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Mikado Resources Ltd., Vancouver, B.C.

Turner Energy Resources Ltd. Vancouver, B.C.

## PROSPECTING AND SAMPLING REPORT

Wagner Project Slocan Mining Division British Columbia

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October 21, 1985

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#### INTRODUCTION

The Wagner Group of crown granted mineral claims and associated other claims are currently owned by joint venture partners Mikado Resources Ltd. and Turner Energy Resources Ltd. Following a summer road improvement and bulldozer trenching program they expanded their exploration efforts during September and October of 1985. The writer was engaged to examine and prospect some of the more remote showings and to confirm historical information pertaining to them. This work was halted when persistant snow made surface examination ineffective.

This report presents the writer's findings and provides a brief description of the current activities on the property. It is not intended as a comprehensive engineering report nor as a summary report of past exploration activities. For further details in these matters the reader is referred to the reports by J.F. McIntyre (1985), T.G. Hawkins (1985) and P.J. Santos (1985) as listed in the bibliography.

#### LOCATION, PROPERTY AND ACCESS

The term "Wagner Group" as used herein refers to the entire claim holdings of the joint venture partners, and currently consists of some 39 crown granted mineral claims and fractions and twenty Modified Grid claims. They form a contiguous group along the divide between the Lardeau and Duncan drainages centered at the head ends of Healy Creek and Hall Creek. The property includes blocks of claims staked at different times on different showings and recorded in the literature as the Wagner group, Laura J., Jewell group, Bannockburn ~ Superior group, Abbott group, Red Elephant property and IXL property.

Access to the area was historically very difficult, and for this reason only limited work was done on many of the showings. The current owners have improved the old Sheep Creek Mines road so that good four-wheel-drive vehicle access is available to the property during the summer field season. The writer understands that further road improvements are planned.

#### CURRENT ACTIVITIES

The joint venture partners are actively engaged in exploration on the Wagner group. The summer program resulted in road access as far as the lower (Silvex) adit on the Wagner showing proper, and to the Sheep Creek adit. Bulldozer trenching in the area of the Sheep Creek adit reportedly uncovered several mineralized veins parallel to and on both sides of the main Sheep Creek vein. They were examined and sampled by P.J. Santos prior to this writer's visit to the property, and so were not sampled by me. One trench was briefly examined by the writer. It was partly sloughed but exposed a galena bearing quartz vein southwest of and striking parallel to the Sheep Creek vein.

Underground work is in progress at both the Silvex adit and the Sheep Creek adit. The main work consists of rehabilitation and extension of the Silvex workings to prove ore continuity, to construct sites for underground drilling on the Wagner vein, and provide large bulk samples for metallurgical process testing. Work on the Sheep Creek adit includes rehabilitation of the portal and clearing of a large caved section to gain access to the adit for sampling, mapping and underground drilling. The underground work is expected to continue until heavy snowfall forces termination.

Road work has continued on the property. In addition to improving the Sheep Creek Mines road there now exists extensions to the Silvex adit around the Wagner Glacier and to the Jewell showings. The latter was in progress during the writer's visit and has since been completed.

#### GEOLOGY

This section deals with the relationship of known mineral showings with the local geology as may be applied to prospecting in future. More information on the regional geology, the detailed geology of the Wagner Knob and the area's exploration history are available in the sources given in the Bibliography and the further references they contain.

The property follows the trend of a significant geological contact between the Lower-Middle Cambrian Badshot Formation (limestone) and the overlying black graphitic slates and phyllites of the Middle Cambrian Index Formation,

the lowest member of the Lardeau Group. This contact dips steeply to the southwest and forms the west flank of the Marsh Adams anticline. Most of the major showings are located near and along the contact and are oriented more or less parallel to it. While the reasons for the concentration of mineral deposits near this regional structure are not clear, its significance as an exploration target is obvious.

