# Part III Conclusion and Recommendation

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#### Chapter 1 Conclusion

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The Phase III survey included a drilling survey associated with laboratory tests as well as the measurement of geophysical properties of the drill cores. The survey concluded as follows and is discussed in details below.

1. Eight drill holes were sunk targeting the airborne electromagnetic anomalies of Phase II aiming for massive sulphide ore pipes of Tsumeb/Kombat type.

One hole, MJNM-9, intersected low grade lead and zinc mineralisation in the form of disseminations and veinlets. The hole is located 700 metres northwest of MJNM-1 of Phase II. The mineral occurrence and host stratigraphic horizon may suggest that the mineralisation is an extension of that of MJNM-1 and it is subject to stratigraphic control.

Within a total of 5.24 metre intersection, the mineralised portions assaying more than 0.1 percent, are as follows:

234.10m-234.50m(0.40m) Zn=0.58% 242.60m-243.35m(0.75m) Pb=0.17% Zn=0.83% 248.10m-248.64m(0.54m) Zn=0.31%

2. In the hole MJNM-11, some dots of chalcopyrite and galena were recognized. These are associated with an intensely fractured zone within the upper Tsumeb subgroup. Chemical assays indicated a considerable concentration of Cu, Pb and Zn.

The mineralised portions assaying more than 0.1 percent, are as follows.

270.70m-270.75m(0.05m) Pb=0.18% (Cu=0.028% Zn=0.026%)
272.30m-272.50m(0.20m) Pb=0.10% (Cu=0.026% Zn=0.08%)

The metal ratios of Cu, Pb and Zn show the mineralisation is of Tsumeb/Kombat type. This mineral showing could be derived from an potential ore deposit of moderate size and should therefore be explored in the future.

- 3. Pyrite mineralisation is commonly hosted in the sandstone of Mulden group but almost no copper content was assayed in the mineralisation. The copper content and syndepositional occurrence may explain that the pyrite was biogenic and was precipitated under a reducing environment. The pyrite mineralisation is believed to be the potential source of the low resistivity anomalies present at every frequency.
- 4. The interpretation of airborne electromagnetic anomalies with correlation to the result of drilling indicated that the Damara system and its subsurface structure extends throughout the area covered by calcrete. However, the drilling result showed inconsistency with the exploration rationale. The low resistivity lineaments traversing the geological trend were correlated to a swarm of dolerite dykes and

their associated hydrothermal alteration zones. The observed resistivity values of core samples also supported the phenomenon. None of the spot anomalies coincided with Karst or solution breecias.

- 5. No sandstone of Mulden group was intersected in the area where it had been expected to occur as indicated by the previous maps and the current geophysical survey. A detailed investigation of the resistivity of the surface formation is thus essential for the interpretation of the deeper structure of geology.
- 6. The drill depth of 300 meters are believed to be adequate for correlation between the key depth of the resistivity profiles.

#### Chapter 2 Recommendation of future programme

Based upon the result of the survey and subsequent discussion and interpretation of all the data available, the following recommendation are made.

#### 1. Airborne geophysical survey over the known ore deposits

The exploration rationale used in this project had been based upon the assumption that pipe like massive sulphide ore deposit should give a signal of a low resistivity anomaly and therefore these should be target of the drilling. Nevertheless, there seems to be an opposite effect that ground electromagnetic survey showed inconsistency of the ore deposit with low resistivity anomaly as seen at Khusib Springs. Therefore there is a need to restudy the geophysical response of the ore deposits themselves and ore controls. It is thus important to fly over the known ore deposit to collect the signature of ore control.

#### 2. Restudy of exploration rationale

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The exploration rationale used in this project should be thereby modified on the basis of the geophysical interpretation.

#### 3. Ground geophysical survey and subsequent drilling

With the revised exploration rationale a detailed ground electromagnetic survey is recommended within the extracted area. The core samples of this project are available for interpretation of anomaly maps, and in particular the cores may provide more information of geophysical properties of the surface formation.

#### 4. Follow-up exploration for MJNM-11 mineral showing

The minute mineralisation is recommended to be assessed using new exploration rationale and the result of ground geophysical survey and thereafter be drilled. In this case isotopic analysis of C14 and O18 of calcite and dolomite would be useful to delineate potential areas.

#### 5. Exploration of a new area

For a new area to be explored, the broad area extending north of Tschudi ore deposit through northwest of Tsumeb mine is recommended. The area has no outcrop with thin calcrete being less than 100 metres thick.

