SOQUEM

DUFAULT
PROJECT (1311-2)

Summary

The Dufault Property, located 5 km north of the town of Chibougamau, has excellent potential for Au-Cu porphyry mineralization. The MOP-II deposit on the adjacent Roger Property owned by SOQUEM and Québec Copper & Gold Inc. is hosted along the same horizon in similar units. The mineral resources defined for the deposit include 10.9 Mt at 0.95 g/t AuEq in the indicated category and 6.57 Mt at 0.96 g/t AuEq in the inferred category (NI 43-101 Technical Report, 2018).

Gold-bearing intervals in holes 1311-02-03 (0.12 g/t Au over 124 m) and 1311-09-08 (0.24 g/t Au over 193.4 m) suggest the presence of a large mineralized zone whose boundaries have yet to be defined.

Large auriferous zone

Located 5 km north of the town of Chibougamau

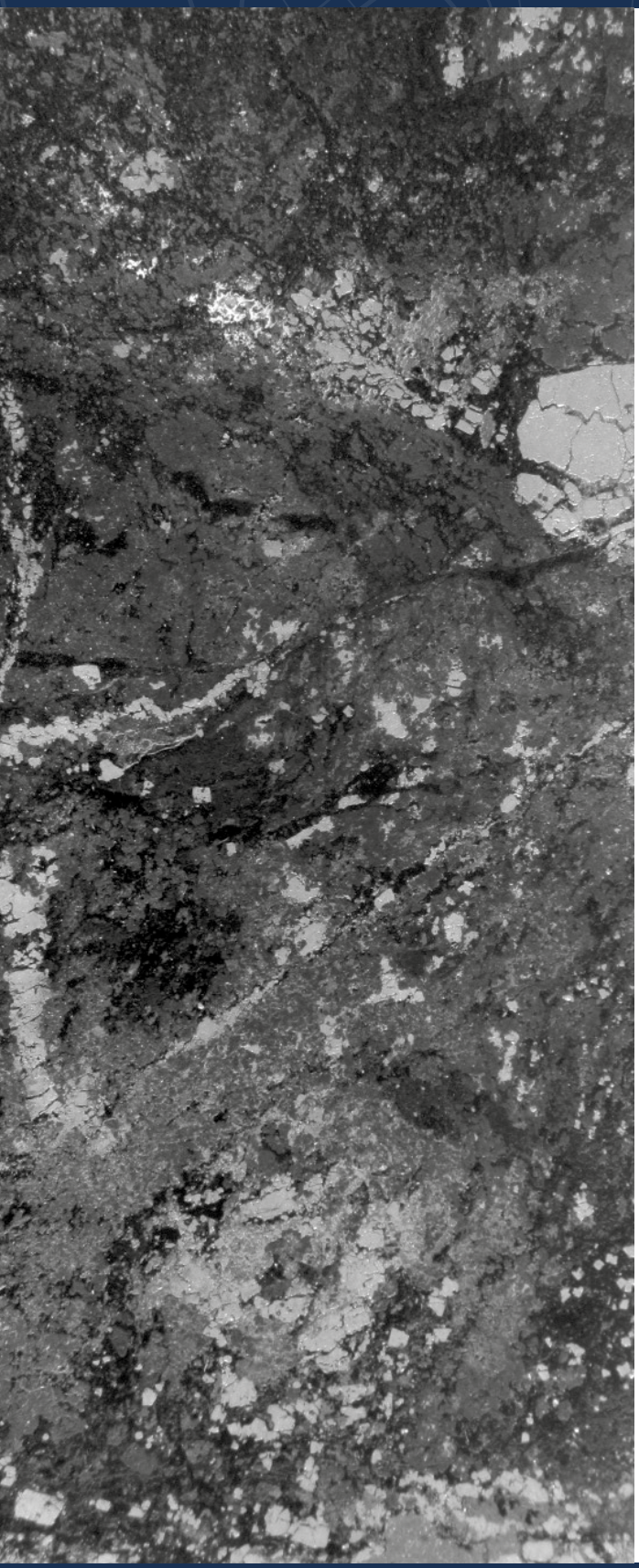
1311-09-08: 0.24 g/t Au over 193.4m

Exploration drilling stage

ABOUT US

SOQUEM, a subsidiary of Investissement Québec, is dedicated to promoting the exploration, discovery and development of mining properties in Quebec.

SOQUEM also contributes to maintaining strong local economies. A proud partner and ambassador for the development of Quebec's mineral wealth, SOQUEM relies on innovation, research and strategic minerals to be well-positioned for the future.



