gravity anomaly and a minor low residual gravity anomaly. The high residual anomaly is outlined by the 0.4 mgal contour, surrounding the stations B 3-75, B 4-75 and B 4-100 in the central part of the prospect. The low residual anomaly is a part of gravity low surrounding the high residual anomaly and extends from southwest to northeast along the southeastern margin of the high residual anomaly. Based on the cross section analysis, the cause of the high residual anomaly can be attributed to Cretaceous limestone, while the low residual anomaly is possibly caused by the Triassic system. The steep residual gravity gradient such as above explained is a characteristic feature at this location and is not observed anywhere else in the course of the current gravity survey. Therefore, it is considered that this gravity feature is probably related to the Bou Khil ore deposit and/or the celestite alteration. The belt of steep gravity gradient is discontinued to the southwest beyond the line B 3 and to the northeast beyond the line B 5, being possibly faulted off.

Low residual gravity anomalies, outlined by the – 1 mgal contour, are located in the northern and western parts of the prospect and can be correlated to the Triassic diapir with low density. However, the Tertiary system possibly contributes to the anomaly in the western part as well.

It may be possible to interpret fault structures by tracing the 0 mgal contour of first vertical derivative gravity. Besides, the 0 mgal contour may provide some indications for mineralization, since the Bou Khil deposit and the celestite alteration are spatially in close association with this contour.

3.3.3 IP Survey

(1)Measured Apparent Resistivity and Chargeability

Apparent resistivity measured in the prospect ranges 2—275 Ω m, averaging at approximately 25 Ω m, which is rather low in general. The northwestern hill area indicates relatively high apparent resistivity, while that of the contact between the Triassic and Cretaceous systems, running through the prospect longitudinally, tends to be low.

Measured chargeability is also low as a whole, with the maximum of 42 mV/V. It has been impossible to measure valid chargeability partly where apparent resistivity is extremely low. High chargeability is observed in association with known mineralization such as the Bou Khil ore deposit and the celestite alteration and is mainly concentrated in the shallower part of ground. Therefore, high chargeability may be regarded as one of indications related to mineralization.

Resistivity and chargeability features are described below, for each of cross sections and level plans from n=1 through n= 4 of the electrode separation indices.

① B 0 Cross Section (Figure 50)

This is a longitudinal section crosscutting the prospect along the base line from the southwest to the northeast. The apparent resistivity along this measuring line is low, less than 20 Ωm, for the entire cross section. Low apparent resistivity anomalies, less than 10Ωm, are observed between the stations B 0-100 and –250 in the southwest and between the stations B 0-230 and –290. A high apparent resistivity anomaly exceeding 100Ωm extends with thin thickness from the station B 0-100 to B 0-250 at the depth of n=5. High chargeability anomalies with 20 mV/V or higher are located at shallow depth between the stations B 0-100 and –120 over the celestite alteration, in the vicinity of the stations B 0-150 over the Bou Khil deposit and between the stations B 0-180 and –190. These anomalies may reflect the mineralization.

② B 1 Cross Section (Figure 51)

This is the southwestern-most cross section, running in the NNW-SSE direction. Low apparent resistivity less than 20 Ωm is developed from the station B 1-85 southwestward, including a low apparent resistivity anomaly. High apparent resistivity exceeding 200Ωm is observed only at a shallow depth near the north northwest end of the line. A weak chargeability anomaly of around 10 mV/V at depth of the station B 1-55 is the only one along this section.

③ B 2 Cross Section (Figure 52)

This section runs in NNW-SSE direction 500 m to the northeast of the B 1 cross section. Low apparent resistivity less than 20Ωm extends between the stations B 2-30 and -70, including a low apparent resistivity anomaly below 10Ωm at depth of the stations between B 2-50 and –60. No valid chargeability anomaly is indicated along this section.

④ B 3 Cross Section (Figure 53)

This section runs in NNW-SSE direction 500 m to the northeast of the B 2 cross section. Low apparent resistivity less than 20Ωm widely distributes for the entire section, including a sizable low resistivity anomaly less than 10Ωm at depth of the stations between B 3-30 and –70. Apparent resistivity tends to become higher towards the north northwestern end. A chargeability anomaly of around 10 mV/V is located between the stations B 3-70 and B 0-100, where the contact between the Triassic and Cretaceous system crosscuts the line. In particular, 30 mV/V of chargeability is recorded at depth of the station B 3-60.

⑤ B 4 Cross Section (Figure 54)

This section runs in NNW-SSE direction through the old Bou Khil workings in the center of the prospect. Low apparent resistivity less than 20Ωm widely distributes for the entire section, including a low resistivity anomaly less than 10Ωm the stations

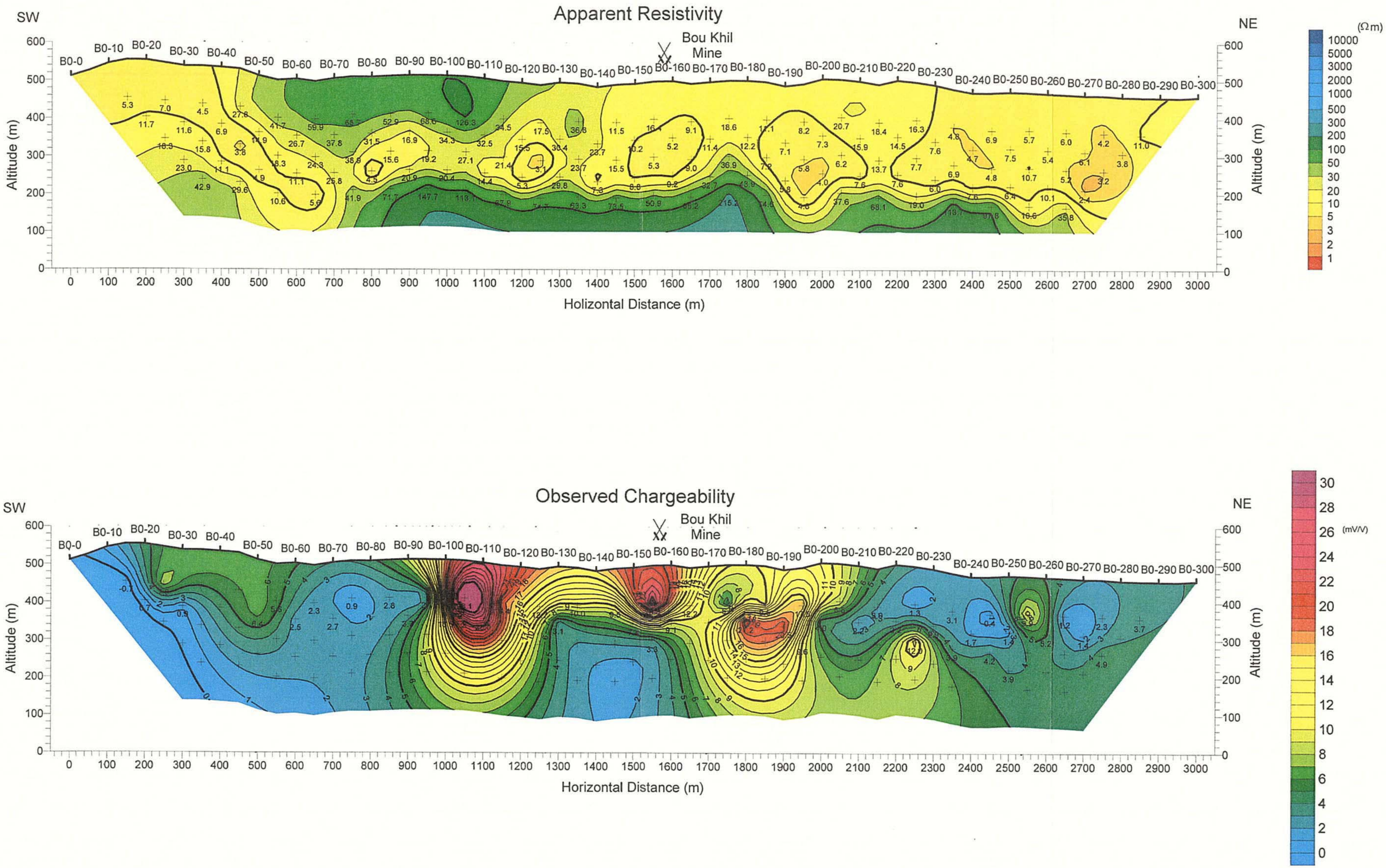
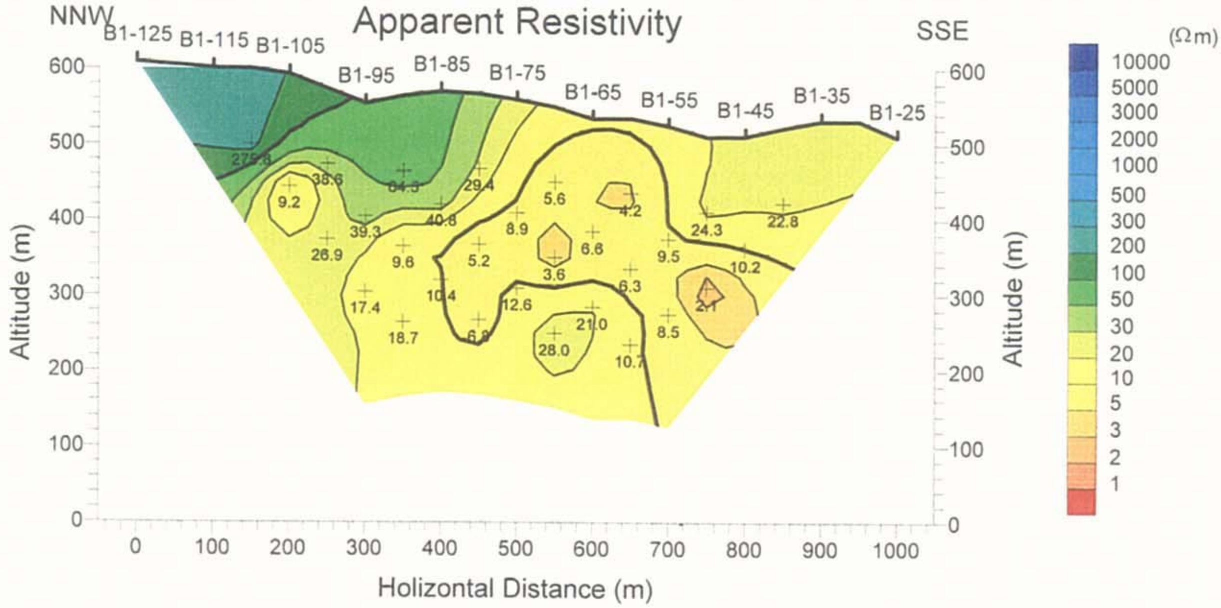


Figure 50 Observed IP pseudo-section (Line B0)



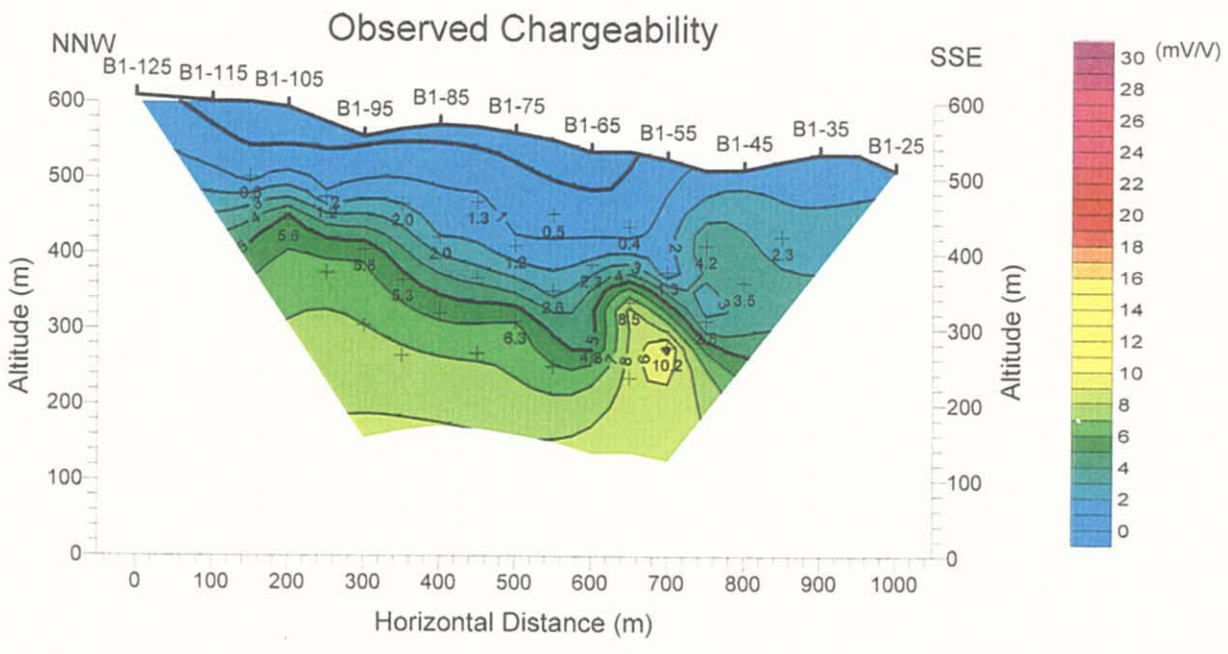
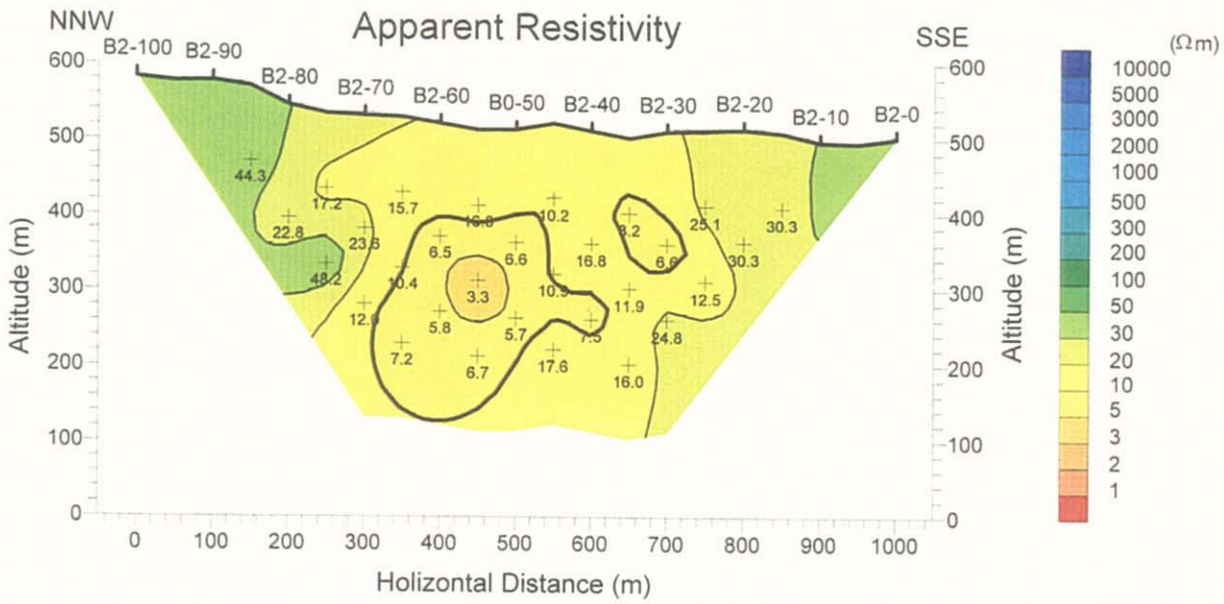


Figure 51 Observed IP pseudo-section (Line B1)



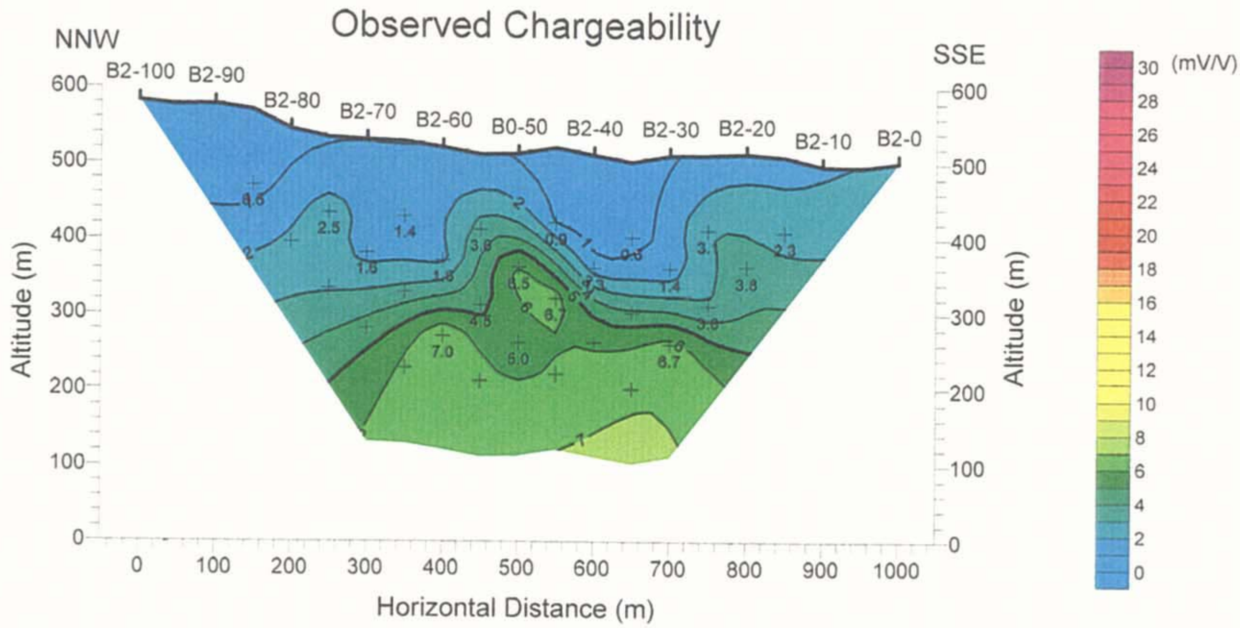


Figure 52 Observed IP pseudo-section (Line B2)

