
195			191.30m calcite-pyrite veinlets (width 1mm),												100.0
			191.80m calcite veinlets (width 2mm),												100.0
			192.90m calcite-pyrite veinlets (width 1mm),												100.0
			193.90m calcite veinlets (width 1mm),												100.0
200			194.85m calcite veinlets (width 7mm),												100.0
			195.15m, 195.40m, 196.05m calcite veinlets (width 2-5mm),												100.0
			200.85～201.40m oxicidized vein,												100.0
205			203.70～204.10m calcite veinlets with trace amounts of sphalerite,												100.0
			206.55～206.80m calcite veinlets (width 2mm),												100.0
			207.90m oxicidized vein,												100.0
210			208.45m, 209.20m, 210.20m calcite veinlets (width 1-2mm),												100.0
															100.0
215															100.0
		217.10	Limestone light gray (partially gray), mussive, has lamina structure, with calcite veinlets,												100.0
220			217.15m calcite-(sphalerite) veinlets (width 1mm),												100.0
			223.60m calcite-(sphalerite) veinlets (width 1mm),												100.0
225			226.00m calcite-pyrite-(sphalerite) veinlets (width 1cm),												100.0
															100.0
230			231.70m calcite veinlets (width 5mm),												100.0
			232.60m drusy calcite veinlets (width 1mm),												95.2
		233.25	Limestone light gray, mussive, has lamina structure, with calcite veinlets,												30.0
235			233.25～233.40m calcite-(sphalerite) veinlets,												
			234.75～235.00m calcite-pyrite veinlets,												
			235.00～235.50m calcite veinlets,												
			234.40～234.80m, 236.35～236.45m calcite veinlets (width 2mm),												
240															3.3

Figure 159 Columnar section of the drill hole, MJTK - L5

GEOLOGIC LOG

Hole : MJTK−L5
Machine Model : RASKA30
Elevation : 585. 38m
Drilled Length : 245. 10m

Site Name : El Akhouat
Period : 2000. 12. 5~12. 19
Inclination : 65°
Direction : 118°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
240			Limestone light gray (partially gray), mussive.												3.3
		242.10	Non core (cavity)												0.0
245		245.10													
250															
255															
260															
265															
270															
275															
280															
285															
290															
295															
300															

Figure 159 Columnar section of the drill hole, MJTK - L5

GEOLOGIC LOG

Hole : MJTK−01
Machine Model : RASKA30
Elevation : 540. 17m
Drilled Length : 352. 60m

Site Name : Oued Jebes
Period : 2000. 12. 25~2002. 1. 16
Inclination : 80°
Direction : 118°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
		0.70	Overburden												85.0
			Marl yellowish brown~brown, weathered, limonite is found in the fissires.												70.0
5			5.50~7.20m oxicidized.												50.0
		7.20	Marl black, with calcite vein~veinlets, limonite is found in the fissires.												70.0
10															100.0
15			14.30m fault breccia, 17.50~18.00m sheared.												100.0
		18.00													63.3
			Limestone grayish white~gray, argillaceous, has lamina structure, with calcite veinlets~network, limonite is found in the fissires.												100.0
20															100.0
			18.80m calcite vein~veinlets with a small amount of galena.												100.0
25			23.00~23.85m calcite vein~veinlets (width 1cm), 25.70~26.25m calcite vein~veinlets (width 2-20mm),												100.0
30			31.80~32.00m calcite-(sphalerite) vein (width 2cm), 32.40m calcite vein (width 8mm), 32.55m calcite vein (width 2cm), 33.60m calcite vein (width 7mm), 34.30~34.50m calcite veinlets (width 2mm), 40.25m calcite veinlets (width 5mm).												100.0
35															100.0
40		40.30	Sheared zone contains breccia of marl with calcite vein~network (petrole bearing).												93.3
		43.15	Marl black, crumbly, wholly crushed.												76.7
45		45.40 46.25	Sheared zone												73.3
			Marl black~dark gray, friable and crumbly, with calcite network.												70.0
50			53.00~53.70m sheared.												100.0
			55.30~55.50m calcite-(sphalerite) veinlets~network, 56.85~57.05m calcite vein~veinlets, 57.35~57.55m calcite-(sphalerite) network.												100.0
55															100.0
60															100.0