Summary (continuation)

Considering the lack of outcrops and the fact that only eight (8) holes have been drilled along a prospective horizon of more than 3.5 km, these results represent a high success rate and suggest excellent discovery potential. SOQUEM's recent modelling work indicates that historical drilling, which targeted the gold-bearing porphyritic tonalite horizon, was stopped too early. To test this hypothesis, three historical drill holes should be extended and exploration continued along the favourable horizon.

The project is at the exploration drilling stage.

Location and Infrastructure

Located 5 km north of Chibougamau (Figure 1), the property is accessible by a gravel road leading to an landfill site and the former Gwillim mine. A sandpit is currently operating in the southwestern part of the property, and there is a hard-packed dirt track in the northwestern part for off-road vehicles.

No outcrops are present on the property. The Quaternary cover is 10 to 60 metres thick, and lakes and rivers account for less than 2% of the area.

The available infrastructure consists of an electrical network (the Obalski substation, 9 km south-southwest of the property, and the power line to the former Troilus mine that crosses the property from NE to SW), a rail line joining the national rail network, and a regional airport between Chapais and Chibougamau.

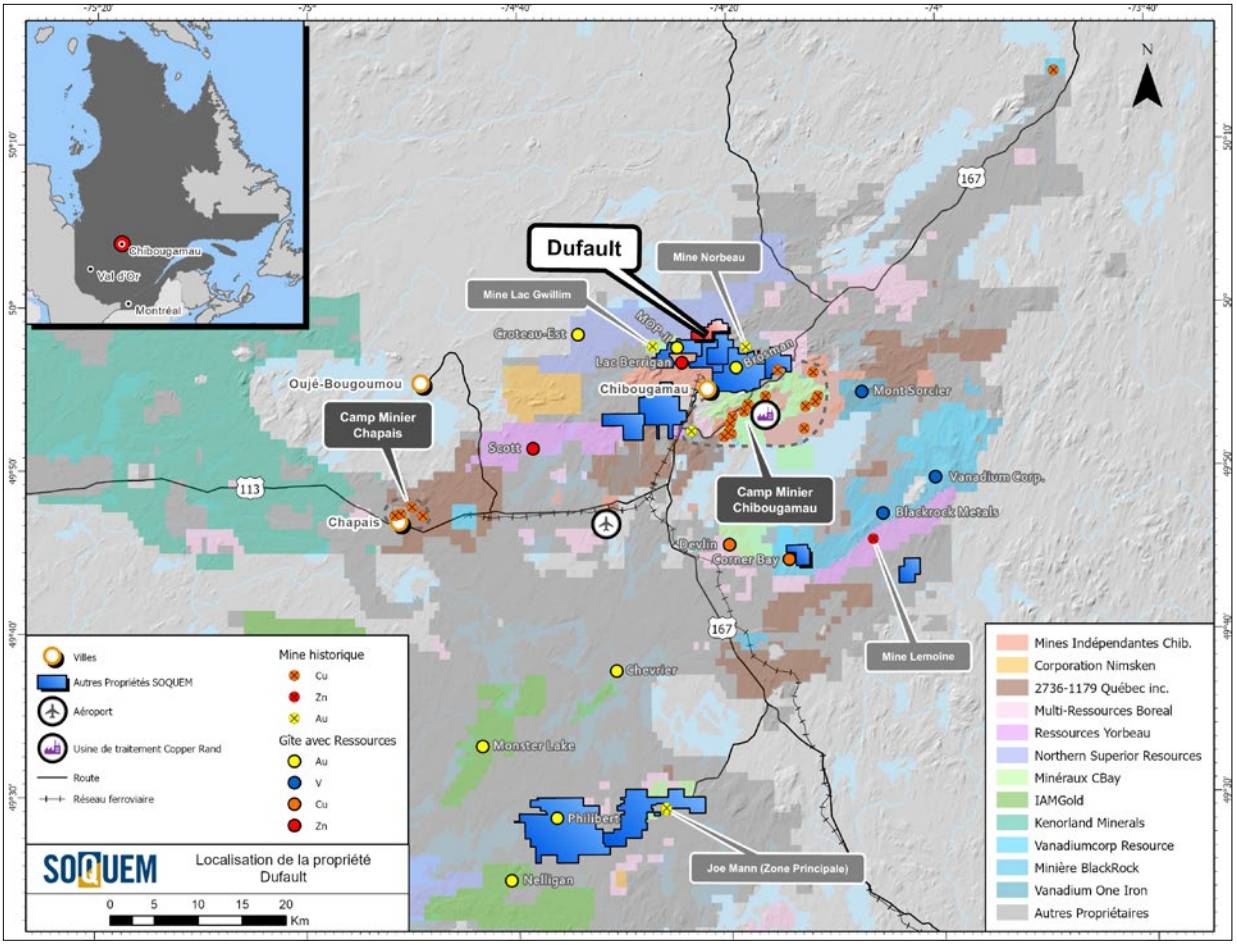


Figure 1

Property location map

The Chibougamau mining camp, with a mining history dating back to the early 1950s, has a skilled workforce for both underground and surface mining. The camp includes the former Copper Rand mine, whose infrastructure is still in place, including the mill and tailings pond.

