GEOLOGICAL, GECHEMICAL & GEOPHYSICAL SURVEY
ON
THE ARD CLAIMS
McCONNELL CREEK AREA
OMINEGA MINING DIVISION
by
W. MEYER, P. Eng.
and
R. OVERSTALL, B.Sc.

(Work done on behalf of DENISON MINES LTD.)

Claims: ARD 1 - 42; ARD 1 Fr.

Location: Menard Creek Valley
approx. 6 miles east of Moose Valley
$56^\circ 45' \ 126^\circ 45'$

Owner: Denison Mines Ltd.

Dates: July 1 - 11, 1973

November 11, 1973

MINEDU MINERAL RESOURCES
ASSESSMENT REPORT
NO. 4707 MAP
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## Maps

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SUMMARY

During the 1973 field season, a programme of prospecting, geochemical and magnetometer surveys and geological mapping was carried out on the "ARD" claim group in the McConnell Creek area of British Columbia on behalf of Denison Mines Ltd.

The claims were originally staked to cover a magnetic anomaly outlined by a government aeromagnetic survey.

The magnetic anomaly was verified by a ground survey and is attributed to an ultrabasic stock of little economic interest.

The general programme, however, outlined 2 geochemically anomalous areas, at least one of which may be related to granodiorite dykes in altered andesite flows.
INTRODUCTION

The following report is based on field work carried out by consultants to Denison Mines Ltd. from July 1 to July 11, 1973. The work was completed on 37 claims on Menard Creek in the McConnell Creek Area of Northern British Columbia.

The programme of geological, geochemical and geophysical work was undertaken to investigate an intense magnetic anomaly shown on government aeromagnetic maps.

The geological mapping and management was carried out by R. J. Overstall, Geologist, under the supervision of W. Meyer, P. Eng.

LOCATION and ACCESS

Denison Mines Ltd. owns 42 contiguous full sized claims and one fractional claim in the Menard Creek Valley of the McConnell Range in the Stikine Mountains.

The east-west trending valley floor lies at about 4500 feet with the ridges rising steeply to about 6000 feet on either side. Sparse coverage of alpine fir and spruce lies over the lower ground with timberline at about 5000 feet.
In the summer of 1973 access was by helicopter either from the Moose Valley airstrip, six miles to the west, serviced by fixed wing from Smithers, a distance of 140 miles, or from Johanson Lake Airstrip, serviced from MacKenzie, a distance of 150 miles.

An old cat. road crosses the property and could be used for winter access to the Aiken Lake road at Johanson Creek.

CLAIM SCHEDULE

A list of claims, all in the Omineca Mining Division, is tabulated below:

<table>
<thead>
<tr>
<th>Claim Name</th>
<th>Record No.</th>
<th>Title</th>
<th>Expiry Date</th>
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<tr>
<td>ARD 1 - 36</td>
<td>118755 - 118790</td>
<td>Denison Mines Ltd.</td>
<td>Nov. 11, 1974</td>
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<td>ARD 1 F R.</td>
<td>118791</td>
<td>Denison Mines Ltd.</td>
<td>Nov. 11, 1974</td>
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Six additional claims were staked in the course of the surveys to cover an interesting outcrop of altered and pyritised intrusive that at the time could not be assessed fully due to snow.

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<thead>
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<th>Claim Name</th>
<th>Record No.</th>
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<td>ARD 37 - 42</td>
<td>127496 - 127501</td>
<td>Denison Mines Ltd.</td>
<td>July 24, 1975</td>
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GEOLOGY

1. Regional Geology

The claim group lies within the Cassiar Crystalline Belt,
a series of rocks ranging in age from Perma-Carboniferous to Tertiary reflecting an evolving geosynclinal environment. The stratigraphic and structural evidence suggests that from Upper Triassic to Middle Jurassic an inland rift similar to that existing in the Red Sea or Baja, California today was active in the area of the Pinchi Fault Zone. The resulting island arc volcanics are widespread in the area. In Upper Jurassic times the rift ceased to be active and sediments replaced volcanics in a continually more restricted basin. Contemporaneous with the sedimentary deposition was the emplacement of granitic batholiths at depth on either side of the basin accompanied by block faulting and thrusting.