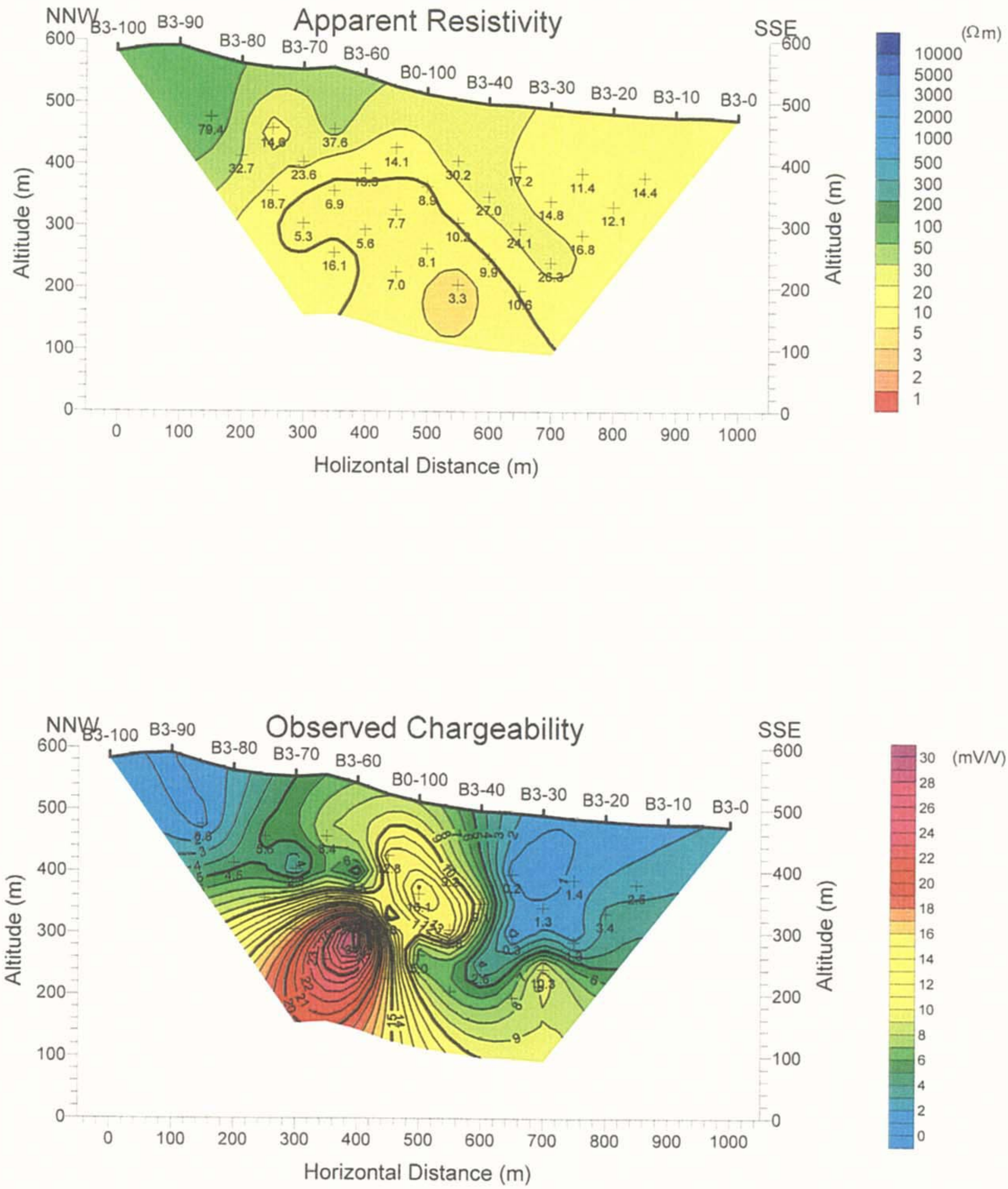


Figure 53 Observed IP pseudo-section (Line B3)

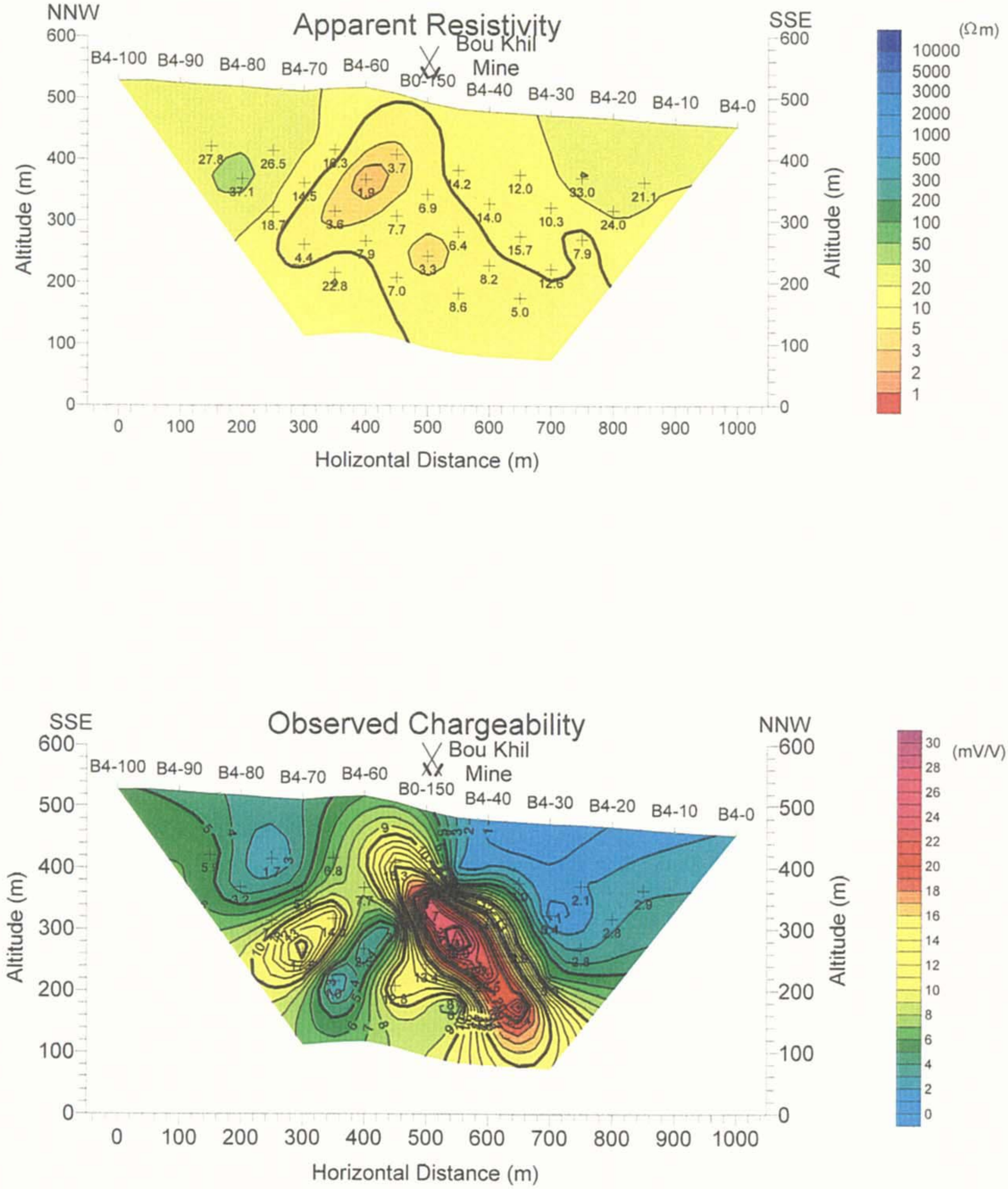
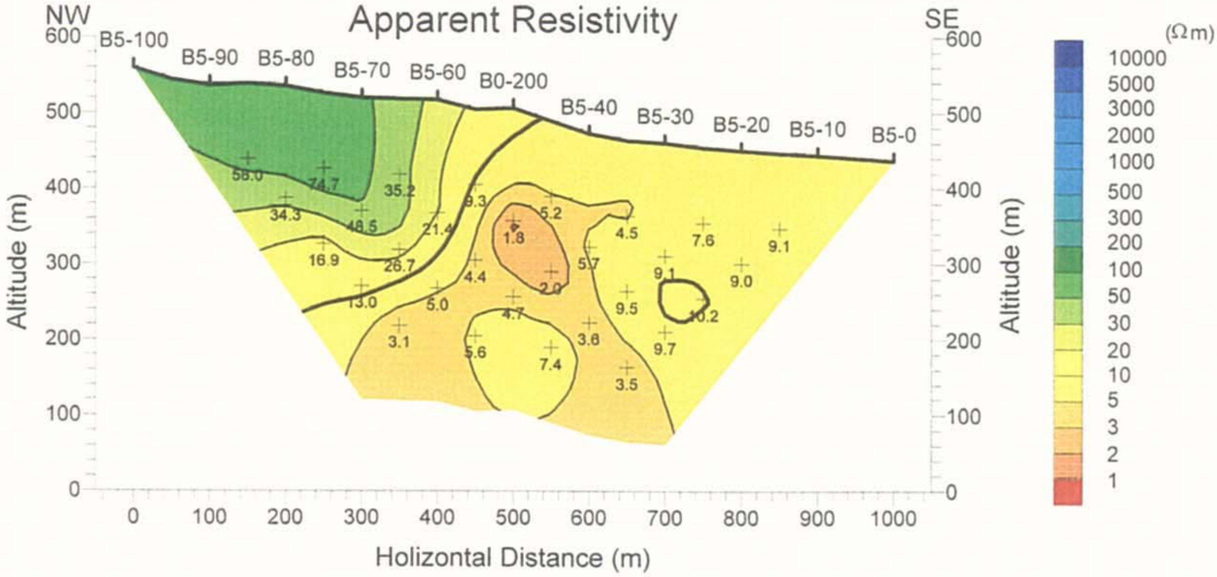


Figure 54 Observed IP pseudo-section (Line B4)



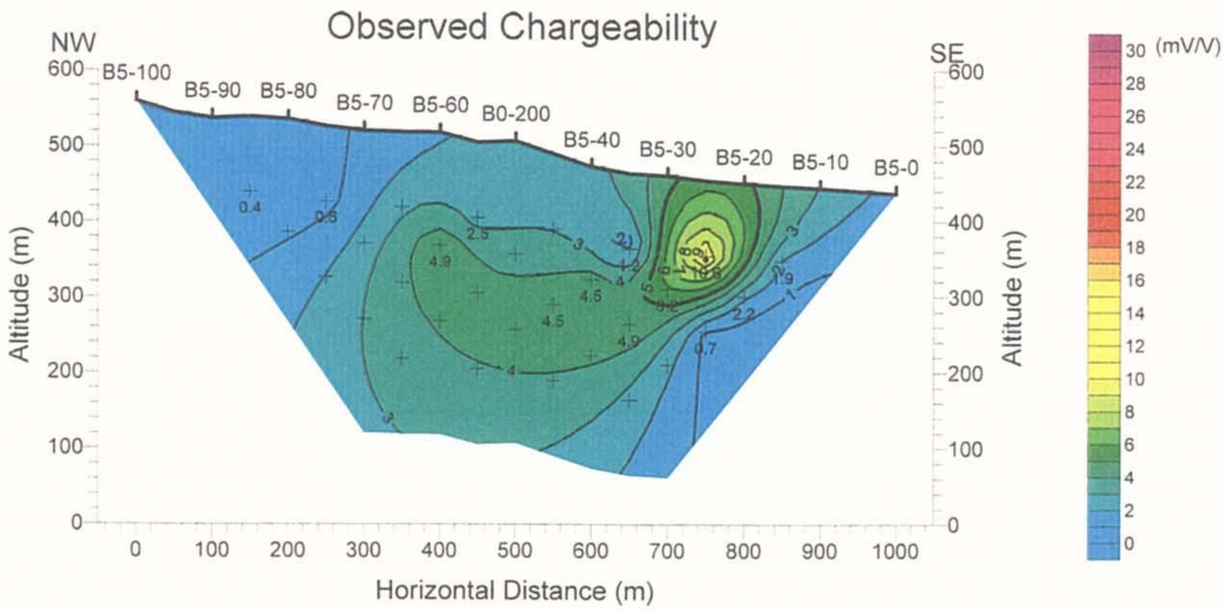


Figure 55 Observed IP pseudo-section (Line B5)

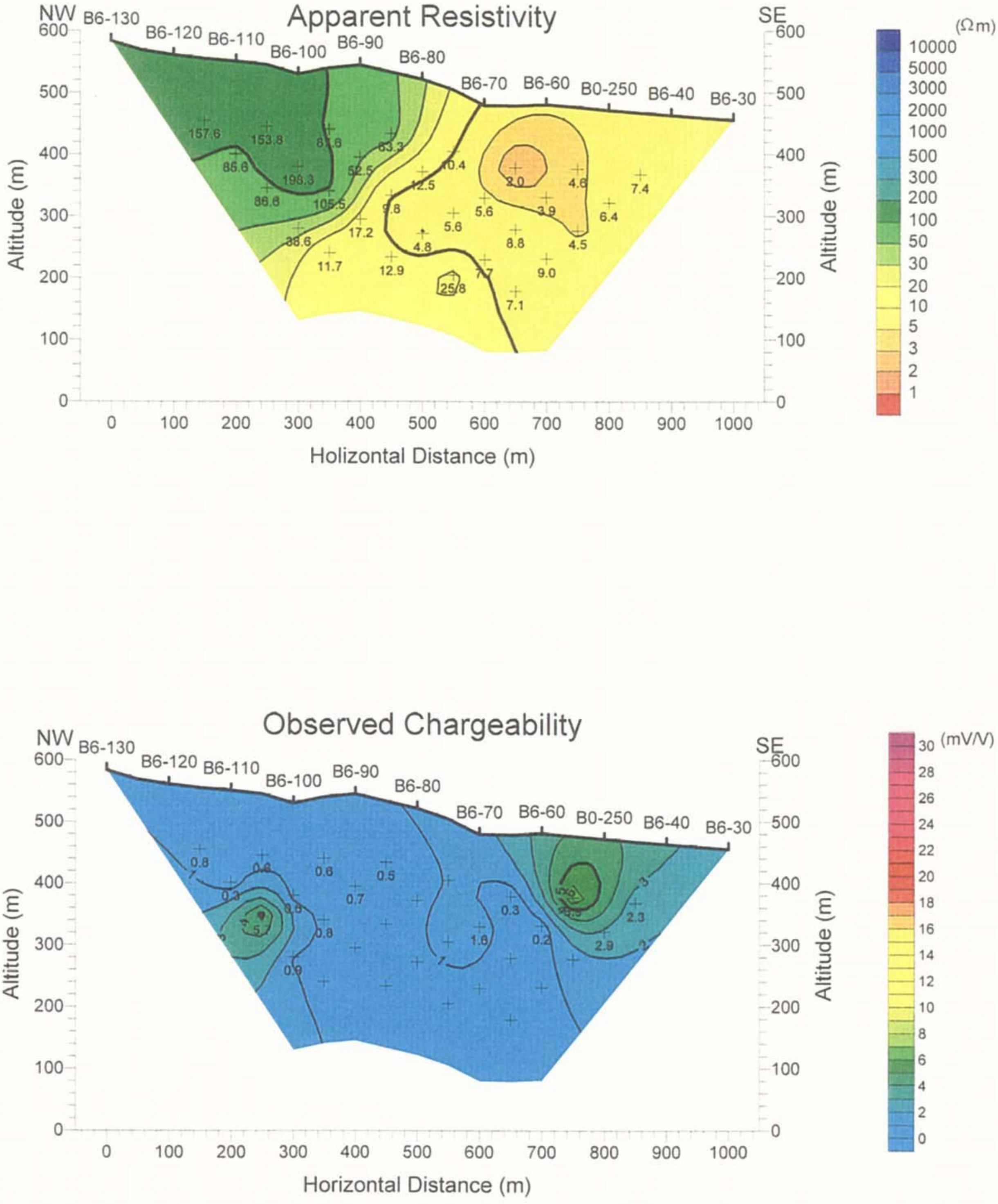


Figure 56　Observed IP pseudo-section (Line B6)

between B 4-20 and –70. A typical chargeability anomaly is outlined by the 10mV/V contour between the stations B 4-60 and –150 in the vicinity of the old workings. This anomaly includes high chargeability exceeding 30 mV/V in its center at depth.

⑥ B 5 Cross Section (Figure 55)

This section runs in NW-SE direction 500 m to the northeast of the B 4 cross section. Low apparent resistivity less than 10 Ω m widely distributes in the southeastern half of the cross section from the station B 0-200, including a sizable low apparent resistivity anomaly outlined by 5 Ω m in the center. No chargeability anomaly is observed along this section except a weak anomaly indicating chargeabilty of around 10mV/V at a shallow depth between the stations B5-20 and B 0-30.

⑦ B 6 Cross Section (Figure 56)

This section crosscuts the northeastern part of the prospect in the NW-SE direction. Low apparent resistivity less than 10 Ω m widely distributes in the southeastern half of the cross section from the station B 6-70, including a sizable low apparent resistivity anomaly outlined by 5 Ω m in the center. A high apparent resistivity anomaly exceeding 100 Ω m is located at a shallow depth to the northwest of the station B 6-100. No valid chargeability anomaly is observed along this section.

⑧ Apparent Resistivity Plan n=1 (Figure 57)

Apparent resistivity higher than 50 Ω m distributes along the northwestern hill area. A high apparent resistivity anomaly exceeding 50 Ω m is located in the vicinity of the junction between the lines B 0 and B 3. Low apparent resistivity widely distributes in the plain to the northeast of the station B 6-80 in the center, including a low apparent resistivity anomaly less than 2 Ω m in the vicinity of the station B 6-80. Low apparent resistivity anomalies less than 10 Ω m are also located at around the station B 0-150 near the old Bou Khil workings and in an area extending from the station B 1-65 to the stations between B 0-10 and –40 in the southwestern part.

