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ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LTD.
West Coast Department

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Vol 1 of 2.

REPORT ON THE PROGRAMME OF DIAMOND DRILLING, GENETIS WINZE AREA, NORTH CUNI

by

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CONTENTS

002

REPORT ON THE DIAMOND DRILLING PROGRAMME GENET'S WINZE AREA, NORTH CUNI

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Summary

The programme was designed to fill gaps in the previous drilling and to determine whether there were extensions down dip and along strike from the known orebody. Seven holes were drilled for a total of 1,739 feet. It was found that while there was an apparent extension of mineralisation along strike to the north, the downward extension of the nickel bearing intrusive was disrupted either by faulting, pinching out or transgression of the intrusive across the bedding. In addition the high values obtained previously could not be repeated. The drilling has indicated that the orebodies are too small for commercial exploitation.

1. The Programme

Two longitudinal projections were constructed on which were plotted all the orebodies which had previously been drilled in the North Cuni - Genets Winze portion of the Cuni Field. In addition a number of cross sections were constructed to illustrate the attitude of the orebodies which had been outlined by the drilling.

As a result of these reconstructions a possible ore zone extending for 900 feet along strike and to a vertical depth of 100 feet was outlined. However as it was considered inadvisable to assume continuity of ore between drillholes spaced at intervals of greater than 150 feet, it was obvious that several new drillholes were required to probe gaps in the drill pattern. At the same time it was necessary to determine whether mineralisation persisted below the 100ft. level, and to explore the possibility of an extension to the north of the ore shoot.

A programme of seven holes was therefore proposed to explore these possibilities and drilling commenced on the 30th April, 1968. In order to speed up the programme two drilling machines were operated until mechanical failure caused one machine to be withdrawn. The programme was completed on 15th October, 1968.

As originally drawn up the programme was as follows:- (see Plates 2 and 3)

Hole No.1	To test	between	E.M1	and	D.H2	85ft. below the surface
No.2	" "	"	"	"		150ft. " " "
No.3	" "	beneath	E.M2			150ft. " " "
No.4	" "	between	E.M3	"	MFD110	75ft. " " "
No.5	" "	"	"	"	"	150ft. " " "
No.6	" "for north-easterly extension from 75ft. below the surface.					
No.7	" " "	"	"	"	"	150ft. below the surface.

Some modifications were made during the course of the drilling in the light of initial results.

Synopsis of the Geology

The Copper nickel mineralisation occurs in a low lying area, much of it swamp covered, so that the geology is poorly exposed. The area is underlain by beds of the Crimson Creek series composed of green and grey shales and argillites with beds of greywacke. These sediments strike approximately north-south at the North Cuni shaft, but there is a marked change in the strike to the north east in the Genets Winze section. The beds dip to the east at 50°-60°. Observations of graded bedding in the drill core in the coarser grained greywacke sections indicates that the beds have not been overturned. Facies variations along the strike is suggested by the difficulty experienced in corelating the sediments between drillholes.

Basic and ultrabasic intrusions are common in the area. At least three intrusions (Sills?) have been shown to be present. The Eastern and the Western intrusives are massive gabbroic rocks and contain only minor disseminated pyrite. The Central intrusive is an amphibolite, and it is with this intrusive that the copper nickel mineralisation is associated. All of the intrusive rocks have been altered to greater or lesser degrees by later metamorphism.

In the absence of detailed petrographic examination of the intrusive suite, the correlation by means of hand specimens is subject to some doubt particularly as several of the sill intersections are extensively weathered.

Drilling Results

Of the seven holes that were drilled, three intersected low grade disseminated mineralisation, whilst the remainder apparently failed to intersect the nickel bearing intrusive.

MFP 126 (Hole 1)

This hole was required to intersect the ore zone at a vertical depth of 75 ft. This was achieved, although only disseminated sulphides were intersected which assayed 0.62% nickel and 1.32% copper over a true width of 4 ft. Hole depth 120 ft.

MFP 127 (Hole 2)

At the planned target depth of 150 feet below surface, the nickel intrusive had not appeared. Drilling was continued to explore the possibility that the sill had been displaced downwards by faulting. A dark gabbroic rock was intersected from 256ft. to 379ft. It is considered that this intrusive is the western intrusive. Hole depth 400 ft.

MFP 128 (Hole 6)

Intersected disseminated sulphides at the target depth, 75 ft. below surface. Assayed at 1.02% nickel and 0.46% copper over a width of 11 feet. Hole depth 167 ft.

