Occurrence Details

Occurrence Number: 116K 003
Occurrence Name: Rusty Springs
Occurrence Type: Hard-rock
Status: Prospect
Date printed: 6/15/2025 6:52:41 PM

General Information

Secondary Commodities: antimony, copper, gold, lead, silver, zinc
Aliases: Termuende
Deposit Type(s): Sediment hosted Mississippi Valley-Type Pb-Zn (MVT)
Location(s): 66°30'25" N - -140°23'31" W
NTS Mapsheet(s): 116K09
Location Comments: .5 Kilometres
Hand Samples Available: Yes
Last Reviewed:

Capsule

Work History

The showings were discovered in 1975, and were first staked as Rio cl (YA2826) in Oct/75 by Rio Alto Exploration Ltd, which carried out geological mapping, geochemical sampling and hand trenching in 1976 and drilled five Winkie holes (468 m) on the Mike (Tim) showing (Rio cl 54), 8 holes (508 m) on the Orma showing and added 300 Rio, HG, etc cl in 1977. In 1978, an old winter road was extended to the property, a winter airstrip was constructed and grid soil sampling, bulk sampling for metallurgical tests, 12 Winkie holes (807 m) on the Mike showing and 18 holes (1032 m) on the Orma showing were carried out.
Optioned in Aug/79 to a joint venture between Geomex Development Inc and E and B Exploration Inc, which carried out IP and gravity surveying and prospecting in 1979 and drilling of 27 holes (1464 m) and bulldozer trenching at the Orma showing in 1980.
The Rio Alto and E and B interests were optioned in 1981 by Kenton Natural Resources Corporation, which carried out additional geochemical sampling, geological mapping and drilling of eight holes (510 m) in 1982; bulldozer trenching and drilling of two holes (488 m) in 1983; and an additional 404 m of drilling in 1986. Rio Alto constructed a 427 m airstrip on the property in 1983.
Restaked in Jul/92 as Eric cl 1-6 (YB41182) by R.W. Termuende, who also staked Jessica cl 1-6 (YB41188) at the same time. Termuende added the Shelly cl 1-16, (YB48752), Eric cl 7-8, and Jessica cl 7-8 in Jun/94 and Joel cl 1-4 (YB52722) in Sept/94. In Dec/94 Termuende transferred the Eric and Jessica claims to Eagle Plains Resources Ltd.
Work in 1994 consisted of construction of a new 550 meter airstrip atop Orma Hill and a 3.4 km road connecting the airstrip to the camp at the base of Mike Hill. The camp was reconstructed and environmental cleanup of old drill sites and trenches was completed. Property and reconnaissance scale geological mapping, geochemical sampling, VLF geophysical surveying and prospecting were also carried out in 1994.
In Jun/95 Eagle Plains staked Joel cl 5-8 (YB53897) and 14 individual claims named after the children of various company employees on and in the immediate area surrounding the property. During the 1995 field season the company drilled 21 diamond drill holes (1658 m), completed 400 m of bulldozer trenching, carried out a grid soil sampling program and repaired and improved the airstrip and road system located on the claim block. In Sept/95 the company staked Connor cl 1-9 (YB54257), Matt cl 1-4 (YB54266) and Diduck 1-4 (YB54270) south of the Shelly claims.
Between June and Jul/96 Eagle Plains drilled 15 diamond drill holes (2320 m), constructed 3 km of new access roads, extended the airstrip to 600 m and carried out general geological exploration work. Following completion of the drill program the company surrounded the occurrence with Trog cl 1-432 (YB54266). The company also staked Twin cl 1-8 (YB88147) 11 kms to the southwest.
In Jun/97 Eagle Plains signed a letter of intent with CanAustra Resources Ltd, whereby CanAustra can earn a 60% interest in the property by expending $2 000 000.00 on exploration and making cash payments of $70 000.00 over a four year period. The following month CanAustra undertook an 8 hole, 412 m reverse-circulation drilling program. The company also initiated a surface mapping and prospecting program on previously untested areas of the property staked which had been staked in 1996. In 1998 the company carried out a small seismic and gravity survey followed by prospecting and geochemical sampling.
In 1999 CanAustra carried out diamond drilling of 3 holes (616.9 m) east and south of Orma Hill in an attempt to penetrate the unoxidized mineralized horizon below the water table. Property and regional scale geological mapping and structural interpretation and prospecting were also carried out in 1999 and limited geochemical rock sampling was carried out in 2001.