⑨ Apparent Resistivity Plan n=2 (Figure 58)

Apparent resistivity is generally lower than that for the plan n=1. The high apparent resistivity, which is higher than 50 Ω m and observed in the northwestern hill area, is narrowed in its distribution to an area between the stations B 5-80 and B 6-100. The distribution of low apparent resistivity, which is lower than 10 Ω m and observed in the northeastern plain, is somewhat widened in comparison with that for the plan n=1. A low apparent resistivity anomaly is outlined around the station B 4-60 where the old workings are located.

⑩ Apparent Resistivity Plan n=3 (Figure 59)

Apparent resistivity is lowered from that observed on the plan n=2. The area of low apparent resistivity less than 10 Ω m in the northeastern plain is extended to the eastern and southern parts of the prospect except along the line B 3. Low apparent resistivity anomalies less than 5 Ωm are located between the stations B 0-270 and –280 in the northeast and between the stations B 1-25 and –75. The high apparent resistivity anomaly exceeding 50Ωm in the northeast on the plan n=2 are separated into two anomalies between the stations B 5-90 and –130 and in the vicinity of the station B 2-100 on this plan.

⑪ Apparent Resistivity Plan n=4 (Figure 60)

Apparent resistivity on this plan is further lowered, without any notable high apparent resistivity anomaly. The area of low apparent resistivity less than 10Ωm is extended in the northeastern plain and in the central part from the station B 0-150 to B 3-100.

⑫ Measured Chargeability Plan n=1 (Figure 61)

Chargeability anomalies exceeding 10 mV/V are observed at around the station B 0-100 near the celestite alteration, at around the station B 0-150 in the vicinity of the Bou Khil old workings and at around the station B 0-200. Chargeability is generally high along the line connecting these anomalies, however, no notable chargeability is observed other than these.

⑬ Measured Chargeability Plan n=2 (Figure 62)

A chargeability anomaly exceeding 10 mV/V is observed at around the station B 0-100 near the celestite alteration. Another anomaly extends from the station B 0-180 to the northeast of the old Bou Khil workings. Other than these two, no notable chargeability anomaly is located.

⑭ Measured Chargeability Plan n=3 (Figure 63)

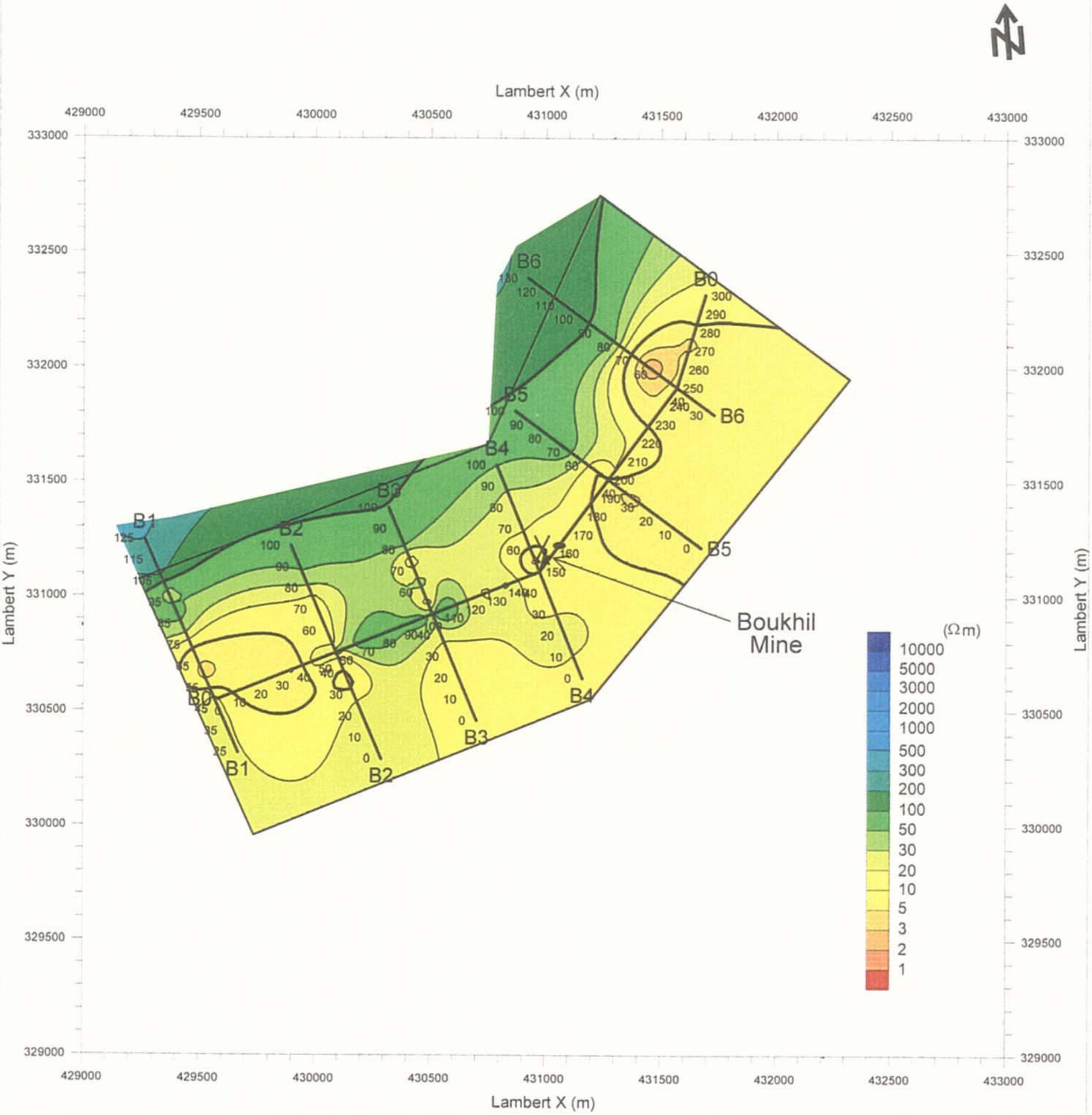
Chargeability anomalies exceeding 10 mV/V is observed at around the station B 0-100 near the celestite alteration in the center and at around station B 4-40 in the vicinity of the old Bou Khil workings. A minor chargeability anomaly is also located near the station B 0-220. No other notable chargeability anomaly is recognized on this plan.

⑮ Measured Chargeability Plan n=4 (Figure 64)

The hill area to the northwest of the celestite alteration and the old Bou Khil workings indicates high chargeability, which is particularly intensified along the line B 3.

(2) Resistivity and Chargeability Models

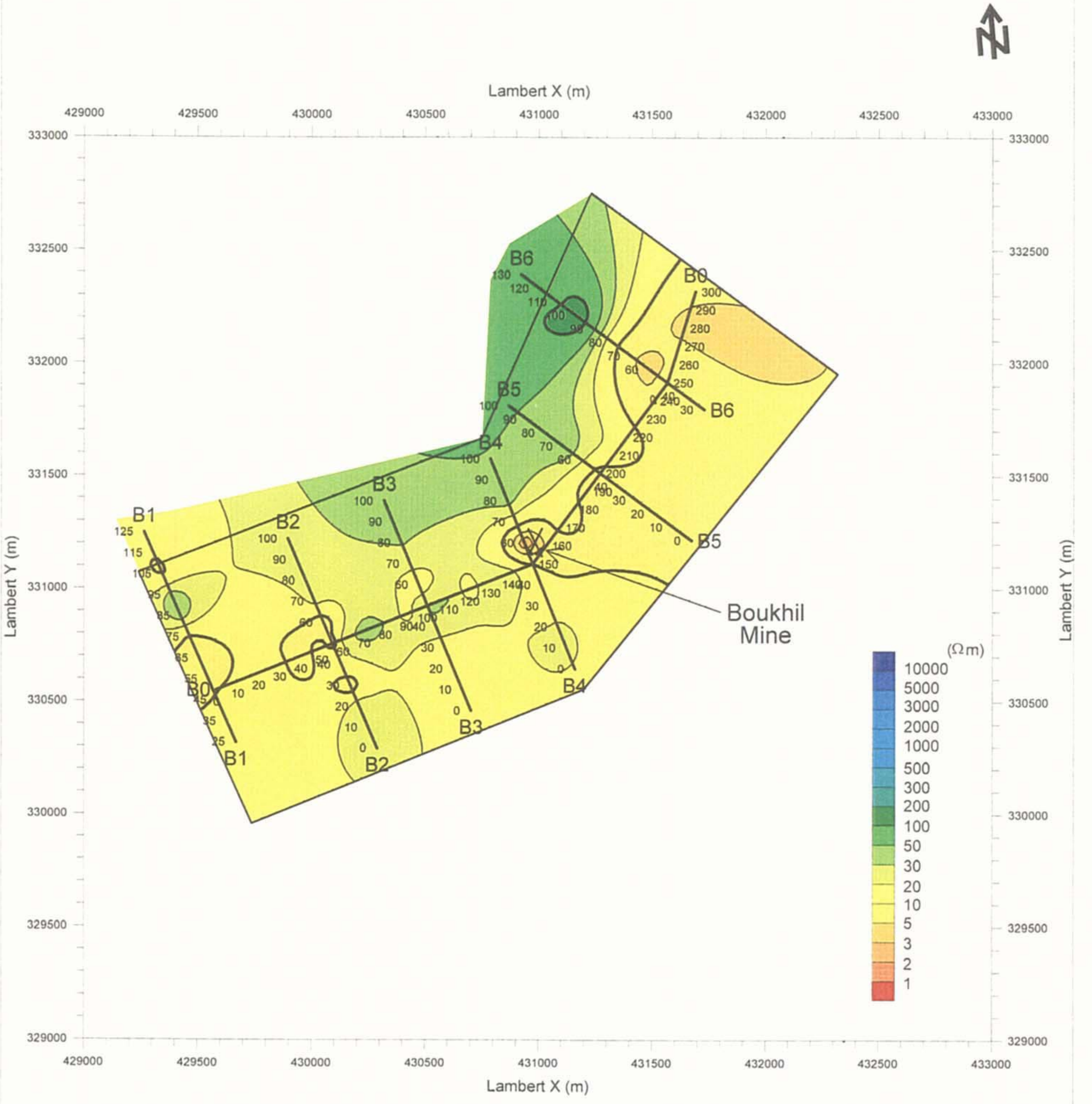
The resistivity that is obtained by the modeling based on the measured data in this prospect ranges from 0.1 to 1,127Ωm, averaging at approximately 80Ωm. A zone of low resistivity, equal to 1Ωm or less, is identified along the contact between the Triassic



Legend

- : IP survey Line
- : Survey Area
- : Closed Mine

Figure 57
Plan Map of Apparent Resistivity in Bou khil area (n=1)
1 : 25,000
March, 2000



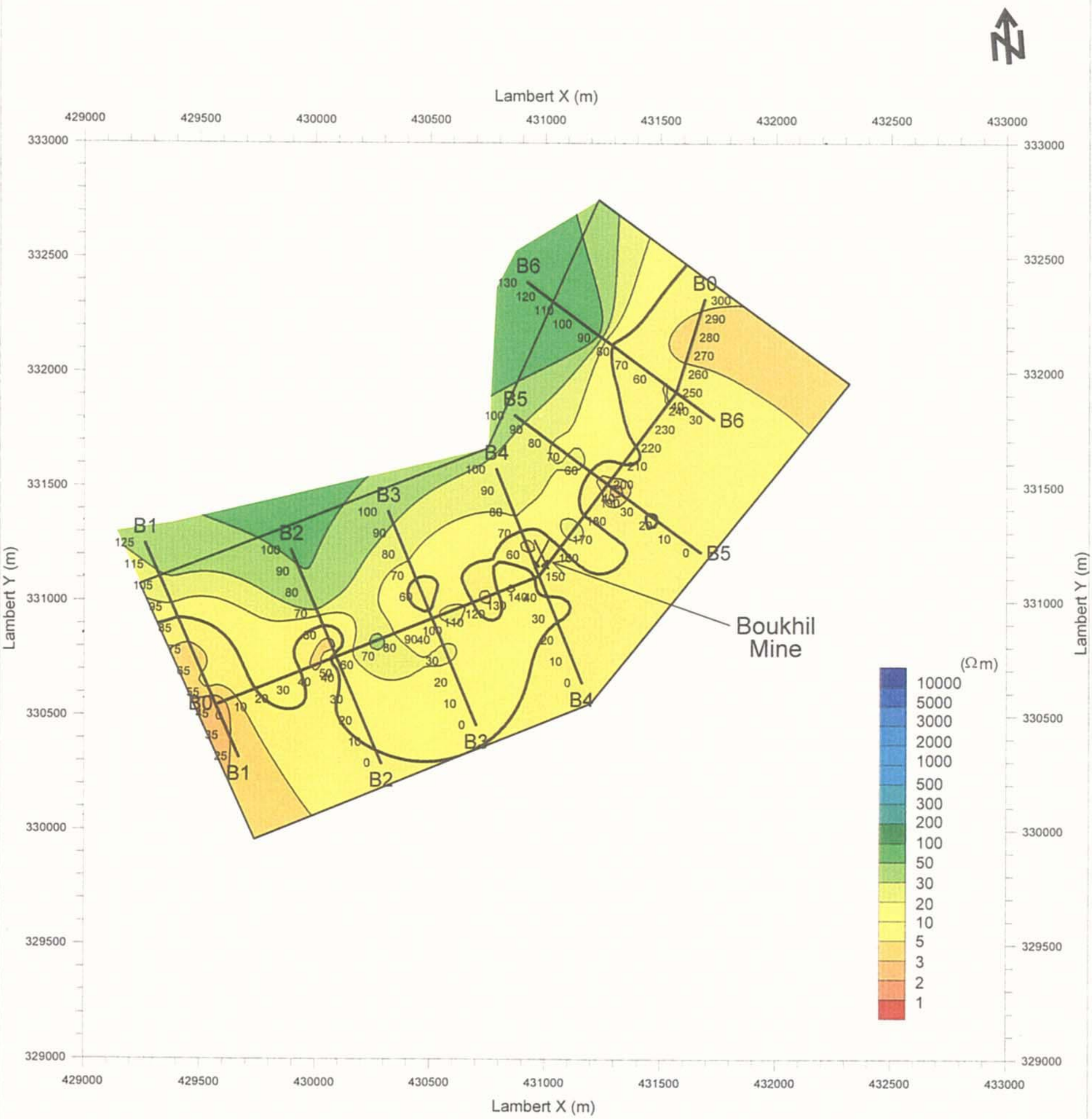
Legend

— : IP survey Line

□ : Survey Area

⚒ : Closed Mine

Figure 58
Plan Map of Apparent Resistivity in Boukhil area (n=2)
1 : 25,000
March, 2000



Legend

— : IP survey Line

: Survey Area

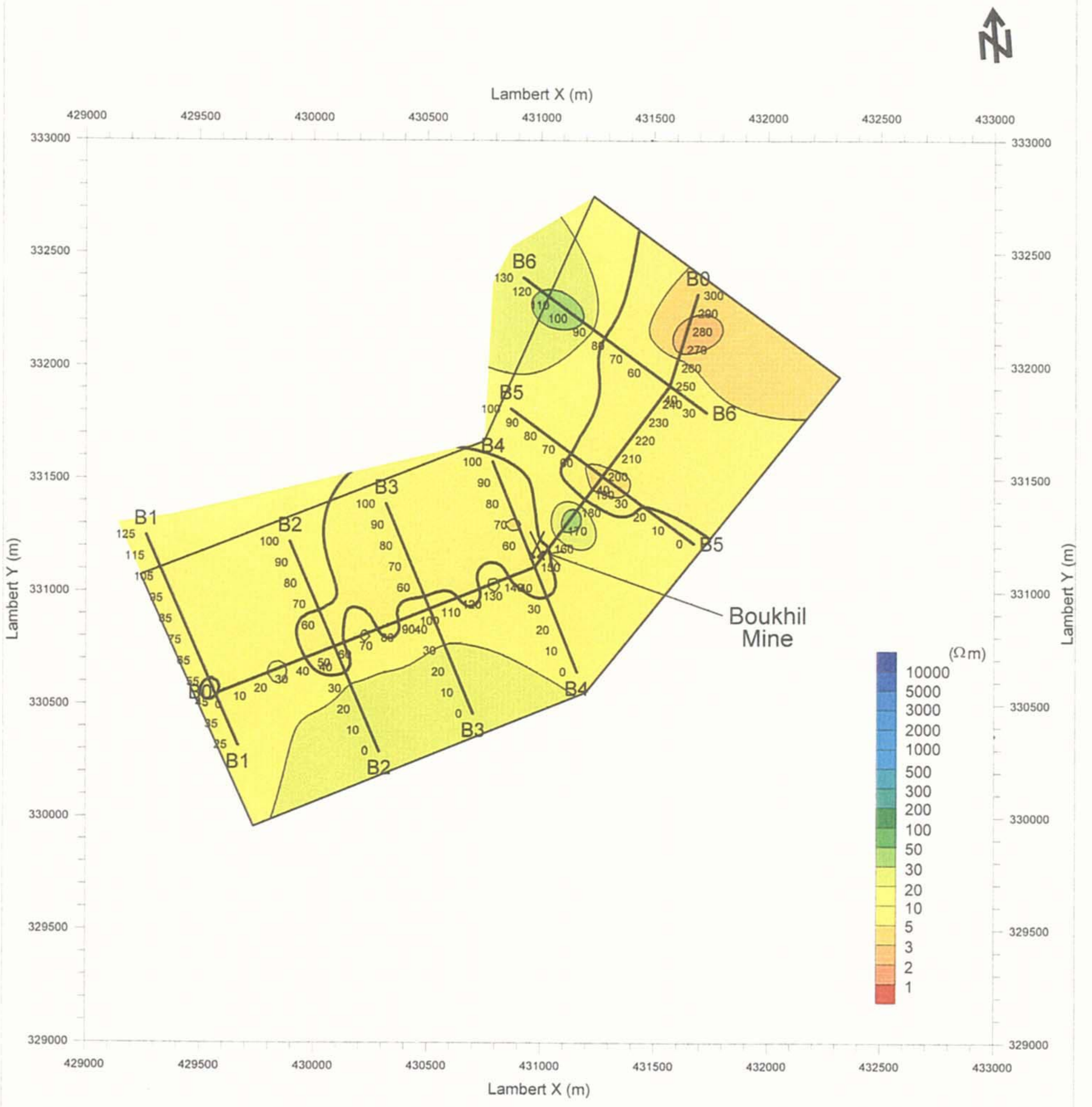
: Closed Mine

Figure 59

Plan Map of Apparent Resistivity in Boukhil area (n=3)

