



## Occurrence Details

**Occurrence Number:** 105G 032  
**Occurrence Name:** Pac  
**Occurrence Type:** Hard-rock  
**Status:** Prospect  
**Date printed:** 12/16/2025 3:21:04 PM

## General Information

**Secondary Commodities:** beryllium, chromium, copper, gold, lead, silver, zinc  
**Aliases:** Pack  
**Deposit Type(s):** Volcanogenic Massive Sulphide (VMS) Kuroko Cu-Pb-Zn  
**Location(s):** 61°20'49" N - -130°36'26" W  
**NTS Mapsheet(s):** 105G07  
**Location Comments:** .5 Kilometres  
**Hand Samples Available:** Yes  
**Last Reviewed:**

### Capsule

#### Work History

Staked as Pack cl 1-88 (75914) in Jun/61 by Conwest Exploration Company Ltd, which drilled two holes (161 m) later in the year. Restaked as Repack cl 1-10 (YA25511) in Sep/77 by Cominco Ltd and as Outlaw cl 1-16 (YA45727) in Sep/79 by Chevron Canada Ltd, which carried out geological mapping and geochemical sampling in 1980. Restaked as Pak cl 1-20 (YB45974) in Jul/93 by Atna Resources Ltd. In Sep/93, Equity Engineering carried out an exploration program on behalf of Atna Resources Ltd consisting of prospecting, geological mapping, and geochemical soil and silt sampling. In Aug/94 Atna added Pak cl 21-36 (YB51531) to the block and carried out magnetic and VLF-EM geophysical surveying. In Jan/95 Atna optioned the claims to Westmin Resources Ltd which staked Pak cl 37-70 (YB58617) in Feb/95 and carried out geochemical soil and rock sampling and limited geological mapping later in the year. In Aug/94, Blake Macdonald staked Man cl 1-16 (YB51910) on the northern boundary of the Pak group. In 1995 Macdonald carried out a preliminary geological mapping and geochemical sampling program on the claims. Consolidated Shoshoni Gold Inc optioned the Man claims in 1996. Expatriate Resources Ltd staked a large block of claims around the property including the Goal (Minfile Occurrence #105G 123), Overtime (Minfile Occurrence #105G 122), NHL, Blade, and the Goon (Minfile Occurrence #105G 125) from Sep/94 to Oct/96. These holdings, in addition to the large block of Net claims (Minfile Occurrence #105G 114) staked further to the south and east of the Goal claims, were collectively explored by Expatriate Resources as the "Goal-Net" property. In 1997 Westmin carried out geological mapping and geochemical rock sampling of the Pak claims. Westmin was acquired by Boliden Ltd in Mar/98 which formed a new company, Boliden Westmin Ltd, to hold its interest in the Pak claims. In Mar/99 Expatriate purchased Boliden Westmin's interest in the Pak claims and at the end of 1999 ownership of the Pak claims was split 60% - 40% between Expatriate and Atna Resources. In 2002, Expatriate carried out geochemical soil sampling and geological mapping of the Pac claims. In Jul/2002 True North Gems Inc staked Rusty cl 1-20 (YB93772) overtop Consolidated Shoshoni Gold's lapsed Man claims. In Dec/2002 True North Gems optioned a 60% interest in the Rusty and 3 other claim blocks to Firestone Ventures Inc. Firestone carried out geological mapping, prospecting, soil, silt and heavy mineral sampling in 2003. In a news release dated 11 Aug/2005, Firestone reported that it had dropped its option on this and other Finlayson area properties which then reverted to True North Gems. In Jun/2004 Expatriate purchased Atna's share of the Wolverine joint venture, which included the Pac and other mineral claims in the Finlayson district. Expatriate subsequently changed its name to Yukon Zinc Corporation in Dec/2004. In Jul/2008 all of Yukon Zinc's assets were purchased by Jindicheng Molybdenum Group Ltd and Northwest Nonferrous International Investment Company Ltd, (both Chinese companies) and the company was taken private.