Figure 160 Columnar section of the drill hole, MJTK-01

GEOLOGIC LOG

Hole : MJTK−01
Machine Model : RASKA30
Elevation : 540. 17m
Drilled Length : 352. 60m

Site Name : Oued Jebes
Period : 2000. 12. 25~2002. 1. 16
Inclination : 75°
Direction : 130°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
60			Marl black~dark gray, friable and crumbly, with calcite veinlets~network. 60.00~60.10m fault breccia. 60.25m calcite vein (width 3cm). 67.95~68.15m sheared. 72.50~72.60m sheared. 72.65~72.70m brecciated marl with a trace amount of sphalerite.												100.0
65															100.0
															100.0
70															100.0
		72.70	Altanating of sandstone and limestone sandstone : gray, medium-grained, sub-angular~angular pebbles, calcite cement, with calcite-pyrite veinlets. limestone : brownish white, mussive, with calcite-pyrite veinlets. 79.35~79.45m calcite-(pyrite) vein with trace amounts of sphalerite (width 1.5cm).												100.0
75															100.0
															100.0
80		80.25	Conglomerate dark gray, contains glauconite.												100.0
		81.45	Limestone brownish white~pale brown, mussive, with calcite veinlets~network.	1293	1747	15.1	2.57	260	4.88	2.05	36.7	2074	380	82.45	100.0
			82.50m, 82.90~83.50m, 84.50m calcite-pyrite veinlets with trace amounts of galena and sphalerite (width 8mm).	224	1795	10.2	2.86	252	21.6	2.45	39.7	1889	316	83.45	
85				1274	2501	15.2	3.00	285	8.80	2.58	30.4	2286	530	84.45	
			85.50m pyrite-calcite veinlets (width 8mm). 86.45m calcite-sphalerite veinlets with petorole materials (width 3-5mm).	163	2376	12.7	1.72	179	16.6	0.40	37.0	1408	91.5	85.45	
				183	3653	23.4	1.72	183	25.7	1.03	34.7	1994	161	86.45	100.0
				158	2419	12.3	1.57	159	14.5	1.26	32.9	2098	528	87.45	
90			87.00~87.80m drusy calcite-sphalerite-(pyrite)-(galena) veinlets (width2-7mm).											88.45	100.0
			88.40m, 88.70m, calcite veinlets with trace amounts of galena (width 2mm).												100.0
			89.00m drusy calcite veinlets with trace amounts of galena (width 2mm).												
95			89.95~90.20m, 90.75~90.90m calcite-(pyrite) veinlets with trace amounts of galena (width 2mm).												100.0
			91.10~91.35m calcite-(pyrite) network. 91.45m pyrite-calcite veinlets (width 6mm).												
			92.00m, 92.60~92.90m, 93.30m calcite-(pyrite) veinlets with trace amounts of galena (width 2mm).												63.3
100			93.85~94.00m calcite-pyrite network. 96.30~97.00m calcite-pyrite veinlets~network.												63.3
			97.10~101.80m wholly crushed. 101.60~101.80m calcite and galena are found in the fissures.												100.0
105		105.75	Limestone brownish gray~brown, mussive, has lamina structure, a minor amount of pyrite is almost invariably present.												100.0
			103.90~104.00m calcite veinlets with trace amount of pyrite and galena.												
110			104.60m calcite-(pyrite) veinlets (width 3mm). 104.85~105.00m calcite network. 105.70~105.80m drusy calcite veinlets. 107.20~107.40m calcite-pyrite network.												100.0
			108.30~108.40m, 110.20~110.45m calcite-pyrite vein~veinlets (width 3-10mm).												
115			111.20m drusy calcite-pyrite veinlets. 115.55m calcite-(pyrite) veinlets (width 2mm). 116.80m calcite-(pyrite) veinlets (width 2mm).												100.0
		117.35 117.55 118.30 118.65	117.35~117.55m fault breccia. 118.30~118.65m fault breccia.												100.0
120															

