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# OWEN LAKE

MINING PROSPECTS OF NADINA EXPLORATIONS, LTD.,  
AT OWEN LAKE, BRITISH COLUMBIA

by: Wm.H. White, P.Eng

October 22nd, 1965

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DECLARATION

1. I am a registered member of the Association of Professional Engineers of the Province of British Columbia.
2. I have none but professional interest in Madina Explorations, Limited, or its mining properties.

(signed) \_\_\_\_\_

## RECOMMENDATIONS

1. From the 2705 Level a raise be driven on the footwall of 2655 Vein to elevation 2995 feet - a slope distance of 325 feet on bearing south 12 degrees west at 45 degrees. The orientation of this raise could be changed moderately as necessary to stay on the footwall of the vein. This raise would be 15'x6' in cross-section, three-compartment with a central timbered narway and two chutes.
2. From the top of this raise a drift be driven to connect with the face of the existing 2990 Level east. This drift following the vein structure will be about 300 feet long in a direction averaging north 30 degrees west. It should have a slight negative grade to give drainage to the surface. Each round in both raise and drift should be sampled and also muck car samples should be taken.
3. A mining plant of adequate capacity be built near the 2705 Level portal and the working re-equipped with air, water and ventilation pipe. Existing track is probably usable. A little re-timbering may be required.
4. The 2990 Level east be cleaned out, re-tracked, and channel sampled at closely-spaced intervals. In order to make a good underground connection a precise survey will have to be carried from the face of 2990 Level east into the new working place.

## ESTIMATED COST

This program can be completed for about \$60,000, provided a reasonable amount of second-hand mining equipment and supplies can be secured. Costs may be subdivided as follows:

Capital cost of mining plant	\$25,000
Rehabilitation of workings	7,000
Raising 325 feet	12,000
Drifting 300 feet	10,000
Supervision	6,000
	<u>60,000</u>

On October 9th and 10th, 1965, the writer examined mineral showings on a mining property at Owen Lake, British Columbia, with J.T. Williams, who has supervised recent exploration of the property, acting as guide. The object of this brief visit was to inspect and possibly correlate recently-exposed mineral occurrences and if warranted to recommend a program of further exploration.

#### LOCATION, ACCESS, ETC.

The property is on the north side of Owen Lake, 30 miles by well-graded and gravelled road from Highway 16 and the C.N.R. station at Houston, B.C. The surface is low rolling hills ranging in elevation from 2450 feet at Owen Lake to 3300 feet. Much of the surface is open grassland, but stands of pine and spruce suitable for mining purposes grow near the lake. A small creek crossing the property by way of a narrow gorge locally known as "Wrinch Canyon" could supply domestic water, but the larger quantities required for a mining operation would need to be pumped from Owen Lake. No source of electric power is available.

Except in Wrinch Canyon outcrops are not numerous. Much of the surface is mantled by unconsolidated glacial drift that ranges up to 20 feet thick.

#### PROPERTY

Property near Owen Lake understood to be owned or controlled by Nadina Explorations, Limited, includes 17 Crown-Granted mineral claims and fractions plus some 40 claims held by location. Neither ownership nor status of any claims has been verified by the writer.

#### PREVIOUS EXPLORATION

Discovered about 1915, initial exploration of the property was done in 1924 by Federal Mining & Smelting Company. The main part of this work was driving drifts easterly and westerly from the floor of Wrinch Canyon at elevation 2990 on a vein now known as No.3 Vein. Results of this work were reported (B.C. Min. of Mines, Ann. Rept., 1924, p.1100) as follows:

Place	Length ft.	Width ft.	Gold oz/T	Silver oz/T	Copper %	Lead %	Zinc %
West Dr.	85	3.5	0.03	5.5	1.3	1.2	4.7
East Dr.	150	4.0	0.10	10.6	2.9	1.2	5.3
	30	2.4	0.05	12.1	2.9	2.2	7.6

