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REPORT ON THE GEOLOGY AND SAMPLING OF THE LOWER LEVELS OF THE WAYSIDE MINE, AND RECOMMENDED DRILLING

For Wayside Gold Mines Limited

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INTRODUCTION:

This report describes the results of a detailed sampling and geologic mapping program carried out on the 9 level of the Wayside Mine between December 6 and 9, 1992 by the author and J. Moors (B.Sc., geology), subsequent to the recent dewatering of the workings. The results of a previous program completed by Chris Sampson (of Sampson Engineering Ltd.) on 7, 8 and 9 levels, and sampling done by J. Frank Callaghan (of Wayside Gold Mines Ltd.) are also reported here. Based on the results, a drilling program is recommended.

A recent compilation by Lariche and Kidlark (1991) outlines the location, geologic setting, history and previous work at the Wayside Gold mine, and the reader is referred to their report for this information. 10 levels of workings were developed at the mine site on a single vein system, the Main zone, between 1911 and 1952. A total of 40,761 tons of ore grading 0.13 ounces per ton was produced during 1936 and 1952, primarily during 1936 when 37,535 tons were milled (Stevenson, 1952). Mining was concentrated primarily in the upper levels of the mine.

GEOLOGY OF THE WAYSIDE MINE:

The veins at Wayside are hosted by two phases of the Bralorne diorite. Medium-grained hornblende diorite is the most common lithology in the mine workings. The hornblende is commonly replaced by dark green to black chlorite. Hornblende granite to granodiorite intrudes diorite in the lower mine levels, and is abundant on 9 level.

Northeast-dipping vein-filled shear zones cut the diorite and granite units. The zone which is developed by the mine workings, the Main zone, strikes 325 to 340 degrees and dips 45 to 60 degrees northeast.

This zone comprises a usually 1 to 12 foot wide phyllitic to schistose zone of strongly chlorite + sericite ± ankerite ± silica ± fuchsite altered wallrock. Foliation parallel quartz>carbonate veins and veinlets are common within the shear zones. The most continuous of the veins range up to several feet in thickness and are traceable along the shear zones for tens to hundreds of feet. These veins usually consist of massive quartz and rarer ankerite. Brecciated sericite-pyrite-fuchsite altered wallrock fragments are common in some veins. Veins are often ribboned with multiple thin pyrite-arsenopyrite-graphite laminae. These laminae, and similar thin sulphide-rich black vein selvages sometimes contain flakes and streaks of gold. Silicified quartz-sulphide breccias, consisting of angular quartz fragments, 0.5-5 centimetres in diameter, set in a dark-grey matrix of pulverized quartz and sulphides are developed in some veins.

Foliation within the shear zones on 7, 8 and 9 levels ranges from subvertical to shear-zone boundary parallel. Synthetic shear bands are common, and dip more shallowly than the zone itself. Slickensides and quartz fibres developed on the foliation usually plunge directly down-dip. The subvertical oblique foliation, shear bands and slickensides indicate a reverse sense of motion, with little or no strike-slip component.

Carbonate alteration strongly affects the wallrocks from a few inches up to 15 feet from the veins and shear zones, bleaching them to a cream colour (Stevenson, 1952). The carbonate, predominantly ankerite, is accompanied by silica, sericite and pyrite. The pyrite commonly replaces mafic mineral grains in the host rock. Fuchsite is common immediately adjacent to the veins. In some places, silica-carbonate alteration has altered the wallrock so pervasively that the rock is almost indistinguishable from the veins themselves. The gradational contact with less altered wallrock, however, indicate that these zones are not dilatant veins. Altered wallrock does not usually contain significant gold values (Kelly, 1972).

Ore shoots occur where lensoidal bearing veins are developed in the shear zones. The stoped shoots on 7 and 8 levels and in the upper levels of the mine plunge down-dip with a slight westerly rake, approximately parallel to the slip direction on the shear zones. The shoots, and associated veins, are developed where the Main zone dips between 45 to 55 degrees, and are absent at steeper dips (60 to 65 degrees; Stevenson, 1952). This type of ore shoot (vein) control is common in systems which have a reverse sense of motion, since movement on the zone results in dilatancy of the shallower-dipping sections.

Several significant veins occur subparallel to the Main zone in its hangingwall and footwall. The most promising of these, the Notman vein, occurs 150 to 200 feet in the hangingwall of the Main zone. It is continuous for at least 750 feet elevation between 0 level and 5 level in the upper mine workings, and

may continue to below 9 level, as suggested by drill intersections obtained by Chevron. This vein lacks well-developed foliation and has a shallower dip than the Main zone (10-20 degrees shallower), indicating that it is predominantly dilational (Stevenson, 1952). Other veins include the 37 vein, Commodore vein, East Drift vein, and several other small veins intersected in drilling programs both in the hangingwall and footwall of the Main zone. Many of these veins, like the Notman, also have shallower dips than the main zone, and appear predominantly dilational.