Capsule Geology

The property lies within the east-vergent Taiga-Nahoni foldbelt, occurring in the core of a structural culmination exposing host Lower and Middle Devonian Ogilvie Formation dolostones. Mineralization occurs in strata-bound and discordant zones along the contact with the overlying Devonian-Mississippian unnamed shale. Various deposit models, ranging from Mississippi Valley-type to epithermal vein-type have been employed. Poor exposures and relatively deep weathering resulting from the lack of Pleistocene glaciation account for the lack of consensus with regards to genesis, and evidence accumulated since 1996 points to the potential for a high-temperature, carbonate-hosted massive sulphide deposit (manto-chimney complex.).
The Lower and Middle Devonian Ogilvie Formation consists of pale grey weathering, dark grey dolostone and subordinate limestone and argillaceous rocks. These rocks underlie the central part of the Rusty Springs property and form the core of the Porcupine-Rusty Springs anticlinorium. Although they form common talus slopes on the flanks of Orma and Mike hills, outcrop is scarce, even on roads and cat trails. The dolostone is fetid, and commonly brecciated, vein and/or vuggy. Breccia cements consist mainly of dolomite and sparry calcite with local quartz, vugs are commonly lined with calcite and quartz and veinlets are of similar mineralogy. Another common constituent of Ogilvie breccias is pyrobitumen. It is commonly intergrown with dolomite cements and always associated with quartz and/or calcite spar, and it also locally coats vugs. Weakly dolomitized limestone containing recognizable fossils but none which are diagnostic outcrop locally. Float boulders and the few outcrops of the Ogilvie Formation suggest that it is not well stratified, but bedding is more apparent in diamond drill core, particularly where brecciation is less intense. Bedding to core axis angles typically suggest that the strata in the vicinity of Mike and Orma hills are gently dipping.
At the top of the Ogilvie Formation in the Rusty Springs area is the informally named 'Katshat unit', a recessive, gossanous oxide and clay-rich unit which corresponds to a significant degree with the mineralized zones on the property. In general it appears to be stratabound, separating the dolostone from overlying siliciclastic rocks, but in detail its contacts are highly irregular. The Katshat unit most likely represents altered and mineralized Ogilvie Formation limestone (Greig, 2000).
Disconformably overlying the Ogilvie Formation are siliceous mudstone, shale, siltstone and rare limestone of probable Devonian to Mississippian age. The affinity of these rocks are uncertain thus they are known as the 'unnamed shale unit'. The lower most rocks in the sequence are locally referred to as black 'chert', but are perhaps more accurately should be referred to as a silicified and/or siliceous mudstone. The siliceous rocks are up to 40 m thick and are commonly veined and brecciated. The veins and breccia matrices consist mainly of quartz, calcite and dolomite. The brecciated siliceous rocks appear in most places to cap the mineralized Katshat unit of the uppermost Ogilvie Formation, and black siliceous(?) fragments are locally a common component of the dolostone breccias that commonly comprise upper Ogilvie Formation rocks beneath the Katshat unit.
Up-section from the siliceous rocks, and comprising the bulk of the rocks assigned to the unnamed shale, are relatively recessive pyritic, carbonaceous shale, mudstone, silty mudstone, and locally thin to medium bedded, poorly sorted fine grained litharenite. They are generally thinly bedded and typically siliceous, although local calcareous shale has also been observed. Local true slate and rare dark grey, fetid and laminated algal limestone occur not far above its contact with the Ogilvie Formation.
The transition of the fine grained clastic sequence to the overly mixed carbonate and clastic unit is commonly marked by the presence of thin to medium bedded siliceous fine sandy

