

Finex Project (Ag, Pb, Zn)

Summary

The Fin Claims lie in the Pelly Mountains, in the southern Yukon, close to the Robert Campbell Highway and near the northwest end of Frances Lake. Access into the property is by helicopter since there are no lakes suitable for float-equipped aircraft near the claims. Helicopters can be chartered from either Ross River or Watson Lake. The property consists of 2,255.6 hectares owned 100% by Eagle Plains Resources Ltd.

Pb - Zn Showing at Finex



Initial exploration work in the Fin area was done by Cominco Ltd. in the 1970's with drilling in the 1980's and 1990's. A total of 14 holes were drilled in the property over 16 years. After the 1996 drill program the property was allowed to lapse. Eagle Plains Resources Ltd. re-staked the ground in 2007.

The property is underlain by shales of the Devonian-Mississippian Earn Group and Ordovician-Silurian Road River Group. The Iconnu Thrust lies 10 km to the west of the property and the pericratonic Slide Mountain Assemblage and Yukon-Tanana Terran lie on the western side of the thrust. This thrust fault divides a major geologic domain boundary between the ancestral North American basement and allochthonous terranes emplaced from the southwest. The Yukon-Tanana Terrain hosts the Mississippian to Permian Kudzu Ze Kayah and Wolverine Zn-Pb-Cu-Ag

volcanogenic massive sulfide deposits.

The 2007 field work consisted of chip sampling and sampling of historic diamond drill core. Historic drill logs were digitized to enable further geological analysis and the units formerly classified as arkosic sandstones and grits are now re-interpreted as felsic volcanic tuffs and tuffaceous sediments. This re-analysis suggests that an additional genetic exploration model be considered for the Fin property where there may be a volcanogenic massive sulphide deposit present. Geochemical analyses of the mineralized carbonaceous mudstones containing elevated Zn-Pb contents and sulfide showings confirm that a productive sub-basin underlies the area. Chert-pebble conglomerates indicate an active rifting environment associated with felsic volcanic tuffs and an anoxic, pyritic, carbonaceous, Zn-Pb mineralized sub-basin is ideal for the development of an economic zinc-lead deposit. The presence of elevated lead, manganese and phosphorous contents in some of the basinal rock samples is an important feature for future

geochemical programs. The Howard's Pass SEDEX Zn-Pb deposit on the eastern side of the Selwyn Basin shows marked enrichments of P and Mn within the sub-basin surrounding the economic Zn-Pb bodies. This same feature appears to present in the Fin sub-basin hence these elements should be used as pathfinders to outline blind or poorly exposed sub-basins. The lead contents of the mineralized settings is also a useful feature for as a more proximal indicator of mineralization.

Future work on the Fin property should include more geological mapping and soil geochemical sampling to provide future geophysics and drilling targets. Litho-geochemical analysis of the historic drill core with a Niton XRF field analyser will allow for fast, cost effective identification of anomalous zones within the sub-basin stratigraphy. The same unit should also be used to analyze soil samples in the field to give a quick turn-around time for target identification and delineation .

History and Previous Work

The original Fin claims were staked in 1978 by Cominco Ltd to cover anomalous silt geochemistry discovered during a regional silt sampling program. Geological mapping, soil/silt geochemistry and trenching in 1978 and 1979 identified several showings of high grade stratiform Pb-Zn mineralization hosted within black carbonaceous and pyritic mudstone and siltstone outcropping along the banks of Fin Creek.

During 1980, additional soil geochemical sampling and six NQ diamond drill holes tested the Fin Zn-Pb mineralization. The area east of the Fin showings was sampled and mapped in 1981. In 1982 a UTEM geophysical survey and a soil geochemical survey was completed over the main showing area leading to a seven hole NQ diamond drilling program carried out in 1984.

Recognizing the favorable basinal environment containing geochemically productive sub-basins in the Fin and surrounding area, Cominco Ltd commissioned Aerodat to fly a 1000 line km airborne EM/Mag survey in 1985 and completed a limited program of follow-up geological mapping; VLF surveying plus soil and rock geochemical sampling was undertaken.

Property work resumed in 1990 when 112 claims were added to cover favorable areas outlined in the airborne EM survey coincident with geochemical anomalies. During the 1990-91 period, Cominco Ltd cut a geophysical grid of 100 line km and surveyed it using UTEM geophysics and soil geochemical sampling. Geological mapping as well as HLEM and gravity were done on selected lines.