9 level geology

During the sampling program 9 level was mapped at 1" = 40' scale (Figure 1a). The Main shear zone on this level ranges from 1 to 12 feet in thickness. Through most of 9 level, the zone has a strike ranging between 310 and 345 degrees, except in the southern third of the level, where it increases up to 350 degrees. Dip angles typically vary between 45 and 65 degrees to the northeast. At the south end of nine level, the dip of the zone is relatively shallow, 35 to 40 degrees. Here, the dip increases to 55 degrees as the zone enters the floor of the drift.

Several lensoidal veins are developed within the zone. The largest of these veins, at the north end of the level, is 50 feet long and up to 5 feet wide. A second major vein, in the center of the level, contains a well-developed quartz-sulphide breccia zone. At the south end of nine level, where the main zone dips shallowly, a third major vein is developed.

1992 SAMPLING PROGRAM:

A total of 106 samples were taken on 9 level and the raise between the south ends of 8 and 9 levels (Figure 1a). The Main zone was panel sampled every 6 feet. Often more than one sample was taken if both vein and shear zone were present, and could be sampled independently. The sample width was dictated by the width of the zone, and ranged from a few inches to 5 feet. 1 to 2 kilograms of rock chips were taken across the entire face (six foot length) of the panel to provide the best representation possible of the material in each panel. Where the zone was exposed in both the back and the floor, both sides were sampled separately. The panel width was increased to 8-20 feet where zones of alteration were sampled, or where lack of variability in the structure suggested a closer spacing would be unnecessary. The samples were submitted to Chemex Labs Ltd. for gold analysis by fire assay.

This sampling program corroborates the sampling done by Chris Sampson and J. Frank Callaghan in October and November, 1992 on 5, 7, 8 and 9 levels. A total of 79 samples were taken by Chris Sampson on these levels (7 level 24 samples; 8 level 40 samples; 9 level 15 samples), and 16 by J. Frank Callaghan. These were also analysed by Chemex Labs.

Sample locations and results are presented in Figures 1a, and 2, and Tables 1-5.

SAMPLING RESULTS:

9 Level:

No significant gold assays were obtained from this level (Table 1). Only 11 samples returned gold values > 0.030 oz/t gold. These were as follows:

#554167 (0.049 oz/t) and #554244 (0.033 oz/t), of shear zone with quartz breccia vein;
#554171 (0.039 oz/t), #554198 (0.039 oz/t) and #554200 (0.032 oz/t) of quartz veins;
#554183 (0.031 oz/t) and 554240 (0.037 oz/t) of shear zone with quartz veinlets and gouge;
#554192 (0.044 oz/t) of carbonate-altered wallrock with quartz veinlets;
#554201 (0.033 oz/t) and #554203 (0.030 oz/t) of thin (3-6") vein-filled shear zones at the north end of 9 level.

Where veins and shear zone were sampled separately at individual sample intervals, veins usually returned higher assays than the shear zones. Quartz-sulphide breccia veins, known to contain good gold grades in the upper mine levels (Stevenson, 1952), and common in the central portion of 9 level, returned low gold values, generally less than 0.004 oz/t.

The 15 samples collected by Chris Sampson on 9 level returned similar results to those described above. Only two samples from the south end of 9 level, returned values greater than 0.030 oz/t (#06922 [0.043oz/t] of quartz vein, and #06920 [0.033 oz/t] of shear zone with fault gouge).

Raise, between the south end of 8 and 9 levels:

Two samples from the raise returned gold assays over 0.03 oz/t gold. Both of these samples (#554303, 0.068 oz/t and #554309, 0,046 oz/t) were of shear zone material with quartz veins and veinlets. A selected grab sample taken from a muckpile at the base of the raise on 9 level by J. Frank Callaghan

assayed **2.63 oz/t** gold (Sample 101392; Table 6). The sample was taken of ribboned quartz vein material. The source of this material is not known, but it is probably muck from the last mined material on 8 level, since the veins in the raise do not have this grade.

7 and 8 levels:

12 samples taken by Chris Sampson on these levels returned values close to or greater than 0.1 oz/t gold:

Sample #	Au (oz/t)	Width (m)	Description
42702	0.264	1.3m	Shear vein
09695	0.098	1.9m	Shear zone
09700	0.304	0.75m	Shear vein
09657	0.120	0.8m	Shear vein
09665	0.220	0.6m	Quartz vein
09667	0.542	0.8m	Quartz vein
42721	0.112	-	Quartz vein
42745	0.436	1.6m	Sheared vein
09677	0.120	0.6m	Quartz vein
09689	0.091	0.2m	Quartz vein
06904	0.313	0.46m	Ribboned vein
06905	0.142	0.91m	Breccia vein

Seven chip samples were taken on 7 level and one on 8 level in November, 1992 by J. Frank Callaghan (Tables 3 and 4, respectively). Three significant results were obtained:

(i) Sample 542466, taken at the same location as sample 42745 (above) from the Main zone 8 feet south of the winze on 7 level, returned **1.467 oz/t** gold.