Figure 160 Columnar section of the drill hole, MJTK-01

GEOLOGIC LOG

Hole : MJTK−01
Machine Model : RASKA30
Elevation : 540. 17m
Drilled Length : 352. 60m

Site Name : Oued Jebes
Period : 2000. 12. 25~2002. 1. 16
Inclination : 80°
Direction : 118°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
120			Limestone gray~brownish gray, massive, argillaceous, has lamina structure, with calcite network, a small amount of pyrite is almost invariably present,												100.0
			120.00m calcite veinlets (width 3mm),												100.0
125			121.00~121.30m calcite network,												100.0
			125.40m calcite veinlets (width 2-8mm), 129.20m calcite vein (width 1cm), 129.45m calcite vein (width 2-3cm),												100.0
130			131.00~131.20m calcite-pyrite vein (width 1.5cm),												100.0
			131.25~132.20m drusy calcite vein with calcite crystal (width 1-3cm),												96.7
135			132.50~132.60m calcite network,												100.0
			133.20~134.00m calcite vein~veinlets (width 1-9mm),												100.0
			137.60~137.80m pyrite-calcite veinlets with trace amounts of galena and sphalerite,												100.0
140			138.55m calcite veinlets (width 2mm),												100.0
			139.00~139.60m calcite veinlets (width 1-2mm), 139.65~140.00m calcite-pyrite vein (width 1cm),												100.0
			142.15~142.45m calcite vein~veinlets (width 2-10mm), 143.00m drusy calcite vein (width 2cm), 143.40~143.55m calcite vein (width 1cm),												100.0
145			145.30~148.15m brecciated zone with calcite -(pyrite) veinlets~network,												50.0
			145.50m calcite vein (width 5cm),												76.7
		148.15	Marl dark brown, loosely consolidated, pasty,												93.3
150		149.80	Limestone brownish gray~dark gray, massive, has lamina structure, with calcite veinlets, a small amount of pyrite is almost invariably present,												100.0
			151.10~151.45m calcite veinlets (width 1mm),												100.0
155			153.20~153.45m, 153.80m calcite-pyrite veinlets (width 1-2mm),												100.0
			145.50m calcite-(pyrite) veinlets (width 5mm),												100.0
160			154.90~155.00m calcite veinlets (width 2mm),												100.0
			155.65~156.00m mussive pyrite-calcite veinlets (width 5mm),												93.3
			156.55~156.80m calcite-pyrite veinlets (width 2-5mm),												96.7
165			157.85m calcite-pyrite veinlets (width 3mm),												100.0
			160.80m calcite veinlets (width 5mm), 168.60m calcite-(pyrite) veinlets (width 1cm),												100.0
			167.75~168.40m calcite-(pyrite) network, 168.70~169.45m wholly crushed, with drusy green calcite veinlets,												100.0
170			169.50~169.60m calcite network, 170.45~170.55m calcite-(pyrite) network with trace amounts of galena and sphalerite,												100.0
			170.60~170.80m calcite veinlets (width 1mm), 170.90~171.00m calcite-pyrite veinlets (width 2mm), 171.10m calcite veinlets (width 2mm),												100.0
175			172.00~172.05m drusy calcite veinlets (width 3mm), 177.90~180.05m calcite network, 179.80m calcite veinlets (width 1cm), 179.90~180.10m calcite veinlets~network,												100.0
180															100.0

Figure 160 Columnar section of the drill hole, MJTK-01

GEOLOGIC LOG

Hole : MJTK−01
Machine Model : RASKA30
Elevation : 540. 17m
Drilled Length : 352. 60m