Also significant and likely related to ore deposition is a regional fault running sub-parallel to the Badshot/Index contact and most prominent to the southeast of the Abbott claims. There it has weathered recessively to form the linear valley of Lake Creek. The pattern of recessive weathered lineations is repeated at the Jewell showing, the Sheep Creek showing and in the valley running northwest from the Wagner Knob. On the claims some or all of the veins may be on sections of this fault, though its trace is obscure in the general distortion of the Index Formation. At the very least it may have been a conduit for mineralizing fluids from depth. It could therefore have been a source of replacement deposits in the limestone as well. It warrants further attention along its extensions to northwest and southeast.

The Wagner group showings are of several distinct types. Most prominent are the rusty quartz vein showings of the Wagner, Sheep Creek, Jewell and King William veins. These are known to carry high values of Pb, Zn and Ag with lower values of Au and Cu. These "Wagner type" veins closely follow the trend of the regional fault and the significant contact described above. These four showings are very closely related and appear to be parts of a single vein structure. This is suggested by their similar orientation, their close proximity to the contact, their mineralogical similarity and by their persistant lead/silver ratio of about 1:1.

A second type of deposit is the so-called "Shelagh-type", stratabound replacement mineralization found on the Bannockburn-Superior group of claims. This consists of pyrite, sphalerite and galena in a thin quartzite member of the Marsh Adams Formation of the Hamil Group. The writer did not examine this area as far more substantial work was done by SEREM in the 1970's, and their records are on hand (P. Ronning, 1977, with map by Reed, 1958).

The third type is the silver bearing galena-sphalerite-pyrite replacement deposit found within the Badshot Formation on the Abbott claim. The minerali-

zation is described by P.J. Santos (October 1985) as being typical of Kootenay Arc replacement deposits, and he notes that this type of deposit has produced several mines of substantial tonnage. The showing takes the form of irregular bands and pockets of massive sulfides in a body of limestone of yet undetermined shape. This deposit may have economic importance, either as a large deposit suitable for underground mining or as a smaller "plum" where inexpensive surface mining techniques might be used.

All of the above showings host significant sulfides, often in large amounts. Most include pyrite associated with quartz gangue or with some degree of silicifition. On surface the quartz is limonite stained from oxidation of the pyrite and this provides a useful prospecting guide. The Index Formation rocks host many discontinuous quartz or quartz-carbonate gash veins, highlighting the intense, small scale deformation common in this unit. These seldom contain pyrite and often show phyllitic partings in the quartz. In float specimens, the absence of these and presence of iron staining, will help distinguish Wagner type vein material from the common barren quartz, even without visible sulfides. Similarly, quartz-carbonate material has not been found associated with sulfides.

Trenching near the Sheep Creek adit has uncovered previously unknown mineralized veins parallel to the main structure. The distinguishing features above can help in locating similar veins from float traces on other parts of the property.

#### PROSPECTING AND SAMPLING

#### I.X.L. Area

The I.X.L. crown granted mineral claim (L.7856) sits approximately one km. north of the main Wagner showings. Its lower boundary runs near the contact of the Badshot Formation limestone with the overlying Index Formation slates and phyllites. Above this the bulk of the claim lies on a very steep slope on the west side of the ridge joining Similarity Mountain to Mount Templeman. The combination of steep cliffs, intermittant snow and bad visibility in fog, made access difficult.

Old documents have apparently reported a large galena bearing showing traceable over 500 ft. The writer did not locate this. However, galena bearing float was found and sampled, adjacent to the claim (Sample I.X.L.-1) and on the claim (Sample I.X.L.-2) which had its source in the Badshot limestone. This, plus the known existance of a large sulfide bearing replacement showing in the Badshot limestone on the Abbott claim, leave open the possibility of significant sulfide deposits on the I.X.L. In addition, small blebs and gash veins of galena were found in place in a thrust fault breccia. Average grade of this breccia would be very low, so it was not chip sampled. Some of the I.X.L.-2 material undoubtedly came from here.

