



## Occurrence Details

**Occurrence Number:** 106D 078  
**Occurrence Name:** Pitch  
**Occurrence Type:** Hard-rock  
**Status:** Prospect  
**Date printed:** 4/29/2025 4:43:12 PM

## General Information

**Secondary Commodities:** barium, cobalt, copper, gold, lead, nickel, uranium  
**Aliases:** Arctos, Slats  
**Deposit Type(s):** Iron Oxide Breccias & Veins (Wernecke Breccias)  
**Location(s):** 64°56'56" N - -134°21'26" W  
**NTS Mapsheet(s):** 106D16  
**Location Comments:** .5 Kilometres  
**Hand Samples Available:** No  
**Last Reviewed:**

### Capsule

#### Work History

Staked as Pitch cl 41-56 (YA6571) in Sep/76 by Prism Syndicate (Prism Resources Ltd, Canex Placer, Granby Mining Corporation Ltd & Chieftain Development Corporation Ltd), which explored with mapping and radiometric surveys in 1977. Noranda Mines Ltd fringe staked to the east with Brad cl 1-6 (YA7044) following an airborne radiometric and magnetic survey. Arctos cl 1-16 (YA7144) were tied on to the south in Sep/76 by Mountaineer Mines Ltd and optioned to Pan Ocean Oil Ltd, which explored with mapping, geochemical and scintillometer surveys in 1977, 1978 and 1980 and trenching in 1978-1980. Mountaineer Mines changed its name to Canadian Minerals Corporation in 1979 and Pan Ocean's interests were transferred to Aberford Resources Ltd in 1981.

Restaked as Witz cl 1-40 (YA83795) in Sep/87 by 697895 Ontario Ltd, which performed geological mapping in 1988.

Arctos cl 1-6 (YB28574) were staked slightly south and east of the showings in Jul/92 by a joint venture consisting of Pamicon Developments Ltd, Equity Engineering Ltd and Westmin Resources Ltd, which explored with limited sampling and prospecting in 1992 and a geochemical survey in Jun/93. In Sept/93 Newmont Exploration Ltd conducted an airborne geophysical survey over the area using proprietary company equipment. The next month the joint venture restaked the occurrences within Slats cl 1-132 (YB22572).

In Jan/94, Equity and Pamicon transferred 100% interest in the Slats and Arctos claims to Westmin, which then formed the Fairchild Joint Venture with Newmont. In the summer of 1994, the Fairchild Joint Venture group contracted Pamicon and Equity to carry out prospecting, geological mapping, airborne radiometric and magnetic surveys and stream and contour soil sampling on the property. In Jul/95 the joint venture added Slats cl 133-140 (YB64394) to the northwest side of the Slats claim block and carried out a large diamond drill program in the region. Three diamond drill holes (374m) were collared east and west of occurrence A.

Restaked as Pitch 3-34 cl 1-20 (YC42475) in Nov/2005 by Fronteer Development Group Incorporated. In Jan/2006 Fronteer (80%) and Rimfire Minerals Corporation (20%) signed an agreement with Newmont Exploration Canada Ltd and NVI Mining Ltd (which bought Westmin's assets) to purchase all claims and exploration data relating to 700 mineral claims owned by the Fairchild Joint Venture in the Wernecke Mountains, Yukon. Fronteer Development was appointed operator of the project. In the summer of 2006 Fronteer Development carried out an airborne gravity survey over their entire claim holdings and carried out limited rock and soil sampling and geological mapping on the Pitch claims.

#### Capsule Geology

The occurrence is at the western margin of the Wernecke Supergroup inlier, a metamorphosed and altered sequence of Lower Proterozoic clastic and carbonate rocks (Fairchild Lake Group, Quartet Group and Gillespie Lake Group, from oldest to youngest) that are intruded by Early to Middle Proterozoic mafic sills and dykes, and cut by Middle Proterozoic Wernecke Breccia. To the east, Wernecke Supergroup rocks are unconformably overlain by Middle Proterozoic Pinguicula Group rocks. According to Thorkelson (2000), Wernecke Breccia development is best modeled as a set of hydrothermal and/or phreatic breccias; brecciation being caused by explosive expansion of volatile-rich fluids. Hunt (2005) attributed Wernecke Breccia formation to periodic over-pressuring of dominantly basinal fluids, which lead to repeated brecciation of host strata and mineral precipitation.