Site Name : Oued Jebes
Period : 2000. 12. 25~2002. 1. 16
Inclination : 80°
Direction : 118°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
180			Limestone gray, mussive, has lamina structure, with pyrite striations and calcite veinlets.												100.0 100.0
			180.20m calcite vein (width 1cm).												100.0
185			182.60m, 183.70m, 184.80m calcite veinlets (width 1-2mm). 186.40m calcite vein (width 1.5cm).												100.0
			187.60~187.70m calcite veinlets(width 2-7mm). 189.60m drusy calcite veinlets (width 5mm).												100.0
190			191.00m calcite veinlets (width 3mm). 192.60~193.10m calcite-galena vein (width 2-4cm).												100.0
			193.25~193.35m drusy calcite veinlets. 194.70~194.90m calcite network. 196.80~196.90m drusy calcite network.												100.0
195			197.10~197.70m calcite veinlets(width 2-5mm). 197.90~198.10m calcite veinlets(width 2-5mm). 198.15~198.60m calcite veinlets(width 2-5mm).												100.0
		199.00	Limestone dark gray, mussive, sheared, with drusy calcite vein~veinlets.												100.0
200		201.15	Limestone light gray, mussive, weakly brecciated, cruck dominant.												100.0
			201.90m drusy calcite-(pyrite) vein with trace amounts of galena (width 2-3mm). 202.40~202.50m calcite network with trace amounts of galena.												100.0
205			202.60~203.40m calcite-(pyrite) veinlets~ network with trace amounts of galena. 205.60~206.00m calcite network with trace amounts of galena and pyrite.												100.0
			206.30~206.50m drusy calcite-(pyrite) vein- let with small amounts of galena. 208.40~208.80m calcite-pyrite veinlets with trace amounts of galena (width 1-3mm).												100.0
210		213.30	209.85~210.10m calcite-pyrite network with trace amounts of galena. 211.25~211.60m calcite-(pyrite) veinlets (width 1-3mm).												100.0
			Limestone light gray~gray, mussive, interbeded with thin beded black marl, has lamina structure.												100.0
215			217.20~217.60m calcite veinlets(width 1-3mm). 220.80~220.90m calcite veinlets with trace amounts of galena.												100.0
															100.0
220		226.30	Limestone light gray~gray, mussive, weakly brecciated, calcite-pyrite matrix.												100.0
			227.05~227.15m drusy calcite-pyrite vein (width 10cm). 230.90~231.20m contains framboidal pyrite.												93.3
225		232.60	Limestone light grayish white, mussive, contains framboidal pyrite.												100.0
			235.85m calcite veinlets (width 5mm). 236.65m calcite vein (width 3cm). 237.00~237.40m calcite veinlets(width 3-5mm).												100.0
230			238.60~239.90m calcite network.												100.0
235															
240															

Figure 160 Columnar section of the drill hole, MJTK-01

GEOLOGIC LOG

Hole : MJTK−01
Machine Model : RASKA30
Elevation : 540. 17m
Drilled Length : 352. 60m

Site Name : Oued Jebes
Period : 2000. 12. 25～2002. 1. 16
Inclination : 80°
Direction : 118°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
240			Limestone light grayish white～gray, mussive, with calcite veinlets and pyrite striation, contains framboidal pyrite.												100.0
															100.0
245															100.0
			250.35m drusy calcite veinlets with trace amount of pyrite (width 2-3mm).												96.7
250		251.85	Limestone light grayish white～gray, mussive, weekly brecciated, with calcite veinlets and pyrite striation, 252.60～253.15m calcite veinlets(width 1-3mm), 254.20～254.35m calcite-marcacite veinlets (width 1-10mm), 254.40～254.80m calcite veinlets(width 1-7mm).												100.0
255															100.0
		258.40	Limestone light grayish white～gray, mussive, weakly brecciated, cruck dominant, interbeded with thin beded black marl, a small amount of pyrite is almost invariably present, 258.50～259.10m calcite veinlets with trace amounts of of galena (width 1-5mm), 260.45～260.80m calcite network, 261.60m galena is found in the fissures, 262.20m calcite-galena veinlets, 262.90～263.30m calcite veinlets, 270.35m drusy calcite veinlets (width 5mm), 274.20m calcite vein (width 2cm).												100.0
260															100.0
265															100.0
															100.0
270															100.0
		274.20	Limestone brown, mussive, 272.80～272.90m calcite veinlets with small amounts of galena (width 1mm), 276.00～276.30m calcite veinlets with trace amounts of galena (width 2-5mm), 276.85～277.00m calcite-marcacite veinlets (width 2-3mm).	1.2%	593	36.7	1.72	165	2.47	0.20	45.4	1272	212	275.60 276.60	100.0
275		277.15													100.0
280			Limestone grayish white, mussive, with calcite-pyrite veinlets, a small amount of pyrite is almost invariably present, 277.20m calcite-(pyrite) veinlets (width 2mm), 279.00～279.30m calcite-pyrite veinlets (width 2-7mm), 281.45m, 281.80m calcite-marcacite veinlets (width 2-4mm), 284.35m, 285.40m, 285.55m, 285.65m calcite-pyrite veinlets (width 3mm), 287.90～288.05m calcite vein with a trace amounts of galena (width 7mm), 288.30～288.60m calcite veinlets(width 1-3mm), 288.80m drusy calcite veinlets (width 5mm), 288.90～289.30m calcite veinlets (width 1mm), 289.85m calcite veinlets with trace amount of galena (width 7mm), 293.45～293.65m calcite-(pyrite) veinlets (width 1-4mm).												100.0
															100.0
285															100.0
															100.0
290															100.0
															100.0
295															100.0
															100.0
300															