The nearest municipalities are the city of Chibougamau and the town of Chapais as well as the two Cree communities, Mistissini and Oujé-Bougoumou.

Regional Geology

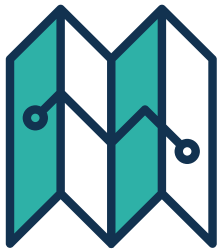
The property is underlain by rocks belonging to the Roy Group. It is situated in the northeastern part of the Abitibi Greenstone Belt in the Superior Province (Figure 2).

The Roy Group is characterized by two Archean volcanic cycles, each of which consists of tholeiitic mafic volcanic piles overlain by tholeiitic to calc-alkaline felsic volcanics and volcaniclastics.

The Lac Doré Intrusive Suite was emplaced in the upper part of the first volcanic cycle of the Roy Group. It is a polyphase anorthositic mafic complex analogous to the Bushveld Complex in South Africa. Extensive vanadiferous magnetitite horizons are currently under study for their mining potential.

Several felsic plutons intrude the stratigraphy of the Roy Group. One of these, the Chibougamau Pluton, was emplaced in the core of the dioritic to tonalitic Lac Doré Intrusive Suite. The Chibougamau Pluton seems to have played a major role in the emplacement of several exploited deposits in the mining camp. These deposits mainly formed along the periphery of the Chibougamau Pluton within the deformation zones of the Lac Doré Intrusive Suite.

The stratigraphic assemblage culminates with the sedimentary rocks of the Bordeleau Formation and the Opémisca Group, unconformably overlain by the Proterozoic sedimentary rocks of the Chibougamau Formation (Figure 3).