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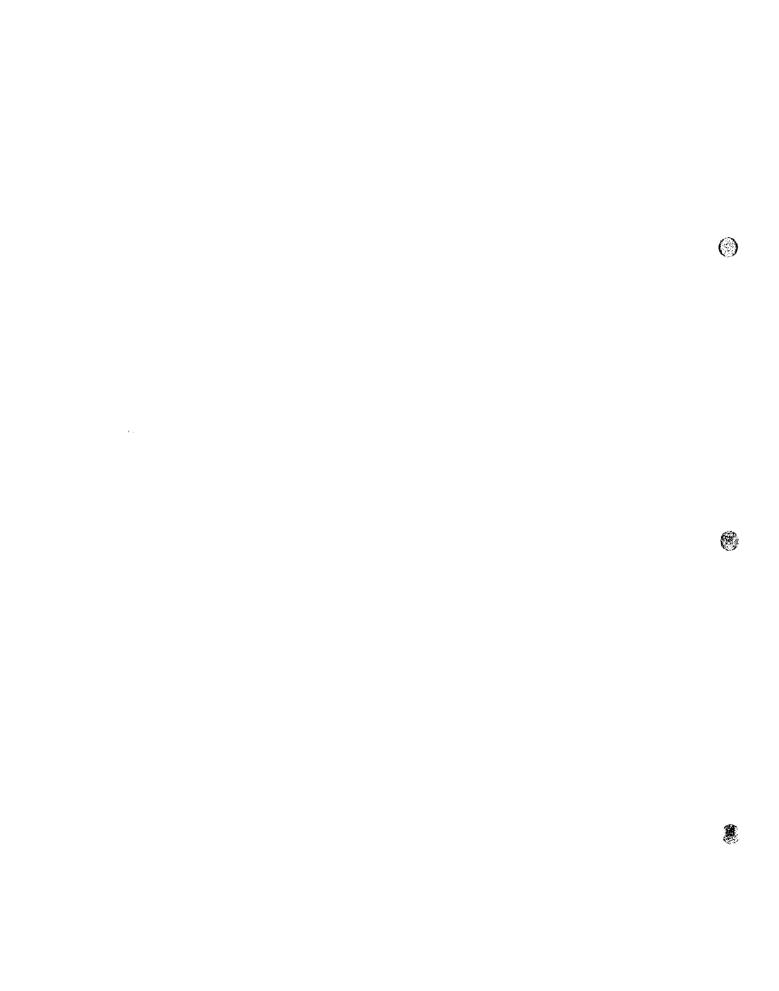
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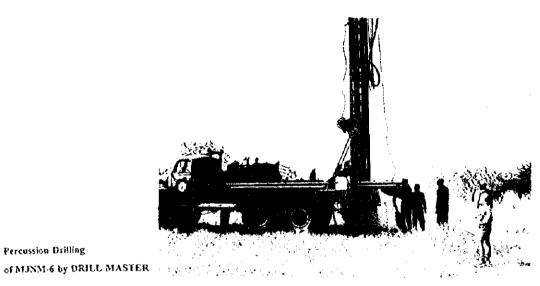