#### Results were:

I.X.L-1: Located on Ag-1 claim + 100m S.E. of IXL claim. Float collected from surface of glacier, derived from Badshot Formation. Iron stained quartz gangue with prominent galena. Grade: Au 0.014 cz/ton, Ag 6.23 oz/ton, Pb 17.95%, Zn 4.98%.

I.X.L.-2: Located on IXL, approximately 8000' elevation, in a major gully below prominent double spires in the Badshot Formation. Mixed small pieces of galena bearing limestone float, derived in part from thrust fault breccia. Grade Au 0.004 oz/ton, Ag 4.54 oz/ton, Pb 8.21%, Zn 4.98%.

### Ag-1 Area:

Two other samples were taken of float, in the valley below the I.X.L. claim, on the Ag-1 modified grid claim. Both were taken in a small, secondary stream gully within the Index Formation black slates and phyllites, a short distance southwest of the contact with the Badshot limestone. The topography is such that it is very unlikely that the material derived from the Wagner Knob, though it is of Wagner type. This may represent the extension of the Wagner vein, or perhaps a parallel vein of similar type. The samples were recorded as I.X.L.-3 and 4.

I.X.L.-3: Located in gully at 7150'. Float of Wagner type rusty quartz with visible sulfides: Grade: Au 0.002 oz/ton, Ag 0.10 oz/ton, Pb 0.32%, Zn 1.42%

I.X.L.-4:: In same gully, elevation 7350'. Wagner type vein material. High grade quartz-galena. Grade: Au 0.012 oz/ton, Ag 17.20 oz/ton, Pb 17.05%, Zn

1.47%.

#### Lucille K Claim

A grab sample, Lucille-1, was taken from rusty quartz vein material in a small prospectors pit found on the Lucille K claim (L. 3465) while en route to the Abbott, at  $\pm$  7250' elevation. Its grade was: Au 0.002 oz/ton, Ag 0.10 oz/ton, Pb 0.02%, Zn 0.01%

#### Abbott Group

The Abbott group of crown granted mineral claims is situated on the southeast end of the Wagner property, and consists of the Abbott, King William, Reunion, Evening and Kamloops crown granted mineral claims (L.765, L.766, L.6040, L.6039 and L. 3480 respectively). The writer visited the claim group and located two major mineralized bodies which had been described in reports from the early 1900's. Several samples were taken from each of these.

On the Abbott group , the most prominent showing is a large Wagner type quartz vein, herein referred to as the King William vein. It is seen in a good sized prospectors trench on the Reunion claim  $\pm$  150 m south of the divide between Hall and Healey Creeks at approximately 7480' elevation. The trench was filled with snow but a grab sample, KW-l was taken of vuggy, rusty quartz with visible sulfides. Vein thickness was estimated at l-3m.

K.W.-1: Au 0.004 oz/ton, Ag 0.30 oz/ton, Pb 0.84%, Zn 0.04%. The vein appears to be on the contact between the Badshot limestone and the overlying Lardeau group.

Shortly below this, several large vein outcrops become visible, tracing the vein over +500m along strike across the King William claim to near the boundary of the Abbott claim. Much of the vein material is white, massive quartz with some iron staining, occasional malachite stain and a few pyrite crystals. However, near 7000' elevation some higher grade material was noted and a grab sample taken (K.W-3) Details were:

K.W.-3 Quartz vein is 4m+ wide. Malachite and galena are visible. Grade: Au0.006 oz/ton, Ag. 6.14 oz/ton, Pb 4.52%, Zn. 0.10%.

This vein is traceable to  $\pm$  6900' elevation and is about 5-6 in. wide at the last outcrop, where it is found in the black slate some 8-10m southwest of the contact with the Badshot limestone. From there the vein disappears under talus.

