

# BACHELOR LAKE

## Description and location

The Bachelor Lake property is located in the Le Sueur Township (CL740) approximately 225 km northeast of Val-d'Or, via highway 113. Val-d'Or is a major full service centre of mining and economic activity in northwestern Québec.

The mine site is located 3.5 km southeast of the village of Desmaraisville. The community is serviced by bus and truck transport, and is connected to the provincial power grid and telecommunication systems. A large population of experienced miners and related tradesmen is available within a 240 km radius of the mine (Val-d'Or, Chapais and Chibougamau).

There are no land claim issues or ownership disputes pending with the Bachelor Lake property.

The property is accessible by a three (3) hours drive (225 km from Val-d'Or) via highway 113 that links to Chibougamau (Province of Quebec).

The Bachelor Lake property now consists of 177 claims and 2 mining concessions covering an area of 4 837.56 ha. The eastern block (Bachelor Lake claims), host of the Bachelor Lake past producer, comprises 51 claims and 2 mining concessions totaling 1,867.37 ha. The western block (Hewfran claims) comprises 38 claims totaling 683.50 ha where the Bachelor Lake Joint Venture (BLJV) has the right to acquire a 100% interest from Aur Resources Inc. (Aur), conditional to a work commitment of \$1.6M. Adjacent and contiguous to the property, the BLJV also holds 76 claims covering 1,975.36 ha (MJL claims) and 12 claims for 311.33 ha (Hansen claims). These adjacent claims cover the past producing Coniagas mine (Prod. 718 465 tons grading 10.77% Zn, 1% Pb, and 183 g/t Ag).

## Bachelor Lake surface infrastructures

The mine site includes surface infrastructures, hoist room, shaft house, mill (500 tons per day), tailing pond, and core shack. The infrastructure is generally in good condition but will require modifications and rehabilitation for future exploration program and underground work, particularly the mill, hoist and headframe. The Bachelor gold deposit was mined by underground mining method, mainly by shrinkage stoping and 131,000 oz of gold were produced during the 1980's. During the winter of 2004-2005, the mine was dewatered in order to initiate an underground drilling program in 2005. The mine is accessible by a three-compartment shaft to the 7<sup>th</sup> Level and a four-compartment shaft below the 7<sup>th</sup> Level. The shaft sump is at a depth of 562.66 m (1 846'). Twelve levels, with ventilation and egress, have been developed. Underground access from the Bachelor mine onto the Hewfran claims already exists on the 4<sup>th</sup>, 6<sup>th</sup> and 8<sup>th</sup> Levels. There is no environmental issue and the BLJV is currently keeping the mine dewatered. The water is pumped from the underground workings into the tailing pond in conformity with the Certificate of Authorization delivered by the "Ministère de l'Environnement du Québec". Exploration works on the property are also performed in conformity with the Québec's regulations.

In a report February 27th, 1989, **LESLIE ENGINEERING LTD.** documented and carried out a detailed appraisal of the Bachelor mine facilities and equipment on a fully installed basis. At that time, an appraised value of \$18,251,000 was estimated. This study was made at the end of the mine production and thus based on completely operational mine.

The access infrastructures to the mineralised zones are evaluated at CAD\$11 million (Shaft, headframe, drifts, hoist, service buildings and equipments). Cost of building a 500 tpd mill would be around CAD\$27.8 million and such a mill complex is already built on site and could be rehabilitated for less than CAD\$3 million.

Once the acquisition is completed, Metanor intends to proceed with an advanced underground exploration program designed to increase resources. This 12 month U/G exploration program will include changing hoist, deepening shaft, development drifting for U/G drilling and bulk sampling. A feasibility study will then be made, followed by mill rehabilitation and production start-up in the 2<sup>nd</sup> half of 2007. The possibility also exist to custom mill ore from numerous surrounding gold deposits since the Bachelor Gold Mill complex is the only one within a 100 km radius from Desmaraisville.