1 : 25,000

March, 2000



Legend

—— : IP survey Line

□ : Survey Area

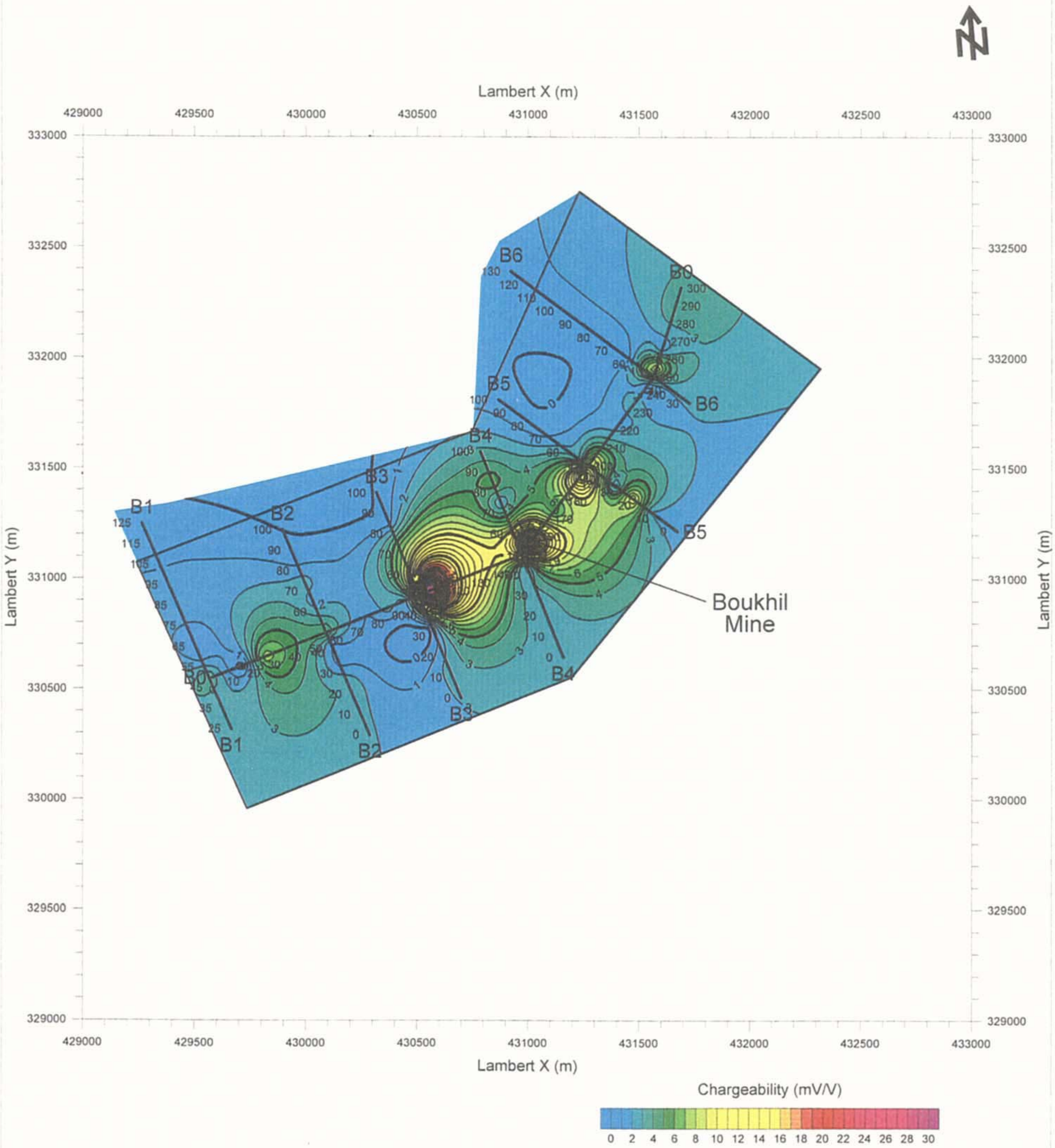
X : Closed Mine

Figure 60

Plan Map of Apparent Resistivity in Boukhil area (n=4)

1 : 25,000

March, 2000



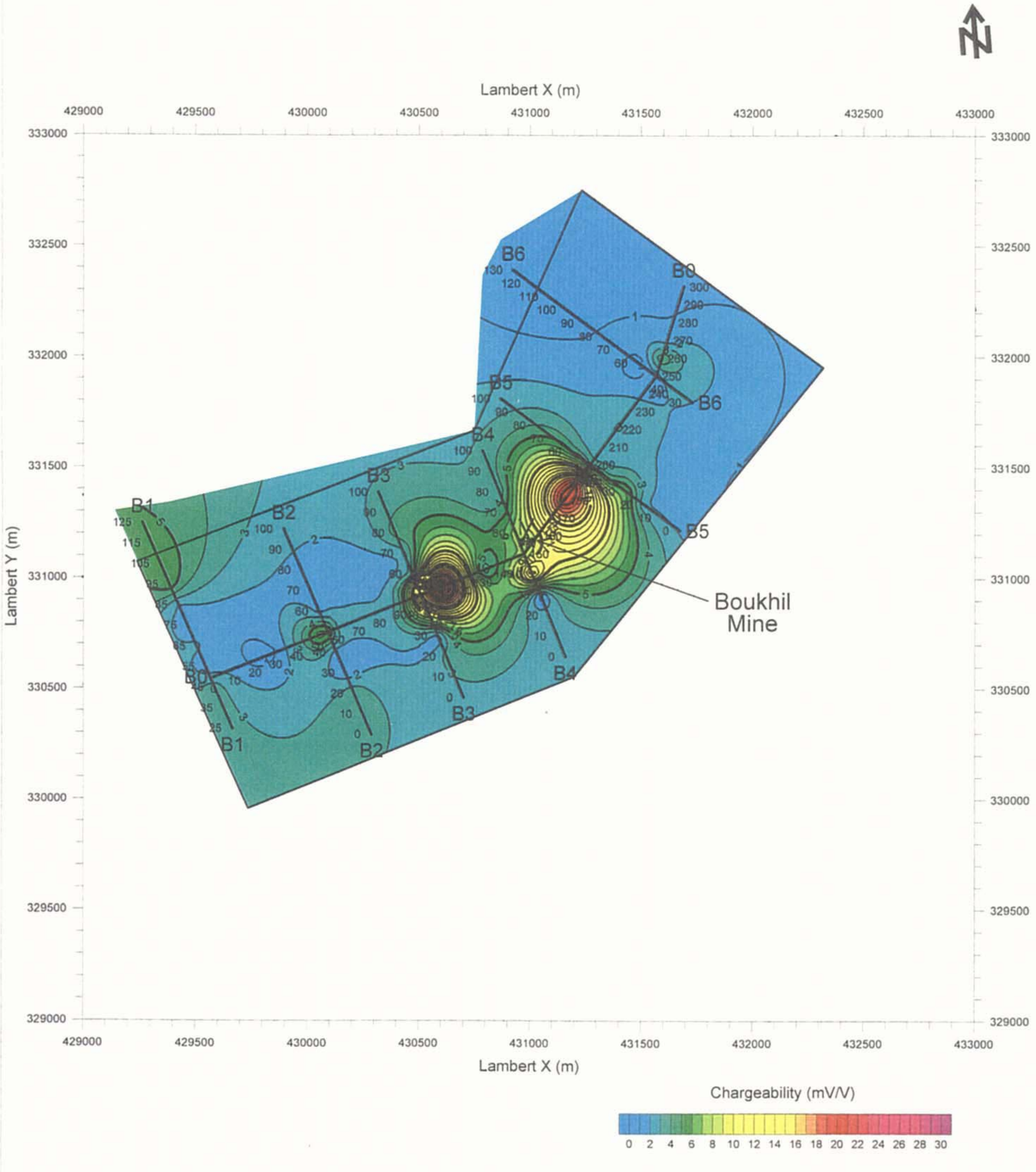
Legend

— : IP survey Line

□ : Survey Area

XX : Closed Mine

Figure 61
Plan Map of Observed Chargeability in Boukhil area (n=1)
1 : 25,000
March, 2000



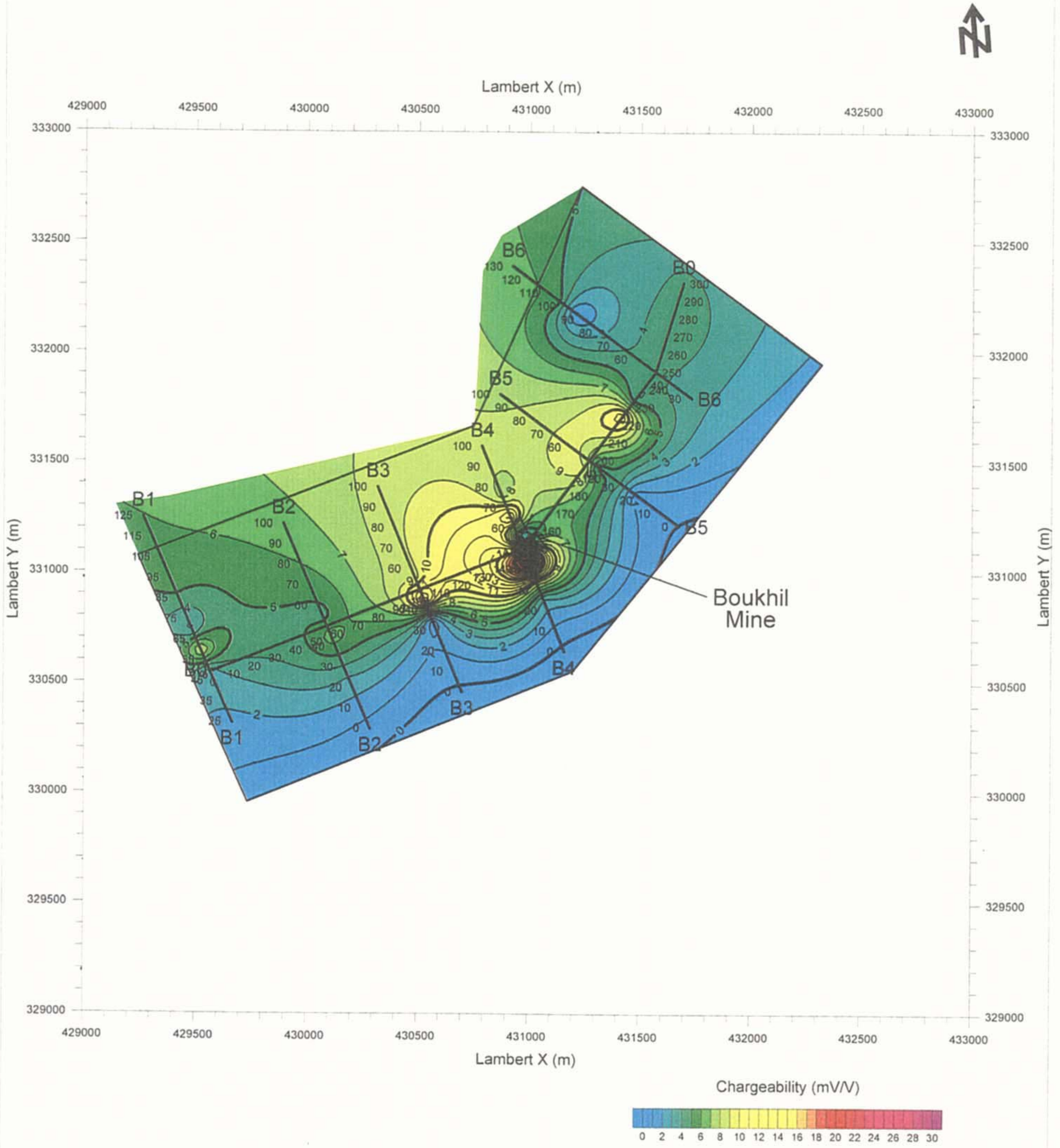
Legend

— : IP survey Line

☐ : Survey Area

X : Closed Mine

Figure 62
Plan Map of Observed Chargeability in Boukhil area (n=2)
1 : 25,000
March, 2000



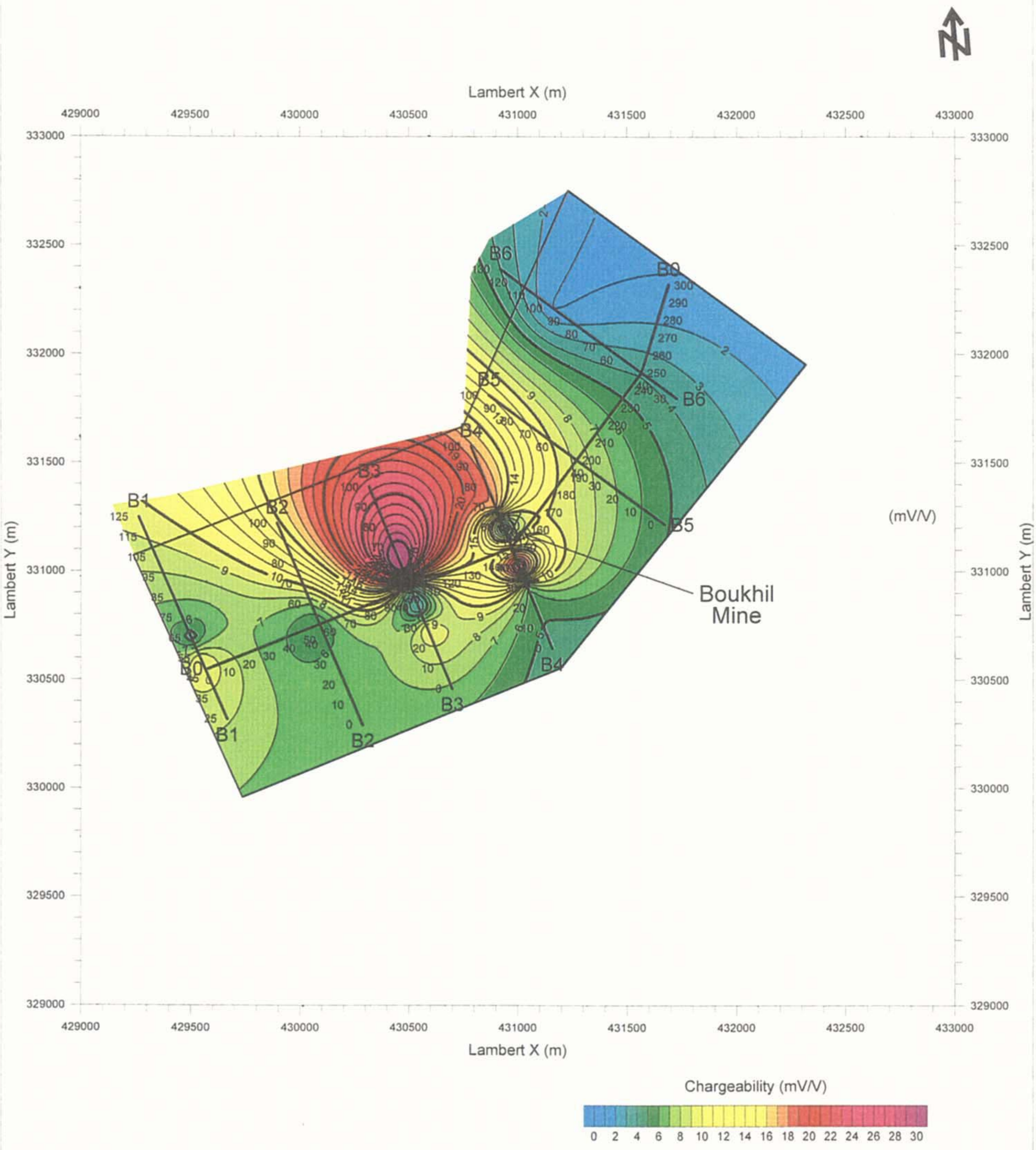
Legend

— : IP survey Line

□ : Survey Area

X : Closed Mine

Figure 63
Plan Map of Observed Chargeability in Boukhil area (n=3)
1 : 25,000
March, 2000



Legend

— : IP survey Line

: Survey Area

: Closed Mine

Figure 64

Plan Map of Observed Chargeability in Boukhil area (n=4)

1 : 25,000

March, 2000

and Cretaceous systems to the northwest of the line B 0 that runs longitudinally in the center of the prospect. This zone of low resistivity approximately corresponds to the zone of low density that is outlined as the result of the gravity survey. Therefore, this zone can be interpreted to comprise rocks with high porosity such as evaporites of Triassic diapirs or poorly consolidated sandstone and argillite of Tertiary. Further, the values of resistivity in this zone are even lower than those estimated on the basis of the result of laboratory test of rock samples. Although underestimation of resistivity is often experienced in the course of inversion, the lowness of resistivity to this degree would require to assume existence of intra-stratum or pore water with salinity nearly equivalent to sea water that indicates resistivity of 1Ωm or less. Since the Bou Khil ore deposit and the celestite alteration in the center of the prospect is associated with this zone of low resistivity, low resistivity of this kind may be related to mineralization. It is, however, still premature to make a conclusive remark with this respect, because low resistivity is also observed in other areas where no mineralization has been identified.