A sample was taken, K.W.-2, of quartz-pyrite-siderite from a small, discontinuous vein or pod in limestone. This was located on the King William claim, near 7350' elevation at the bottom of the cliffs formed by the Badshot Formation, a short distance northeast of its contact with the Lardeau group and above the projected trace of the King William vein. Material was mostly heavily oxidized but where fresh contained large quantities of pyrite. Results were:

K.W.2 Au 0.018 oz/ton, Ag 0.15 oz/ton, Pb 0.02%, Zn 0.02%

On the Abbott claim proper a major showing is located at the base of the limestone cliffs near 6800' elevation. This is the replacement deposit mentioned in early reports and consists of a large outcrop with two adits driven into it. The upper adit is driven into the outcrop for +25'. The lower portal is now sloughed, but apparently the adit was driven as far as the orebody, about 100' below the outcrop. Grab sample Abbott 1 was taken of high grade replacement ore from the large pile on the lower adit dump. Grab sample Abbott 3 was of similar material from the upper adit dump.

The outcrop exposes several thousand tons of replacement type ore consisting of irregular zones of massive galena, sphalerite and pyrite within the Badshot formation limestone. The showing is bounded to the northeast at the foot of the limestone cliffs and appears to sit near the contact with the Lardeau group and parallel to it with a strike of about  $325^{\circ}$  and dip of  $60^{\circ}W$ .

Along this footwall is a zone of massive sulfides 20 - 40 cm wide. This zone was chip sampled over a 30 cm width as sample Abbott 2. Other bands and pods of massive sulfides exist throughout the showing forming irregular zones of very high grade within limestone of obviously lower grade. The resultant average grade of the body is not presently known, though the "Average sample big Replacement in limestone" taken of the showing by J.H. Eby (1929) of 8.9% Pb, 5.8 oz/ton Ag and 16.1% Zn appears reasonable.

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Results of present samples are:

Abbott-1: Au 0.016 oz/ton, Ag 0.50 oz/ton, Pb 2.58%, Zn 20.72%

Abbott-2: Au 0.024 oz/ton, Ag 39.08 oz/ton, Pb 58.52%, Zn 11.76%

Abbott-3: Au 0.060 oz/ton, Ag 22.66 oz/ton, Pb 32.98%, Zn 11.99%

The replacement body is at least 7m thick and is exposed for about 20m along strike disappearing under talus. Old reports suggest that the body is traceable over 500' along strike in prospectors trenches but this could not be confirmed during the writer's brief visit.

If the replacement body is tabular in shape, reasonably regular in thickness and its apparent orientation remains consistent then a considerable tonnage of the ore may be proven up which could be mined from the surface at low cost. I believe that a minimum of 10,000 - 20,000 tonnes is readily available, with a considerable possibility of 50,000 to 100,000 tonnes being found near enough to the surface for open cut mining. The full size of the replacement body cannot be reasonably estimated at this time, but the possibility exists f a large tonnage of underground ore as well.

#### Red Elephant Area

The Red Elephant prospect is located on the north side of Hall Creek, downstream from the Bannockburn-Superior claims, on the southern part of the Ban 6 modified grid claim, near its boundary with the Ban 5 claim. Good gold assays have been reported from the main showings and some underground work was done there. The writer was unable to locate these showings due to poor visibility and difficult walking conditions in the slide alder slopes covering the area, compounded by inadequate knowledge of the exact location sought.

However, mineralized float of a type not previously known to occur in the area was found in two spots. The first was of massive galena with rusty quartz gangue found near 4500' elevation at the foot of a small cliff and sampled as R.E.-l. Its source was not found. Grade is:

R.E.-1: Au 0.008 oz/ton, Ag 3.66 oz/ton, Pb 43.44%, Zn 3.61%. The other is of oxidized quartz-pyrite-sphalerite-galena vein float traceable to about

4650' elevation in a gully slightly east of the previous float. It was sampled as R.E.-2 with a grade of:

R.E.-2: Au 0.002 oz/ton, Ag 0.35%, Pb 0.36%, Zn 10.60%.