MFP 129 (Hole 7)

A narrow unmineralised gabboic intrusive was intersected at the target position. Only a trace of copper was recorded in the assay. Hole depth 211 ft.

MFP 130 (Hole 3)

This hole was intended, like MFP 127, to intersect ore at 150 ft. below the surface projected from an earlier drillhole intersection. A coarse gabbroic intrusion was intersected well past the target depth and again it is inferred that this is the western sill. Hole depth 324 ft.

MFP 131 (Hole 4)

This hole failed to locate the nickel intrusive at the planned depth (75 ft.) but was drilled on to intersect the western sill. Hole depth 289 ft.

MFP 132

Because of the failure of MFP131 to intersect the ore intrusive hole 5 was not drilled. Instead an

alternative hole was drilled to locate ore beneath E.M3. This was successfully done and 15 ft.of disseminated sulphides were intersected which assayed 0.42% nickel and 0.56% copper. Hole depth 228 ft.

Discussion

As a result of the current programme of drilling it has been demonstrated that the copper nickel mineralisation is patchy and impersistent. In none of the holes that intersected the ore zone was there seen massive sulphide mineralisation such as has been reported in earlier drillholes. Only sparsely disseminated sulphides were present. It would therefore seem that any blocking out of ore reserves, which assumes continuity of ore between adjacent drillholes is clearly unwarranted.

Study of the longitudinal projections shows that the deepest intersections of copper nickel mineralisation was in MFP 109 at a depth of 200 ft. below surface, and in proximity to the North Cuni shaft which is at the southern end of the area under review. Some 150 feet further north MFP 132 made an intersection 140 feet below the surface but northwards thereafter all of the deeper holes failed to locate mineralisation and it is now considered, also failed to locate the nickel bearing intrusive. This suggests that the latter pinches out with increasing depth, the bottoming having a very gentle southerly pitch. Some support is lent to this interpretation by the evidence from MFP 128 and 129 where the thickness of the sill is reduced from 40 feet in the upper hole to 8 feet in the lower though it is uncertain whether these are the same sill. Alternatively the nickel bearing sill may transgress the bedding to take up a position in relatively higher or lower strata, which could have placed it outside the coverage of the drillholes.

Because of the extensive alternation which the suite of intrusive rocks have suffered, recognition of the individual types has been extremely difficult. A detailed petrographic study would have materially aided the investigation but because of the nonavailability of the microscope and inadequate rock preparation facilities, this could not be done. However it is fairly certain that identification has been sufficiently accurate tobecertain that the intrusive that was intersected in the deeper holes was the gabboic western intrusive which has not been known to be mineralised. This invalidates the previous interpretation, made before the present drill programme, of a reverse strike fault throwing down the nickel bearing intrusive on the east side. This interpretation was based upon sketchy drilling records without access to the cores.

Conclusions and Recommendations

The programme of drilling has demonstrated that copper nickel mineralisation in the North Cuni - Genets Winze section is confined to shallow depth. Moreover it appears that the mineralisation is patchy along strike. High grade massive sulphide bodies are known to occur but it would seem that they occur as sporadic lenses separated by tracts where only disseminated sulphides of low grade are present. No massive sulphides were located during the current programme.