In the area of Menard Creek, island arc volcanics of Upper Triassic or later age are intruded by Jurassic and/or Cretaceous granite rocks. To the west lie Upper Cretaceous to Paleocene sediments of the Sustut Group.

2. Property Geology

Rock is well exposed on the ridge to the north and south of Menard Creek with sufficient outcrop in the creek beds for a fairly good geological map to be made.

Lithology

a) Andesite: When fresh this is a massive flow rock generally mid to dark green in colour. No bedding
or flow boundaries were identified. At the southern end of the property a porphyritic andesite outcrops with sparse square feldspar phenocryst.

Approaching a prominent north-south fault through the middle of the claim group the volcanics became progressively more altered to a coarse grained serpentinite looking rock. Indeed, some of it may be an altered basic intrusive as minor gabbro plutons are intruded into the same axis.

b) **Gabbro**: This moderately fresh looking, crumbly rock outcrops on much of the ridge north of the grid. The principal minerals are dark plagioclase feldspar and a dark green pyroxene which form the medium to coarse grained rock. The main intrusion is about 3,000 feet across and of indeterminate but probably greater length.

c) **Granodiorite**: South easterly trending dykes of pink porphyritic granodiorite outcrop at the western end of the property. A fine grained matrix of quartz, plagioclase and orthoclase contains larger crystals of hornblende and plagioclase phenocrysts. Close to faults the matrixes have been altered to chlorite,
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**ARD GROUP**

Department of

Mine: Lode

Applicant: J. P. O'Donohue

No. 4707 Map +2

DENISON MINES LTD.

CLAIM MAP

SUBTUT PEAK AREA

W. METER & ASSOCIATES LTD.

Oct 1973  Scale: 1 in. = 1000 ft
Structure

Although regional mapping by C.S. Lord (G.S.C. Map 9624) shows north westerly faulting as the dominant regional trend, within the property itself, north-south structures were mainly mapped. Pyritization and propylitic alteration affect all rocks for up to 200 feet either side of the fault.

The basic intrusion and its serpentinised envelope also show definite north-south orientation. The present structures are probably movements along older lines of weakness and intrusion. The amount of post-granodiorite movement is probably small.

Alteration and Mineralization

As previously described, the prominent north-south faults show extensive propylitic alteration and pyritisation about their length. The altered rock covered by the six additional claims was examined later and is now thought to be one of this type.

Chalcopyrite was found in minor amounts in pyritic shears at the margins of two southeasterly trending granodiorite dykes. One of these is at 25 N on Line 22 + 50 E and the other a few hundred feet west of the northern end of Line 00.
The ARD claims were staked over a large and intense aeromagnetic anomaly shown on the government geophysical series maps 5269G and 5273G. The contours indicate a near surface body about 2-1/2 miles in diameter with sharp contacts on the east and west side and probable extensions at depth to the north and south. The magnetic relief is about 2500 gammas above background.

The anomaly is centred on the gabbro outcrop; the sometimes coarse grained magnetite in this and the surrounding serpentinitised rock being the magnetic mineral.

**Ground magnetometer survey**

Magnetometer readings were taken at 200 feet intervals on north-south lines 750 feet apart over a total distance of 13 line miles. The instrument used was a Sharpes MF-1. Diurnal correction was made by the looped traverse method.

The ground results confirm the aeromagnetic interpretation with the additional information that within the grid area at least the serpentinite is more magnetic than the gabbro. The higher magnetic zone is 4500 feet wide at the north end of the grid, narrowing to 1000 feet wide at the south end.
Method

A total of 281 soil samples were taken at 200 intervals on the geophysical grid. Collection was made with pick and mattock from the "B" horizon -- a depth of between 2 inches and 18 inches. The samples were placed in Kraft paper envelopes and dried in the tent before dispatch to the laboratory.

Analysis was for copper, silver and zinc at Acme Analytical Laboratories, Burnaby, B.C. The samples were further dried and screened to - 80 mesh. A weighed portion was then digested in concentrated nitric and perchloric acids and analysed by atomic absorption. The results are plotted on Fig. 3 with copper values contoured at intervals of 100 ppm.