The highest float found was likely near to it's source. A vein quartz boulder over 8' long was visible which would not have survived much transport and the float disappeared shortly above it.

Rocks in the area are greenish to reddish phyllites with interbedded lightgrey pyritiferous quartzites, probably the lowest member of the Marsh Adams Formation. Both float occurrences appear similar to Wagner type ore found in the Index formation but their Pb/Ag and Pb/Zn ratios are inconsistent with those of the Wagner vein. They may be more closely related to non-Shelagh type sulfide showings reported from the nearby Bannockburn-Superior group, an area which is also underlain by Marsh Adams Formation rocks.

#### CONCLUSIONS AND RECOMMENDATIONS

The above information was gathered in only a very short time on the property while examining only a few of the claims. A thorough prospecting program on the entire property would produce valuable results to guide later intensive exploration, and do so at a relatively small cost.

An effective prospecting program will begin at lower elevations as soon as the snow melts and avalanche danger subsides, then move to higher elevations as the season continues. I recommend that a team of two experienced prospectors be hired for the 1986 field season and equipped with a portable camp. This would be supplied and occasionally moved by helicopter to ensure that the maximum amount of time is available for prospecting and the minimum time is spent getting to and from work, especially in more remote areas. The team would be moved as required to cover the entire property in a systematic and thorough fashion, sampling anything of significance and accurately locating sites of previous field work. The prospectors would report to a geologist or engineer in charge of field work, who should be available at all times.

Eecause of the short field season a detailed exploration plan which integrates this prospecting with geological and geophysical exploration, drilling, underground work and infrastructure construction is essential for the orderly, cost effective production of results. I recommend that first priority be given to development of such a plan during the remainder of 1985.

The property hosts very significant showings and has a good probability of producing at least one underground mine. A major exploration program is required for sufficient ore tonnage to be delineated to justify a production decision. The companies should concentrate their efforts in 1986 on property exploration designed to prove tonnage and grade, focused on the Wagner Knob-Sheep Creek area and the Abbott replacement body. These areas appear the most likely to prove sufficient tonnage for mine start-up with the minimum exploration expense. While exploration of other showings and property infrastructure development are desirable they should be considered of secondary

importance at this time. The companies are urged to channel their resources into that work which will prove the maximum quantity of ore, to allow a production decision as soon as feasible.

BENALD F. MCINTYRE, B.Sc. Geolog

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APPENDIX 1, ASSAYS

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# CERTIFICATE OF ASSAY

Date: October 3, 1985

File: 8509-2555

**⊘SGS** 

## SGS SUPERVISION SERVICES INC. General Testing Laboratories Division

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We hereby certify that the following are the results of assays on:

TO: McINTYRE ASSOCIATES

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# MIKADO RESOURCES LTD

submitted ore samples

		GOLD	SILVER	Lead	Zinc	xxxxxxx	******	xxxxxxxx	xxxxxxxxx		
MARKED		oz/st	oz/st	Pb (%)	Zn (%)						
	Tag No.					Sample No					
	639	0.014	6.23	17.95	4.98	I.X.L.1					
	640	0.004	4.54	8.21	2.36	I.X.L.2					
	641	0.002	0.10	0.32	1.42	I.X.L.3					
	642	0.012	17.20	17.05	1.47	I.X.L.4					
•	643	0.002	0.10	0.02	0.01	Lucile 1					
-	644	0.004	0.30	0.84	0.04	K.W. 1	<u> </u>				
	645	0.018	0.15	0.02	0.02	K.W. 2					
	646	0.006	6.14	4.52	0.10	К.W. З					
_	647	0.016	0.50	2.58	20.72	Abbott 1					
	648	0.024	39.08	58.52	11.76	Abbott 2					
	649	0.060	22.66	32.98	11.99	Abbott 3					
	3455	0.008	3.66	43.44	3.61	R.E. 1					
	3456	0.002	0.35	0.36	10.60	R.E. 2					
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