High resistivity, equal to 100Ωm or higher, is observed in the northwestern hill area of the prospect. Rocks with high resistivity are generally high in density as well, and may be correlated to the Cretaceous limestone that indicates high density. However, the Triassic system that includes abundant evaporites with low density also distributes in this zone of high resistivity. Besides, high residual gravity is observed in association with the Triassic system in places such as the vicinity of the station B 1-100 in the western part. Therefore, high resistivity may be caused by the Cretaceous system in a shallow depth over the Triassic terrain. In addition, slopes in the Triassic terrain are generally very steep, which reduces water retention capacity of rocks with high porosity. These topographic and ground conditions lead to lowering groundwater tables and hence expanding an ambient of ground unsaturated with pore water. This may be another reason for the high resistivity.

In the plain extending from east to south, resistivity is low in the shallower part and tends to become higher with depth. This suggests that unconsolidated sedimentary rocks of Tertiary or Quaternary is developed near surface and is underlain by Cretaceous rocks mainly consisting of limestone. The high resistivity zone to the plain side of the low resistivity zone tends to become shallower between the lines B 3 and B 5 where surface mineralization such as the Bou Khil ore deposit is located. Similarly, the gravity basement also rises in this part (Figures 43 to 48). These characteristics in resistivity and gravity may be used as one of exploration indices, if not directly related to the mineralization.

The chargeability obtained by the modeling based on the field measurement is low as a whole, indicating the maximum of 21 mV/V and averaging at approximately 1 mV/V. Besides, negative chargeability is estimated in part where it is virtually impossible to measure valid chargeability. Chargeabilty anomalies, unlike resistivity anomalies, are spatially in close association with the known mineralization such as the Bou Khil deposit and the celestite alteration, and are limited near surface. Therefore, they can be regarded as direct indications of mineralization. Strangely, however, no high chargeability is detected for any minerals other than galena, a lead sulfide, according to the result of laboratory test. For example, samples containing abundant celestite indicate chargeability equal to or lower than that for unmineralized samples. Although pyrite is generally high in chargeability, its content in the mineralization is not particularly high to explain the high chargeability observed in the field measurement. At the present stage, galena is the only mineral that is responsible for high chargeability. The high chargeability anomalies are broader than the extents of mineralization that can be estimated according to the field observation. Further investigation will be required to verify causes of chargeability anomalies.

Characteristics of resistivity and chargeability, as the result of modeling, are described below for each of the cross sections and the plans at elevations of 200, 300 and 400 m.

① B 0 Cross Section (Figure 65)

This is a longitudinal section crosscutting the prospect along the base line from the southwest to the northeast. The section is generally divided two layers which conductive layer less than 20 Ωm is overlying resistive one higher than 50 Ωm. Thickness of Shallower conductive layer is ranging from 100 through 300 m. Low resistivity anomalies, less than 10Ωm, are broader in the layer.

The lower resistive layer rises to an elevation of approximately 300 m between the station B0-110 and -200 around the old Bou Khil mine and observed celestite alteration. In the both sides of the rise resistivity varies steep laterally, faults are suggested around there. Hereafter, such us the lateral variation of resistivity is called 'resistivity continuation'. Small resistivity continuation is observed in an elevation of approximately 300 m between the station B0-150 and -160 around the old Bou Khil mine. Another resistivity continuation is around the station B0-50 in the southwestern part of the section.

A thin chargeability zone higher than 10 mV/V extends at shallow depth from the station B0-90 and -210 around the old Bou Khil mine and celestite alteration. The high chargeability zone is lying over the rise of the lower resistive layer.

② B 1 Cross Section (Figure 66)

This is the southwestern-most cross section, running in the NNW-SSE direction. Low resistivity less than 20 Ωm is widely distributed from the station B1-85 through –45 in the central part of the section, including a extreme conductive anomaly with 1 Ωm or less around the station B1-65. The low resistivity is correlated to sedimentary rock belong to the Tertiary system. It is supposed that a resistive anomaly exceeding 100Ωm observed at a depth near the north northwest part of the line is correlated to limestone of the Cretaceous or Triassic system. A resistivity discontinuation from the station B1-75 to –85 suggests a fault. Resistivity decreases towards the north-northwest in the north-northwest end of the line distributed the Triassic system. No valid chargeability anomaly is indicated along this section.

③ B 2 Cross Section (Figure 67)

This section runs in NNW-SSE direction 500 m to the northeast of the B 1 cross section. Low resistivity less than 20Ωm extends between the stations B 2-20 and -70, including a large conductive anomaly below 1Ωm at depth of the stations between B 2-50 and –60. It is supposed that the low resistivity continues from the central part of the B1 cross section and is correlated to sedimentary rocks of the Tertiary system. Resistive anomaly higher than 100Ωm is located in the both end of the section, two resistivity discontinuations is observed around the station B2-70 and –10. No valid chargeability anomaly is indicated along this section same as the B1 line.

④ B 3 Cross Section (Figure 68)

This section runs in NNW-SSE direction 500 m to the northeast of the B2 cross section. Low resistivity less than 20Ωm widely distributes at a depth between the station B3-80 and B0-100 in the central part of the line, and it is developed from the station B3-40 south-southeastwards. Although the former is correlated to the Triassic system, it is located at the north-northwest side hill area of observed contact with the Cretaceous system. The resistive anomaly thrusted up over the conductive anomaly from the north-northwest south-southeastwards is identified the Cretaceous limestone outcropped. The latter low resistivity is correlated to the Tertiary or Quaternary system. It is supposed that a resistive anomaly between both low resistivity distributions corresponds with the rise of the lower resistive layer observed in the central part of the B0 section. Three resistivity discontinuities are around the station B3-80 in the north-northwest part, the station B3-40 and –30 in the central part of the line. A chargeability anomaly of around 10 mV/V is located at a shallower depth between the stations B3-60 and B0-100 over celestite alteration, where the contact between the Triassic and Cretaceous system crosscuts the line. Besides chargeability of celestite samples are estimated low from laboratory test, no mineral generating chargeability is identified.

⑤ B 4 Cross Section (Figure 69)

This section runs in NNW-SSE direction through the old Bou Khil workings in the center of the prospect. Resistivity distribution pattern such as B3 section is observed along this line. Low resistivity less than 20 Ωm distributes at a depth between the station B4-70 and B0-150 in the central part of the line, and another one is developed from the station B4-30 south-southeastwards. The old Bou Khil working is in the south-southeast side of the former low resistivity zone, the zone is located at the north-northwest side hill area of contact between the Triassic and the Cretaceous system. The resistive anomaly thrusted up over the conductive anomaly from the north-northwest south-southeastwards is identified the Cretaceous limestone outcropped. The latter low resistivity is correlated to the Tertiary or Quaternary system, and it is not as low as that of the B3 section. A resistive anomaly is between both low resistivity zones. The distribution pattern of resistivity in the section corresponds with that of density modeled from gravity cross section analysis of residual gravity variation along the line.

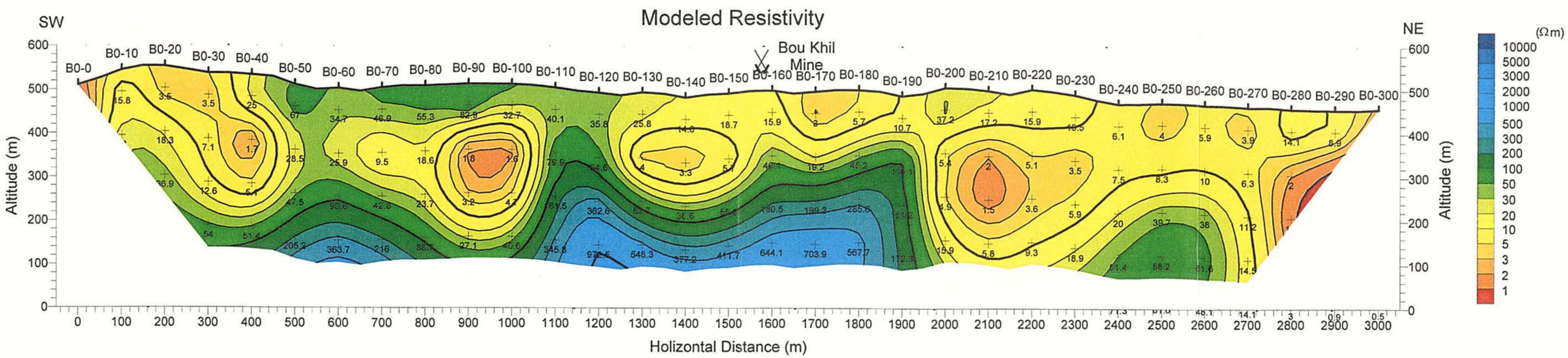
A chargeability anomaly of around 10 mV/V extends at a shallower depth from the stations B4-70 through -40, including the old Bou Khil working. Highest chargeability exceeding 20 mV/V is observed between the station B4-60 and B0-150, where the working in the vicinity of the contact between the Triassic and the Cretaceous systems is located. The fact that chargeability of lead ore collected in the waste deposit of the working is estimated higher than 20mV/V in laboratory suggests galena generating high chargeability.

⑥ B 5 Cross Section (Figure 70)

This section runs in NW-SE direction 500 m to the northeast of the B 4 cross section. High resistivity higher than 100 Ωm distributes in the northwestern sides from a resistivity discontinuity around the station B5-60 in the central part of the line. Low resistivity equal to 10 Ωm or less extends in the opposite side. A conductive anomaly less than 1 Ωm at a depth around the station B0-200 in the center of the line continues from the conductive anomalies in the vicinity of contact between the Triassic and the Createceous systems on the sections B3 and B4. The anomaly is located in the southeastern side of outcropped contact. Resistive zone at a depth in the southeastern side of the extreme conductive anomaly corresponds with rises of high resistivity observed on the section B0, B3 and B4. Such as characteristics is identified on the result of gravity cross section analysis of the line. No valid chargeability anomaly is observed along this section.

⑦ B 6 Cross Section (Figure 71)

This section crosscuts the northeastern part of the prospect in the NW-SE direction. Such as the B5 section, High resistivity higher than 100 Ωm distributes in



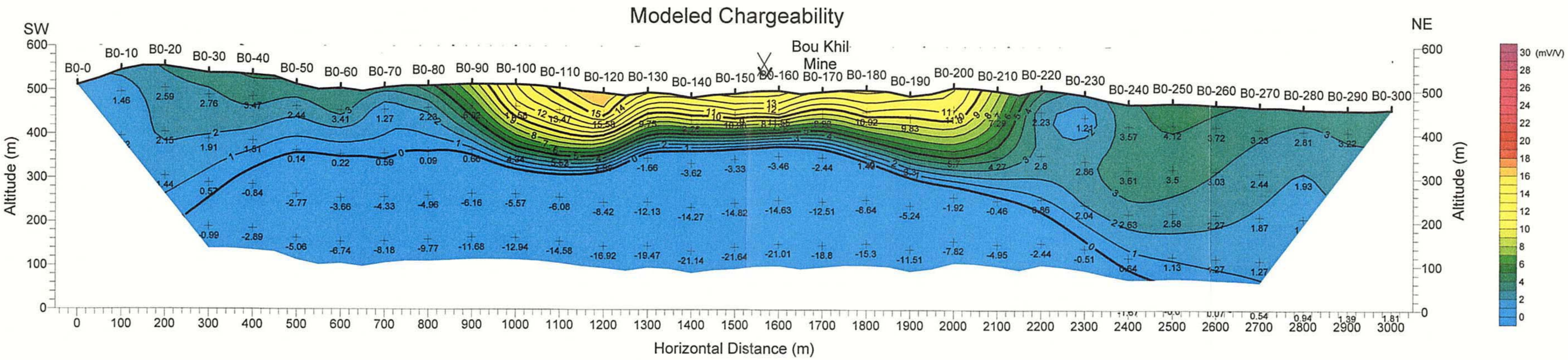
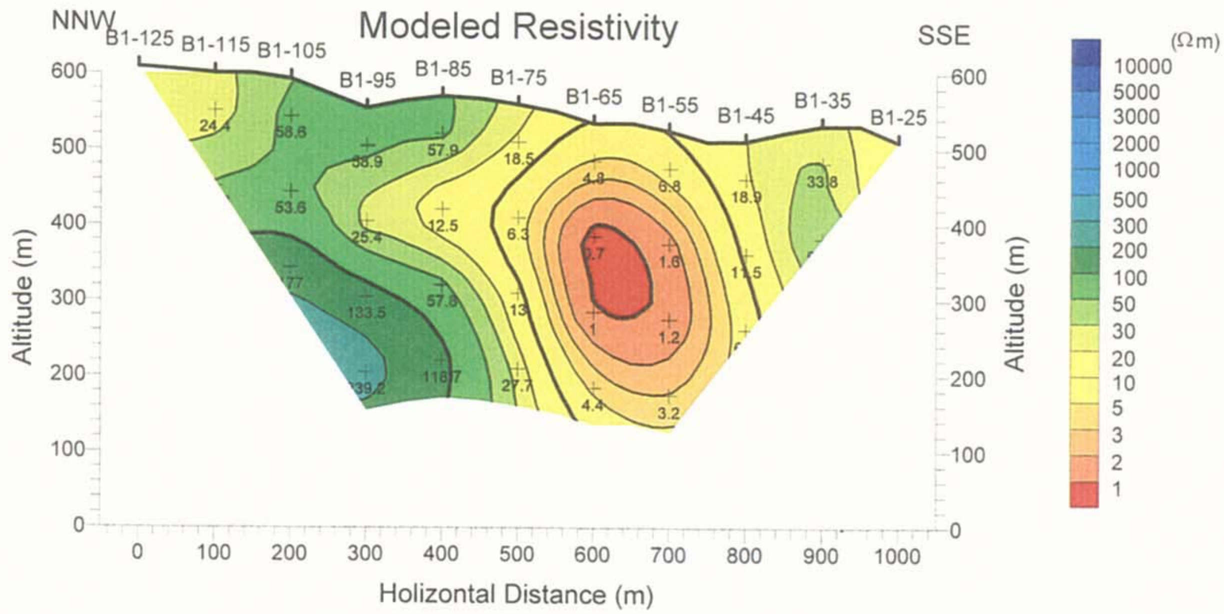


Figure 65 Modeled IP section (Line B0)



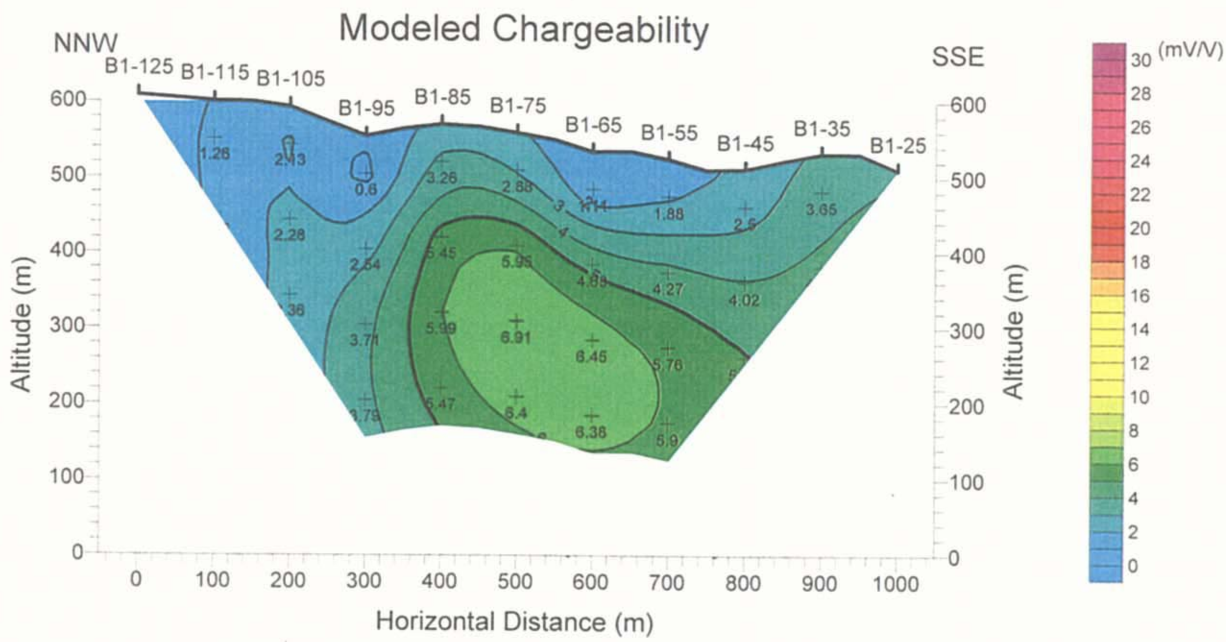
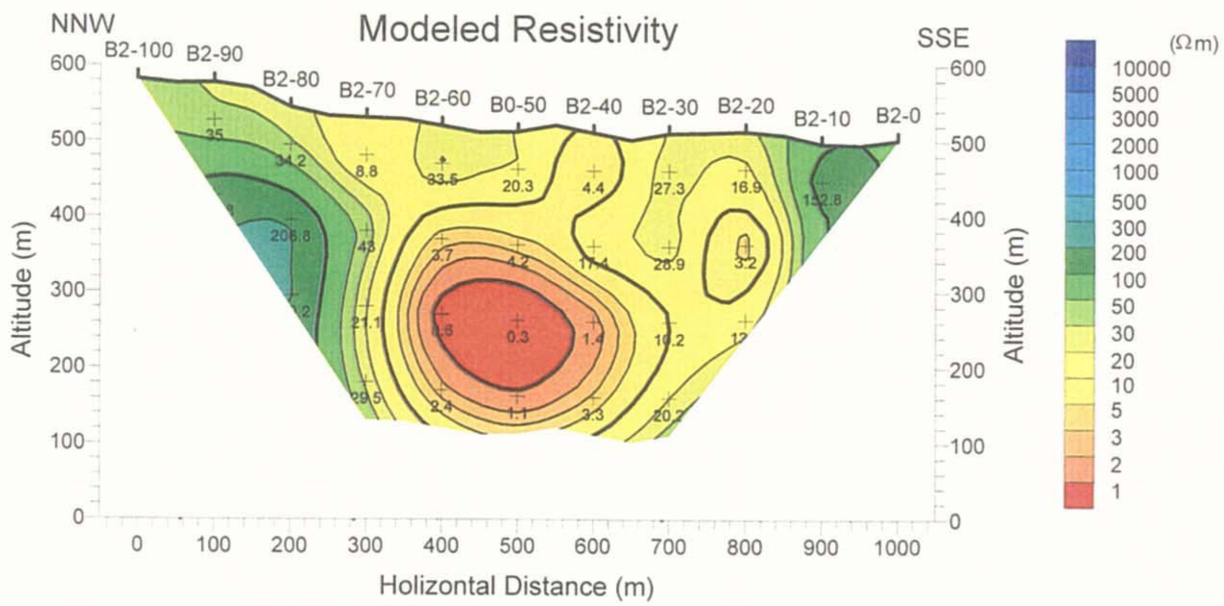