(ii) Sample 542465, was taken from the faulted footwall of the Main zone 6 feet north of the winze on 7 level returned **0.673 oz/t** gold.

(iii) Sample 542468, taken from a pillar of vein in the stoped area of 8 level, near sample 09667, returned **2.287 oz/t** gold.

Most of these samples listed above were taken in stoped areas from unmined pillars and remnants of the Main zone. These stoped areas define at least two westerly-plunging ore shoots:

The first of these shoots is reflected by samples 09667, 09665, 06904, 06905 and 542468 on 8 level and 09689 on 7 level. The workings plans (Figure 2) show that this ore shoot is almost completely mined out. The western end of this shoot projects through the trace of the raise between 8 and 9 levels. However, mapping and sampling in this raise (Figure 1c) demonstrate that the shoot has thinned, and the gold grade has dropped, indicating that the shoot has ended. The disappearance of the 8 level zone halfway down the raise suggests that the lower end of the shoot does not continue to 9 level, and that the 9 level zone may represent a different structure, en echelon in the footwall of the 8 level one. Thus, little tonnage may remain of this shoot between 8 and 9 levels.

The second ore shoot, represented by samples 09657 and 09700 an 8 level, and by 09678 and 09677 on 7 level, has also been stoped between the two levels. The lack of anomalous samples on 9 level suggest that this shoot does not project to that level.

A third possible ore shoot is suggested by samples 42745, 42721, 542466 and 542465, which occur adjacent to each other on the south and north sides of the winze on 7 level. These may indicate the presence of an ore shoot which terminates before reaching 8 level, since the the grades do not project to that level.

The remaining anomalous samples occur at the north ends of 7 and 8 levels. Sample 42702 is from a small stoped area at the north end of 8 level. Sample 09695 occurs in isolation on central 8 level.

The highest grades come from quartz veins with well-developed sulphide ribboning, some of which are faulted by later (post-vein) movement. The lack of well ribboned veins on 9 level may explain the low gold grades obtained.

Notman Vein:

In addition to all of the samples described above, J. Frank Callaghan took 6 samples from the Notman vein on 5 level in October, 1992. One of the samples returned 0.508 oz/t gold (sample 542456; Table 5).

EXPLORATION POTENTIAL OF THE WAYSIDE MINE

The distribution of gold values obtained in the sampling program indicate that the highest grade portions of the veins between 7 and 9 levels have been mined out. The remaining shear zone and vein material is too low grade, or too low in tonnage to warrant further work. Probably only a few hundred tons grading between 0.1 and 0.2 oz/t remain between 7 and 9 levels. Outside of the workings, to the east and below 9 level, however, the Main zone still has potential, and several drillholes are planned to test it in these areas. A 1980 drill intersection of the Main zone below 9 level returned 2.63 oz/t over 10 feet (Elwell. 1980), indicating economic grades are present below this level. The high gold grades obtained at the winze on 7 level suggest that an ore shoot at least 5 feet thick may trace through this area. As previously mentioned, this shoot does not project to 8 level, but it may be developed between 5 and 7 levels. Drilling is planned in this area.

Veins outside the Main zone, especially the Notman vein, offer excellent potential. The Notman vein has a shallow dip and lacks a foliation, suggesting it is a dilatant vein, which may be relatively thick. The 1987 drilling by Chevron has intersected a high-grade vein at the projected trace of the Notman 350 feet below 5 level. If the vein is continuous between these two levels, then it may contain significant tonnage of potentially ore grade. Other veins or structures intersected in previous drilling, even if they do not have significant gold values, should also be tested, since the ore shoots typically only occupy less than 20% of the area of the structure at both Wayside and Bralorne.

The Wayside mine geology has many similarities with the large system at the Bralorne mine (see Leitch, 1990), which is 10 kilometres to the south. Some of these similarities include:

(i) Hornblende diorite and granite host rocks
(ii) The veins occur in phyllitic sericite-chlorite shear zones
(iii) Highest gold grades are associated with ribboned sulphide layers in the veins
(iv) Vein mineralogy consists predominantly of quartz with variable carbonate content
(v) Carbonate alteration, accompanied by fuchsite, sericite and silica
(vi) Ore shoots plunge steeply down the dip of the zones
(vi) Ore shoots within the veins occupy only a small proportion of the overall area of the veins, usually 20% or less
(vii) Mined veins are commonly 3 to 6 feet in width.

