



Occurrence Details

Occurrence Number: 105A 013
Occurrence Name: Sa Dena Hes-Atilla
Occurrence Type: Hard-rock
Status: Deposit
Date printed: 6/14/2025 11:25:47 AM

General Information

Primary Commodities: lead, silver, zinc
Aliases: Hundere, North Hill, Ritco, Atilla, Sa Dena Hes
Deposit Type(s): Skarn Pb-Zn
Location(s): 60°32'52" N - -128°52'44" W
NTS Mapsheet(s): 105A10
Location Comments: Location digitized from map in Anvil Range property visit report
Hand Samples Available: No
Last Reviewed:

Capsule

Work History

Staked in July/62 by Frances River Syndicate (Canex Placer Ltd, Kerr Addison Mines Ltd, Newconex Canadian Exploration Ltd and Anglo-Huronian Ltd) as JP and OP cl (79573), which were explored with trenching and one hole (118.3 m) and fringed by Conwest Exploration Company Ltd's Tom cl (86925) in 1963, and transferred to a new company, Mt Hundere Mines Ltd in 1965. The property was then optioned to Atlas Explorations Ltd, which performed trenching, geochem and geophysical surveys in 1966 to earn a 70% interest. Atlas changed its name to Cima Resources Ltd in 1974 and restaked as Mica cl (YA412) in Aug/76. One hole was drilled in 1981 by a joint venture between Cima and Canadian Natural Resources Ltd. The property was sold in 1984 to Canamax Resources Inc, which performed remapping and geochem sampling later in the year in conjunction with work on the adjoining Jewelbox Hill occurrences. Canamax sold its interest to Hillsborough Resources Ltd in Apr/88, subject to a 10% Net Profit Interest. Hillsborough transferred the Mica cl to Curragh Resources Inc in May/89. Drilling was carried out in 1988 and 1989 in conjunction with the adjoining Jewelbox Hill occurrences. In 1990, Curragh announced that they were putting the property (including this occurrence) into production. In Jul/91 the company commenced production at a rate of 1 500 tonnes/day. In 1991 the company mined 172 345 tonnes of ore and recovered 44 998 tonnes of lead-zinc concentrate, containing an average combined grade of 20.2 %. The following year the company mined 527 411 tonnes of ore and recovered 125 228 tonnes of lead zinc concentrate, containing an average combined grade of 18%. The concentrate contained significant silver credits. Exploration drilling in 1992 totalled 16 460 m in 79 holes, and the Burnick zone on North Hill was explored with a short adit. Curragh Resources changed its name to Curragh Inc in May/92. The mine and mill were shut down Dec 2/92, primarily as a result of low metal prices. In Dec/93, a partnership of Teck Corporation Ltd, Cominco Ltd and Korea Zinc Company Ltd offered to purchase the Sa Dena Hes property from the receivers Coopers and Lybrand Ltd, subject to court and regulatory approval. The sale to Teck and Cominco was completed in Mar/94 with Korea Zinc granted the right to acquire a 50% interest in the mine. In Aug/97 the consortium considered re-opening the mine during a rise in base metal prices but a subsequent down-turn in prices led to the cancellation of the project. The property is presently on care and maintenance status.

Capsule Geology

Galena and sphalerite occur in actinolite-diopside-garnet±chlorite skarn developed in Lower Cambrian crystalline limestone near the contact with overlying phyllite or argillite of Cambrian to Ordovician age. The Atilla and Burnick showings occur on the North Hill on the Sa Dena Hes property, (formerly known as Mt Hundere). At the start of production, the Atilla zone contained a probable mineral reserve of 406 000 tonnes, containing 3.4% lead, 12.4% zinc and 62 g/t silver. The Burnick zone contained a probable mineral reserve of 196 700 tonnes, containing 0.9% lead, 12.7% zinc and 48 g/t silver and an indicated mineral resource of 527 000 tonnes containing 0.6% lead, 12% zinc and 69 g/t silver. The Atilla showing, measures 36 m long and up to 10 m wide. An aplite dike occurring near the showing is the only igneous rock which outcrops in the area. Drilling in 1981 showed that the skarn is the eroded remnant of a synclinal trough and has no depth extension. Surface sampling and 1981 drilling gave the following assays:

Chips - 128 m long by 7.6 m wide 41.1 g/t Ag, 11.3% Pb, 7.2 % Zn
Chips - 76 m long by 12.8 m wide 44.6 g/t Ag, 14.3% Pb, 10.0 % Zn
Grab - Galena 87.0 g/t Ag, 25.0% Pb, 19.9 % Zn
DDH 81-69 - 1.5 m intersection 28.0 g/t Ag, 7.9% Pb, 14.7 % Zn