Figure 66 Modeled IP section (Line B1)



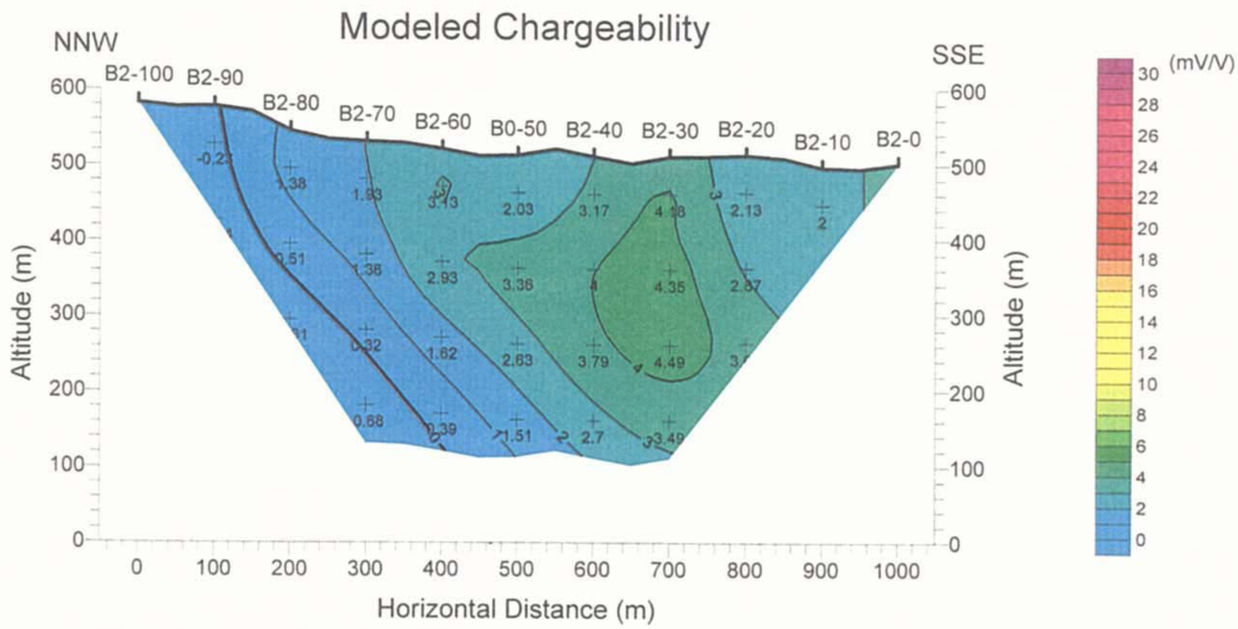
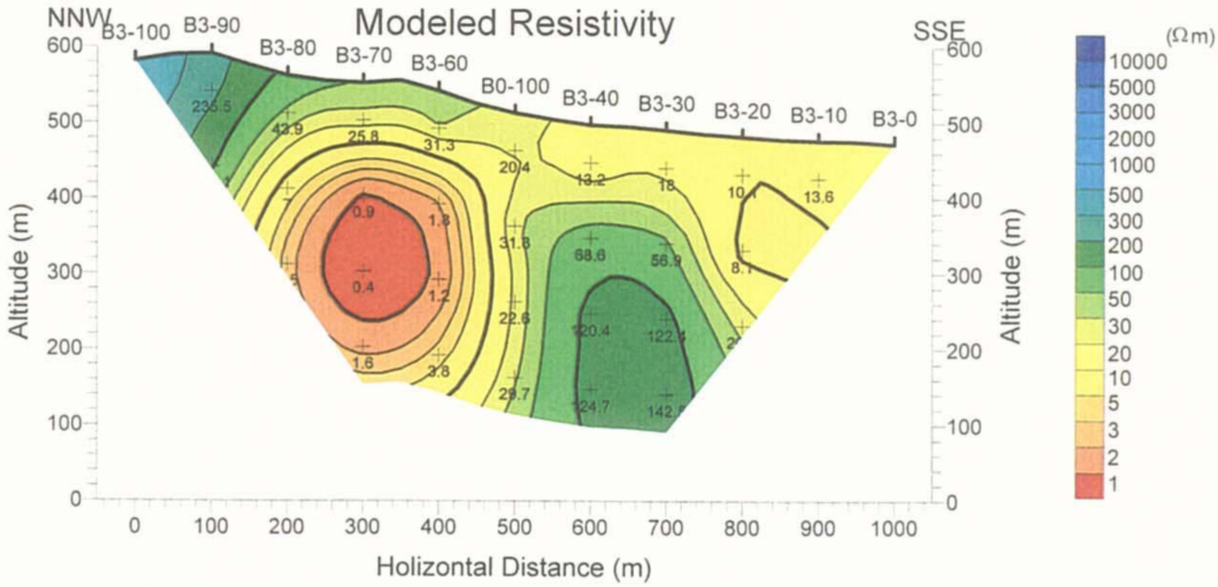


Figure 67 Modeled IP section (Line B2)



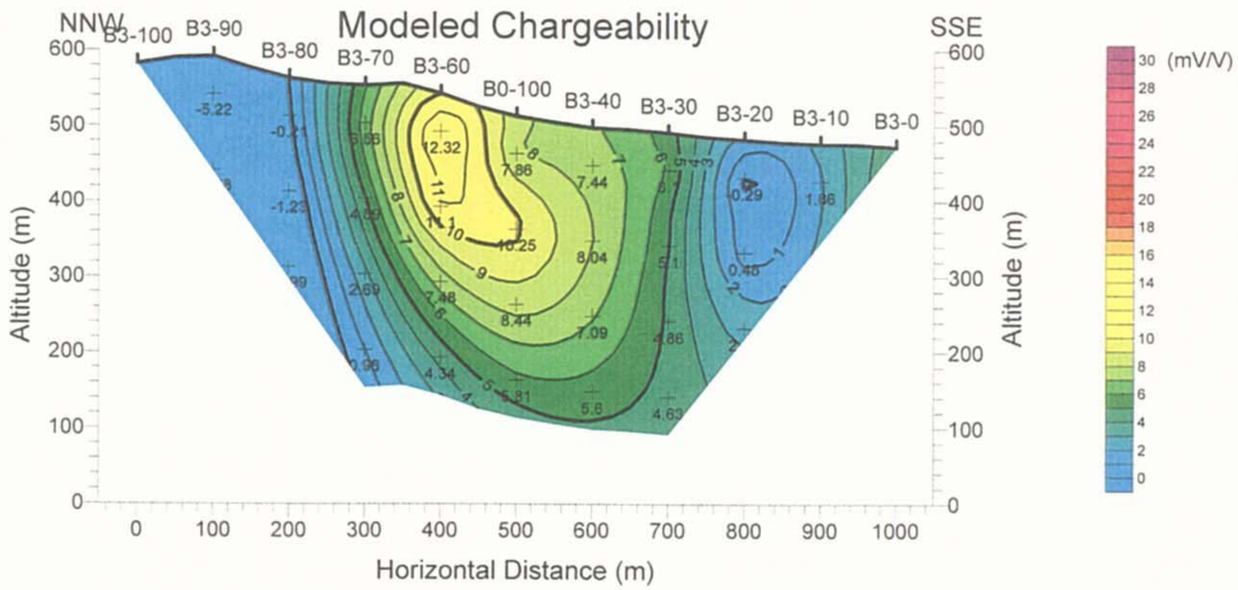
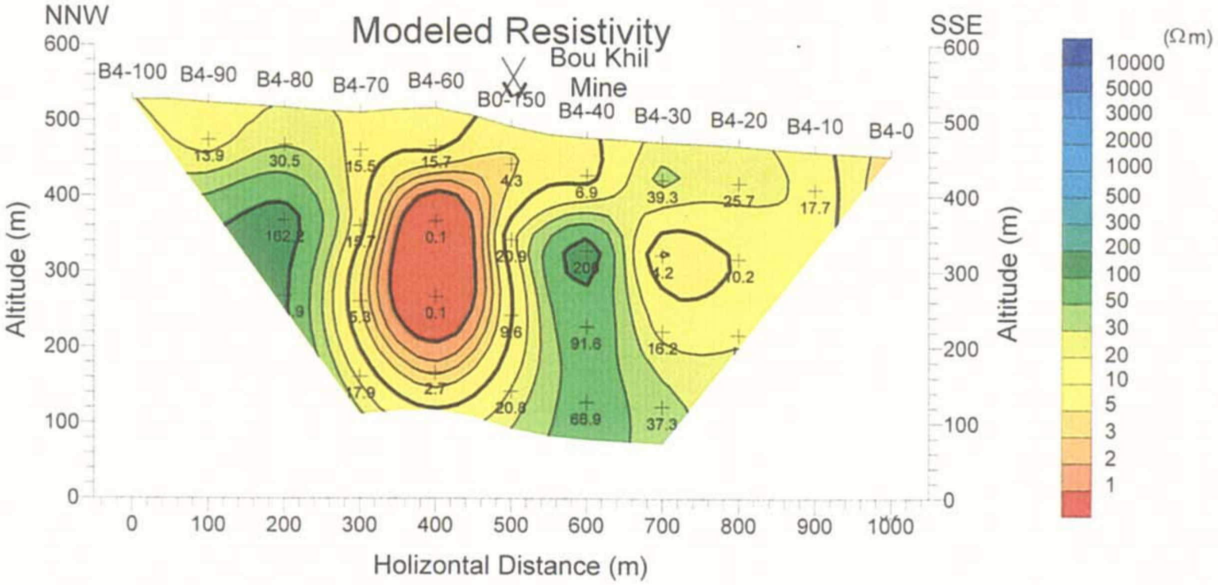


Figure 68 Modeled IP section (Line B3)



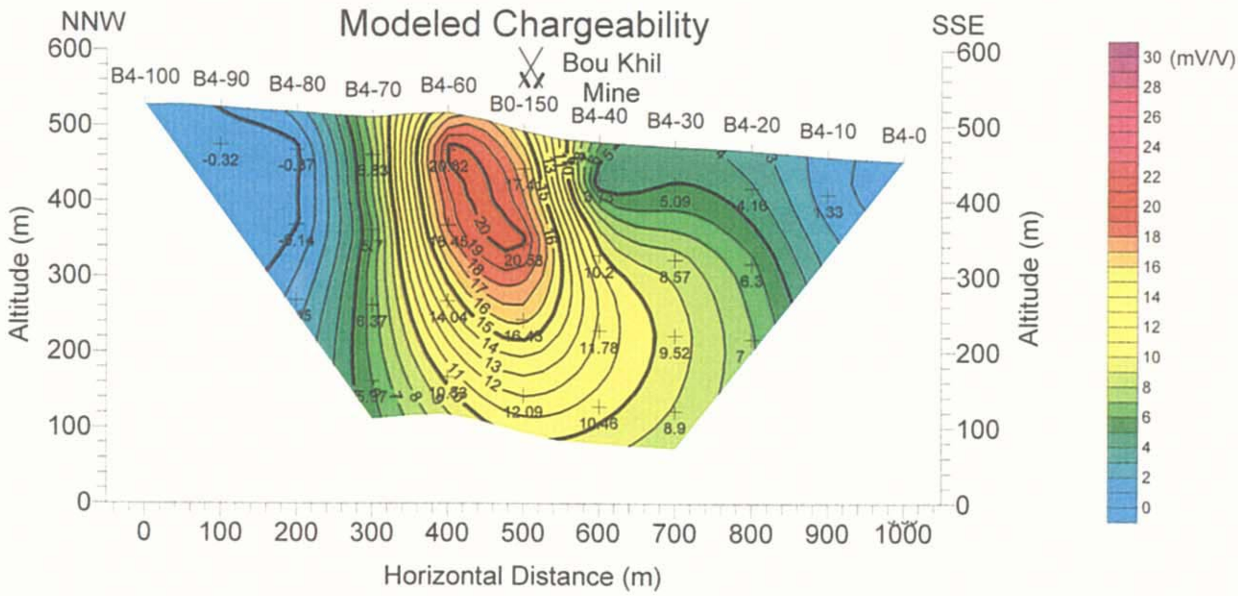
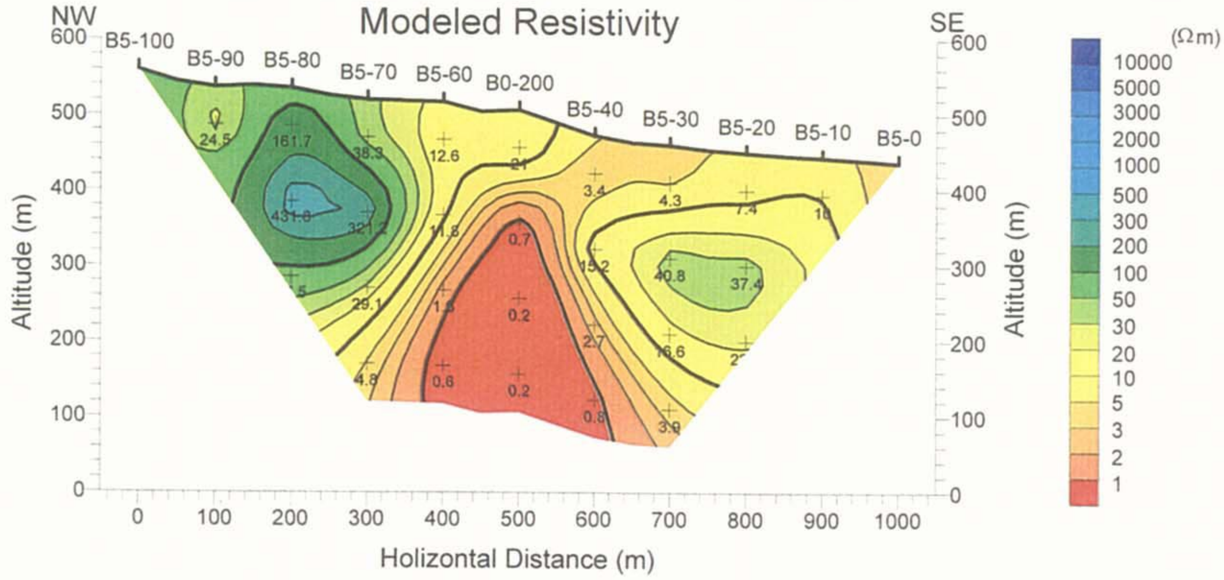


Figure 69 Modeled IP section (Line B4)



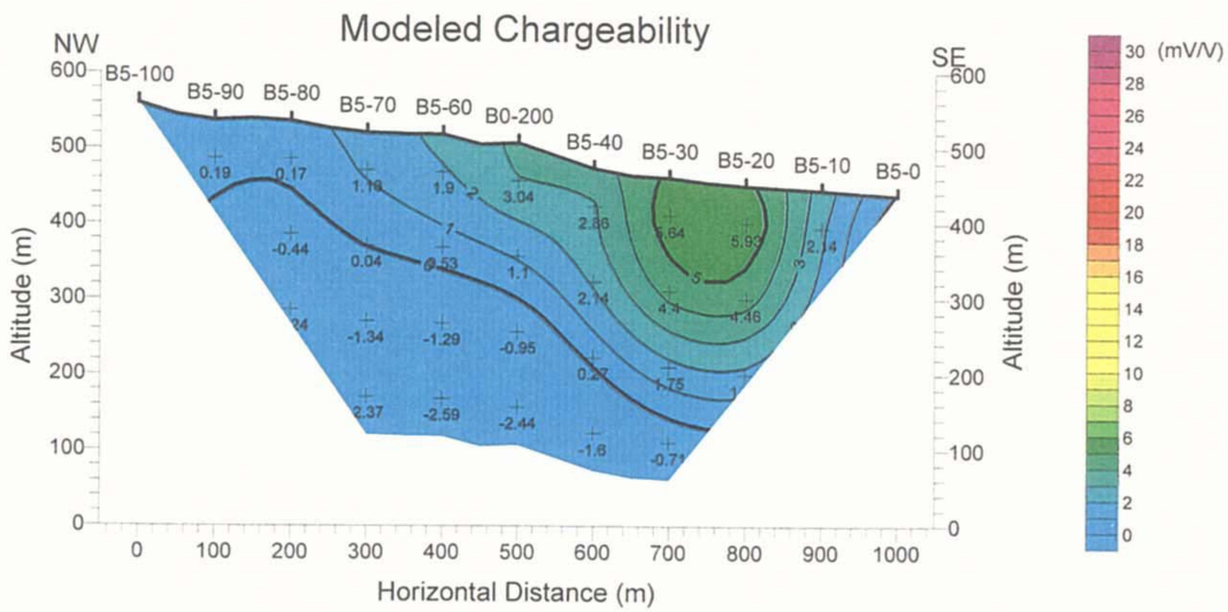


Figure 70 Modeled IP section (Line B5)