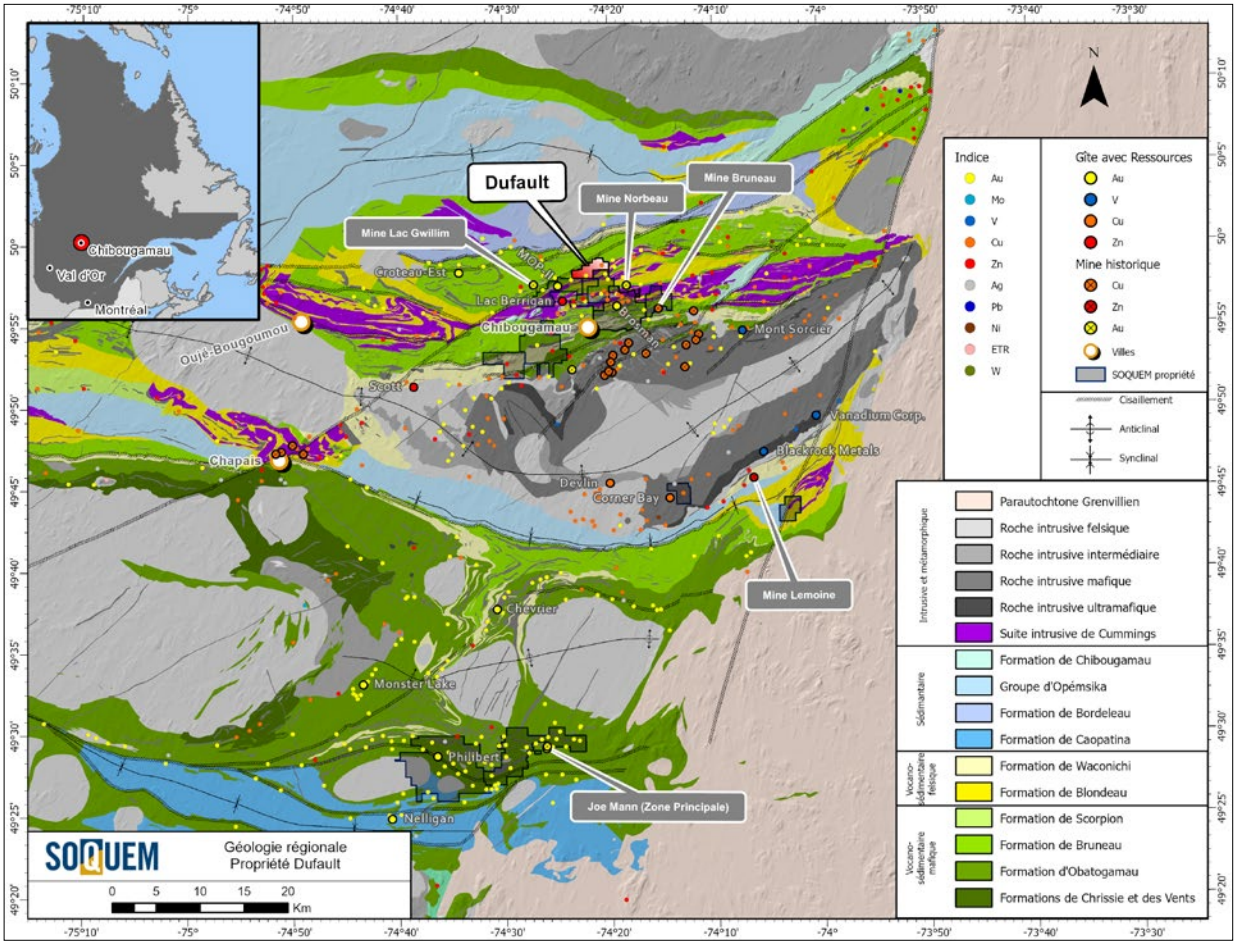


Figure 2
Regional geology

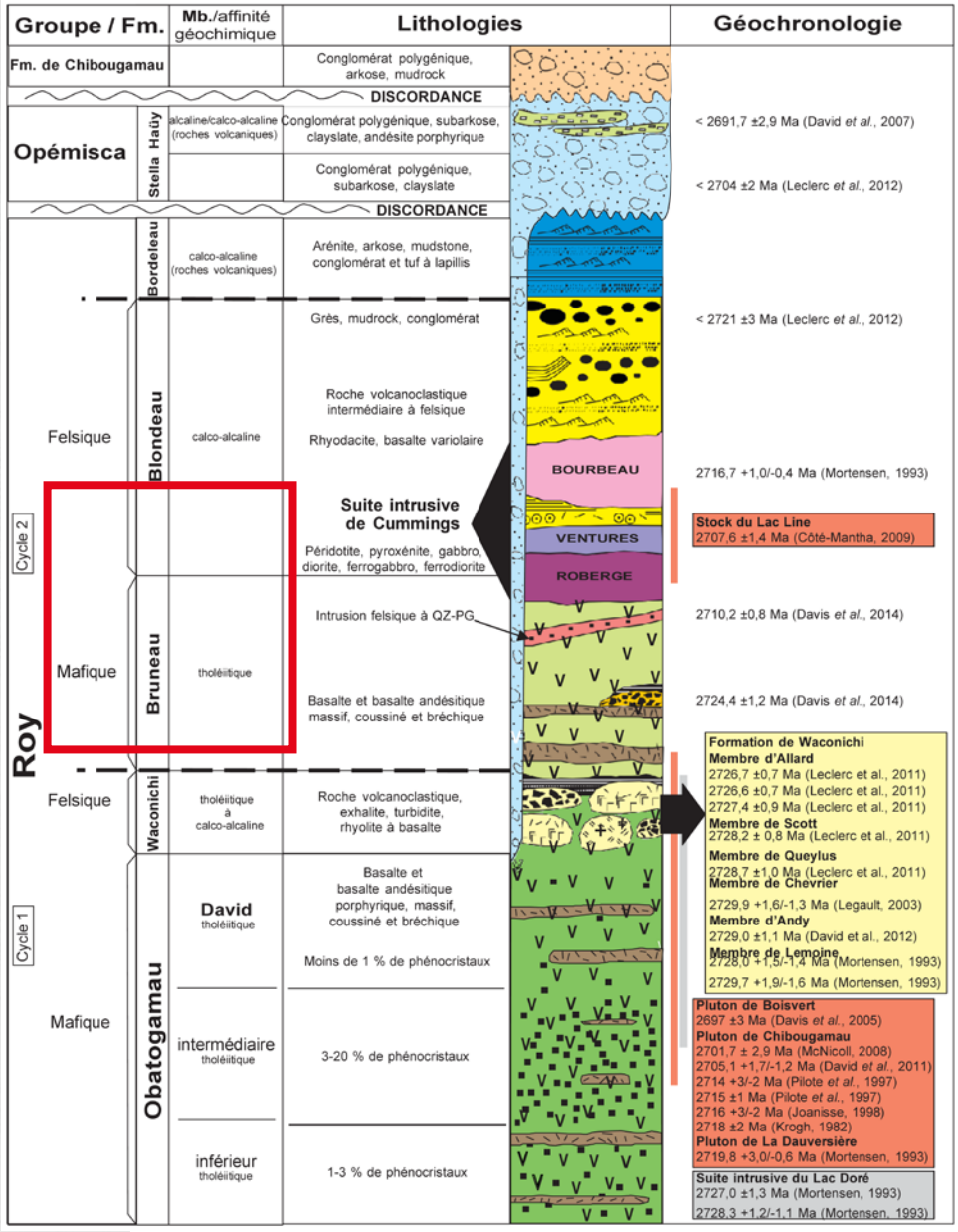


Figure 3
Stratigraphic column of the Chibougamau region; the red frame indicates the rocks on the Dufault Property (from Leclerc et al. 2017)

The structural evolution of the Chibougamau region is characterized by three periods of Archean deformation and a period of Grenvillian deformation (Daigneault and Allard, 1990). Regional schistosity is a flow schistosity generally well developed throughout the region (Chown et al., 1992). The rocks are mostly metamorphosed to greenschist facies but can reach lower amphibolite facies near some of the intrusive masses.