Diamond drilling in 1988 showed that the Atilla zone is much larger than originally thought: measuring at least 230 m long and 20 to 50 m wide and consisting of elongated skarn lenses along the updip pinch out of a 100 m thick limestone unit. The surface exposure of the Burnick zone was discovered by soil samplers M. Burke and J. Nicholson in 1984, in a large kill zone 1 km south of the Atilla zone. After it was further outlined by geophysics, the Burnick zone was drilled in 1988 and found to consist of at least three tabular skarn lenses (up to 40 m thick) in thinner limestone units. Drill intersections from the Burnick zone include 40.6% Zn and 197 g/t Ag over 5.8 m and 4.6% combined Zn-Pb and 583 g/t Ag over 10.8 m. The last published reserve/resource for the Sa Dena Hes property calculated a mineral reserve of 1 400 000 tonnes, grading 2.5% lead, 10.2% zinc and 44 g/t silver and indicated mineral resources of approximately 700 000 tonnes grading 4.6% lead, 11.8% zinc and 56 g/t silver.

References

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ABBOTT, J.G. 1980. A new geological map of Mt. Hundere and the area north. In: Yukon Geology and Exploration 1979-80. Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, p.49-50.

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BLACK, A. May/97. Assessment Report #093602 by B.J. Price.

CANAMAX RESOURCES INC, Mar/85. Assessment Report *#091615 by D.B. Fleming, C.J. Hodgson and A.C. Hitchins.

CANAMAX RESOURCES INC, Feb/86. Assessment Report *#091784 by A.C. Hitchins.

CANAMAX RESOURCES INC, Dec/88. Assessment Report *#092541 by W.D. Mann and C.J. Hodgson.

CANAMAX RESOURCES INC, 1988. Assessment Report *#092689 by W.D. Mann.

CANEX AERIAL EXPLORATION LTD, Jul/63. Assessment Report *#092066 by S. Melihercrik.

CURRAGH RESOURCES INC, May/90. Assessment Report *#092847 by J. Zbeetnoff.

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ERDMER, P., et al., 1998. Paleozoic and Mesozoic high-pressure metamorphism at the margin of ancestral North America in central Yukon. Geological Society of America Bulletin, vol. 110, p. 615-629.

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MURPHY, D.C., 2001. Yukon-Tanana in southwestern Frances Lake area (105H/3,4 and 5), southeastern Yukon. In: Yukon Exploration and Geology, D.S. Emond and L.H. Weston (eds.), Eploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, p. 217-233.

NORTHERN MINER, 10 Oct/88; 3 Apr/88; 8 May, 15 May, 4 Sep/89; 1 Jan/90.

STEFFEN ROBERTSON AND KIRSTEN (B.C.) INC, May/90. MT. HUNDERE DEVELOPMENT, Initial Environmental Evaluation, Volume 1, Project Description.

WHITEHORSE STAR, 11 Jan/90.

YUKON GEOLOGY AND EXPLORATION 1979-80, p.45-50; 1983, p.130; 1992, p. 1.

YUKON EXPLORATION, 1984, p. 40; 1988, p. 15.

YUKON MINING AND EXPLORATION OVERVIEW 1988, p. 15; 1989, p. 5, 7, 10.

Work History

Date	Work Type	Comment
12/31/1997	Studies	Consortium examined property with aim of re-opening mine.
12/31/1995	Other	Blake carried out small exploration program on Echo claims.
12/31/1992	Drilling	Seventy nine holes, 16, 460 m. Total for Sa Dena Hes property , not broken down by target.
12/31/1989	Drilling	One hundred fifty five holes 29, 078 m, carried out in conjunction with Hundere project.
12/31/1984	Geochemistry	
12/31/1984	Geology	
12/31/1981	Drilling	One hole drilled , depth unknown.
12/31/1966	Ground Geophysics	Also IP survey .
12/31/1966	Trenching	
12/31/1963	Drilling	One hole, 188.26 m.
12/1/1990	Drilling	
12/1/1988	Drilling	28 holes, 5,501 m
12/1/1984	Geochemistry	
12/1/1982	Studies	
12/1/1982	Drilling	
12/1/1982	Lab Work/Physical Studies	
12/1/1981	Trenching	
12/1/1981	Other	
12/1/1981	Geochemistry	
12/1/1981	Geology	
12/1/1980	Geochemistry	
12/1/1980	Drilling	
12/1/1980	Other	
12/1/1980	Geochemistry	
12/1/1980	Geochemistry	
12/1/1980	Geology	
12/1/1966	Trenching	
12/1/1966	Geochemistry	