Figure 160 Columnar section of the drill hole, MJTK-01

GEOLOGIC LOG

Hole : MJTK−01
Machine Model : RASKA30
Elevation : 540. 17m
Drilled Length : 352. 60m

Site Name : Oued Jebes
Period : 2000. 12. 25~2002. 1. 16
Inclination : 80°
Direction : 118°

Scale	Column	Depth (m)	Description	Grade (ppm) Pb	Zn	Cu	Fe(%)	Mn	Cd	Mg(%)	Ca(%)	Sr	Ba	Depth (m)	Core Rec. (%)
300			Limestone grayish white, mussive, with calcite veinlets, a small amount of pyrite is almost invariably present,												100.0
															100.0
305		305.00	Limestone dark gray, argillaceous, with calcite veinlets~network, contains framboidal pyrite,												100.0
															100.0
310			305.10m calcite-(pyrite) veinlets (width 1.5cm), 308.20~308.40m calcite veinlets~network, 308.60~308.90m calcite-pyrite veinlets (width 1-2cm), 310.10~310.40m calcite veinlets~network,												100.0
315			311.25~311.75m calcite veinlets with trace amount of sphalerite, 313.00m drusy calcite veinlets (width 2mm), 316.10~316.20m calcite network,												100.0
															100.0
320			316.80~317.50m drusy calcite veinlets (width 2mm), 317.70~318.35m calcite veinlets~network, 319.30~319.60m calcite-(pyrite) network with trace amounts of sphalerite,												100.0
															100.0
325			320.10~321.10m calcite-pyrite vein~veinlets (width 1-2cm), 321.60~322.00m calcite veinlets(width 1-5mm),												100.0
															100.0
330			322.40~322.70m calcite-(pyrite) veinlets (width 1-5mm), 323.65m calcite-pyrite vein (width 5cm), 326.70~327.30m calcite network,												100.0
															100.0
335			327.40~327.55m calcite-(pyrite) veinlets (width 1-5mm), 327.70~327.90m calcite network, 329.00~329.10m calcite veinlets~network, 329.40~329.50m calcite veinlets (width 1-4mm),												100.0
															100.0
340			330.50~330.70m calcite-(pyrite) veinlets~network, 331.20~331.55m calcite veinlets(width 3-7mm), 331.60~331.70m calcite vein (width 3cm), 331.90~332.15m calcite vein (width 2-3cm),												100.0
															100.0
345			333.00~333.15m calcite-(pyrite) veinlets (width 1-8mm), 334.35~334.50m calcite veinlets(width 2-5mm), 334.80~335.10m calcite veinlets(width 1-2mm), 335.30~335.50m calcite veinlets(width 1-5mm), 336.30~336.50m calcite veinlets(width 1-3mm), 337.80~346.30m calcite vein~veinlets,												96.7
															90.0
350			347.60m calcite vein with trace amounts of galena and sphalerite, 348.30m calcite vein (width 1.5cm), 350.00m calcite vein (width 1cm), 351.50m calcite breccia with trace amount of sphalerite, 351.65m calcite vein (width 1.5cm),												100.0
		352.60	352.20~352.50m calcite veinlets(width 1-8mm),												
355															
360															