# PHOTOGRAPHS OF THE SURVEY

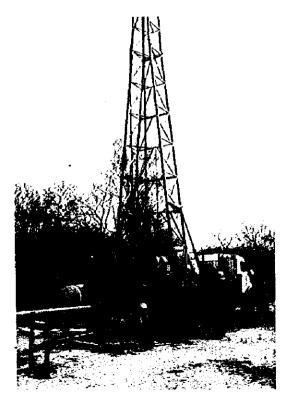




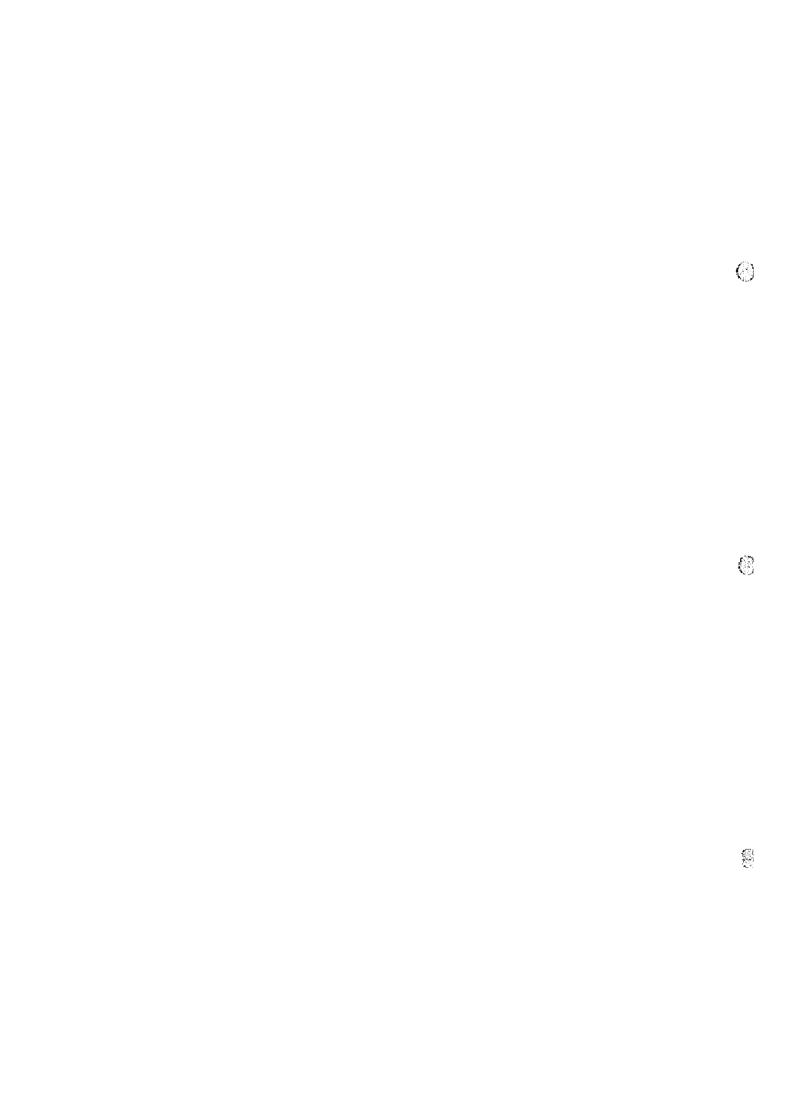
Positioning of the drill hole MJNM-6



Percussion Drilling



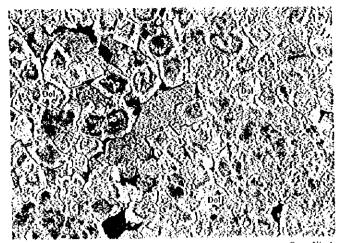
Drilling of MJNM-11 by 1,-44



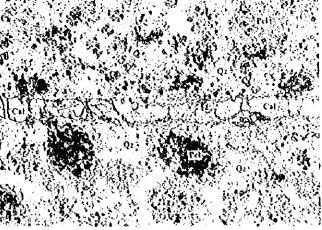
# MICROPHOTOGRAPHS OF THIN SECTION

# Abbreviations

Abbreviation	Kineral	
Qz	Quartz	
Pi	· Plagioclase	
Мс	Microcline	
Yu	Kuscovite	
Cal	Calcite	
Do 1	<b>Dolomite</b>	
CPx	Clinopyroxen	e
Mt	Magnetite	
Ру	Pyrite	



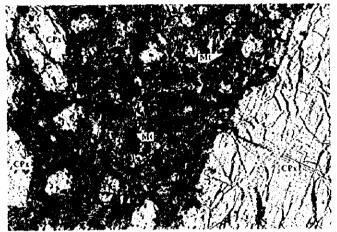
Hole No.& Depth MJNM-7 133.50 m Rock Name Sandy dolomite (Grainstone)



Hole No.& Depth MJNM-7 139.10 m Rock Name Calcareous chert

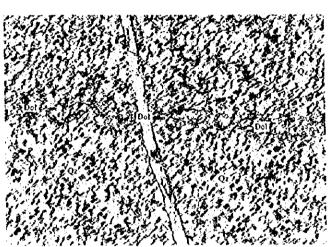
0.4mm

Open Nico 1.000m



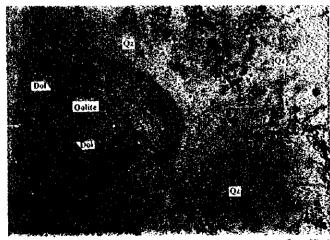
Hote No. & Depth MJNM-7 227.60 m Open Nico