The Bralorne and Wayside systems are thus mineralogically and structurally very similar. Veins at Bralorne were traced to a depth of 6,000 feet, and are still open at depth. Thus, like the Bralorne veins, the Wayside system has potential to be a deep system, and any ore-bearing veins found at Wayside may be continuous with depth.

1992-1993 Wayside underground drilling program:

13 drillholes are currently planned from three drill stations on 9 level and one on 5 level. These holes will test the Notman vein and extensions of ore shoots on the Main vein system. As drilling proceeds, new holes may be added to better define the mineralized structures.

As drilling proceeds, all geology, especially vein and shear zone intersections, should be plotted on sections through the mine which show previous intersections and mine geology. This will necessitate the use of a mine grid system centered on the Main zone, to accurately plot the locations of drillholes and sections.

Core boxes should be labeled with weather-resistant aluminum tags and stored in order. It is recommended that new core racks are built to store the core, and to easily refer to previous intersections during future work.

The narrow diameter of the core is unfortunate. The gold typically occurs as flakes and grains on the margins of veins. Thus, narrow diameter core may easily miss individual gold grains, and give low assay values of potentially higher grade veins (nugget effect; Recent drilling of the Peter vein at Bralorne by Avino Mines and Resources Ltd. produced assays which were significantly lower than the true grade of the vein [0.61 oz/t over 105 length; George Cross News Letter, Nov. 12,1992] as determined by later underground development - Jim Miller-Tait, personal communication, 1992). Thus, it is recommended that the entire core in each intersection is sent to the assay lab without splitting, after being logged in detail. If ore shoots are located in any of the veins in the current drilling program, it is recommended that future drilling of the shoots be done with wider diameter drillcore.

To better delineate drill targets, structural geologic mapping of 5, 7 and 8 levels is recommended. The Notman vein on 5 level should be systematically sampled to locate any ore shoots which may occur in it on 5 level. This program would necessitate washing of the now very dirty workings.

Recommended drilling program:

The drillhole stations, hole numbers, and targets of the present drilling program are listed below The locations of the drill stations are plotted on Figure 3. At the current rate of drilling, this will take several months to complete.

Drill station A, 9 level north:

UG-1: Azimuth 050, dip 0, length 250 feet.
UG-2: Azimuth 050, dip +14, length 250 feet.
UG-3: Azimuth 041, dip 0, length 250 feet.
UG-4: Azimuth 059, dip 0, length 250 feet.

Drill target: These holes are designed to test the Notman vein east of the nine level in the vicinity of the Chevron drill intersection (1.84 oz/t over 5.2 feet in hole 87-1). The first hole is designed to locate the mineralized structure intersected in the Chevron drillhole. The intersection is anticipated at approximately 190 feet. The other drillholes (numbers 2-4) are designed to define the extent and shape of the potential oreshoot.

Drill station B, 9 level south:

UG-5: Azimuth 232, dip -20, length 100 feet.
UG-6: Azimuth 213, dip -40, length 120 feet.

Drill target: The extension of the Main vein system below the 9 level. The veins on 9 level here are relatively wide and shallow-dipping, and thus may represent the upper end of an ore shoot.

Drill station C, 9 level south, 45 feet east of station B:

UG-7: Azimuth 090, dip 0, length 130 feet.
UG-8: Azimuth 045, dip 0, length 110 feet.

Drill target: The southern extension of the Notman vein. 1951 mine plans indicate a drill intersection in this area, but no grades are known.

Drill station D, 5 level east:

UG-9: Azimuth 227, dip -32, length 300 feet.
UG-10: Azimuth 208, dip -28, length 400 feet.
UG-11: Azimuth 190, dip -37, length 500 feet.
UG-12: Azimuth 170, dip -51, length 550 feet.
UG-13: Azimuth 270, dip -45, length 250 feet.

Drill target: Definition of both the Notman and Main vein systems below 5 level, at the down-dip projection of ore shoots mined on the upper levels. These holes will also test the postulated existence of an ore shoot between 5 and 7 levels as suggested by high-grade samples taken from the winze on 7 level.

Other potential drill targets in the Wayside mine area:

(i) Drilling of the Notman vein between 5 and 9 levels from the southern ends of 7 and 8 levels. Several holes could also be extended into the hangingwall of the Notman vein to test other vein intersections from surface drillholes (approximately 6 holes, 300-600 feet long).

(ii) Drilling into the footwall of the Main zone from 5, 7, 8 or 9 levels to test for parallel structures (approximately 6 holes, 500 feet long).

(iii) Deep drilling of the Main zone. This would be best done from the planned hangingwall crosscut at the south end of 9 level.

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