siltstone or fine grained sandstone. These rocks are typically pale grey and locally rusty weathering up close but appear very dark from a distance because of a common covering of black lichen.
The Rusty Springs occurrence hosts both vein and stratabound mineralization and both appear to be genetically related. Veins consisting of massive galena and tetrahedrite are locally up to 1.0 m thick and assays ranging from 342 to 1714 g/t Ag have been returned. The veins are contained within a broader, commonly oxidized mineralized and altered zone (in part a vein stockwork) that is up to 6 or 7 m in thickness. The altered zone typically assays 30 to 60 g/t Ag. Alteration within Ogilvie Formation carbonates is characterized by silica replacement, dolomitization, local brecciation, sanding (silica alteration?) and decomposition (supergene alteration) and is manifests itself in part as a darker grey coloration in the host rocks. Minerals identified from the oxidized zones include smithsonite, cerussite, malchite, azurite, aurichalcite, ptrolusite, hemimorphite, plumbojarosite, gibbsite, valentinite and natroalunite. Sphalerite and pyrite are also preserved locally with galena and tetrahedrite in siliceous veins and vein-breccia material.
Stratabound mineralization occurs as strongly oxidized, mineralized material which is common to the upper contact of the Ogilvie Formation. The unit is locally called the Katshat unit and consists of strongly leached, porous limonitic to kaolinitic material with an earthy, gougy consistency that is similar in appearance to the oxidized material surrounding the discordant mineralization. Typically it is 20 to 40 m thick and although it appears stratabound at the property scale, in detail it is irregular and discordant. Many of the minerals common to vein mineralization are also common in the Katshat unit. X-ray diffraction studies indicate that much of the Katshat material consists of granular Fe, Mn, Ag, Pb, An, Cu, Ba, Al, P, and V oxide, carbonate, sulphate and silicate species, as well as quartz veinlets and laminae locally containing sulphides and sulphosalts like those in Orma zone veins and vein stockworks. The Katshat unit is invariably overlain by brecciated and veined siliceous or silicified mudstone and chert of probable Devonian-Mississippian age, which caps and in part has protected it from erosion. It is underlain by Ogilvie Formation dolostone, also typically brecciated and veined.
The Katshat unit is strongly anomalous in Ag, Cu, Pb, and Zn over broad intervals and across a wide area (1.1 gm Ag, 881 ppm Cu, 139 ppm Pb, 3 301 ppm Zn over 19.1 m in hole RS96-4 from the southwest part of Mike hill, and 1.6 gm Ag, 1 475 ppm Cu, 1 321 ppm Pb and 2 701 ppm Zn over 22.2 m in hole RS96-14 from the south end of the airstrip on Orma hill). Results such as these suggest the possibility of tremendous continuity and potential, but the oxidized nature of the mineralization and the subeconomic grades also suggest that the preferred target is the unoxidized portions of the horizon below the present and/or paleo-water table.
The Tim showing is the original showing discovered by Rio Alto in 1975. The showing consists of four separate occurrences of sphalerite, tetrahedrite, pyrite and minor galena, within a triangular area one km long on each side. Selected float specimens assayed up to 39.5% Zn, 14.5% Cu and 2262.8 g/t Ag. Drilling of this showing based on the Mississippi Valley-type model yielded disappointing results.
The Mike showing was discovered in 1976 and hosts epithermal vein type mineralization which is steeply dipping and strikes north-northwest over a geochemistry inferred length of 700 m. A grab sample of altered carbonate material collected in 1994 from the '225 trench' assayed 517.3 g/t Ag, 13.9% Cu, 4.37% Pb, 2.62% Zn, 9.08% Sb and 0.4 g/t Au. In 1995 Eagle Plains Resources Ltd drilled 16 diamond drill holes (1439 m) on the Mike showing Hill to test its inferred strike length. The drilling outlined the presence of a vertical, well-developed mineralized structure. Mineralization occurs in secondary (oxide) form, and is erratically distributed throughout the drilling area. Hole RS95-M7 returned the best intersection of the program and contained 15.3 m assaying 517.7 g/t Ag, 3.0% Cu, 1.3% Zn and 0.77% Pb. In addition hole RS95-M15 returned 1897 g/t Ag, 7.59% Cu and 2.61% over 0.6 m.