#### Capsule Geology

The claims are situated northeast of the Tintina Trench and southwest of Frances and Finlayson Lakes. Rocks in the area are comprised largely of a Devonian to Permian volcanic-plutonic, pericratonic arc assemblage that was strongly deformed and metamorphosed by late Triassic time. The Yukon Tanana Terrane (YTT) extends northwest into Alaska where it is host to several volcanogenic massive sulphide (VMS) deposits in the Delta district. The YTT is believed to be a displaced equivalent of the Kootenay and Barkerville Terranes which host several VMS deposits in southern and central British Columbia. In 1994 Cominco Exploration Ltd announced the discovery of the Kudzu Ze Kayah volcanogenic massive sulphide (VMS) deposit (Minfile Occurrence #105G 117) 12 km north of the Pak claims. Known VMS occurrences in the region occur within a metamorphic sequence of layered rocks. The Pak claims are underlain by a sequence of Devonian to Mississippian interlayered schistose to gneissic metasedimentary rocks and intermediate to felsic metavolcanic rocks (Murphy 1998, 1999, 2001). Mineralization occurs within the Kudzu Ze Kayah felsic metavolcanic, a Mississippian aged felsic metavolcanic unit assigned to Murphy's Grass Lakes Succession. Mineralization consists of slightly banded, massive pyrrhotite, locally massive sphalerite and minor chalcopyrite disseminations within felsic metavolcanic rock, and locally, calcareous quartzose psammite and quartzite. Minor amounts of mafic schist occur locally. The sulphides are concentrated at the crest of a recumbent isoclinal fold with an axial trend of 070°. The mineralization varies from 0.3 to 2.5 m thick over a length of more than 154 m. Two chip samples collected by Sevensma (1966) returned 1.7% zinc, 0.7% lead, 0.7% copper, 34.3 g/t silver and trace gold across 3.0 m and 4.0% zinc, 0.3% lead, 1.8% copper, 20.6 g/t silver and trace gold across 1.2 m. Four grab samples collected by Conwest averaged 4.3% copper and 54.9 g/t silver. The 1993 exploration program concentrated on confirming the presence of mineralization in the Pak zone (the original showing previously explored by Conwest and others) and assessing the property's potential. Rock sampling generally confirmed previously reported assays. A 180 cm wide chip sample collected from the Pak massive sulphide horizon assayed 3 480 ppm copper, 2 780 ppm lead, 6.60% zinc, 5.4 ppm silver and 30 ppb gold. Prospecting uncovered the East Cirque zone, 750 m east of the Pak showing. Mineralization is very similar in mineralogy, texture and stratigraphic relationships to the Pak zone and it is possible that the East Cirque zone is a strike extension of the Pak zone. A grab sample from the East Cirque zone assayed 100 ppm copper, 5 830 ppm lead, 1.3% zinc and 4.4 ppm silver. Soil sampling and silt sampling outlined several multi-element geochemical anomalies on the property. The 1994 exploration program followed up the results of the previous year. Mapping extended the known strike extent of the Pak and East Cirque showings and uncovered a western extension of the Pak showing. An 80 cm wide chip sample collected from the Pak massive sulphide horizon assayed 4.97% copper, 1.08% lead, 2.71% zinc, 62.0 ppm silver and 340 ppb gold. At the East Cirque showing a grab sample consisting of blebby chalcopyrite associated with quartz-ankerite alteration in an east-west fault zone assayed 1.63% copper, 194 ppm lead, 594 ppm zinc and 15.6 ppm silver. A float sample collected from the western extension of the Pak zone assayed 1.15% copper, 264 ppm lead, 2 200 ppm zinc and 6.8 ppm silver. The 1994 magnetometer and VLF-EM surveys outlined numerous prominent anomalies, most of which appear to outline known mineralization or suspected extensions of known mineralization. However several anomalies may represent new zones of mineralization. Expanded soil sampling also revealed numerous multi-element anomalies, several of which may represent new massive sulphide zones. Whole rock and trace element data from geochemical sampling in 1997 are consistent with formation in bimodal back-arc volcanic-sedimentary basin setting. Felsic rocks overlying and hosting the sulfide bearing horizon show NaO depletion for the rocks around the occurrence and to the east. MgO, K<sub>2</sub>O and Fe<sub>2</sub>O<sub>3</sub> are depleted in the vicinity of the occurrence and increase in both directions away from the sulfide mineralization in a pattern that suggests that the stratigraphy may be overturned and that the sulfides are detached or discordant with respect to their footwall alteration zones. It may also suggest that there is potential for locating more sulfide mineralization in an east-northeasterly direction. Soil sampling carried out on the Man claims identified several moderate to strongly anomalous lead-zinc anomalies (highest values, zinc = 518 ppm, lead = 75 ppm). Sampling by Expatriate Resources in 2002 identified a multi-element soil geochemical anomaly along strike to the southwest of the Pak East (also referred to as East Cirque) showing.

Weaker single point anomalies were also identified lower on the adjacent slopes to the west and possibly represent a down dip continuation of the stratigraphic horizon hosting the Pak East showing or a separate anomalous horizon lower in the stratigraphy. Mapping carried out at this time suggest that the Pak (main) showing may be at the same horizon as the Pak East, but that it is folded up or alternately may be up to 100 m higher in the stratigraphy.