The property was reactivated in 1928 and 1929 by Owen Lake Mining & Development Company. A 6'x8' adit at elevation 2705 feet was driven 2200 feet northeasterly and a further 800 feet northerly. In the course of this work 13 veins ranging in width from a few inches to 17 feet were cut and some followed by short drifts. A 10-foot sample across No.12 Vein at footage 2655 feet, that is, 455 feet north of the bend in the adit, assayed:

Gold, 0.08 oz/ton; silver, 6.0 oz/ton; lead, nil; zinc, 9.6%

No.13 Vein cut 100 feet farther north was 17 feet wide. A 3.6-foot sample from this vein assayed:

Gold, 0.08 oz/ton; silver, 1.13 oz/ton; copper, 1.79%

(B.C. Min. of Mines, Ann. Rept., 1929, p.171-175)

After 1929 the property lay idle until recently when exploration was resumed by Madina Explorations, Limited.

#### CURRENT EXPLORATION

During the past two years a good deal of exploration has been accomplished. A road was built up Wrinch Canyon, exposing a good cross-section of the rocks and some veins in its walls, and the two old 2990 level adits re-opened. A large amount of bulldozer stripping on either side of Wrinch Canyon has exposed veins intermittently for distances of 1150 feet east and 850 feet west of the canyon. Most of these exposures are strongly weathered and obscured by manganese stain. Some were drilled and blasted but few excavations are sufficiently deep to reach un-weathered material.

The 2705 Level adit was re-opened by bulldozing 70 feet of rotten timber and overburden from the portal. The working is in good condition, existing track usable, and air sufficiently good to allow examination of all places.

## GENERAL GEOLOGY

The geology of this property was described by Laig (Geol. Surv., Canada, Summ. Rept., 1929, pp.62-90) as a stock of microdiorite about  $1\frac{1}{2}$  miles across that includes volcanic breccia and tuff. This stock must be of irregular shape because small and large bands and areas of volcanic rock are bounded or enclosed by microdiorite. Fine-grained porphyritic dykes of several varieties are not uncommon. The intrusive rocks evidently solidified at a high level in the crust, probably during Tertiary time. Over broad areas in the general vicinity of veins both microdiorite and volcanic rocks are altered to a non-descript soft white rock that retains little or none of its original nature.

## ECONOMIC GEOLOGY

Veins that occupy fractures in both microdiorite and volcanic rock provide the economic interest in this property. Questions that have existed in the past concerning these veins, their continuity and correlation, have been partly answered by current exploration.

### Vein Structure & Mineralogy

These veins originated by deposition of minerals in open tension fractures in a near-surface environment of comparatively low temperature and confining pressure. The rocks are virtually unsheared and what little evidence exists of shearing along vein walls can be ascribed to post-mineral movement. In general, vein fractures strike northwesterly and dip to the northeast at moderate to steep angles. In detail, however, vein fractures present a sinuous, braided and branching pattern that tends to confuse positive correlations. Post-mineral movement is expressed by strike faults along vein contacts and by transverse northerly-striking faults that segment and displace veins a few feet. Most fault offsets are left-handed.

The veins contain pyrite, chalcopyrite, sphalerite, and galena in a gangue of chalcedonic silica, rhodochrosite and probably manganese-siderite, and a little barite. Typical textures of the veins include regular and convoluted colliform banding, vein breccias, and crystal-encrusted vugs.

Although all sulphides are present in all veins in visible amounts, chalcopyrite tends to predominate in some veins and sphalerite in others. However, these do not represent separate vein types and the relationship is of little use for correlation purposes. Ore minerals occur mainly as massive bands, lenses, or irregular aggregates. Disseminated sulphides are uncommon. Sphalerite deserves special mention. Ranging in grain size from mere specks to crystals an inch across, sphalerite has the light brown colour indicative of low iron content. From such sphalerite a particularly high-grade zinc concentrate would be expected. The mineral associations of silver are presently unknown but are being studied.