In 1977, the Orma zone was discovered 2 km to the east of the original Mike showing. At the same time prospecting and geochemical sampling outlined approximately 20 more individual showings. Surface trenching, diamond drilling and geophysical surveying indicate a steeply dipping zone of mineralization which extends about 760 m in a north-northwest direction. The best intersection from the 27 holes drilled at the Orma showing in 1980 was 1.5 m assaying 2022.8 g/t Ag, 24.6% Pb and 2.5% Cu, while the best specimen from trenching in the same area returned 15 976.7 g/t Ag, 7.9% Pb, 25.8% Cu and 2.1% Zn. One of the 1977 holes returned 2674.2 g/t Ag, 6.7% Pb and 3.8% Cu from 0 to 8.2 m and 3874.2 g/t Ag, 13.0% Pb and 2% Cu from 18.9 to 23.5 m.
Five diamond drill holes (219 m) were drilled in the Orma Hill area in 1995. The best results were obtained in hole OR95-1 which returned 439 g/t Ag, 1.03% Cu and 18.8% Pb over 1.7 m and hole OR95-02 which returned 134 g/t Ag, 1.31% Cu and 11.4% Pb over 1.5 m.
A new showing (Big Onion) was discovered in 1994. The showing is located over 1 km east of any previously discovered showings. The Big Onion consists of vuggy quartz with galena, tetrahedrite, and malachite and resembles the Mike showing. A massive galena boulder returned assays of 1008 g/t Ag, 72.8% Pb and 0.3% Zn, while an oxide boulder composed of malachite and plumbojarosite(?) assayed of 1446 g/t Ag, 2.34% Cu, 12.31% Pb, and 0.19% Zn.
Trenching completed near the Big Onion in 1995 failed to reach bedrock although numerous mineralized fragments were encountered including Ag-Pb mineralized shear material which returned 623 g/t Ag and 70.6% Pb. Debris recovered from a trench located 50 m south of the Big Onion showing returned 251 g/t Ag and 1.18% Cu. In one trench, malachite-coated vugs were observed within silicified breccia fragments. Soil sampling in the area around the Big Onion area returned several spot anomalies with consistent, moderate Ag-Pb-Zn enrichment.
Near the end of the 1996 exploration program Eagle Plains with the help of several geological consultants released a new interpretation of the property geology. The new interpretation suggests that the mineralization is hosted by a moderately-dipping, dip-slope sheet or manto eroded away to the west. A geological cross-section shows the property lies along the axes of two northerly-trending anticlines. Mike Hill and Orma Hill areas form domes whose western flanks expose portions of the Katshat unit. The grade of mineralization is dependent on the thickness of the exposed unit and the amount of oxidation and leaching it has undergone. The domal structures may represent one or more intrusions emplaced at depth along the axial portions of the anticlines. The presence of a buried intrusive was supported by a 1996 diamond drill hole (RS96-14) which penetrated the domal structure on Orma hill. The hole returned anomalous uranium values, suggestive of subsurface intrusive activity.
A review of all previous drilling, conducted in the fall of 1996 indicated that many of the previously drill holes were collared below the Katshat unit. In 1997, CanAustra Resources attempted to penetrate the silicified unit overlying the Katshat unit but due to drilling problems only two holes penetrated through to the Katshat unit. Both holes returned anomalous but not economically significant results. Despite the poor results the program confirmed that mineralization on the property is stratabound in nature and located at a specific stratigraphic interval.
In 1999 CanAustra drilled 3 diamond drill holes to the east and south of Orma Hill in an attempt to penetrate the unoxidized mineralized horizon below the water table. Drilling encountered silicified and brecciated mudstones, which are indicative of the underlying mineralization, however the drill was unable to penetrate the siliceous zones in all three holes. One hole returned a 16.6 m intersection of fine to medium-grained disseminated sphalerite within the mudstone and in the matrix of quartz or quartz-carbonate micro breccia which assayed 3000 ppm Zn, suggesting the possibility that sedimentary-exhalative mineralization also exists on the property.
Sampling in 2001 continued to confirm the high grade nature of the mineralization throughout the property area. Two samples of carbonate breccia float with massive coarse grained galena, collected in the area of Trog cl 1-4, returned 98.2 g/t Ag with 3.22% Pb and 62.3 g/t Ag, 3.07% Cu, 13.2 % Pb with 1.44% Sb. Also a sample of dolomite float with malachite replacement that was collected On Trog cl 29 returned values of 88.9 g/t Ag and 40.7% Cu.