The occurrence is located north of a southwesterly flowing tributary of the Bear River approximately 1.5 km east of the southern most headwaters of Slats Creek. The area was regionally mapped by L. Green (1972) of the Geological Survey of Canada in 1961 as part of a helicopter-supported party known as Operation Ogilvie. The area was remapped as part of a larger bulletin by D. Thorkelson (2000) who was under contract with Exploration and Geological Services Division (now part of the Yukon Geological Survey). In addition Thorkelson worked closely with geologists employed by Westmin Resources which held a large number of claims in the region. The work of these geologists was incorporated into a geological compilation of the Yukon released by Gordey and Makepeace of the Geological Survey of Canada in 2003.

Early work on the Pitch group uncovered minor vein and disseminated brannerite associated with a Middle Proterozoic Wernecke Breccia body which intrudes limy argillite and dolomitic siltstone of the Fairchild Lake Group (occurrence A). At this location, the breccia is metasomatized and the wallrocks are unaltered.

The Arctos claims staked to the south cover a hematite breccia complex occupying the contact zone between Gillespie Lake Group dolomite and Quartet Group black shale, siltstone and quartzite. Exploration in the 1970's found disseminated chalcopyrite, cobaltite and coarse crystalline barite in a 1.5 m zone of silicification and feldspathization developed around a vertical shear 10 cm wide which cuts Quartet argillite. Chip samples contained up to 0.038% uranium oxide (U3O8), and 0.3% copper across 1.5 m and 0.09% uranium oxide (U3O8) and 0.4% copper across 0.6 m. A few samples are slightly enriched in gold, with values up to 775 ppb. In 1992, in the same area, Pamicon identified abundant specular hematite and minor chalcopyrite, malachite, azurite, pyrite, barite and fluorite mineralization.

In 1994, Pamicon and Equity uncovered copper, gold and cobalt mineralization in the far southwest corner of the Slats property which they called the Arctos showing. This showing appears to cover the southern Pitch showing (Occurrence B) as reported on Minfile map 106D, and is different from mineralization reported on the Arctos claims in 1992. Preliminary mapping around the showing outlined metasilstone and shale cut by a northerly trending fault which parallels diorite and Wernecke breccia. Chalcopyrite, bornite and cobaltite (?) occurs in shears and quartz veins within Wernecke Breccia and metasomatized sediments and minor chalcopyrite is disseminated in the diorite and sediments.

The 1994 exploration program outlined a nine kilometer long northwest trending complex of intrusive Wernecke Breccia and diorite, which hosts periodic copper and gold mineralization. Along this trend stream sediment sampling identified two areas with particularly anomalous copper and gold which are amongst the highest values from stream sediment samples collected on any property in the region. Gold results included values up to 95 ppb and copper results occur up to 472 ppm. Little information was released regarding Newmont Exploration's two airborne geophysical surveys.

The three diamond drill holes intersected carbonate veinlets containing chalcopyrite and pyrite mineralization in all three holes. The mineralization occurred at the contact between Lower Proterozoic rocks and Wernecke Breccia and diorite intrusions and within the intrusions themselves. The best results were obtained from hole STW-95-02 which returned 450 ppb gold, 1 150 ppm copper and 5 800 ppm cobalt over 1 m of heterolithic Wernecke breccia.

From the limited data released by Fronteer Development, it appears that the company's exploration work returned results similar to that obtained by the Fairchild Joint Venture group.

#### References

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FRONTIER DEVELOPMENT GROUP INC. News Releases, 19 May/2006, 10 Jul/2006.

FRONTIER DEVELOPMENT GROUP INC. March/2009. Web Site: [www.frontiergroup.com](http://www.frontiergroup.com). (contains 2007 Wernecke Exploration report).

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GORDEY, S.P. AND MAKEPEACE, A.J., 2003. Yukon Digital Geology, version 2.0, S.P. Gordey and A.J. Makepeace (comp); Geological Survey of Canada, Open File 1749 and Yukon Geological Survey, Open File 2003-9 (D).

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MOUNTAINEER MINES LTD and PAN OCEAN OIL LTD, Jan/78. Assessment Report #090289 by M. Stammers and C.K. Ikona.

MOUNTAINEER MINES LTD and PAN OCEAN OIL LTD, Feb/79. Assessment Report #090422 by M. Stammers and C.K. Ikona.

MOUNTAINEER MINES LTD and PAN OCEAN OIL LTD, Mar/80. Assessment Report #090587 by D. Yeager and C.K. Ikona.

MOUNTAINEER MINES LTD and PAN OCEAN OIL LTD, 1981. Assessment Report #090821 by D.L. Dick and D.B. Harmeson.

PAMICON DEVELOPMENTS LTD, Feb/95. Assessment Report #093262 by A. Montgomery and M. Stammers.