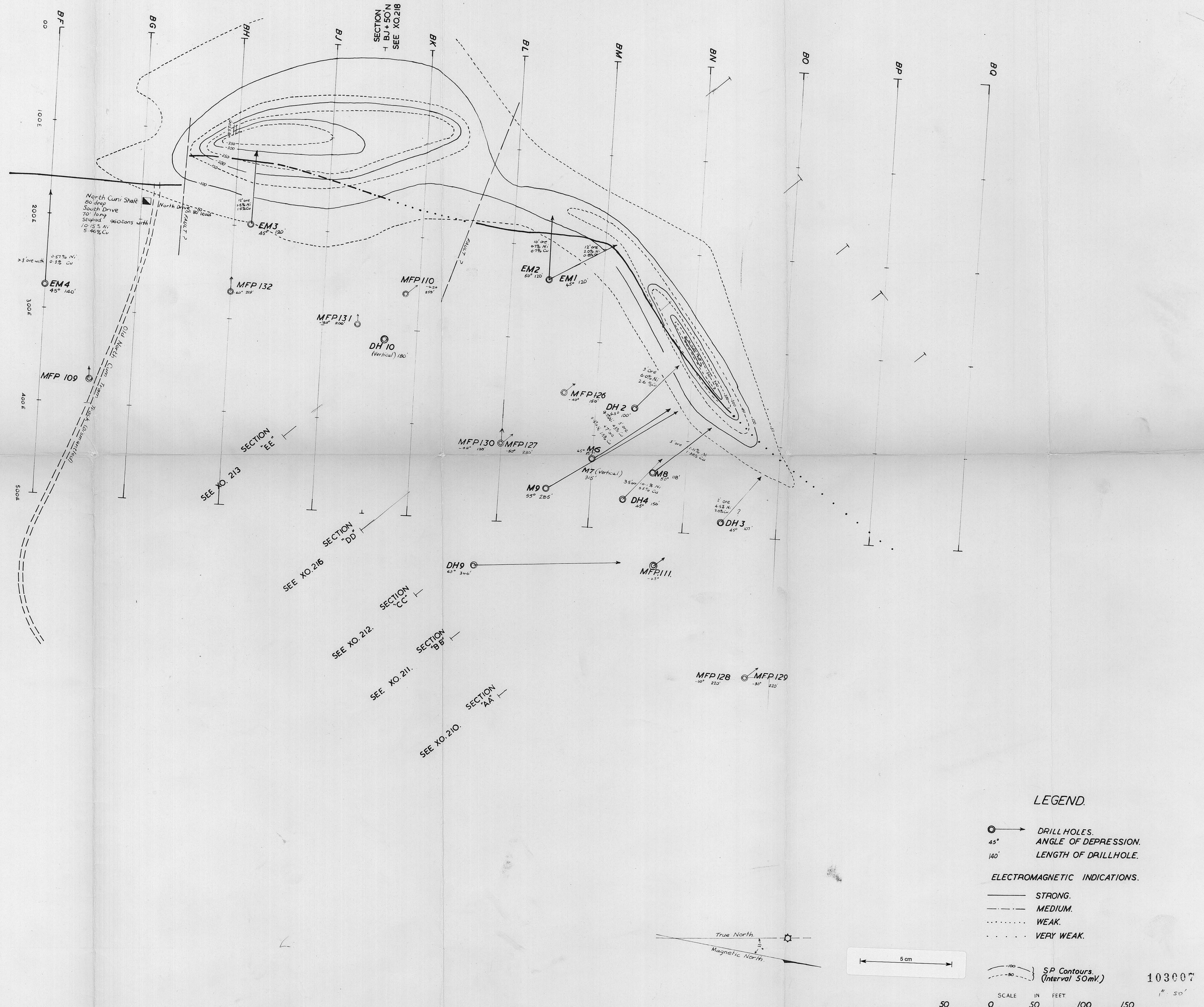
It had been hoped that a moderate tonnage of mineable ore could be proved by drilling, but it has been conclusively demonstrated that there does not exist sufficient tonnage of ore to warrant extraction.

It is recommended that the Company should not carry out any further work on the Cuni Field, and that consideration should be given to reducing the area held at

the time that the licence is due for renewal in March 1969.

G. H. GRIFFITHS

GHG/CE



(TAKEN FROM B.M.R. REPORT BY J. HORVATH. 1957. No. 98.)

103007

1" = 50'

NORTH CUNI AREA

POSITION & RESULTS OF DID HOLES.

2500

VO. 31.

E.Z.CO. W.C.D. GEOL. DEPT. VO. 31.

BP BO BN BM BL BK BJ

RL 700

RL 600

RL 500

RL 400

RL 300

RL 200

DH 3

MFP 111

RL 700

RL 600

RL 500

RL 400

RL 300

103008

LEGEND.

MELBA FLAT AREA.

GENET'S WINZE SECTION

CROSS SECTION "AA"

Scale 1"-50' R L's Approximate

Date - 2·68

5 cm

2501

E.Z. CO. W.C.D. GEOL. DEPT. XO. 210

BP BO BN BM BL BK BJ

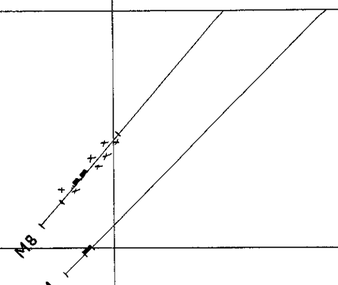
RL. 700.

RL. 600.

RL 500.

RL.400.

RL 300.



LEGEND.

103009

MELBA FLAT AREA

GENET'S WINZE SECTION.

CROSS SECTION "BB"

Scale: 1" 50' R.L's Approximate

Date: 2|68.

2502

5 cm

E.Z.CO W C D. GEOL. DEPT XO. 211.