The **SNC-LAVALIN** report (March 1999) details the infrastructures of the 500 t per day mine facilities as follows: A head frame, bins, hoist and air compressor complex and substation; An underground mine; An ore processing complex and a tailing disposal area; An office, warehouse and shop complex.

A.) View looking East on the Bachelor Lake surface infrastructures. Mill is in the right corner, the hoist room in the center and the headframe is in the left corner.

B.) View from inside the headframe, the access to the shaft is clean and functional.

C.) View from the core rack on the Bachelor Lake headframe.

D.) The headframe structure has been recently reinforced with steel (work executed by **TALPA**).

A.) View from inside the hoist room.

B.) Equipment for the electricity power of the hoist has been renewed (by Talpa).

A.) Mine water pipe returning to the tailing pond.

B.) Dam refurbishment.

C.) Water pipe coming from underground.

D.) Two pumps installed at Level 6.

### **Regional Geological Setting**

The area is relatively flat (maximum elevation variation 20 m) and lies at a general elevation of 100m. Coarse and sandy glacial deposits cover the area. Outcrop exposure is less than 2% and swampy areas are prevalent in the central and southern portion of the property. The property is situated near the western limit of the Chibougamau-Chapais greenstone belt which forms part of the Abitibi geological sub-province of the Superior Structural Province. Bachelor Lake property is along a regional trend which includes Agnico-Eagle (Telbel Mine), Golden Hope (Estrades deposit) and other deposits in the Douay Township. Other deposits in the immediate vicinity include the Lac Shortt gold mine (now closed), the Meston Lake Gold Mine, and the massive sulphide deposit of the Gonzague Langlois Mine (Grevet).

The property is underlain by Archean volcanic rocks of the Obatagama Formation. This formation includes mafic, intermediate and felsic flows and their intrusive equivalents. The epizonal syn- to post-tectonic composite O'Brien "granite" is a prominent feature east of the deposit. Post-tectonic lamprophyre dykes are also present in the mine.

### **Local Geological Setting**

The folded volcanic rocks trend N025° west of the mine and about N065° east of the mine, with vertical to steep northwest dips. Two major post-ore fault systems are recognized on the property:

- 1) the Waconichi faults (WAC) occur as a parallel series of brittle-ductile shears trending N050° to N070° and dipping 70° to the southeast;
- 2) a later series of faults (T faults) trend N020° to N030° and dip 80° northwest to vertical.

Three structurally controlled quartz veins are recognized, namely the "**Main Vein**", the "**A Vein**" and the "**B Vein**" (Figure 9). The bulk (90%) of the mined material has come from the "Main Vein". The "A Vein" has been discovered in drilling from the 9th level and traced upwards to the 4th level. The "B Vein" was first recognized on the 11th and the 12th level and represents the greatest potential for additional resources as it appears to increase in width with depth, below the 12th level.

The "**Main Vein**" trends N110°, dips at 55° southwest near surface and steepest to near vertical at the 12th level. This structural controlled quartz vein system which has been recognized as dilatant fractures is characterized by distinctive deep brick red alteration. Carbonatization and sericitization surround those veins.

The Main Vein consists of an assemblage of silica, hematite, 2-10% pyrite, and minor amounts of calcite, quartz veinlets, epidote, chlorite, amethyst, micas, magnetite and base metal sulphides. Approximately 90 to 95% of the gold occurs in the native state adjacent to the pyrite grains. The majority of the gold is very fine grained, and visible gold (VG) is rare.

The average width of the "Main Vein", above the 6th level, was 1.82 m, and increased to an average of 2.44 m below this level. Drilling below the 12th level has indicated that the average width of the zone might increase to 4.27 m (average of 16 drill intersections). This vein system, which constitutes the main mineralized zone, is recognized over 1,150 m (N240 trend) and was exploited on 460 m from the western limit of the property until the western contact of the O'Brien Stock.

The "**A Vein**" is visually distinct from the "Main Vein". It is a highly altered and sheared auriferous zone which strikes N060-070° and dips 45-70° to the southeast. Although it was assumed that the vein continued below the 12th level, **HECLA** drilling (and **GEOSPEX** drilling) have not intersected this zone.