PAMICON DEVELOPMENTS LTD, Nov/95. Assessment Report #093436 by M. Stammers.

PRISM RESOURCES LTD, 1977. Assessment Report #090300 by B. Dewonck and J.H. Montgomery.

THORKELSON, D.J., AND WALLACE, C.A., 1993. Development of Wernecke Breccia in Slats Creek (106D/16) map area, Wernecke Mountains, Yukon. In: Yukon Exploration and Geology 1992, Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, p. 77-87.

THORKELSON, D.J. AND WALLACE, C.A., 1998. Geological Map of Slats Creek map area, Wernecke Mountains, Yukon (106D/16). Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, Geoscience Map 1998-9, 1:50,000 scale.

THORKELSON, D.J. AND WALLACE, C.A., 2000. Geology and mineral occurrences of the Slats Creek, Fairchild Lake and "Dolores Creek" areas, Wernecke Mountains, Yukon (106D/16, 106C/13, 106C/14). Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, Bulletin 10, 73 p.

WESTMIN RESOURCES LTD, Dec/92. Assessment Report #093121 by M.A. Stammers.

YUKON EXPLORATION AND GEOLOGY 1981, p. 196; 1995, p. 12, 16; 2006, 34.

YUKON GEOLOGY AND EXPLORATION 1979-80, p. 242.

## Work History

Date	Work Type	Comment
12/31/2006	Geochemistry	Limited work.
12/31/2006	Geology	Limited work.
12/31/2006	Geochemistry	Limited work.
12/31/1995	Drilling	Three holes, 374 m. Assessment Report #093436.
12/31/1994	Geology	
12/31/1994	Geochemistry	
12/31/1994	Geochemistry	
12/31/1994	Airborne Geophysics	Also radiometric survey.
12/31/1994	Other	
12/31/1993	Airborne Geophysics	Also radiometric survey.
12/31/1993	Other	
12/31/1992	Geochemistry	
12/31/1992	Other	
12/31/1988	Geology	
12/31/1987	Geology	
12/31/1987	Other	
12/31/1979	Geology	
12/31/1979	Ground Geophysics	

12/31/1979	Trenching	
12/31/1979	Other	
12/31/1977	Geochemistry	
12/31/1977	Geology	
12/31/1977	Ground Geophysics	
12/31/1977	Geochemistry	
12/31/1977	Other	
12/31/1976	Airborne Geophysics	
12/13/1977	Airborne Geophysics	Also magnetic survey on Brad claims.

### Assessment Reports that overlap occurrence

Report Number	Year	Title	Worktypes	Holes Drilled	Meters Drilled
<a href="#">095646</a>	2007	2007 Geological, Geochemical and Geophysical Report on the Wernekes Project	Diamond - Drilling, Rock - Geochemistry, Silt - Geochemistry, Soil - Geochemistry, Detailed Bedrock Mapping - Geology, Regional Bedrock Mapping - Geology, Magnetics - Ground Geophysics, Scintillometer - Ground Geophysics, Prospecting - Other, Backhoe - Trenching, Hand - Trenching, Handblast - Trenching	28	6537.96
<a href="#">094956</a>	2006	2006 Geological, Geochemical and Geophysical Report on the Wernekes Project	Reverse Circulation - Airborne Geophysics, Rock - Geochemistry, Soil - Geochemistry, Bedrock Mapping - Geology, Scintillometer - Ground Geophysics, Prospecting - Other		
<a href="#">093262</a>	1994	Geological and Geochemical Assessment Report on the Slats 1-132 Claims	Gamma-Ray Spectrometry - Airborne Geophysics, Magnetic - Airborne Geophysics, Rock - Geochemistry, Silt - Geochemistry, Soil - Geochemistry, Bedrock Mapping - Geology, Regional Bedrock Mapping - Geology, Gamma-ray Spectrometry - Ground Geophysics, Magnetics - Ground Geophysics, Prospecting - Other		
<a href="#">092668</a>	1988	Geological Report on the Lex 1-8 and Witz 1-40 Claims	Rock - Geochemistry, Prospecting - Other		
<a href="#">090422</a>	1978	Geological Report on the Arctos 1-16 Mineral Claims	Rock - Geochemistry, Water - Geochemistry, Bedrock Mapping - Geology, Hand - Trenching, Handblast - Trenching		
<a href="#">090300</a>	1978	Assessment Report, Pitch 41-56 Claims	Gamma-ray Spectrometry - Ground Geophysics, Prospecting - Other		
<a href="#">090289</a>	1977	Geological Report on the Arctos 1-16 Mineral Claims	Rock - Geochemistry, Water - Geochemistry, Bedrock Mapping - Geology		