Results

Two areas are anomalous in copper with some high but not so prominent silver and zinc values.

A. The most easterly line 90 + 00 E is anomalous over 1200 feet from 12N to 24N, with values up to 780 ppm Cu. Line 82 + 50E carries no anomalous analyses. Between 12N and 16N on lines 60 + 00 E to 75 + 00 E a small area is anomalous up to 375 ppm Cu. This anomaly is not readily explained in that it covers an area of unaltered, unmineralised andesites. A
north–south airphoto linear, however, closely parallels Line 90 + 00 E.

B. A 2,000 foot square area at the south end of lines 7 + 50 E, 15 + 00 E and 22 + 50 E contains somewhat erratic anomalous samples up to 550 ppm. The anomaly is open, geochemically, to the west, although a few hundred feet further on, a ridge of unaltered, unmineralized rock is exposed. Many of the anomalous samples are from flat, swampy ground.

The sampling did not cover the altered rock acquired by the additional claims but soils immediately downslope and downstream did not show anomalous values.

Respectfully submitted

[Signature]

R. Overstall, B. Sc.

[Signature]

APPENDIX
## PERSONNEL and DATES

<table>
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<tr>
<th>Name</th>
<th>Position</th>
<th>Dates of Work</th>
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<tr>
<td>W. Meyer</td>
<td>Geologist</td>
<td>Aug. 14 to Nov. 9/73</td>
<td>2-1/2</td>
</tr>
<tr>
<td>R. Overstall</td>
<td>Geologist</td>
<td>July 1 to Oct. 17/73</td>
<td>16-1/2</td>
</tr>
<tr>
<td>P. Dunsford</td>
<td>Technician</td>
<td>July 11 to Nov. 9/73</td>
<td>3</td>
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<tr>
<td>M. Maybury</td>
<td>Sampler</td>
<td>July 1 to Nov. 1973</td>
<td>11</td>
</tr>
<tr>
<td>G. Sanders</td>
<td>Sampler</td>
<td>July 1 to Nov. 1973</td>
<td>11</td>
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AFFIDAVIT RE COST OF SURVEY

I, W. Meyer, do solemnly declare that the geological, geochemical and geophysical survey on the Denison Mines Ltd. ARD claims was done during July of 1973 and is described in this report. The data was obtained by W. Meyer & Associates Ltd. for Denison Mines Ltd. at a total property related cost of at least $4,600.00. I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act".

Declared before me at the City of Vancouver, in the Province of British Columbia, this 21st day of ____________, A.D. 1973. __________________________

W. Meyer

SUB-MINING RECORDER
CERTIFICATE

I, William Meyer, do hereby certify that:

1. I am a geologist with residence at 911 Jarvis Street, Coquitlam, B.C.

2. I am a graduate of the University of British Columbia (B.Sc., 1962).

3. I am a registered member of the Association of Professional Engineers of the Province of British Columbia.

4. I have worked as an exploration geologist for eleven years for the following companies: Phelps Dodge Corporation of Canada Ltd., Gibraltar Mines Ltd., Associated Geological Services Ltd., Western Geological Services Ltd., (senior partner). I am presently a senior partner in W. Meyer & Associates Ltd.

5. The programme described in this Report was carried out by a W. Meyer & Associates Ltd. crew under my supervision.

6. I have no interest, direct or indirect, nor do I anticipate receiving any, in the properties or securities of Denison Mines Ltd.

William Meyer, P. Eng.
CERTIFICATE

I, Richard J. Overstall, do hereby certify that:

1. I am a geologist resident at West Highway 16, Telkwa, B.C.

2. I am a graduate of the University of London, England with a B.Sc. (Hons.) degree in Geology.

3. I have been employed by W. Meyer & Associates Ltd. from June 21, 1973 to the present.

4. I personally conducted the geological mapping and geophysical survey and supervised the geochemical survey described by this report.

Richard J. Overstall, B.Sc.
Sketch Showing Location of Ard Claims
Omadega M.D.
NTS 94 D
Feb. 19, 1974

1° = 1 mi.
0.76 APPROX.