B0 BN BM BL BK BJ

RL 700

RL 600

RL 500

RL 400

RL 300

DH 2

M 6

M 9

M 7

LEGEND.

103010

MELBA FLAT AREA.

GENET'S WINZE SECTION.

CROSS SECTION "CC."

Scale: 1" 50'. R. L's Approximate.

Date: 2|68.

2503

5 cm

E.Z. CO. W.C.D GEOL. DEPT. XO. 212.

BN BM BL BK BJ BH BD

RL 700

RL 600

RL 500

RL 400

RL 300

EM 1.

MFP 110

DH 10

LEGEND

103011

MELBA FLAT AREA

GENET'S WINZE SECTION

CROSS SECTION "EE"

Scale: 1"-50' R.L's Approximate

Date: 2|68.

5 cm

2504

E.Z.CO. W.C.D. GEOL. DEPT. XO. 213.

BL BM BN BO BP

RL. 700.

RL 600

RL 500

RL. 400

RL 300

10' 4.2% Ni 2.65% Cu

10' 0.7% Ni 0.7% Cu

12' 2.0% Ni 0.8% Cu

4' .62% Ni 1.32% Cu

3' 6.0% Ni 2.6% Cu

3' 9.7% Ni 4.3% Cu

3½' 10.1% Ni 5.5% Cu

5' 1.1% Ni 1.38% Cu

2' 4.5% Ni 3.0% Cu

2' .52% Ni .83% Cu

11' 1.02% Ni 0.46% Cu

MFP110 DH10 MFP130 EM2 EM1 MFP126 DH2 M6 DH4 M8 DH3 MFP128 MFP129 M9 MFP127 M7 DH9 MFP111

5 cm

103012

LEGEND

Drillhole intersection of basic or ultrabasic intrusives.

Cu — Ni Ore intersections.

MELBA FLAT AREA.

GENET'S WINZE SECTION

LONGDITUDINAL PROJECTION.

ORIGIN BL 50 E 40° MAGNETIC.

RL'S APPROXIMATE

2505

SCALE 1" 50' DATE 21-2-68.

BF BG BH BJ BK BL BM BN

RL 700

RL 600

RL500

RL 400

RL300

3'
Ni 0·57%
Cu 0·3%

EM4

15'
Ni 1·5%
Cu 1·5%

EM3

15'
0·42% Ni
0·56% Cu

MFP132

Ni 042%
Cu 0·46%

MFP131

10'
Ni 4·2%
Cu 2·65%

MFP110

10'
Ni 0·7%
Cu 0·7%

EM2

MFP130

MFP109

103613

5 cm

LEGEND.

MELBA FLAT AREA

GENET'S WINZE SECTION.

LONGDITUDINAL PROJECTION

Scale: 1"-50' R.L's Approximate.

Plane of Proj. 100'E

Date 2/68

2506

E.Z. CO. W.C.D. GEOL. DEPT. XO. 215.

BP | BO | BN | BM | BL | BK | BJ

SURFACE

100' B.S.

200'B.S.

300' B.S.

400' B.S.

500'B.S.

MFP.126.

MFP.127.

103014

MELBA FLAT AREA.

GENET'S WINZE SECTION.