Work History

Date	Work Type	Comment
12/31/2001	Geochemistry	
12/31/1999	Drilling	Three holes, 617 m.
12/31/1999	Geology	
12/31/1999	Other	
12/31/1998	Ground Geophysics	Also gravity survey.
12/31/1997	Drilling	Eight holes, 412 m.
12/31/1996	Drilling	Fifteen holes, 2,320 m.
12/31/1995	Drilling	Twenty-one holes, 1,658 m.
12/31/1994	Geology	
12/31/1994	Geochemistry	
12/31/1994	Ground Geophysics	VLF survey.

12/31/1994	Trenching	
12/31/1994	Development, Surface	Built to access property.
12/31/1986	Drilling	Unknown number of holes, 641 m.
12/31/1983	Drilling	Two holes, 488 m.
12/31/1983	Trenching	
12/31/1982	Geology	
12/31/1982	Drilling	Eight holes, 560 m.
12/31/1982	Geochemistry	
12/31/1980	Drilling	Twenty-seven holes, 1,464 m.
12/31/1980	Trenching	
12/31/1979	Ground Geophysics	Also gravity survey.
12/31/1979	Other	
12/31/1978	Development, Surface	
12/31/1978	Geochemistry	
12/31/1978	Drilling	Thirty holes, 1,839 m.
12/31/1978	Geochemistry	
12/31/1978	Development, Surface	
12/31/1976	Geology	
12/31/1976	Drilling	Thirteen holes, 1,076 m.
12/31/1976	Trenching	
12/31/1976	Other	
12/13/1994	Development, Surface	Repaired and expanded existing airstrip.
12/13/1976	Geochemistry	Also rock sampling.

Assessment Reports that overlap occurrence

Report Number	Year	Title	Worktypes	Holes Drilled	Meters Drilled
097033	2017	Geological Report on the Rusty Springs Claims	Data Compilation - Pre-existing Data, Digitizing Data - Pre-existing Data		
095967	2011	Geological Report on the Rusty Springs Claims	Magnetic - Airborne Geophysics, Magnetic - Airborne Geophysics, Air Strip - Development, Surface, Air Strip - Development, Surface, Rock - Geochemistry, Rock - Geochemistry, Prospecting - Other, Prospecting - Other		
095278	2010	Geological Report	Soil - Geochemistry, Detailed Bedrock Mapping - Geology, Prospecting - Other		
094242	2001	Geological Report on the Rusty Springs Property	Rock - Geochemistry		
093572	1997	Diamond Drilling Report on the Rusty Springs Property	Diamond - Drilling	15	2320
093232	1994	Geological Report on the Rusty Springs Property	Air Strip - Development, Surface, Silt - Geochemistry, Soil - Geochemistry, Detailed Bedrock Mapping - Geology, EM - Ground Geophysics, Prospecting - Other, Mechanical - Trenching		
093085	1983	Geological Report on the Rusty Springs Property	Research/Summarize - Pre-existing Data		
090685	1980	Report of Exploration Programme Conducted 19 May - 1 August, 1980 for Rio Alto Exploration LTD.	Diamond - Drilling, Rock - Geochemistry, Detailed Bedrock Mapping - Geology, Mechanical - Trenching	27	1828.80
090532	1979	Report Of Geological Program Conducted 15 May-1 August, 1979 for Rio Alto Exploration Ltd.	Soil - Geochemistry, Detailed Bedrock Mapping - Geology, IP - Ground Geophysics, Prospecting - Other, Mechanical - Trenching		
090414	1978	Rusty Springs Prospect Yukon Territory	Diamond - Drilling, Soil - Geochemistry, Detailed Bedrock Mapping - Geology	30	1839.50
092030	1977	Report of 1977 Exploration of the Rusty Springs Mineral Prospects	Rock - Geochemistry, Soil - Geochemistry, Bedrock Mapping - Geology, Prospecting - Other, Hand - Trenching		
090158	1976	Geology of the Rusty Springs Mineral Prospect, Porcupine Ranges, Yukon Territory	Rock - Geochemistry, Soil - Geochemistry, Detailed Bedrock Mapping - Geology, Handblast - Trenching		

Related References

Number	Title	Page(s)	Reference Type	Document

Number	Title	Page(s)	Reference Type	Type
ARMC005699	Property report - Rusty Springs		Property File Collection	Report
ARMC005700	Bob Termuende's submission - Rusty Springs property		Property File Collection	Report
ARMC004988	Report on Rusty Springs property		Property File Collection	Report
YEG1999_23	Geologic setting, genesis, and potential of the Rusty Springs Ag-Pb-Zn-Cu property, northern Yukon (NTS 116 K/8 and K/9)	247-266	Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Annual Report Paper

Drill core at YGS core library

Number	Property	Year Drilled	Core Size	Photos	Data
RS-86-1	Rusty Springs	1986	NTW	0	2
RS-86-2	Rusty Springs	1986	NTW	0	2