In 1992 seven diamond drill holes tested targets from the 1991 work and 186 new mineral claims were added. Additional geophysical surveying including UTEM, magnetometer and gravity was completed in 1993, extending coverage westward from the 1991 grid. A follow-up gravity program was undertaken in 1995, producing a 1.5 mgal gravity anomaly. This anomaly was tested in 1996 by a one hole NQ diamond drill program, totaling 298.8 m.

Cominco did no more work on the Fin property after 1996 and eventually let the claims lapse. Core from the 1980-1996 diamond drilling programs is stored in racks and near the edge of the main valley bench above the discovery showing area along Fin Creek.

Regional Geology

In the region of the Fin claims, the Selwyn basin narrows to approximately 40 km wide and forms a medial basin linking the Kechika Trough in the south to the main part of the Selwyn Basin in the north.

In the vicinity of the Fin Claims the regional geology of the Selwyn basin is dominated by Cambrian to Devono-Mississippian clastic sedimentary rocks. Older formations consisting of sandy dolomite and/or phyllite lie to the east of the claim group. Younger strata is absent either due to non-deposition or removal by erosion. To the east and north the Paleozoic basinal rocks are intruded by Cretaceous biotite-quartz monzonite, granodiorite and diorite. Several km to the west of the claim group the Inconnu thrust separates the Selwyn Basin rocks from the pericratonic Slide Mountain and Yukon-Tanana Terranes.

Regional mapping on the Frances Lake sheet (NTS 105H) by government geologists dates from 1953 to 1965 and was published by the Geological Survey of Canada in 1966. The adjoining map sheet to the west, the Finlayson Lake map area (NTS 105G), was published in 1977. The regional tectonic setting of the Slide Mountain and Yukon-Tanana Terranes, hosting the Wolverine and Kudz Ze Kayah Zn-Pb-Cu-Ag volcanogenic massive sulfide deposits, has undergone much study by numerous company, government and university geologists over the last 20 years.

The Fin claims are underlain by two main sedimentary sequences dominated by grey to black clastic mudstone, siltstone and chert. Polymictic chert pebble conglomerate to grit, occasional felsic volcanic tuff and volcanoclastic rock units are interbedded with the siltstone-mudstone sequences. Most of the eastern and main portion of the Fin claims is underlain by Devono-Mississppian Earn Group clastic sediments and the western third of the claims is underlain by older clastic sediments belonging to the Ordovician-Silurian Road River Group. Silurian to Devonian basinal to transitional carbonates beds, mainly dolomite and sandy dolomite, form a minor component in the regional sedimentary succession.

Property Geology

Outcrop exposure on the Fin claims is very poor and is found mainly in creek banks on some hilltops with little glacial till covering them. The mudstone and siltstones have a well developed penetrative cleavage, commonly cutting across bedding, and weather as small, thin platelets.

Mudstone units are dark grey to black, sometimes very carbonaceous, usually pyritic, and almost always recessively weathering. A distinctive marker bed and macrofossils are

absent in the basinal strata underlying the claims. This generates significant uncertainty when positioning individual outcrops in their proper stratigraphic context.

The stratigraphy underlying the area of the original Fin claims and based mainly on the 1980 to 1984 diamond drilling was reported by Macrobbie (1992) and is considered to be the most accurate at the time of writing. The primary structural geology features on the property are faults and folds. Abrupt geological changes in bedded rock units, between creek cuts and drill holes, or between two drill holes, show the presence of normal faults having a 10-30 metre displacement. The siltstone-mudstone strata are commonly contorted into small amplitude open folds where exposed in the banks of Fin Creek. Metamorphic grade is low, usually lower to sub-greenschist. Regional metamorphism has produced phyllites characterized by metamorphic minerals such as sericite. This is likely a thermal product related to the intrusion of the granitic to syenitic Cretaceous plutons in the region.

Geology and Mineralization

The field work in 2007 confirmed that laminated SEDEX style Zn-Pb-Ag-Fe mineralization occurs as fine- to very-fine grained, sphalerite-galena-pyrite and sphalerite-pyrite layers and laminations within black, carbonaceous mudstone to silty mudstones deposited within a third order sub-basin. The Zn-Pb mineralization is usually coincident with siliceous portions of the carbonaceous mudstones in drill core. Small white spots of radiolarian tests are commonly seen in the black silicified mudstones. The high silica content of these mineralized intervals likely has a hydrothermal fluid component rather than forming in a sediment starved chert basin.

Historic chip samples of mineralization outcropping in Fin Creek returned grades up to 30.3% Zn, 12.5% Pb and 3.0 oz/tonne Ag over 0.3 m. The rock chip samples taken in 2007 in the black carbonaceous mudstone and siltstone units exposed in the Fin creek valley below the core storage area returned distinctly anomalous values in zinc and lead, grading up to 0.5 %Zn, over 0.5 m.