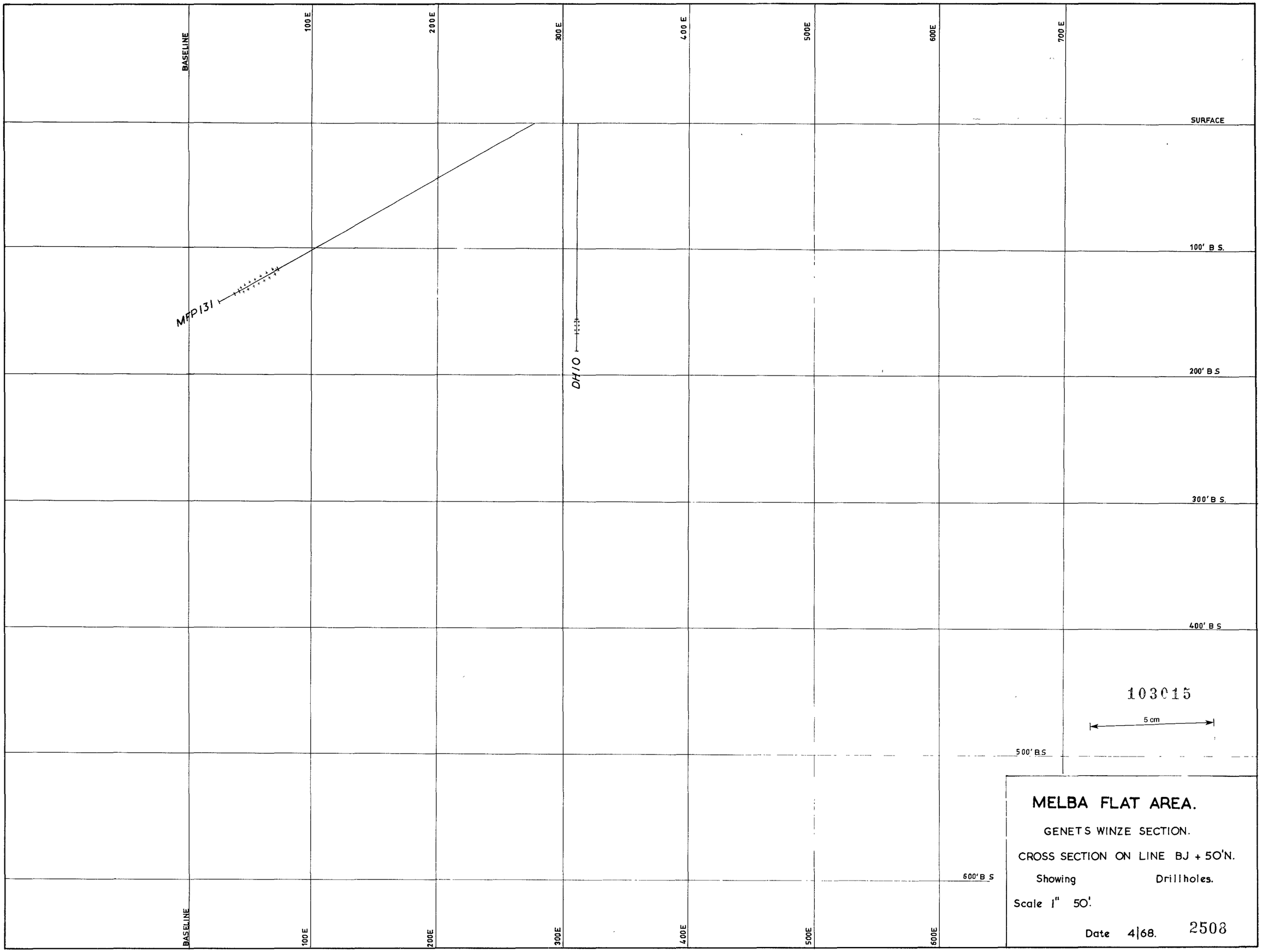
CROSS SECTION "DD."

Scale 1" 50' Date 7/68.

5 cm

2507

E. Z. CO. W.C.D. GEOL. DEPT. XO. 217


BASELINE
100 E
200 E
300 E
400 E
500E
600E
700 E
SURFACE
100' B S.
200' B S
300' B S.
400' B S
500' B S
600' B S
MPP131
DH10
103015
5 cm
MELBA FLAT AREA.
GENETS WINZE SECTION.
CROSS SECTION ON LINE BJ + 50'N.
Showing Drillholes.
Scale 1" 50'.
Date 4/68.
2508
E Z CO W.C.D. GEOL. DEPT. X0 218.

100 E | 200 E | 300 E | 400 E | 500 E | 600 E | 700 E | 800 E | 900 E

Surface — Surface

100 BS. — 100 BS

EM 3

MFP 132

200 BS — 200 BS

300 BS — 300 BS

400 BS — 400 BS

5 cm

900 E

103016

500 BS. — 500 BS

MELBA FLAT AREA.

GENET'S WINZE SECTION

CROSS SECTION ON LINE BH.

Scale 1" = 50' Date 9/68

2503

100 E | 200 E | 300 E | 400 E | 500 E | 600 E | 700 E | 800 E

E Z.CO. W.C.D. GEOL. DEPT. XO 222

Baseline | 100 E | 200 E | 300 E | 400 E | 500 E | 600 E | 700 E | 800 E

Surface — Surface

100 B S — 100 B S

200 B.S. — 200 200 BS.

300 B.S. — 300 BS.

400 B.S. — 400 BS

500 BS. — 500 BS.

EM2

MFP 130

5 cm

103017

MELBA FLAT AREA.

GENET'S WINZE SECTION

CROSS SECTION ON LINE BL.

Scale 1"= 50' Date 9/68.

2510

E. Z. CO. W.C.D. GEOL. DEPT. XO. 223.