

DISCOVERY MINES LIMITED

MICRO NICKEL PROJECT

WHITE RIVER AREA - WHITEHORSE MINING DISTRICT, Y.T.

REPORT ON

THE 1968 PROGRAM OF SURFACE

AND UNDERGROUND DIAMOND DRILLING

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November 8, 1968

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Longitudinal Projection - Lower North Zone

## INTRODUCTION

During 1968 a program was undertaken to expand known ore reserves, obtain detailed information about the shape and grade of the main ore body and explore for additional ore bodies in the surrounding area. The underground was de-watered and a total of 1,217 feet of underground diamond drilling completed. Surface diamond drilling totalled 3,276 feet.

General information and geological data are contained in the report covering the 1967 program which should be read in conjunction.

## CONCLUSIONS AND RECOMMENDATIONS

1. The Main Zone nickel mineralization on the Micro Property is structurally controlled. Ore is localized in a shatter zone within the east-west striking segment of a major flexure. This structure has a plunge to the west and converges with and is cut off by the White River Fault. Only a wedge shaped portion of this east-west segment remains.
2. All rocks over the remainder of the property have the regional N 30° W strike including immediately west of the White River Fault where no remnant of the flexure was located.
3. Control of sulphide mineralization has not been established. Numerous areas of sulphide mineralization occur within the tuff horizon but carry only occasional erratic

low nickel values.

4. Abundant sulphides were encountered in drilling west of the White River Fault but except for erratic narrow sections nickel values are negligible.
5. The Lower North Zone is limited to a narrow area between two strands of the White River Fault Zone.
6. Regional evidence indicates that the best chances for nickel mineralization in N 30° W strike rocks are in the area immediately adjacent to the peridotite dyke or sill. (The HBM & S Wellgreen deposit occurs on the east-west striking segment of another flexure.)
7. All nickel occurrences to date in N 30° W trending structures are narrow, with low tonnage potential.
8. Copper mineralization has not been fully explored but indications are that it is too low grade and erratic for consideration at this time.
9. No further work is recommended.

#### GENERAL GEOLOGY

No radical changes in previous geological and structural interpretations resulted from this program.

The existence of the White River Fault was confirmed. The westerly 70 feet of the 2400 level drift was found to be in this

fault zone. The dip of the fault is  $70 - 75^{\circ}$  to the east, about  $10^{\circ}$  flatter than previously proposed. Surface drill holes 63-1 and 63-2 were both in part in this fault zone. Two underground holes U-207 and U-208 were also in this fault zone. The full width of the main part of the fault is 150 feet. There is a possibility of additional strands of the fault farther to the west.

Displacement along the fault could not be determined but from the results of diamond drilling would seem to be small and primarily vertical.

West of the White River Fault rock sequences intersected were similar to those on the east side and in roughly the same locations and proportions. Albitisation was for the most part weaker than in the rocks to the east. There was a marked increase of narrow interbedded andesite towards the west. The apparent strike of the beds was conformable to that on Miles Ridge, about  $30^{\circ}$  W.

To the east of the White River Fault rocks had an approximately east-west strike within the first 300 feet then gently curving into the same N  $30^{\circ}$  W strike. This flexure does not appear to be drag along the fault but must have been pre-fault, with the return curve being removed by the fault. The plunge of the remaining flexure appears to be about  $70^{\circ}$  to the west and thus converges with the White River Fault about 500 feet below the 2700 Level Adit.

Underground drill hole U-202 was extended to try to establish the possible convergence of the peridotite with the

mineralized zones. The peridotite was not intersected. The depth of the hole made it evident that convergence did not occur and that the peridotite body was in all probability a true sill and paralleled the mineralized horizon.

A number of drill holes cut sections of a tuff pebble conglomerate with pebbles generally less than 1/2" in diameter. Varying degrees of albitisation showed that these conglomerates probably formed the majority of the distinctive mottled albitised tuffs.

#### ENGINEERING

A survey program was initiated to provide surface contours in the mineralized area and correlate the 1963 drilling with earlier work. Great difficulty was encountered in connecting current surveying with old records. Eventually it was decided to use the adit as located on old plans and scale off coordinates for two stations in the drift. These were then used as starting points for all 1963 surveying.

Because of the poor tie-ins it was decided to resurvey as many of the old drill holes as could be located. Very few hole collars remained but timber drill sites were still in place and were used. It was found that all old drill holes within the Main Zone area were from 15 to 40 feet out of place. In all cases they were actually closer to the river than shown in old records. Drill holes farther away had an error of up to 120 feet

## ECONOMIC GEOLOGY

Sulphide mineralization is widespread. Nickel values are generally low and erratic except within the east-west striking section of the flexure where a shatter zone was formed within the brittle albitised tuffs. The flexure is cut by the White River Fault. West of the fault drill holes 68-1 and 68-2 show the rocks to conform to the regional N 30° W strike. To the east the axis of the flexure was found to have a strike approximately 40° E and a plunge of 70° to the west, thus severely limiting the favourable area.