True North Gems staked the Rusty claims for their emerald potential. The claims are underlain by a flat lying sequence of Devonian to Mississippian layered metamorphic rocks which have been intruded by late Devonian ultramafics. The oldest rocks are Upper Devonian and older quartzite and quartz muscovite schist assigned to unit Dq. It is overlain by Upper Devonian to Lower Mississippian Fire Lake metavolcanic rocks (unit DF). Unit DF is intruded by a Late Devonian serpentinized ultramafic (unit Dum). Unit DK, Kudze Kayah felsic metavolcanic tops the sequence.

True North Gems theorized that beryllium rich fluids from a granitic intrusion might migrate through ultramafic rocks which carry chromium into adjacent mafic rich metavolcanics which are also chromium reserves and form emeralds similar to the process which formed emeralds at the company's Regal Ridge property (Minfile Occurrence #105G 147). Ultramafic rocks (unit Dum) intrude mafic volcanic rocks (unit DF) on the Rusty claims and a two mica granite is located 0.5 to 2 km to the northwest off the claim block.

Firestone Ventures identified two areas of abundant black tourmaline and quartz-tourmaline veins and corresponding beryllium and chromium soil anomalies on the Rusty claims which they designated the West Bowl and East Bowl zones. Both zones occur within chlorite schist belonging to unit DF. The West Bowl zone soil anomaly measures 600 by 75 m and consists of scattered beryllium values ranging from 5.08 ppm and 7.38 ppm. Soil samples collected from the East Bowl zone returned intermittent anomalous values up to 6.33 ppm beryllium and 308 ppm chromium within a 500 by 50 m area. Extensive prospecting failed to locate any emerald mineralization.

## References

ATNA RESOURCES LTD, Jan/2000. Web site: [www.atna.com](http://www.atna.com)

ATNA RESOURCES LTD, Apr/94. Assessment Report #093203 by M.E. Baknes.

ATNA RESOURCES LTD, Mar/95. Assessment Report #093278 by M.E. Baknes.

CHEVRON CANADA LTD, Feb/81. Assessment Report #090732 by R.J. Cathro.

CONSOLIDATED SHOSHONI GOLD INC, 1997. Assessment Report \*#093646 by G.S. Davidson.

CONWEST EXPLORATION COMPANY LTD, Jun/62. Assessment Report #091159 by A.S. Ashton.

EXPATRIATE RESOURCES LTD, May/2003. Assessment Report #094381 by J. Moore and R. Duncan.

EXPATRIATE RESOURCES LTD, News Release, 04 Mar/99; 31 May/2004.

EXPATRIATE RESOURCES LTD, Jan/2000. Web Site: [www.expatriateresources.com](http://www.expatriateresources.com)

FIRESTONE VENTURES INC, Nov/2004. Assessment Report #094471 by W.A. Wengzynowski.

FIRESTONE VENTURES INC, New Release. 8 Jul/2003, 30 Jul/2003, 20 Oct/2003, 11 Aug/2005.

GEOLOGICAL SURVEY OF CANADA Paper 62-27, p. 40.

GEORGE CROSS NEWSLETTER, 10 Jan/95; 5 Apr/95.

HUNT, J.A., 2002. Volcanic-associated massive sulfide (VMS) mineralization in the Yukon-Tanana Terrane and coeval strata of the North American miogeoclinal, in the Yukon and adjacent areas. Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, Bulletin 12, 107 p.

MACDONALD, B., Apr/96. Assessment Report #093434 by G. MacDonald.

MORIN, J.A., 1981. Volcanogenic iron and base metal occurrences in Klondike Schist. In: Yukon Geology and Exploration 1979-1980. Exploration and Geological Services Division, Indian and Northern Affairs Canada, p.91-97.

MURPHY, D.C. AND TIMMERMAN, J.R.M., 1997. Preliminary geology of the northeast third of Grass Lakes map area (105G/7), Pelly Mountains, southeastern Yukon. In: Yukon Exploration and Geology 1996, Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, p. 62-73.

MURPHY, D.C., 1998. Stratigraphic framework for syngenetic mineral occurrences, Yukon Tanana Terrane south of Finlayson Lake: A Progress Report. In: Yukon Exploration and Geology 1997, Exploration and Geological Services Division, Indian and Northern Affairs Canada, p.51-58.

MURPHY, D.C. AND PIERCEY, S.J., 1999. Geological map of parts of Finlayson Lake (105G/7, 8 and parts of 1, 2, and 9) and Frances Lake (parts of 105H/5 and 12) map areas, southeastern Yukon (1:100 000-scale). Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, Open File 1999-4.

MURPHY, D.C. AND PIERCEY, S.J., 2000. Syn-mineralization faults and their re-activation, Finlayson Lake massive sulphide district, Yukon-Tanana Terrane, southeastern Yukon. In: Yukon Exploration and Geology 1999, D.S. Emond and L.H. Weston (eds.), Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, p. 55-66.