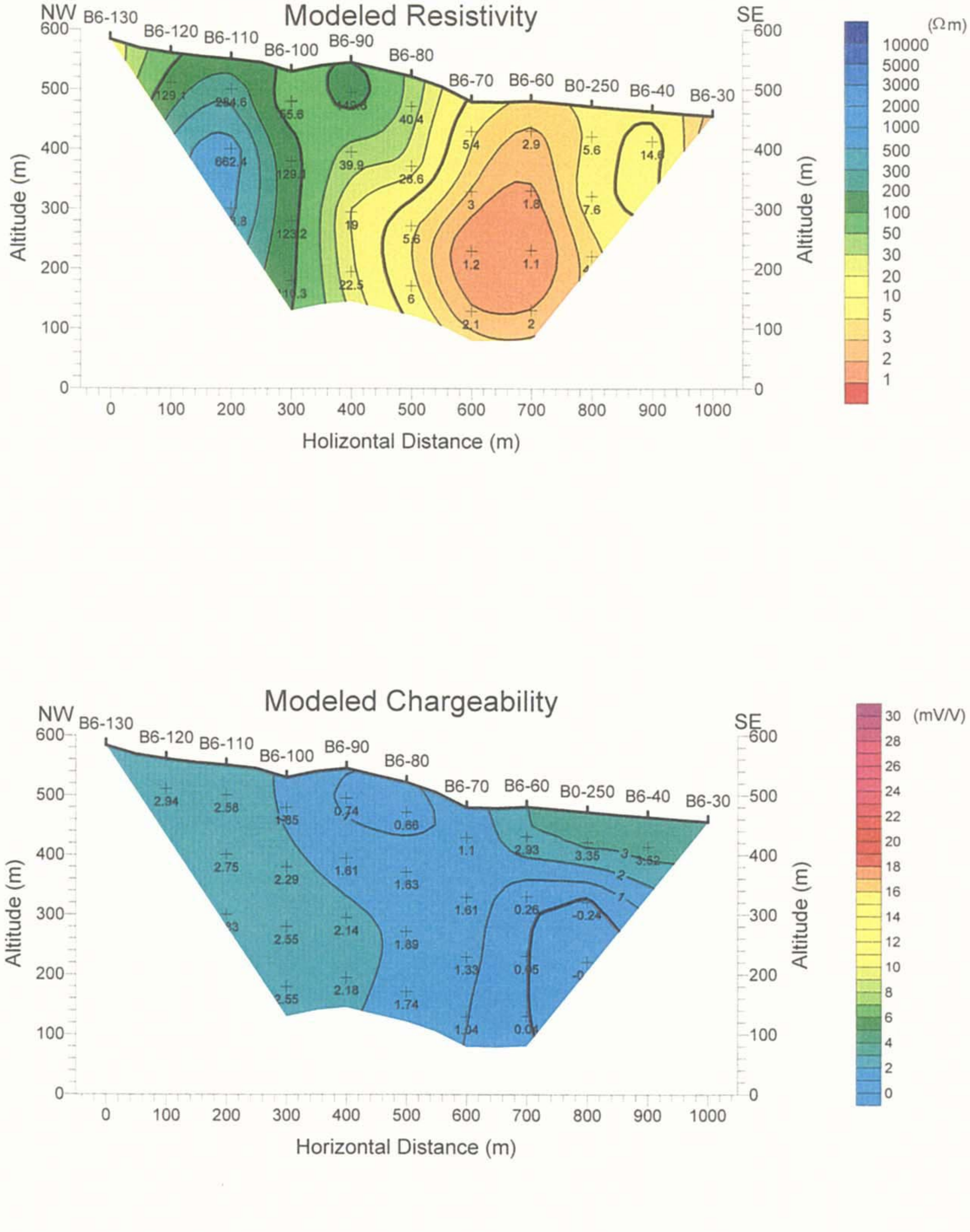


Figure 71　Modeled IP section (Line B6)

the northwestern sides from a resistivity discontinuity around the station B6-70 in the central part of the line, low resistivity equal to 10Ωm or less extends in the opposite side. A sizable conductive anomaly outlined by 5Ωm in the center is joined low resistivity in the southeastern side. No valid chargeability anomaly is observed along this section.

⑧ Plan of Resistivity Model at an Elevation of 200 m (Figure 72)

Resistivity higher than 50Ωm distributes along the northwestern hill area and decreases towards low resistivity equal to 10Ωm or less in the southeastern plain area. Conductive anomalies line up along the contact between the Triassic and the Cretaceous systems longitudinal crosscutting the prospect. These anomalies are identified a sizable conductive belt. Resistive anomalies exceeding 100Ωm along the line from the station B0-240 to B2-0 separate the conductive belt and low resistivity in the plain area. The resistive anomalies around the center of the prospect, except for the vicinity of the old Bou Khil working, are identified as juts out of high resistivity along the hill area.

⑨ Plan of Resistivity Model at an Elevation of 300 m (Figure 73)

Resistivity distribution pattern is similar to that at an elevation of 200m. Resistivity is generally lower than that at the elevation. A resistive jut out around the center of the prospect becomes smaller. Continuity of conductive anomalies around the station B4-60 and B3-60 is valid.

⑩ Plan of Resistivity Model at an Elevation of 400 m (Figure 74)

Resistivity distribution pattern is similar to that at elevations of 200m and 300m. Resistivity is further lower. No valid resistive anomaly dividing low resistivity is observed. In the north part of the prospect, low resistivity in plain area extends westwards. From the central to the southwestern parts the conductive anomaly continues along the contact between the Triassic and the Cretaceous systems. It is located in the northwestern side of the outcropped contact.

High resistivity along the northwestern hill area is broader than that at elevations of 200m and 300m. A resistivity discontinuation is identified in the margin of the high resistivity.

⑪ Plan of Chargeability Model at an Elevation of 200 m (Figure 75)

Valid high chargeability equal to 10 mV/V or more is indicated only around the old Bou Khil mine. The B0 line is approximately parallel to general strike of geology of the prospect, other lines is approximately perpendicular to it. Besides it is assured that estimated cross section crosscuts perpendicularly to strikes of causable bodies in IP modeling, modeled chargeabilities around a junction of crossing lines is different between each lines. Due to the differences a valid chargeability zone around a junction is expressed separately in all plans of chargeability model.

⑫ Plan of Chargeability Model at an Elevation of 300 m (Figure 76)

Valid high chargeability equal to 10 mV/V or more is indicated only around the old Bou Khil mine such as a plan at an elevation of 200m. A weak chargeability anomaly higher than 5 mV/V is over celestite alteration around B3-60, too. Only mentioned two anomalies are identified.

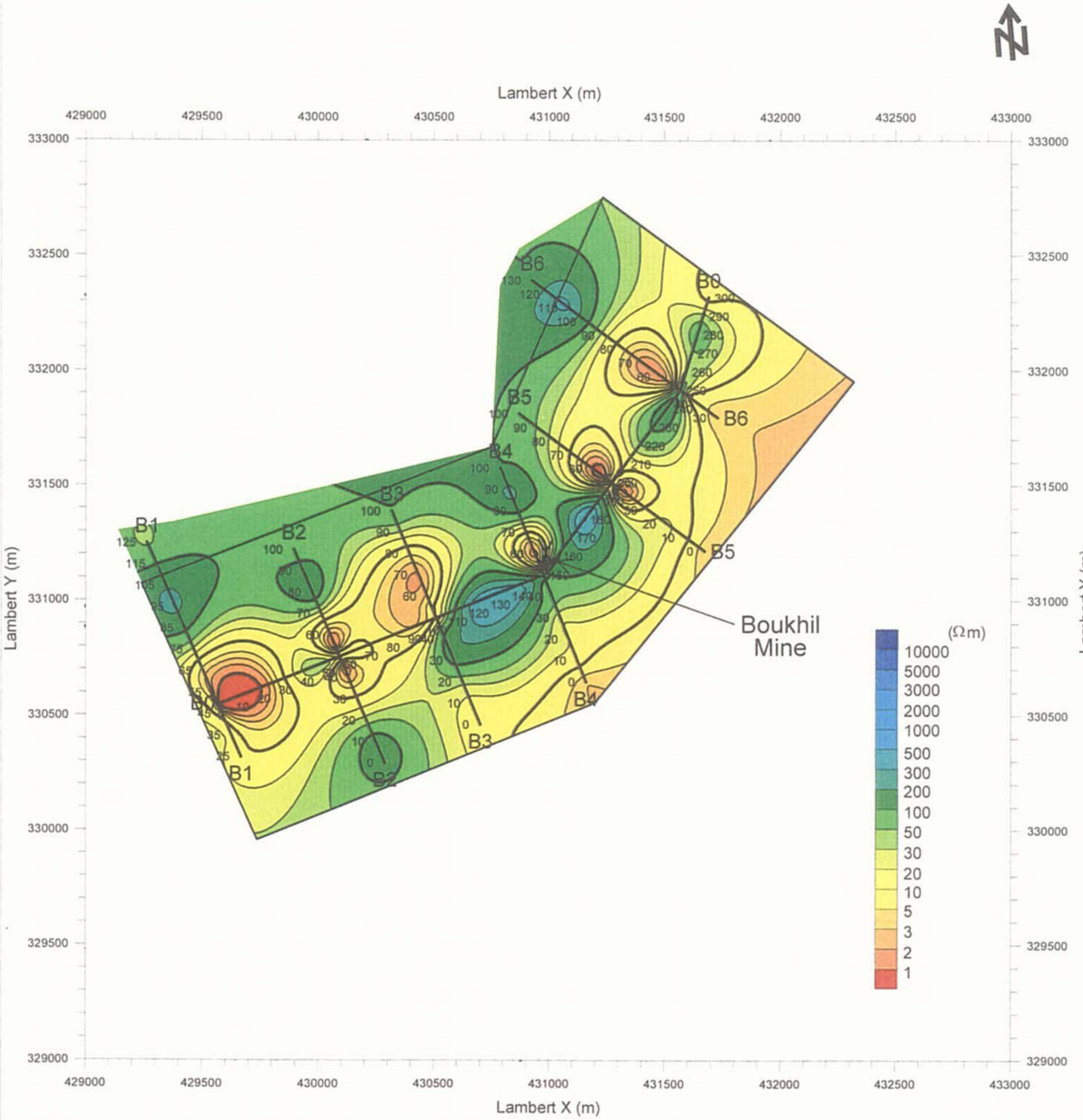
⑬ Plan of Chargeability Model at an Elevation of 400 m (Figure 77)

Three chargeability anomalies exceeding 10 mV/V are along a line from the station B0-180 to B4-60. This line is correlated to the contact between the Triassic and the Cretaceous systems. Two anomalies of them around the station B0-180 and B4-60 is identified as a anomaly related to the Bou Khil deposit. Another anomaly around the station B3-60 is caused differently.

(3) Interpreted IP Survey Map

Chargeability zones higher than 5 mV/V are superimposed over the locations of known mineralizations, resistive zones and conductive zones as shown in Figure 78. The old Bou Khil mine is around the crossing point between the line B0 and B4 in the central part of the prospect. Triassic diapir in the northwestern hill area, the Cretaceous system, the narrow Triassic system and the Tertiary system are lined up towards the southeastern plain area. The mine locates around the narrow Triassic system between the Cretaceous system and the Tertiary one. The Cretaceous system is represented by resistive limestone. The Tertiary system consists of porous sedimentary rocks indicating low resistivity. The Triassic system between the Cretaceous system and the Tertiary system is extremely conductive and thrusts down into the resistive Cretaceous system towards the northwestern sides. These conductive anomalies are distributed along the base line B0. In the southeastern side of known mineralization zones of the Bou Khil ore deposit and the celestite alteration around the crossing point between the line B3 and B0, the resistive basement become partly shallower towards the upper conductive layer correlated the Tertiary system. These characteristics in resistivity are consistent with the results of cross section analysis from the residual gravity.

The valid Chargeability zones concentrate around the Bou Khil ore deposit and the celestite alteration. The highest chargeability is indicated in the vicinity of the old Bou Khil working. It is supposed that galena is responsible for high chargeability around the mine. The cause of valid chargeability in the vicinity of the celestite alteration has not identified yet. The results from the current survey suggest that chargeability is useful in order to identify mineralizations in the prospect. No unknown



Legend

— : IP survey Line

: Survey Area

: Closed Mine

Figure 72
Plan Map of Modeled Resistivity in Bou Khil area (Altitude: 200m)
1 : 25,000
March, 2000

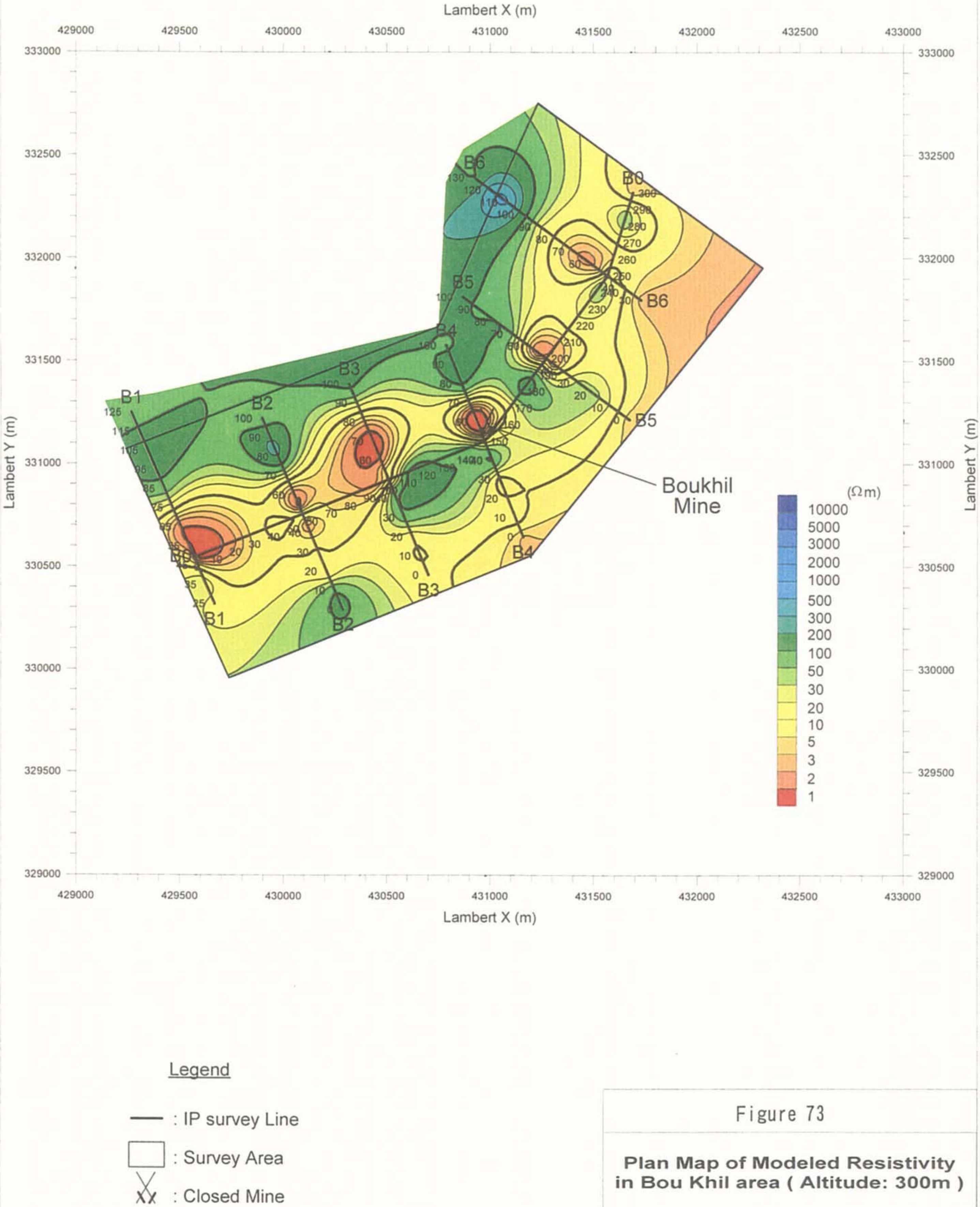
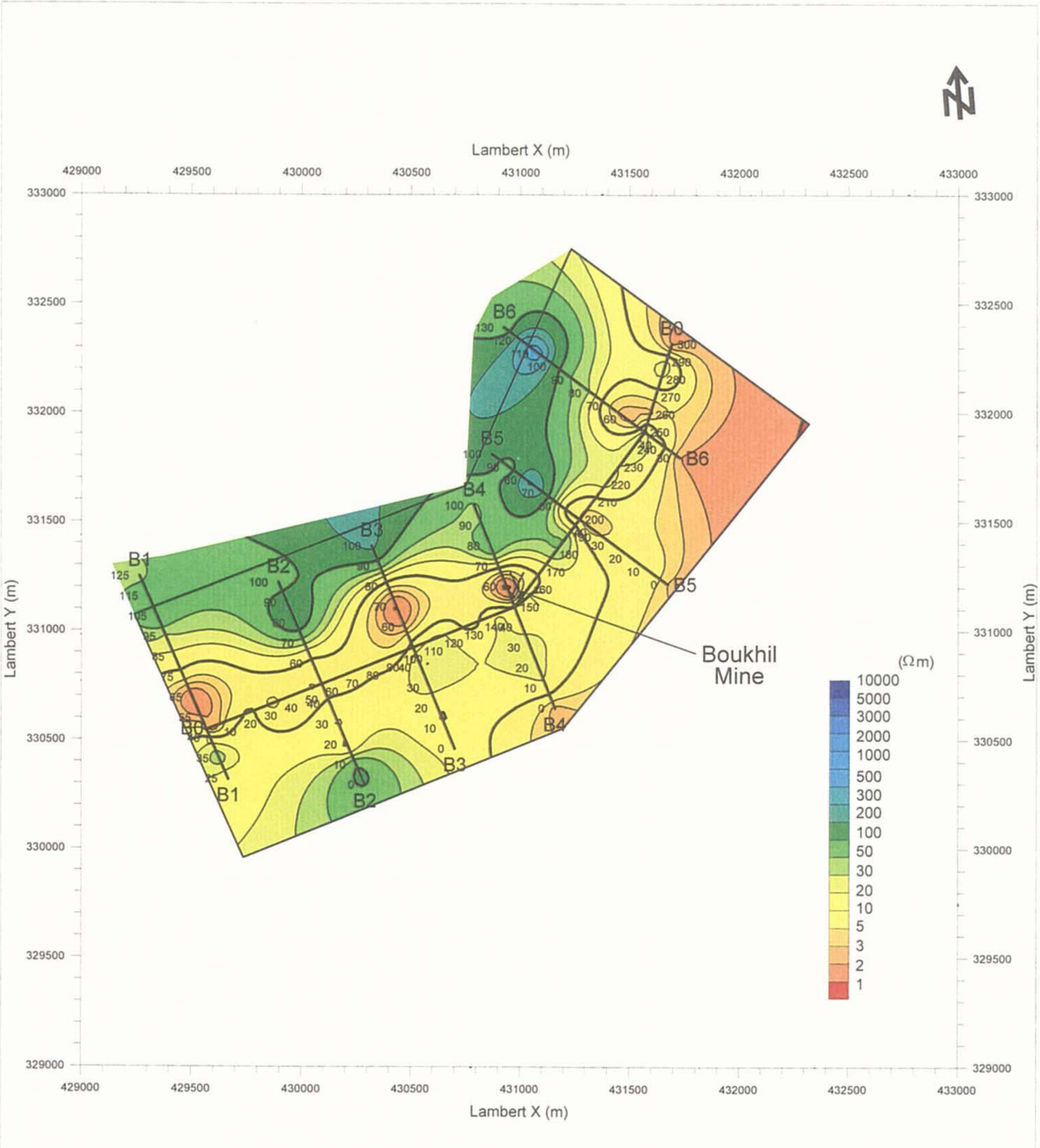