Work done by Sharp (1984) on the property showed that quartz-eye rhyolite tuffs and tuffites are present in significant amounts on the property. These volcanic horizons are interbedded within thick mudstone sequences that often have gradational contacts into grits, having a high felsic volcanic tuff component, intermixed with fragmental black mudstone/siltstone fragments. These volcanic units are obvious in the core and show as medium to coarse grained white, crystal tuffs containing abundant feldspars and scattered rounded quartz-eyes.

The significance of the thick sequences of felsic volcanics, along with abundant chert pebble conglomerates is that it demonstrates that the basin was actively rifting while venting zinc-lead bearing hydrothermal fluids collecting in reducing sub-basins and precipitating sphalerite, galena and pyrite. This type of geological environment is also present at MacMillan pass in the the Tom, Jason and Nidd deposits, although the volcanic

rock are commonly alkalic rather than calc-alkaline. Geological mapping and interpretation needs to focus on understanding the structural geology of the basin and reconstructing the paleo-topography around the Fin showing. The objective of this work is to find a controlling structure that hydrothermal fluids followed and vented through onto the Devono-Mississippian sea floor.

Conductivity testing was carried out on some of the drill core. Carbonaceous mudstones were generally conductive and the electrical conductivity in the rocks is directly proportional to the carbon or graphite content. Geophysical surveying using electromagnetic techniques will identify the favorable carbonaceous mudstone host rocks but is unlikely to clearly resolve a sulfide body within them.

Conclusions

In 2007 a limited field program involved re-examination and re-sampling of the core from several historic diamond drill holes as well as sampling around the historic Fin Zn-Pb surface showing. This work confirmed the presence of zinc and lead mineralization in the core and in the outcrops near the Fin showing. Re-examination of the core clearly showed the presence of thin laminations of stratiform pyrite, sphalerite, and galena in carbonaceous mudstone. It was also noted that relatively unaltered/unmetamorphosed coarse grained quartzey feldspathic (rhyolitic) crystal tuff is interbedded with the carbonaceous siltstone and grey siltstones of the third and second order sedimentary basins on the Fin property.

The 2007 field work confirms the presence of third-order sedimentary basins on the property and concludes that the reason for historic difficulties in correlating sedimentary units between drill holes arises from the nature of the active geological environment surrounding the sub-basin. Chert pebble conglomerates and coarse grits indicate significant rift-related topographic relief in the paleo-basin and rhyolitic volcanic/volcaniclastic units suggest proximity to a Devono-Mississippian volcanic arc setting in the area. All these features indicate tectonic instability in the Devonian basin which appears to be time equivalent with zinc-lead deposits at MacMillan Pass.

The Fin Claims lie several km east of a major thrust fault separating the autochthonous rocks of the Selwyn Basin from the pericratonic terrain of the Slide Mountain Assemblage and Yukon-Tanana. The major stratigraphic units underlying the Fin property correlate with the Road River and Earn Groups within the main part of the Selwyn Basin and Misty Creek Embayment to the northeast.

The future exploration model must take into account the possibility of the syngenetic zinc-lead mineralization arising from two different genetic environments. The first model supports the production of sedimentary exhalative fluids depositing Zn-Pb mineralization in carbonaceous sub-basins; this model is the one traditionally used in past exploration programs. The second model suggests volcanogenic-exhalative zinc-lead mineralization associated with felsic volcanism in arc settings. Volcanic-exhalative mineralization will have more irregular shapes giving different geophysical responses compared with those associated with more sheet-like SEDEX mineralization.

Geochemical analysis of a suite of rocks from diamond drill core and surface samples shows that the carbonaceous sub-basins are anomalous in Zn and Pb but also show significantly elevated values in manganese and phosphorous. The Mn and P are elements showing distinct haloes around the Howard's Pass Zn-Pb deposit and may be useful as pathfinder elements for outlying mineralized sub-basins in covered areas on the Fin Claims.

The lead content of the carbonaceous mudstone on the Fin Claims is elevated, making it the best direct indicator of blind Zn-Pb mineralization in swampy, organic covered areas underlying the claims. These areas are known to produce spurious zinc enrichments, not associated with mineralization, hence lead anomalies will more reliably indicate the presence of a productive sub-basin and possibly define mineralized bodies within it. The Mn and P contents give a more widespread dispersion while the lead content in soils occur more proximal to Zn-Pb mineralization.

This project is available for option.

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