The "**B Vein**" is similar to the "Main Vein" but narrower (about 1.98 m) above the 12th level. The vein was first discovered on the 12th level but very little mining has taken place in this vein. Below the 12th level, drilling has indicated a strike length of at least 18.29 m and an average width of 3.17 m (average of 12 drill intersections).

A good correlation between gold and silver appear to be the rule, so much that it makes up for check assays in a sense, because of the near 1:1 ratio of gold and silver.

### **Mineralization**

The main mineralization occurrence on the Bachelor Lake property is gold. Gold is spatially associated to pyrite and gold content correlates well with pyrite content. This pyrite is usually finely disseminated (2 to 10%) hosted in a strongly altered rocks, often brecciated and occasionally injected by quartz/carbonates veins and veinlets. On surface trace of gold, chalcopyrite and ilmenite occurrences has been discovered. This mineralization is very finely grained.

Details of the Main Zone in drill hole S-95-08				
From (in feet)	To (in feet)	Interval (in feet)	Gold (oz/t)	Silver (oz/t) 196
1,904.53	1,909.45	4.92	0.021	
1,909.45	1,914.7	5.25	0.088	0.076
1,914.7	1,919.62	4.92	0.084	0.075
1,919.62	1,924.21	4.59	0.631	0.574
1,924.21	1,929.79	5.58	0.238	0.226
1,929.79	1,933.4	3.61	0.064	0.073
1,933.4	1,938.98	5.58	0.042	0.025
1,938.98	1,943.9	4.92	0.256	0.317
1,943.9	1,948.82	4.92	0.181	0.151
1,948.82	1,953.74	4.92	0.019	0.016

A) and B) Highly hematized and pyritized interval in hole 12-33 from the Main Zone (8.33 g/t Au over 7.01 m).

C) Hematized and pyritized interval in hole 12-4 from the Main Zone (17.28 g/t Au over 3.66 m).

D) Hematized and pyritized interval in hole 12-37 from the "B" Zone (6.69 g/t Au over 2.44 m).

E.) Mineralization (gold) from diamond drill core at Bachelor Lake property.

### 2005 Exploration Program

A major exploration/delineation underground drilling program was performed on the property between April and July 2005. During the program, a total of 13 345.55 m was drilled from sixty-nine (69) holes (BQ size). The program was performed from two (2) fixed drill stations located on the Level 12 of the Bachelor Lake mine by performing azimuth drilling. From the total, 6 854.55 m were drilled from drill station #1 and 6 496.00 m from drill station #2. The drill program was initiated by Halo with a clear objective of upgrading the resources by performing a 20-25 m drill centers on the "Main" zone and to some extent on the "B" and "A" zones, which are located closer to the two (2) drill stations. Out of the sixty-nine (69) holes drilled during the 2005 drill campaign, forty (40) holes have intercepted composite grades over a cut-off of 3.43 g/t Au on a minimum horizontal width of 1.5 m or higher. Eight (8) holes intercepted a mineralized interval having an horizontal width over 6 m and fourteen (14) composite mineralized intervals have a grade higher than 10 g/t Au on a minimum horizontal width of 1.5 m or higher.

The 2005 underground drilling program had a significant impact on the geological understanding of the deposit. Highlighted geological features from the 2005 drilling program showed: 1) the continuity of the "Main Zone" extended substantially (over a total strike length of 450 m (1 500') from the Bachelor Lake to the "East" zone area on to the Hewfran claims; 2) significant widening of the mineralized zones appearing at the junction of several major structural features (such as the "A" zone with the "B" zone); the O'Brien granite contact opening at depth which opens the possibility of extending the mineralized zones to the east; 3) the "Main" zone documented in the footwall of the Waconichi fault (Big Wac fault); the "Main" and "B" zones continuing through the "gap zone" area (between the T1 fault and "A" Zone).