### A. MAINE ZONE (South Zone)

Holes 68-1 and 68-2 were drilled to test the area west of the White River Fault. Both holes encountered considerable sulphide mineralization within albitised tuffs. Albitisation was not as strong as in the known ore area to the east. One narrow intersection with nickel values was cut in each hole and is apparently all that remains of the Maine Zone west of the fault.

The resurvey of the old drill sites and resultant corrections in the location of the intersections obtained in holes S-7 and 615 had a considerable effect on the picture presented by the longitudinal projection. Previously the rake of the east boundary of the ore zone appeared to have a good possibility of being vertical. The new locations left a gap in this area. The first underground drilling was in

the 615 intersection area. Good widths of sulphide mineralization were encountered in badly broken ground. Nickel values were low with the best being a 10 foot section assaying 0.25 per cent Nickel.

Hole U-202 was drilled to test the zone 200 feet below the 2400 Level. This encountered good widths of heavy sulphide mineralization with negligible nickel values. Core recovery was excellent with no evidence of the shatter zone. It is probable that the flattening in dip of the ore zone which is apparent on Cross-Section 13,000 East is actually the effect of the change in strike of the flexure from east-west to N 30° W. The shatter zone is confined to the east-west segment. The Main Zone is therefore limited to a wedge shaped area between the White River Fault and the plunge of the flexure, which converge about 150 feet below the 2400 Level.

#### B. NORTH ZONE

No additional work was done on this zone east of the White River Fault. The 2400 Level Station and Crosscut are in this zone. Hole U-202 was collared in the station and cut the zone. Core was badly broken. Chert content had increased to give the zone a somewhat banded appearance with sections of heavy sulphides separated by bands of chert. Only one narrow intersection contained any appreciable nickel values. To the west holes 68-1 and 68-2 both

intersected good widths of heavy sulphides (pyrrhotite) with negligible nickel values.

#### C. LOWER NORTH ZONE

Holes 63-1 and 63-2 both intersected good widths of heavy sulphides in mottled and laminar tuffs at the north contact of the chert bed, the location of this zone. Nickel values were negligible. Holes U-207 and U-208 were drilled to try to extend the zone to the east. Hole U-207 intersected the zone with average widths of heavy sulphides. Assays were low. Hole U-208 was in a part of the White River Fault. The zone is apparently confined to an area between two strands of the White River Fault Zone and has only limited potential.

#### GEOPHYSICAL ANOMALIES

##### Anomaly "D"

This anomaly was caused by a strongly serpentized shear zone in peridotite. Hole 63-4 was drilled to explore the extension of the shear zone where it enters the favourable albitised tuff bed. This hole was spotted with reference to some old drill sites. As these were later found to be 120 feet from the location shown on the plans, hole 63-4 cut the shear zone at a much shallower location than intended. No mineralization of significance was encountered.

Anomaly "E"

Hole 68-3 was drilled to investigate this anomaly. The hole was in heavily serpentinized peridotite throughout. The peridotite contains abundant interstitial pyrrhotite. A representative sample assayed 0.34 per cent Nickel.

ORE RESERVES

	<u>Tons</u>	<u>Assay</u>
Probable Ore:		
Main Zone	334,636	1.41 % Ni
Lower North Zone	<u>14,495</u>	<u>1.55</u>
Total	349,131	1.42
Possible Ore:		
Main Zone	<u>81,022</u>	<u>1.08</u>
Grand Total	430,153	1.35 % Ni

A factor of 11.0 cubic feet per ton was used in calculations.  
No dilution is included.

Respectfully submitted,



T. Antoniuk  
Field Geologist

Toronto, Ontario  
November 8, 1968

Elev 2700

Elev 2400

Elev 2100

WHITE RIVER  
FAULT ZONE

U-208

24-1

$\frac{1.15}{61.3}$  or  $\frac{1.55}{35.8}$

$\frac{1.32}{24.8}$

$\frac{0.01}{90.0}$

$\frac{1.53}{45.0}$

24-3

U-207

$\frac{2.08}{20.0}$

24-2

$\frac{Tr}{91.7}$   
68-2

$\frac{Tr}{91.5}$   
68-1

10,000 F

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MICRO NICKEL PROJECT
LONGITUDINAL PROJECTION
LOWER NORTH ZONE
SCALE 1"=100'