Property Geology

The Dufault Property is located on the northern flank of the Chibougamau Syncline and southeast-facing polarity (Figure 4). In the northern part, the lithologies are composed of mafic volcanic rocks belonging to the Bruneau Formation. The available data suggest the presence of small felsic intrusions in the central part. In the southern part, the lithologies consist of felsic volcaniclastic rocks belonging to the Blondeau Formation and intrusions of mafic to ultramafic composition belonging to the Cummings Complex.

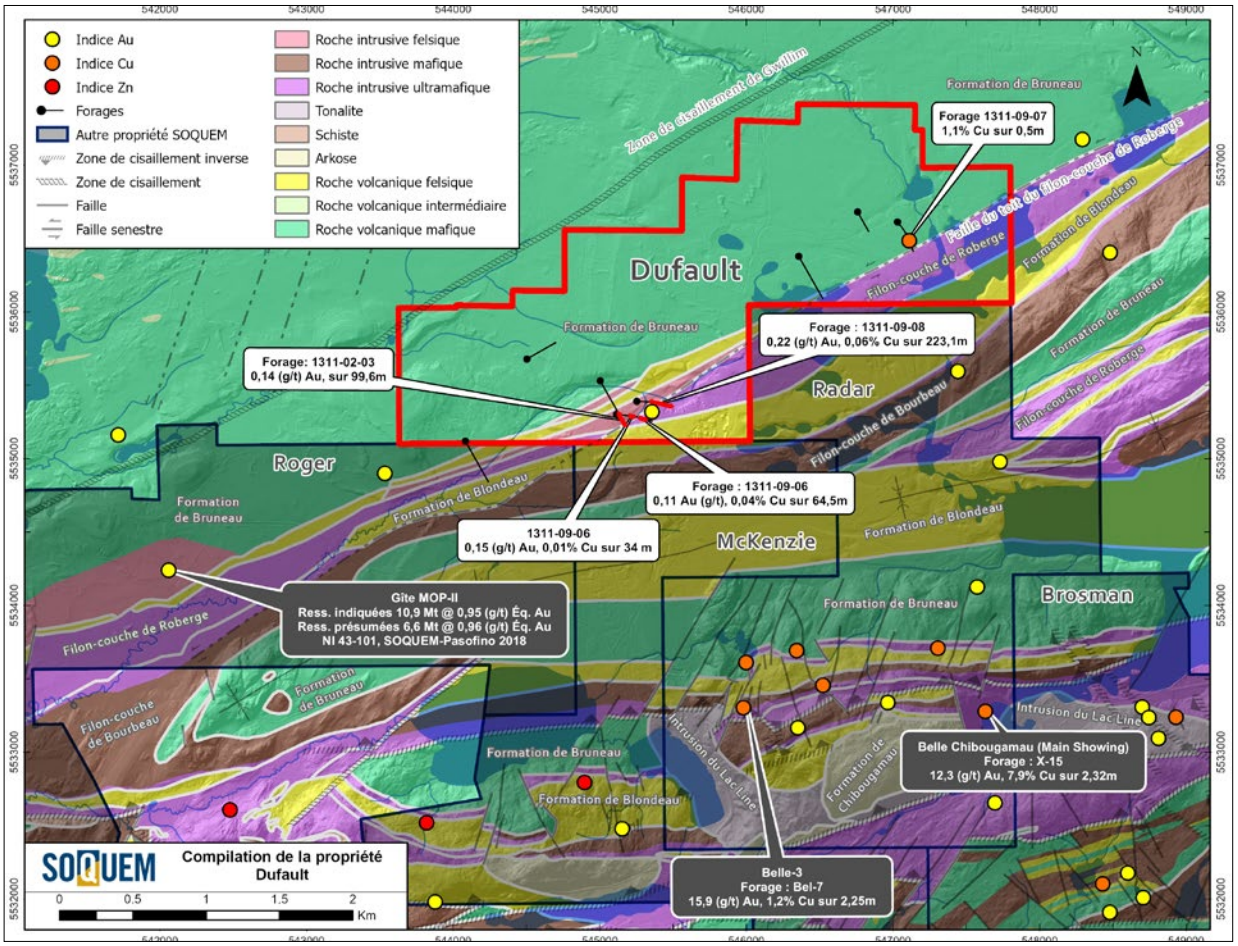
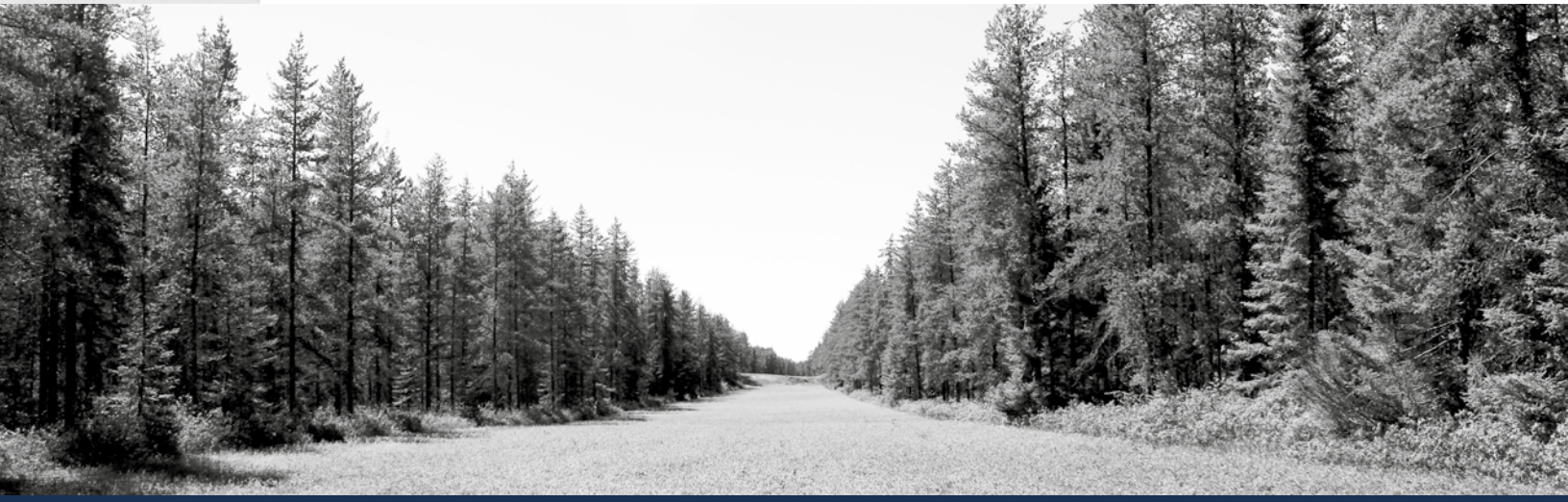