### New Mineral Resource Estimate

The 2005 Mineral Resource estimate is based on a new geological interpretation that covers Bachelor Lake, Hewfran East and West areas. Rather than polygonal method on longitudinal view, a block modelling approach was retained for the new estimate. Basic parameters were not available for the Hewfran East and West historical resources; new geostatistic analysis (univariate statistic and variography) has been done for the 2005 Mineral Resource estimates establishing new parameters and key assumptions. The resource estimate has been established within reasonable parameters. These parameters were defined and were based on recommendations of the CIM Standing Committee on Ore Reserves and Resources and are compliant to regulation of National Instrument 43-101. The 2005 Mineral Resource estimate is summarized as follows:

- **192,594 metric tons at 8.80 g/t Au** (54,504 oz Au) in **Measured** Resources;
- **648,997 metric tons at 7.49 g/t Au** (156,352 oz Au) in **Indicated** Resources;
- **426,148 metric tons at 6.52 g/t Au** (89,366 oz Au) in **Inferred** Resources;

- 1.) The Qualified Person for the mineral resource estimates, as defined by National Instrument 43-101 is Alain Carrier, M.Sc., P.Geo, Innovexplo Inc.) and the effective date of the estimate is October 5, 2005.
- 2.) Mineral Resources are not mineral reserves and do not have demonstrated economic viability.
- 3.) Results are presented undiluted and in situ, and some resource blocks may be locked in pillars. The estimate included six (6) gold-bearing zones ("Main", "A", "B", "C", "A West" and "B West") and covers the Bachelor Lake, Hewfran East and West areas.
- 4.) The resources were compiled using a cut-off grade of 3.43 g/t Au (0.10 oz/t Au) and a fixed density of 2.755 g/cm<sup>3</sup> (11.636 ft<sup>3</sup>/t). A minimum of 1.5 m horizontal width was applied and cut off grade were fixed at 51.4 g/t Au for the "Main" zone, and to 34.3 g/t Au for the "A", "B", "C", "A West and "B West zones.

### Exploration potential-Surface showings

The Bachelor property hosts a wide variety of deposit types from volcanogenic polymetallic type to syn- to late-orogenic gold mineralization. On the property, volcanic-hosted massive sulphide potential is illustrated by the Coniagas Horizon, Zinc Showings #1 and #2, Area-Opawica showings and by the Coniagas deposit located on the adjacent property. Mineralization on the property was discovered from surface exploration in 1946. The property hosts several gold and base metal showings occurring on surface and illustrated by numerous showings: Agar #1 (Au-Zn), Agar #2 (Au), Area-Opawica (Zn-Cu-Ag), O'Brien showing (Au) which is also the original discovery at Bachelor, Terri and Middle showings (Au), Valdex (Au), Zinc showing #1 (Zn), Zinc showing #2 (Zn), and Hole 19501-52 occurrence (Zn-Au). The property also hosts the eastern extension of the Coniagas marker horizon (Zn-Pb-Ag).

Significant sphalerite identified on the Agar #1 which led to interpret this showing as the northeast extension of the Coniagas sulphide horizon. On the Agar #2 showing, a five pounds selected sample of the representative better looking material returned an assay of **0.29 oz/t Au and a** small grab sample of pyrite mineralization assayed 0.48 oz/t Au. The Area- Opawica (Zn, Cu, Ag) showing s located at 1.6 km from the Coniagas mine. The mineralization (chalcopyrite, sphalerite, massive and disseminated silver) has been described as a volcanogenic hosted in felsic pyroclastic environment. A surface sample returned 1.80% Zn, 0.75% Cu and 25.26 g/t Ag.

**Agar #1 showing.** A.) Quartz vein on Hewfran showing with the Bachelor Lake headframe in the background (View looking East). B.) Channel sample within hematitized and pyritized gold mineralization.

Area- Opawica showing (Zn, Cu, Ag) is located at 1.6 km from the Coniagas mine. The mineralization (chalcopyrite, sphalerite, massive and disseminated silver) has been described as a volcanogenic hosted in felsic pyroclastic environment. A surface sample returned 1.80% Zn, 0.75% Cu and 25.26 g/t Ag.