Figure 160 Columnar section of the drill hole, MJTK-01

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APPENDIXES

Appendix 1 Result Microscopic Observation for Rock Thin Sections

No	Drill-hole	Depth(m)	Rock name	Minerals												
				Primary								Secondary				
				Qz	Dol	Pl(Kaol)	Ser	Cal	Rutile	sphene	Oq	Qz	Ch	Cal	Oq	Remark
1	MJTK-A1	109.0	Metamorphosed Dolomite	◎	○		+		+					○	+	layered structure
2	MJTK-C1	239.3	Sandstone	◎		△				+	+					layered structure
3	MJTK-C1	249.5	Brecciated Dolomite	○	○	○		△			△				?	breccia
4	MJTK-L5	138.0	Dolomite		◎									○	△	veining
5	MJTK-O1	275.3	Dolomite		◎										△	layered structure

Appendix 2 Result of Microscopic Observation for Polished Sections

No	Drill-hole	Depth (m)	Ore type	Minerals						Texture
				Galena	Sphalerite	Marcasite	Pyrite	Goethite	Hematite	
1	MJTK-A1	186.2	Galena Vein	○			△			
2	MJTK-C1	281.5	Galena Vein	○		○	△			
3	MJTK-C1	286.5	Sphalerite Ore	+	△	◎	○			colloform
4	MJTK-L5	138.0	Sphalerite-Galena Vein	◎	○	△	△			colloform
5	MJTK-L5	201.0	Iron Oxide Band					◎	○	banding