Figure 4
Property geology

The Roberge Sill, part of the Cummings Intrusive Suite, is composed of ultramafic rocks ranging from dunite to pyroxenite and wehrlite. The Ventures Sill consists of a basal unit of pyroxenite followed by foliated gabbro and gabbro with poikilitic texture. The more evolved Bourbeau Sill is composed of a basal unit of pyroxenite overlain by leucogabbro and a large unit of ferrodiorite and quartz ferrogabbro (Chown et al., 1992). So far, only the Roberge Sill has been recognized on the property.

Two major NE-SW faults are present: the Roberge Sill Fault, which crosses the property roughly following the stratigraphic contact of the Roberge Sill (Cummings Complex), and the Gwillim Lake Fault, a major structure and possible metallotect for several deposits in the region, which passes just north of the property and parallel to the Roberge Sill.



1 Compilation and targeting

2 Regional data acquisition

- Secondary environment
- Airborne/helicopter geophysics

3 Basic Exploration

- Cartography/prospection
- Stripping
- Geophysics
- Drilling

4 Advanced Exploration

- Definition drilling
- Mettalurgical test
- Resources estimate

5 Development

- Conversion drilling
- Preliminary economic assessment
- Bulk sampling
- Prefeasibility study
- Feasibility study

6 Construction and setting

7 Operation

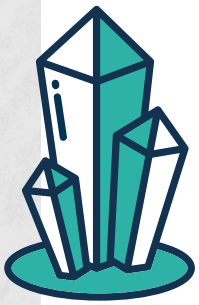
8 Restoration

Mineralization, showings and target deposit types

The main target deposit type is Au-Cu porphyry. Generally, the mineralization is associated with disseminated sulphides, concentrated in broad envelopes. On the property, gold mineralization is found in a quartz-feldspar porphyry (QFP) unit (Figure 5).