Rock Name Dolerite 0 1.0mm

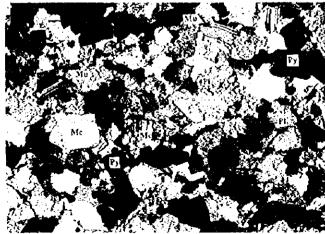


Hole No. & Depth MJNM-9 188.30 m Open Nico

Rock Name Dolomitic cheet 0 L0mm
L L0mm



Hole No.& Depth MJNM-10 131.45 m Rock Name Oblite chert Opea Nicol



 Hole No.& Depth
 MJNM-11 110.60 m
 Cross Ni

 Rock Name
 Feldspathic acenite
 0
 1 0mm

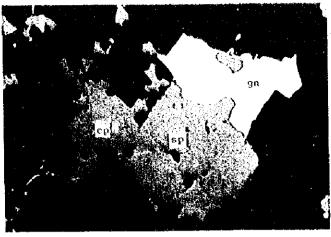
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# MICROPHOTOGRAPHS OF POLISHED SECTION

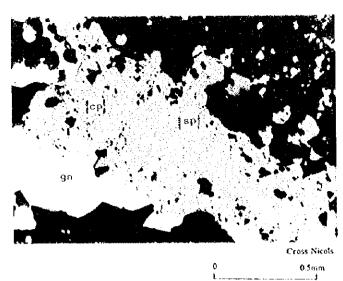
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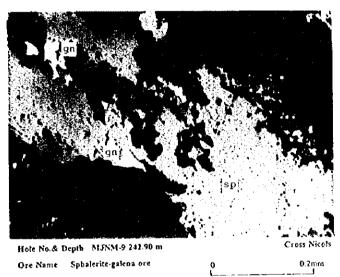
Abbreviation	Mineral
ср	Chalcopyrite
sp	Sphalerite
Ds	Descloizite

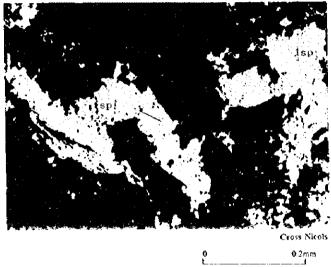


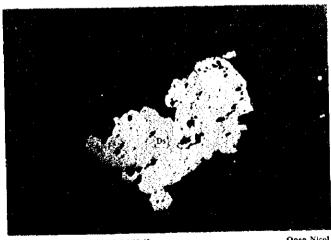
Hole No.& Depth MJNM-9 243.15 m Ore Name Sphalerite ore