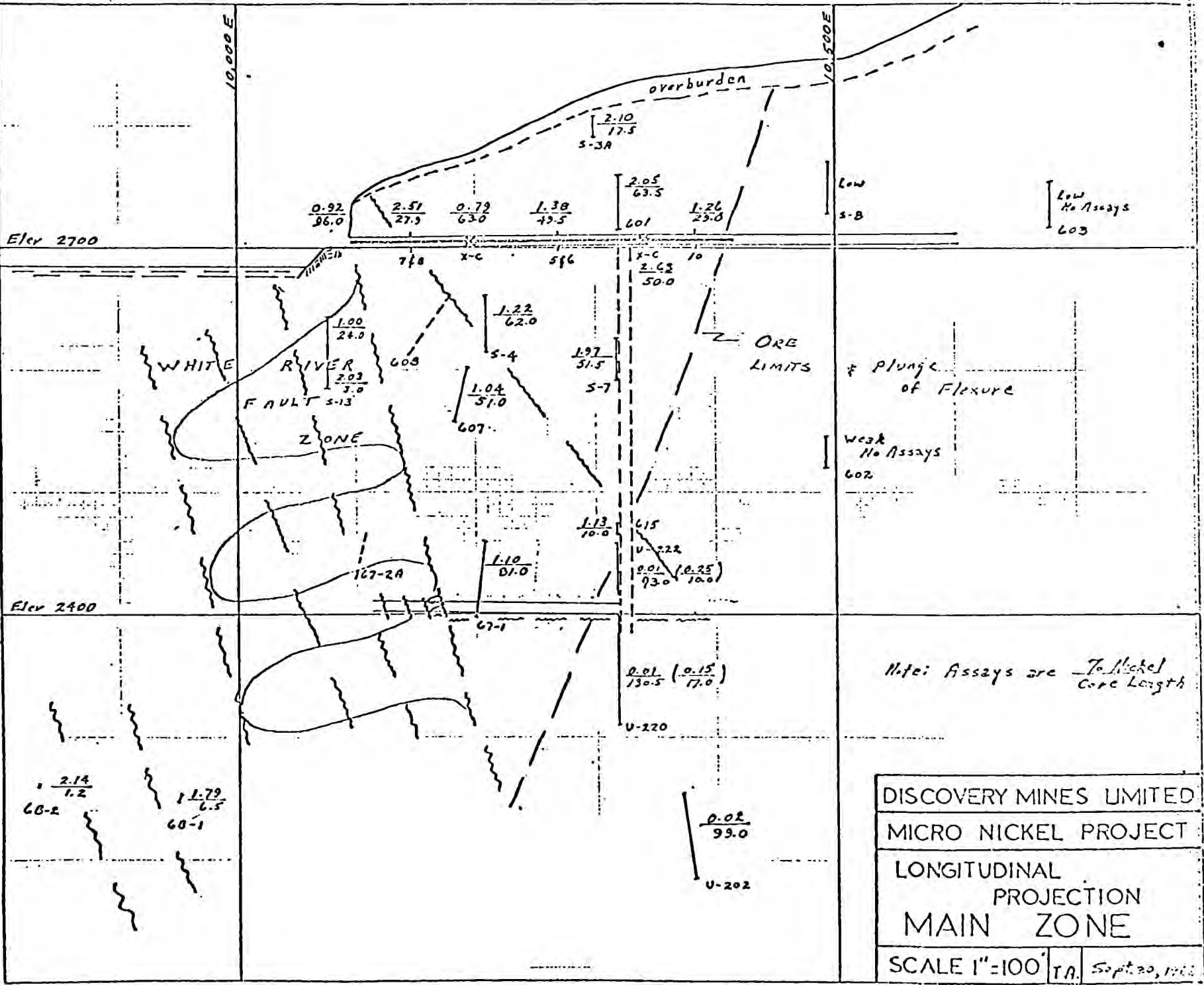
10,000 E

10,500 E

Elev 2700

Elev 2400

$\frac{2.14}{1.2}$  68-2  
 $\frac{1.79}{6.5}$  60-1



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 MICRO NICKEL PROJECT  
 LONGITUDINAL  
 PROJECTION  
 MAIN ZONE  
 SCALE 1"=100' T.A. Sept 20, 1968



Sample ID	Elevation	Sample ID	Elevation
TK-40	176.50	TK-41	176.50
TK-41	176.50	TK-42	176.50
TK-42	176.50	TK-43	176.50
TK-43	176.50	TK-44	176.50
TK-44	176.50	TK-45	176.50
TK-45	176.50	TK-46	176.50
TK-46	176.50	TK-47	176.50
TK-47	176.50	TK-48	176.50
TK-48	176.50	TK-49	176.50
TK-49	176.50	TK-50	176.50

Sample ID	Elevation	Sample ID	Elevation
TK-50	176.50	TK-51	176.50
TK-51	176.50	TK-52	176.50
TK-52	176.50	TK-53	176.50
TK-53	176.50	TK-54	176.50
TK-54	176.50	TK-55	176.50
TK-55	176.50	TK-56	176.50
TK-56	176.50	TK-57	176.50
TK-57	176.50	TK-58	176.50
TK-58	176.50	TK-59	176.50
TK-59	176.50	TK-60	176.50

Sample ID	Elevation	Sample ID	Elevation
TK-60	176.50	TK-61	176.50
TK-61	176.50	TK-62	176.50
TK-62	176.50	TK-63	176.50
TK-63	176.50	TK-64	176.50
TK-64	176.50	TK-65	176.50
TK-65	176.50	TK-66	176.50
TK-66	176.50	TK-67	176.50
TK-67	176.50	TK-68	176.50
TK-68	176.50	TK-69	176.50
TK-69	176.50	TK-70	176.50

CH. WASH. HOTEL, WHITE RIVER  
 WHITE RIVER, MONTANA  
 ASSAY PLAN  
 2700 LEVEL  
 520'  
 May 1957