Extensions of the epigenic fracture zones that host the deposits of the Chibougamau mining camp are present on the property. These fracture zones, oriented NW-SE and N-S, were identified from magnetic survey data and the positions of induced polarization (IP) conductors. The intersection of these elements with felsic intrusions near the Cummings Complex offers excellent potential for discovering porphyry-like deposits.

SOQUEM's drilling results, such as those from holes 1311-02-03 and 1311-09-08 which intersect an altered and mineralized QFP (Table 1), confirm the property's potential.



Hole	Grade
1311-02-03	0.14 g/t Au over 99.6 m
1311-09-08	0.22 g/t Au et 0.06 % Cu over 223.1 m *Including 0.6 g/t Au and 0.1 % Cu over 17.5 m*

Table 1

Mineralized drill intervals

The presence of copper mineralization should also be noted. The Lac Dufault-Nord showing (hole 1311-09-07: 6.3 g/t Ag and 1.07% Cu over 0.5 m, intersected at 319.2 m) is located in a mafic tuff horizon near the end of the hole. The interval with anomalous copper and silver contains 1-5% chalcopyrite as disseminated clusters and locally in microfractures (Schmitt, 2011).

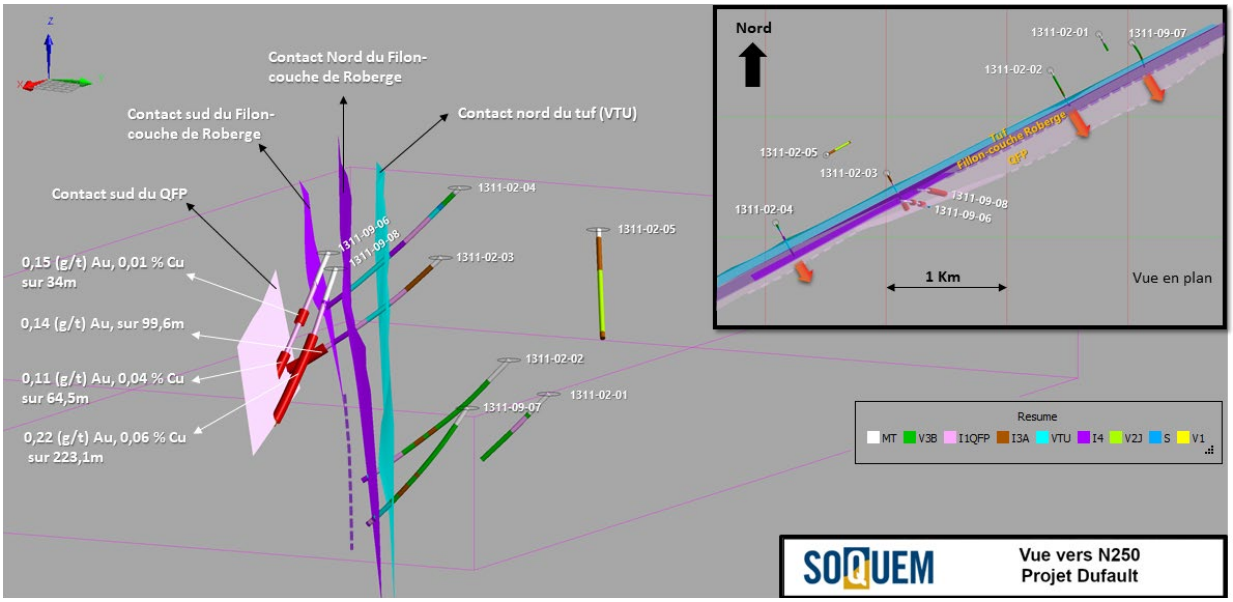


Figure 5

3D view of the Dufault Project

The adjacent Radar Property contains several polymetallic showings associated with the Cummings and Roberge sills (Table 2). In addition, the presence of a syncline fold south of the Dufault Property means that the geology of the Dufault Property could be the mirror image of this area and thus likely to contain the same type of mineralization.

Showing	Cu (%)	Zn (%)	Ni (%)	Pb (%)	Cr (%)	Co (ppm)	Au (g/t)	Ag (g/t)
SP–PO–MG veins, south of Mount Bourbeau, Roberge Sill	0.13	9.06	0.21	0.05	0.17	280	3.3	16
Taché Prospect, at the NE end of the North Zone (Bourbeau)	0.37	28.4	0.01	0.20	0.002		2.3	27

Table 2

Showings in the Roberge Sill, Mount Bourbeau area (from Pilote, 1986)

"Other than the Bourbeau Sill, most occurrences of synvolcanic veins carrying gold and silver are concentrated in the lower member of the Roberge Sill. Their presence may be explained by the fact that it is one of the first host rocks likely to trap gold and silver mineralization in the upper part of the Roy Group. [...]