Appendix 3 Result of Chemical Analysis

No.	Drill Hole	Sampling Depth From	Sampling Depth To	Pb (ppm)	Zn (ppm)	Cu (ppm)	Cd (ppm)	Fe (%)	Mn (ppm)	Sr (ppm)	Ba (ppm)	Ca (%)	Mg (ppm)
1	MJTK-C1	280.70	281.70	379.34	1200.92	< 0.50	< 1.00	1.39%	1106.1	411.48	152.63	51.8	3053.38
2	MJTK-C1	281.70	282.70	657.48	1900.73	< 0.50	< 1.00	1.73%	1131.18	430.88	< 1.00	50.4	2834.44
3	MJTK-C1	282.70	283.70	252.95	2500.39	< 0.50	< 1.00	1.28%	794.77	497.81	< 1.00	51.8	2613.79
4	MJTK-C1	283.70	284.70	388.96	6000.33	7.8	13.53	1.40%	612.22	545.27	37.97	47.88	2706.39
5	MJTK-C1	246.90	247.90	287.42	120.38	< 0.50	< 1.00	1.91%	697.14	50.47	77.56	0.47	1101.2
6	MJTK-C1	247.90	248.90	195.71	120.95	< 0.50	< 1.00	2.40%	1098.54	40.67	42.27	0.72	1168.32
7	MJTK-C1	248.90	249.90	307.23	40.07	< 0.50	< 1.00	1.41%	796.96	69.53	44.67	4.48	685.35
8	MJTK-C1	249.90	250.90	400.87	120.58	< 0.50	< 1.00	1.11%	823.72	217.9	< 1.00	16.24	647.17
9	MJTK-C1	134.50	135.50	318.52	40.41	< 0.50	< 1.00	0.71%	2103.32	690.58	67.81	50.4	2282.88
10	MJTK-C1	135.50	136.50	216.97	140.88	< 0.50	13.85	0.82%	1073	914.96	93.17	43.68	2558.6
11	MJTK-C1	136.50	137.50	194.83	160.71	< 0.50	8.43	0.75%	847.47	1028.6	37.51	47.32	2846.62
12	MJTK-C1	137.50	138.50	279.78	420.56	< 0.50	< 1.00	1.28%	1318	817.02	56.41	50.12	2071.12
13	MJTK-C1	87.00	88.00	588.87	320.28	< 0.50	< 1.00	0.78%	1706.25	821.1	352.44	46.48	2004.41
14	MJTK-C1	88.00	89.00	487.58	280.26	< 0.50	< 1.00	0.69%	1632.35	860.16	70.51	50.12	1983.01
15	MJTK-C1	89.00	90.00	506.96	920.24	< 0.50	< 1.00	2.54%	1641.32	582.85	95.86	46.76	1658.36
16	MJTK-A1	113.00	114.00	1839	60.6	< 0.50	< 1.00	4.24%	1154.22	129.96	301.02	2.04	4737.18
17	MJTK-A1	114.00	115.00	2855.07	60.01	< 0.50	< 1.00	3.70%	1608.46	1111.18	444.64	6.33	3545.6
18	MJTK-A1	115.00	116.00	94.3	80.59	< 0.50	< 1.00	4.25%	1674.58	225.6	582.07	4.36	4551.62
19	MJTK-A1	116.00	117.00	604.38	< 5.00	< 0.50	< 1.00	5.30%	2843.5	168.85	824.47	2.04	7697.71
20	MJTK-A1	117.00	118.00	< 10.00	< 5.00	< 0.50	2.15	9.40%	3739.39	1336.63	84.07	0.9	7676.15
21	MJTK-A1	119.00	120.00	57.83	40.23	1.5	< 1.00	4.37%	1513.07	179.18	269.78	2.04	5183.83
22	MJTK-A1	135.00	136.00	96.53	< 5.00	45.8	< 1.00	6.30%	2070.07	648.96	656.81	1.65	8445.31
23	MJTK-A1	136.00	137.00	< 10.00	< 5.00	53.41	< 1.00	8.30%	3534.26	195.65	313.32	1.93	9744.83
24	MJTK-A1	137.00	138.00	10.7	40	28.32	< 1.00	4.25%	1047.64	359.08	1088.23	1.74	7575.51
25	MJTK-A1	174.50	175.50	472.95	40	< 0.50	< 1.00	8.05%	3409.79	1055.17	< 1.00	24.36	1.37%
26	MJTK-A1	175.50	176.50	< 10.00	40	< 0.50	< 1.00	6.30%	2495.54	1222.73	45.3	1.12	6820.6
27	MJTK-A1	112.00	113.00	252.92	< 5.00	6.47	8.12	1.92%	901.15	203.86	153.67	8.26	3235.1
28	MJTK-A1	118.00	119.00	1115.82	40	34.08	4.1	4.16%	1130.32	212.23	268.38	0.81	4833.86
29	MJTK-A1	138.00	139.00	< 10.00	40	11.6	3.59	3.72%	770.81	314.09	1806.4	2.99	9371.41
30	MJTK-A1	139.00	140.00	11.96	40	23	1.96	3.16%	473.72	254.15	1140.13	1.26	5771.13