Valdex (Au) showing was discovered on the Hewfran claims in 1947 and is hosted in a quartz vein cross cutting volcanic rocks. This occurrence is associated with the Bachelor-type mineralization and a surface sample returned an assay of 7.5 g/t Au over 0.15 m.

The O'Brien showing (Au) corresponds to the original gold discovery made on the Bachelor claims on the eastern side of the O'Brien granitic stock. Several trenches and drill holes followed the discovery.

The Zinc #1 showing expose a volcanogenic environment where occurs minor sphalerite mineralization in brecciated rhyolite. Channel sampling in 1948 returned intersections of 6.85% Zn/ 4.0ft and 5.28 %Zn/ 4.6ft. The Zinc showing #2 expose a volcanogenic mineralization within rhyolites in a widely stripped area and the best intersection was 3.53%Zn/ 1.5ft.

The hole 19501-52 has been drilled to test the western extension of the Bachelor's mineralized zones. A significant base metal intercept returned 7% Zn and 5.45 g/t Au over 2.13 m interpreted as the northeast extension of the Coniagas base metal horizon.

The Coniagas marker horizon (Zn-Pb-Ag) extends on the Hewfran claims and represents the north-east extension of the Coniagas horizon. Associated within a felsic volcanic rock sequence, this marker horizon represents a favourable contact for polymetallic massive sulphide mineralization. Significant results were obtained in this horizon on the Bachelor property.

## **Conclusions and interpretation**

The 2005 underground drilling program had a significant impact on the geological understanding of the deposit. The "Main Zone" was extended substantially (over a total strike length of 450 m (1,500') from the Bachelor Lake to the "East" zone area on to the Hewfran claims. Significant widening of the mineralized zones appears at the junction of several major structural features (such as the "A" zone with the "B" zone). The O'Brien granite contact dip east at depth and opens the possibility of extending the mineralized zones to the east. The "Main" zone occurs in the footwall of the Waconichi fault (Big Wac fault) and the "Main" and "B" zones continue through the "gap zone" area (between the T1 fault and "A" Zone).

Results from the 2005 geological interpretation have allowed to include Hewfran East and West zones in the 2005 Mineral Resource estimates. The new geological interpretation indicated that the "A West" and "B West" (Hewfran) are probably connected with the "A" and "B" zones (Bachelor), and that the projection of the "Main" zone remained untested on the Hewfran claims.

Measured Resources are already accessible from the actual underground infrastructure (at Bachelor and Hewfran). Indicated Resources are also located below the footprint of the existing underground development.

The property has a significant potential for additional gold resources located in the immediate environment of the existing surface and underground mine infrastructures. Additional underground exploration under the Bachelor Lake and East Zone areas may increase the Mineral Resources especially in the plunge of ore-shoot at depth and at the site of structural junctions (local widening of the zones). Further exploration work is required on the Hewfran "A West" and "B West" zones. These two "zones" are defined by fewer and wider spaced drill holes. Additional drilling will likely be required to verify grade continuity for the Hewfran "zones". However, geologically the zones demonstrate similar characteristics as their respective counterparts on the Bachelor Lake side.

Furthermore, the project has additional potential for both lode gold mineralization (Bachelor-type and lode gold mineralization) and polymetallic (Zn-Cu-Au-Ag) massive sulphide mineralization (felsic volcanoclastic rocks, zinc showings no.1 and no.2; Coniagas marker horizon).

Metanor intends to proceed with an advanced underground exploration program designed to increase resources. A 12 month U/G exploration program would include changing hoist, deepening shaft, development drifting for U/G drilling and bulk sampling. A feasibility study will then be made, followed by mill rehabilitation and production start-up in the 2<sup>nd</sup> half of 2007. The possibility also exist to custom mill ore from numerous surrounding gold deposits since the Bachelor Gold Mill complex is the only one within a 100 km radius from Desmaraisville.