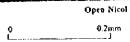






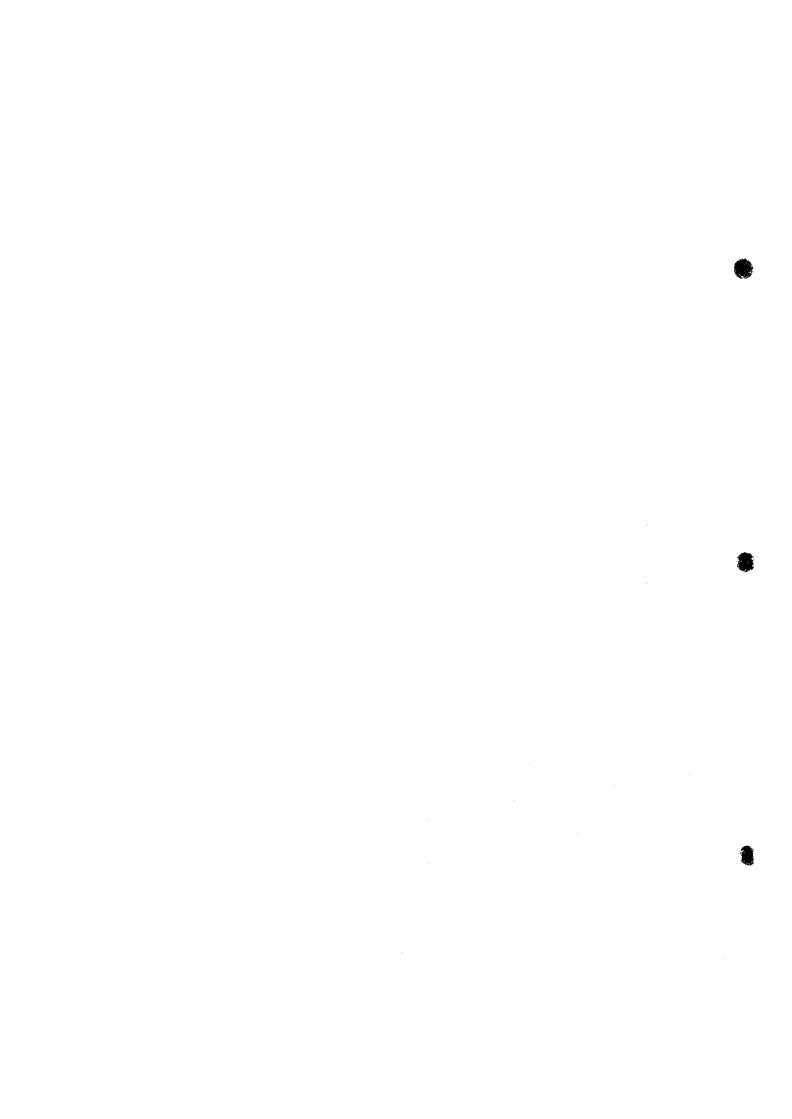


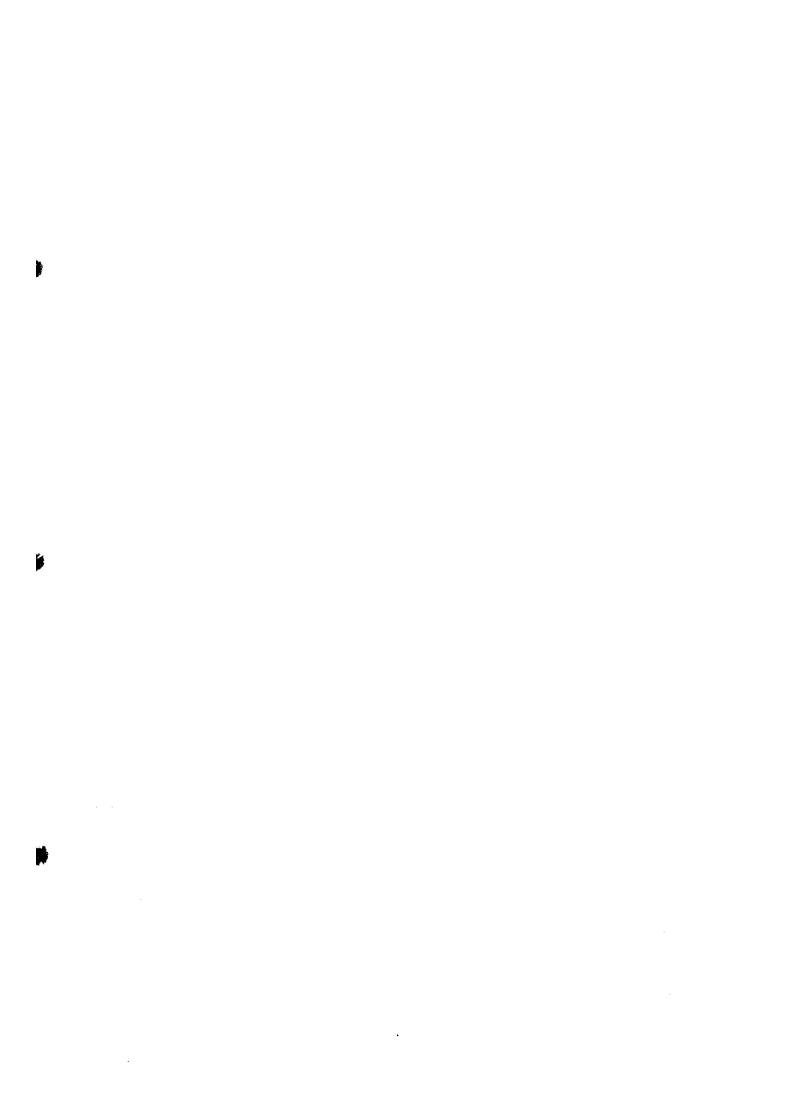
Hole No.& Depth M3NM-9 251.40 m Ore Name Vanadium ore





0.2mm



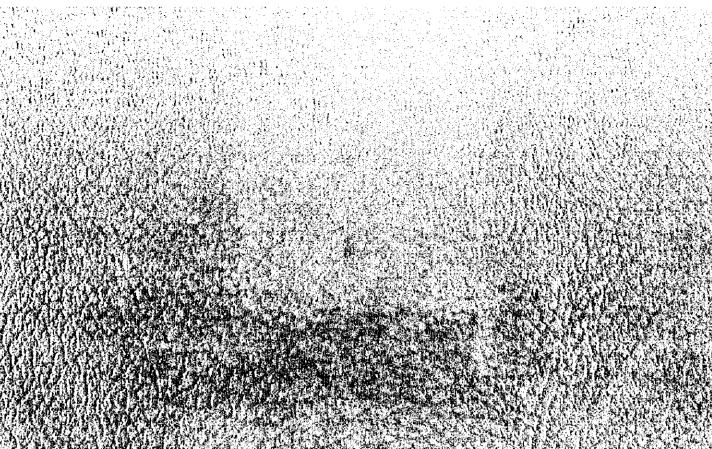




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