MURPHY, D.C. ET AL., 2001. Preliminary bedrock geological map of northern Finlayson Lake area (NTS 105 G), Yukon Territory (1:100 000 scale). Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, Open file 2001-33.

NORTHERN MINER, 16 Jan/95.

NORTHLAKE MINES LTD, Mar/66. Prospectus Report by P.H. Sevensma.

WESTMIN RESOURCES LTD, Dec/96. Assessment Report #093520 by M.E. Baknes.

WESTMIN RESOURCES LTD, Mar/98. Assessment Report #093780 by D.F. Gale, D.A. Terry and N.A. Duke.

YUKON EXPLORATION AND GEOLOGY 2003, p. 20, 26.

YUKON GEOLOGY AND EXPLORATION 1979-80, p. 91-97, 180; 1994, p. 8, 11.

YUKON ZINC CORPORATION, News Release, 17 Dec/2004, 2 Jul/2008.

Work History		
Date	Work Type	Comment
12/31/2003	Geology	On Rusty claims.
12/31/2003	Lab Work/Physical Studies	On Rusty claims.
12/31/2003	Geochemistry	Also silt sampling, on Rusty claims.
12/31/2003	Other	On Rusty claims.
12/31/2002	Geology	
12/31/2002	Geochemistry	
12/31/1997	Geochemistry	
12/31/1997	Geology	
12/31/1995	Geology	
12/31/1995	Other	
12/31/1994	Geology	
12/31/1994	Ground Geophysics	Also VLF-EM survey .
12/31/1993	Geology	
12/31/1993	Geochemistry	
12/31/1993	Geochemistry	
12/31/1993	Other	
12/31/1980	Geology	
12/31/1980	Geochemistry	
12/31/1961	Drilling	Two holes, 161 m.

Assessment Reports that overlap occurrence					
Report Number	Year	Title	Worktypes	Holes Drilled	Meters Drilled
<a href="#">094381</a>	2002	2002 Exploration Report for the Pak Claims in the Watson Lake Mining District Yukon Territory, Canada	Soil - Geochemistry, Bedrock Mapping - Geology		
<a href="#">094016</a>	1998	Assessment Report Describing Geological Mapping, Prospecting, and Soil Geochemistry on the Goal Net Property	Rock - Geochemistry, Soil - Geochemistry, Bedrock Mapping - Geology, Backhoe - Trenching		
<a href="#">093780</a>	1997	Pak Property 1997 Assessment Report Describing Geological and Geochemical Surveys on the Pak 1 to 70 Claims, Finlayson Lake Area, Yukon Territory	Rock - Geochemistry, Detailed Bedrock Mapping - Geology		
<a href="#">093788</a>	1997	Assessment Report Describing Geological Mapping, Prospecting, and Soil Geochemistry on the Goal Net Property	Rock - Geochemistry, Soil - Geochemistry, Soil - Geochemistry, Bedrock Mapping - Geology, Bedrock Mapping - Geology, Prospecting - Other, Backhoe - Trenching, Hand - Trenching		
<a href="#">093584</a>	1996	Dighem V Survey for Westmin Resources Limited Wolverine Lake Project Yukon	Electromagnetic - Airborne Geophysics, Magnetic - Airborne Geophysics		
<a href="#">093655</a>	1996	Report on a Combined Helicopter-Borne Electromagnetic and Magnetic Survey, Goal Net, Hat Trick, League, Offside, Power Play, Shutout and Slapshot Properties	Electromagnetic - Airborne Geophysics, Magnetic - Airborne Geophysics		
<a href="#">093520</a>	1995	1995 Summary Report on the Pak 1-70 Claims	Rock - Geochemistry, Soil - Geochemistry, Bedrock Mapping - Geology		
<a href="#">093278</a>	1994	1994 Summary Report on the Pak 1-36 Claims	Rock - Geochemistry, Soil - Geochemistry, Bedrock Mapping - Geology, EM - Ground Geophysics, Magnetics - Ground Geophysics, Prospecting - Other		
<a href="#">093203</a>	1993	1993 Summary Report on the Pak 1-20 Claims	Rock - Geochemistry, Silt - Geochemistry, Soil - Geochemistry, Detailed Bedrock Mapping - Geology, Prospecting - Other		
<a href="#">090732</a>	1980	Report on Geology Outlaw 1-16 Claims	Detailed Bedrock Mapping - Geology, Cursory Property Visit - Other		
<a href="#">091159</a>	1961	Report on Pack Group, Yukon Territory	Diamond - Drilling	2	161.20

Drill core at YGS core library					
Number	Property	Year Drilled	Core Size	Photos	Data
<a href="#">Hole-1</a>	Pack	1961	AX	0	2