Figure 73

Plan Map of Modeled Resistivity in Bou Khil area (Altitude: 300m)

1 : 25,000

March, 2000



Legend

— : IP survey Line

☐ : Survey Area

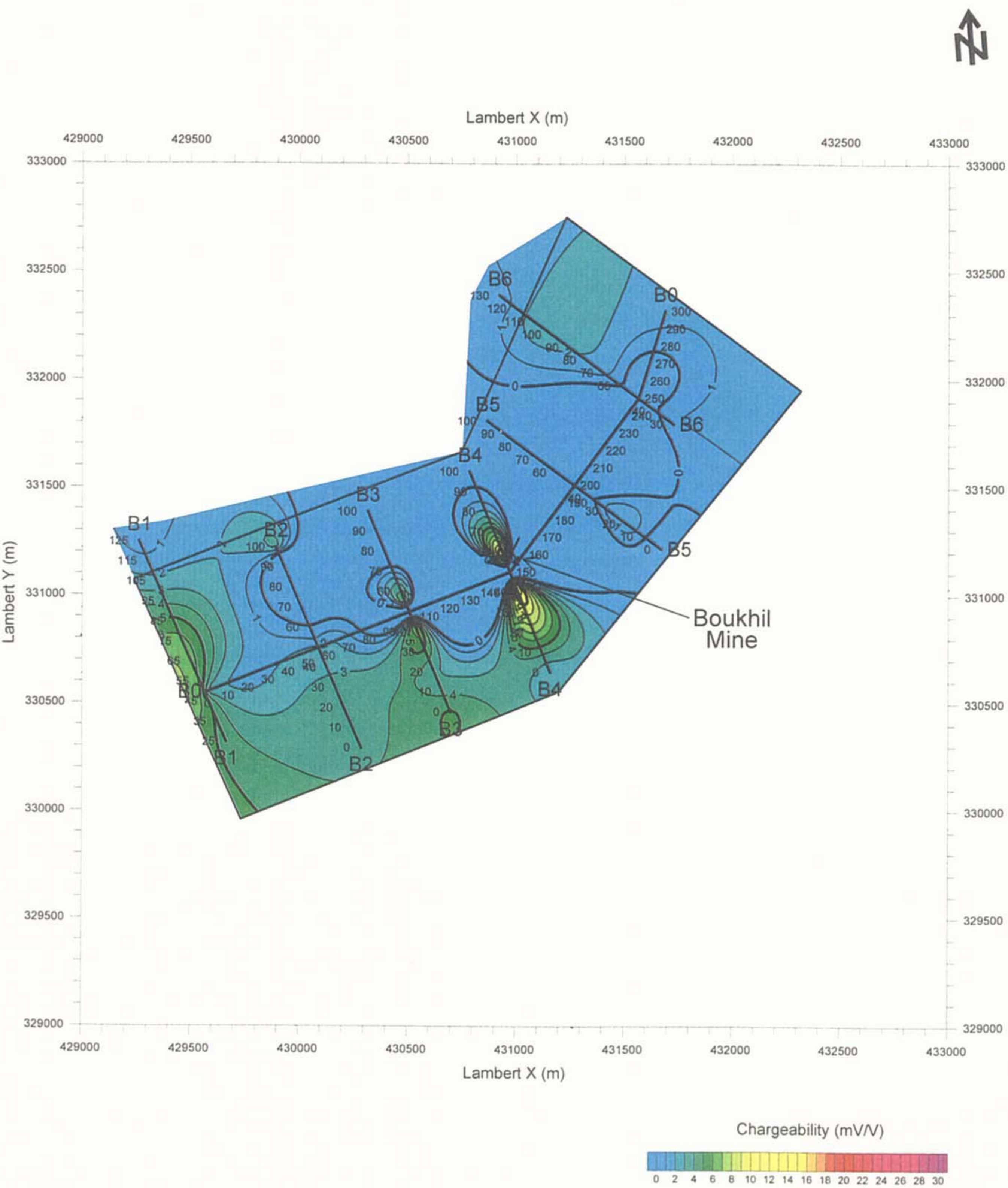
✗ : Closed Mine

Figure 74

Plan Map of Modeled Resistivity in Bou Khil area (Altitude: 400m)

1 : 25,000

March, 2000



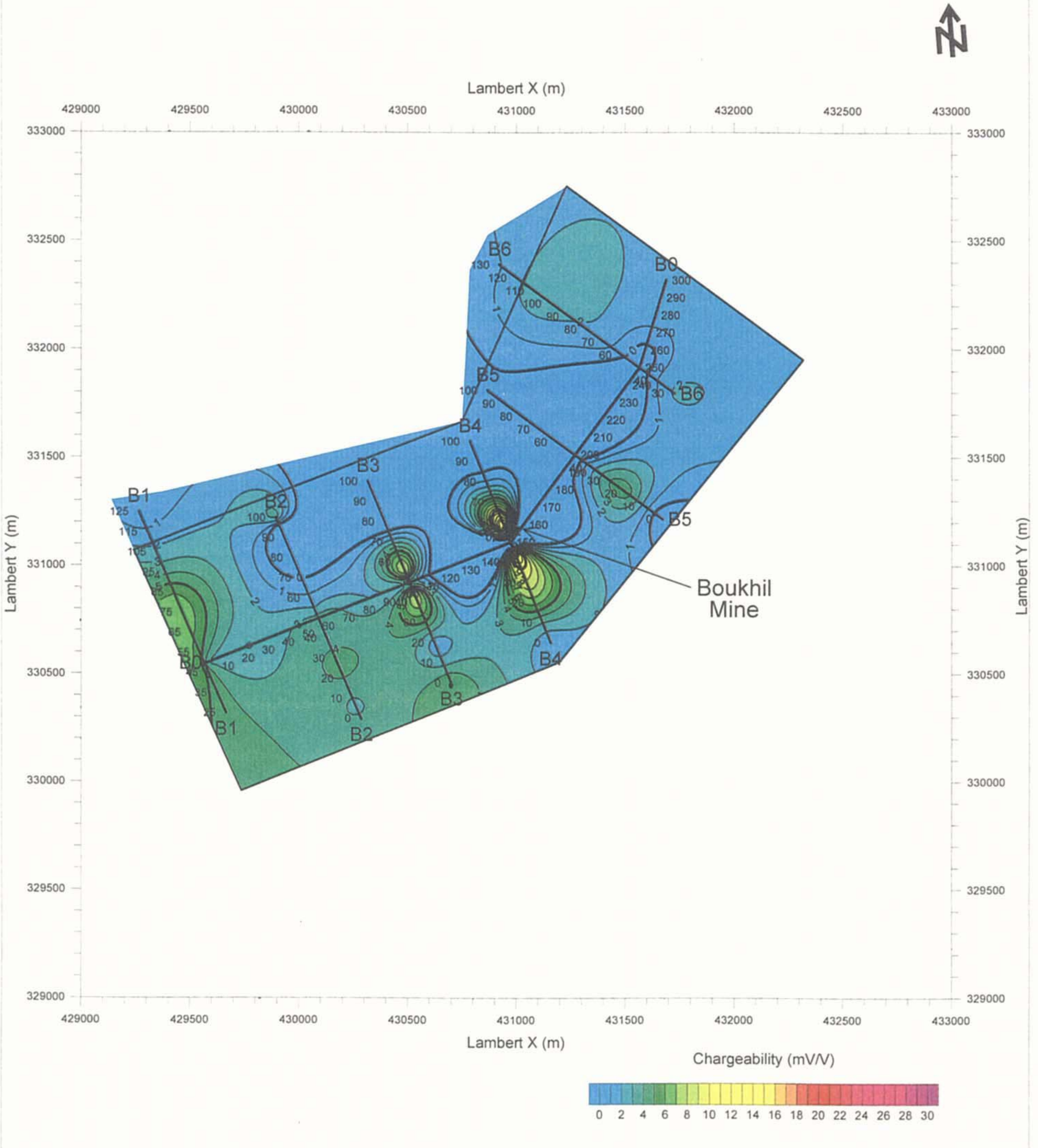
Legend

— : IP survey Line

☐ : Survey Area

XX : Closed Mine

Figure 75
Plan Map of Modeled Chargeability in Bou Khil area (Altitude: 200m)
1 : 25,000
March, 2000



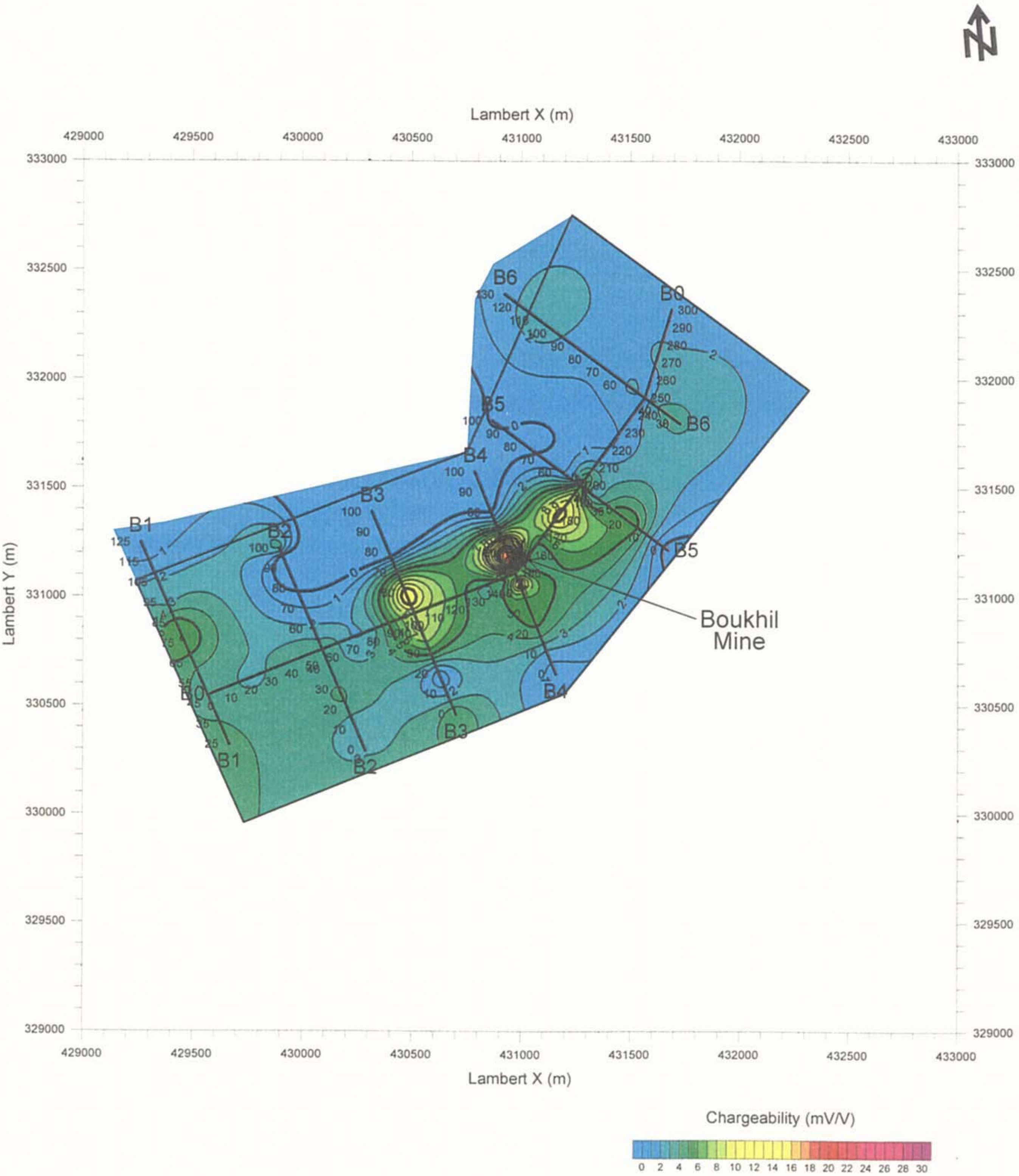
Legend

— : IP survey Line

□ : Survey Area

⚒ : Closed Mine

Figure 76
Plan Map of Modeled Chargeability in Bou Khil area (Altitude: 300m)
1 : 25,000
March, 2000



Legend

—— : IP survey Line

□ : Survey Area

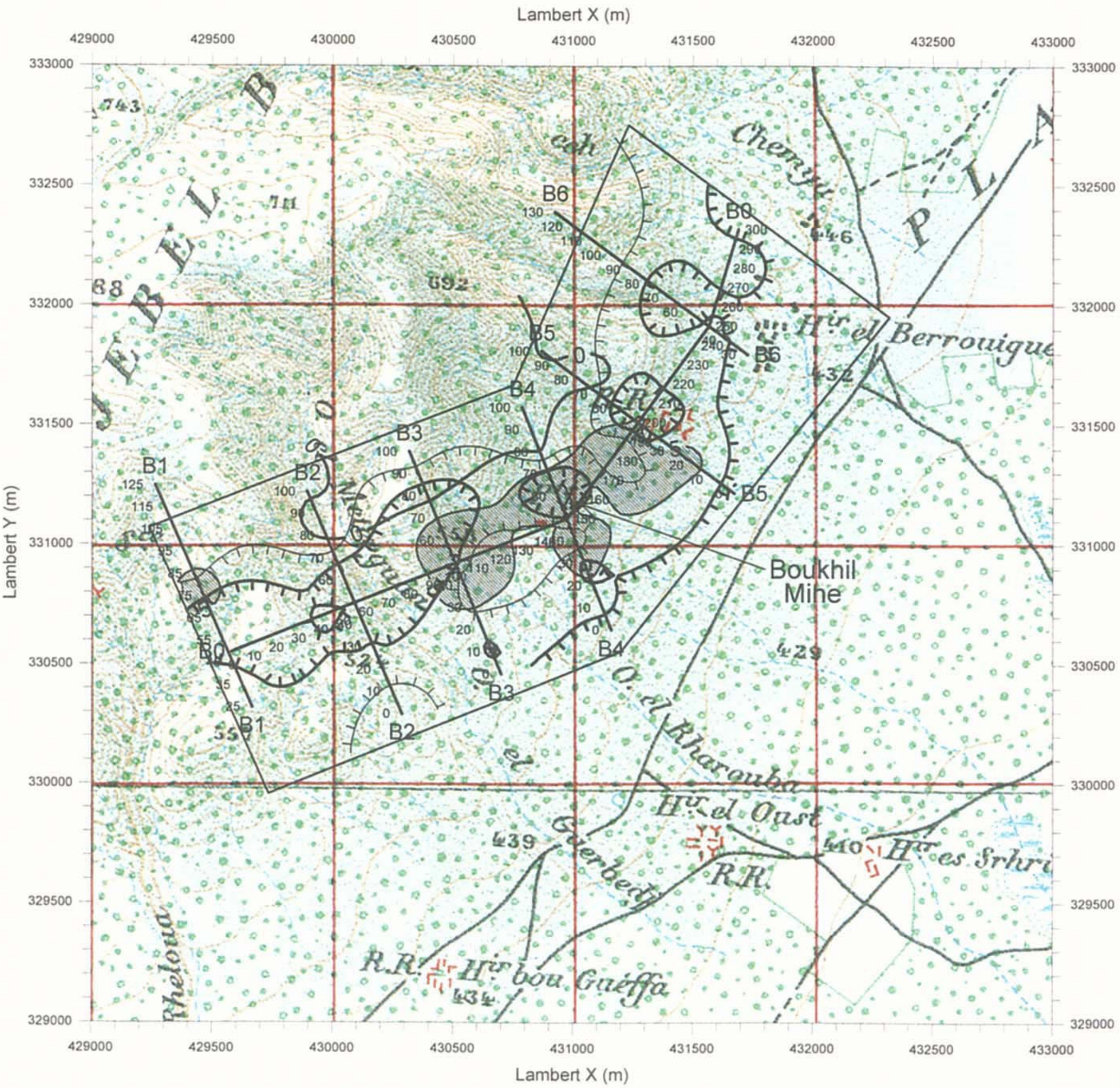
X : Closed Mine

Figure 77

Plan Map of Modeled Chargeability in Bou Khil area (Altitude: 400m)

1 : 25,000

March, 2000



Legend

— : IP survey Line

□ : Survey Area

: Closed Mine

Resistive zone > 50 Ω m (Altitude: 300m)

Conductive zone < 10 Ω m (Altitude: 300m)

High Chargeability < 5 mV/V (Altitude: 400m)

Figure 78

Interpreted IP Survey Map in Bou Khil area

1 : 25,000

March, 2000