#### Continuity & Correlation

A map with this report (in pocket) shows vein exposures of major economic interest both on the surface and underground and indicates their probable and possible correlations. Some element of doubt about such correlations must remain because veins are incompletely exposed in surface workings and much of the intervening surface is drift-covered.

The interpretation expressed by the map is that No.2 and No.3 veins are branches of a single vein system that is essentially persistent from point 7 to point 12 - a horizontal distance of 2000 feet. Dislocations evidently exist between 8 and 9 on No.3 Vein; 3 and 4 on No.2 Vein; and between 5 and 6 on the composite vein. These may result from left-lateral movement on one or more faults after the manner of dislocation of No.3 Vein in 2990 Level east. Sphalerite is the main sulphide in No.2 Vein; chalcopyrite is prominent in No.3 Vein; and both minerals occur in the composite vein. The vein junction in the vicinity of point 5 is a braided load of sub-parallel, sulphide-rich veins, lenses, and stringers distributed in highly altered rock across a width as great as 25 feet. Insufficient exposures and diverse attitudes prevent correlation of No.1 Vein exposed at point 14 in Wrench Canyon with exposures at points 13 and 15.

In 2705 Level two veins of particular interest are cut at 2655 feet from the portal and at 2750 feet. The first is a strong vein 12 to 15 feet wide with well-developed colliform banding, moderately well-mineralized with sphalerite and galena. The second which is partly obscured by timber is somewhat narrower, has an open, vuggy, chalcedonic gangue containing bands or lenses of massive chalcopyrite. Using

attitudes measured underground, the footwalls of these veins are shown on the map projected to elevation 2990 feet. The vein intersection projected to the surface is less than 50 feet from the exposed vein junction at point 5. Because of such relations the writer concludes that correlation of veins 2 and 3 with veins 2655 and 2750 underground is justified.

#### SAMPLING & ASSAY RESULTS

Most of the cuts are unsuited to detailed sampling. The vein material is too weathered to be sure that the metals sought have been neither leached nor enriched. The writer channel sampled relatively fresh material at four places on the surface and 2655 Vein underground to gain some idea of the distribution and order of magnitude of metal values. No inferences regarding mining widths or grade should be drawn from these results. Sample sites are shown on the map and assay results listed below:

Sample #	Material sampled	Width ft.	Gold oz./t.	Silver oz./t.	Copper %	Lead %	Zinc %
704	#2 Vein. Complete cross-section	7.0	0.04	2.60	0.02	3.10	1.35
705	#3 Vein. Incomplete cross-section of fault segment	5.0	0.06	14.90	4.47	2.24	9.25
706	#3 Vein. Complete cross-section	7.3	0.03	7.35	1.95	0.95	2.87
707	NW side #2 Vein. Includes some fault gouge	5.5	0.02	2.65	0.15	4.10	0.04
708	SW side #2 Vein. mainly altered pyritic rock	6.5	0.01	0.40	0.13	tr	0.07
709	NW side 2655 Vein 50 lb. sample cut oblique to vein	9.5	0.03	4.00	0.18	2.35	8.45
710	NW side 2655 Vein	4.5	0.01	5.20	0.08	4.20	7.50



## FURTHER EXPLORATION

Exploration thus far has indicated a branching system of veins from 2 feet to 17 feet wide that persists for a horizontal distance of 2000 feet and to a vertical depth of 500 feet. These veins contain interesting and fairly consistent values in silver, copper, lead and zinc. The property warrants further exploration aimed at proving vertical and horizontal continuity, mining widths and grade. These aims best can be achieved by a program of raising and drifting from the 2705 Level - a program which at the same time will provide natural ventilation and the nucleus of a mine development plan.

Other showings on the property, both on the surface and underground, inspected only briefly by the writer, probably merit some further attention. However, this might well be deferred pending outcome of the underground program.

Respectfully submitted,

October 22nd., 1965

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Wm. H. White, P. Eng.