Appendix 3(Continued) Result of Chemical Analysis

No.	Drill Hole	Sampling Depth From	Sampling Depth To	Pb (ppm)	Zn (%)	Cu (ppm)	Cd (ppm)	Fe (%)	Mn (ppm)	Sr (ppm)	Ba (ppm)	Ca (%)	Mg (ppm)
31	MJTK-A1	176.50	177.50	54.31	80.08	38.54	12.46	3.33%	854.02	282.69	513.62	1.03	5287.04
32	MJTK-A1	177.50	178.50	32.55	200	32.55	< 1.00	4.27%	748.97	287.78	1052.75	3.11	6596.82
33	MJTK-A1	178.50	179.50	55.1	6400.02	210.39	24.41	7.78%	1380.59	310.01	1422.21	3.19	8353.36
34	MJTK-C1	245.90	246.90	154.13	200.35	24.11	< 1.00	1.18%	248.95	52.74	181.52	0.33	1117.94
35	MJTK-L5	135.00	136.00	96.28	280.6	10.1	9.23	0.82%	352.82	1111.96	127.77	53.2	2216.17
36	MJTK-L5	136.00	137.00	120.92	2700.05	10.03	21.5	0.82%	352.57	1355.55	106.35	48.72	3092.61
37	MJTK-L5	137.00	138.00	1226.05	1.20%	9.83	24.83	1.14%	415.84	1348.9	208.93	46.2	4830.87
38	MJTK-L5	138.00	139.00	153.64	< 5.00	10.22	5.42	7.40%	2679.97	204.63	424.91	1.04	6374.33
39	MJTK-A1	190.65	191.65	133.68	60.32	30.19	< 1.00	3.85%	851.05	201.47	399.68	0.84	5483.16
40	MJTK-A1	191.65	192.65	429.65	3800.01	36.91	< 1.00	2.14%	716.42	1091.6	275.24	36.12	3687.73
41	MJTK-A1	192.65	193.65	312.46	68.1	70.25	4.98	5.10%	1573.67	209.52	537.85	1.42	6579.87
42	MJTK-A1	193.65	194.65	1440.72	60.48	17.85	8.61	3.28%	761.45	384.87	1254	1.4	3914.09
43	MJTK-A1	194.65	195.65	1512.34	620.41	23.07	12.97	3.56%	834.61	325.8	599.91	2.07	4581.01
44	MJTK-A1	195.65	196.65	314.27	100.14	33.3	10.73	3.23%	819.41	460.59	753.54	2.24	4803.28
45	MJTK-A1	196.65	197.65	1687.04	80.33	24.04	< 1.00	8.80%	3387.11	378.51	821.48	2.18	9451.74
46	MJTK-A1	184.60	185.60	401.7	80.78	18.2	8.24	2.45%	729.97	405.12	1015.46	3.27	3450.39
47	MJTK-A1	185.60	186.60	3305.01	60.39	175.71	< 1.00	4.62%	1555.88	357.05	1149.49	2.35	6525.91
48	MJTK-C2	68.20	69.20	121.43	60.81	7.09	6.8	1.35%	456.99	5708.05	686.61	1.68	4883.61
49	MJTK-C2	69.20	70.20	75.2	200.28	6.51	26.35	1.32%	877.29	5445.87	586.59	0.82	1027.12
50	MJTK-C2	70.20	71.20	54.43	140.06	5.63	16.38	1.16%	659.45	2095.48	449.04	0.72	871.34
51	MJTK-C2	71.20	72.20	45.31	160.45	4.95	2.29	1.30%	962.69	5693.33	619.64	0.53	843.46
52	MJTK-C2	72.20	73.20	232.26	200.21	7.08	27.7	1.13%	459.02	7736.74	644.66	0.95	2221.38
53	MJTK-C2	73.20	74.20	105.72	152.36	6.25	15.90	1.25%	683.09	5335.89	597.31	0.94	1969.38
54	MJTK-01	275.60	276.60	1.20%	592.50	36.66	2.47	1.72%	165.40	1272.34	211.69	45.36	2000.00
55	MJTK-01	82.45	83.45	1293.00	1746.90	15.09	4.88	2.57%	259.80	2073.61	379.53	36.68	20500.00
56	MJTK-01	83.45	84.45	223.50	1794.80	10.15	21.55	2.86%	252.30	1888.82	316.21	39.62	24500.00
57	MJTK-01	84.45	85.45	1274.20	2501.20	15.15	8.80	3.00%	284.60	2285.87	530.10	30.38	25800.00
58	MJTK-01	85.45	86.45	163.50	2376.60	12.67	16.58	1.72%	179.40	1408.24	91.49	36.96	4000.00
59	MJTK-01	86.45	87.45	183.30	3653.80	23.36	25.68	1.72%	183.30	1994.45	161.28	34.72	10300.00
60	MJTK-01	87.45	88.45	158.70	2419.90	12.26	14.48	1.57%	158.70	2098.91	528.08	32.90	12600.00