As for volcanic mineralization, the best showings are found at the base of the Roberge Sill: the Main Showing and the Taché Prospect. Significant gold and silver values have been reported." (translated from Pilote, 1986)

Finally, the northern portion of the property has received little attention to date, yet it has the potential for vein-style mineralization in volcanic rocks. The former Gwillim mine, also hosted in the Bruneau Formation, has gold-bearing quartz veins in basaltic/andesitic lavas and a felsic porphyry dyke. The Lac Gwillim Shear Zone, which is thought to have played a major role in the emplacement of mineralization in the Chapais mining camp, is less than 2 km from the property.

The northern portion presents excellent exploration opportunities. However, geological knowledge needs to be improved; more work is required to better assess its economic potential.

Historical resources and economic geology of the area

Roger Project

The Roger Project is host to the MOP-II deposit for which a resource estimate was published in 2018 (Table 3). A QFP is the main unit containing gold mineralization. This intrusion was subjected to pervasive hydrothermal alteration that caused silicification, sericitization, carbonation and intense chloritization.

Roger	Tonnage (Mt)	Teneur en AuEq (g/t)	Contenu en AuEq (oz)
Indicated Resources	10.9	0.95	333,000
Inferred Resources	6.57	0.96	202,000

Tableau 3
Resource estimate for the Roger Project - July 4, 2018 (NI 43-101 compliant)

Mineralization occurs mainly in the form of disseminated pyrite in the felsic porphyry intrusion but also as veinlets accompanied by sericite and sometimes chalcopyrite.

A secondary mineralized zone was also identified in the pyroxenite south of the intrusion. The mineralization occurs as polymetallic veins of massive to semi-massive pyrite in strongly deformed zones altered to serpentine. The veins are hosted in the pyroxenite and peridotite of the Roberge Sill near the contact with the MOP-II deposit.

The property's position along the same stratigraphic level as the MOP-II deposit and its comparable geological context suggest a potential for similar mineralization.

Targets and summary of proposed work

The most interesting results were obtained in drill hole 1311-09-08, which had higher background gold grades (> 0.1 g/t Au) and more intervals grading above 1 g/t. The QFP intersection was also longer. This felsic intrusion carries gold on the south side of the Roberge Sill only. It is recommended that three drill holes be extended (1311-02-02, 1311-02-04 and 1311-09-07), and new holes be drilled to assess this gold-bearing area further.

Resampling the various units encountered during the last drilling campaigns using a multi-element analytical package will lead to better characterization and potential evidence of enrichment, especially in the Roberge ultramafic units, which have undergone little testing to date.

Lithogeochemical analyses on the porphyry intrusion could determine if it shares a genetic link to the intrusive host of the MOP-II deposit, or at least if it bears similarities. The drill core is available at the SOQUEM core shack in Chibougamau.

Finally, since structures are the predominant control on mineralization in the mining camp and the current understanding of the project is limited given the lack of outcrops and the low number of drill holes, it is recommended that a drone-borne high-resolution magnetic survey be flown over the property to provide an additional tool to guide the next phases of work.

Mining title status

Number of minin titles: **14**

Total credits available: **$349 374**

Mining titles are free of any charge, restriction, royalty, mortgage or claim.

A map of the mining titles is presented in Appendix 2.

A detailed legal history is available on request.

Other documents and information available

- SOQUEM Geotic Database;
- All core drilled by SOQUEM is stored at the Chibougamau core shack;
- 41 km IP survey.

The figures for this fact sheet are presented in Appendix 3.

EXPLORE NEW POSSIBILITIES, DISCOVER THE WORLD OF TOMORROW

CONTACT AND INFORMATION

Tony Brisson, CEO

Head office

1740, chemin Sullivan
Suite 2000
Val-d'Or (Québec) J9P 7H1

soquem.qc.ca soquem.abitibi@soquem.qc.ca 819 874-3773

Follow us on Linkedin

Subscribe to our newsletter !

Appendix 1

Summary of historical work

Année	Compagnie	Type de travaux
2009	SOQUEM	Three drill holes (1,161 metres) and 434 samples (614,55 metres)
2002	SOQUEM	Five holes (1,823 metres) and 397 samples (591.5 metres)
2001	SOQUEM	Line cutting and 41-km IP and MAG surveys
1984-1994	Exploration Noranda Ltée and Flanagan McAdam Ressources Inc.	IP survey and geological report. Geophysical surveys (MAG, VLF) and drilling (not documented in assessment reports). Lithogeochemistry.
1971	Cerro Mining Co. of Canada Ltd	Geophysics (MAG and EM)
1950-1957	Various	Geophysics (MAG and EM) and geological reports

Details of the GM reports are available upon request.

Appendix 2

Carte des titres miniers