12/1/1966	Geology	
12/1/1963	Other	

Assessment Reports that overlap occurrence

Report Number	Year	Title	Worktypes	Holes Drilled	Meters Drilled
092847	1990	[Diamond Drilling Report on Hundere Property]	Diamond - Drilling	52	9396.50
092930	1988	[Mt. Hundere Diamond Drilling on Jewelbox Hill and the North Showing]	Diamond - Drilling, Diamond - Drilling	24	8846.50
092593	1988	1988 Drilling Report	Diamond - Drilling	28	5501
092541	1988	1988 Drilling Report	Diamond - Drilling	28	5501
091615	1984	Mt. Hundere Geochemical Report	Silt - Geochemistry, Soil - Geochemistry		
091745	1982	1982 Work Report, Cima Mines Option, Mt. Hundere Property, Watson Lake Mining District	Diamond - Drilling, Metallurgical Tests - Lab Work/Physical Studies, Resource Estimate - Studies	8	314.10
090955	1981	Report on Geology, Geochemical and Diamond Drilling	Diamond - Drilling, Soil - Geochemistry, Detailed Bedrock Mapping - Geology, Line Cutting - Other, Backhoe - Trenching	19	797
062255	1980	Report on Geology, Geochemical and Diamond Drilling	Diamond - Drilling, Silt - Geochemistry, Soil - Geochemistry, Detailed Bedrock Mapping - Geology, Line Cutting - Other	26	970
019586	1966	Report on the Geochemical, Geological Surveys and Bulldozer Trenching of the Mt. Hundere Property	Soil - Geochemistry, Detailed Bedrock Mapping - Geology, Backhoe - Trenching		
092066	1963	New Showing File	Prospecting - Other		
091095	1963	[Drilling Summary of JP and PJ Claims]	Diamond - Drilling	7	560.80

Related References

Number	Title	Page(s)	Reference Type	Document Type
ARMC000393	Report - Sa Dena Hes Mine		Property File Collection	Report
ARMC006766	Geology of the Mount Hundere lead-zinc-silver deposits, Watson Lake		Property File Collection	Geoscience Map (Geological - Bedrock)
ARMC005857	Map - Vertical section 1387.5N - Lithologies and Pb+Zn assays - Sa Dena Hes joint venture - Jewel Box		Property File Collection	Geoscience Map (General)
ARMC005858	Map - Vertical section 1400N - Lithologies and Pb+Zn assays - Sa Dena Hes joint venture - Jewel Box		Property File Collection	Geoscience Map (General)
ARMC005859	Map - Vertical section 1412.5N - Lithologies and Pb+Zn assays - Sa Dena Hes joint venture - Jewel Box		Property File Collection	Geoscience Map (General)
ARMC005860	Map - Vertical section 1425N - Lithologies and Pb+Zn assays - Sa Dena Hes joint venture - Jewel Box		Property File Collection	Geoscience Map (General)
ARMC005861	Map - Vertical section 1437.5N - Lithologies and Pb+Zn assays - Sa Dena Hes joint venture - Jewel Box		Property File Collection	Geoscience Map (General)
ARMC005899	Map - Vertical section 1537.5N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box		Property File Collection	Geoscience Map (General)
ARMC005900	Map - Vertical section 1550N - Inventory Polygons with Grades - Sa Dena Hes Joint Venture - Jewel Box		Property File Collection	Geoscience Map (General)
ARMC005901	Map - Vertical section 1562.5N - Inventory Polygons with Grades - Sa Dena Hes Joint Venture - Jewel Box		Property File Collection	Geoscience Map (General)
ARMC005902	Map - Vertical section 1575N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box		Property File Collection	Geoscience Map (General)
ARMC005903	Map - Vertical section 1587.5N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box		Property File Collection	Geoscience Map (General)
ARMC005904	Map - Vertical section 1600N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box		Property File Collection	Geoscience Map (General)
ARMC005905	Map - Vertical section 1612.5N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box		Property File Collection	Geoscience Map (General)
ARMC005906	Map - Vertical section 1625N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box		Property File Collection	Geoscience Map (General)
ARMC005907	Mine map - Plan level drill hole traces - Sa Dena Hes joint venture - Jewel Box		Property File Collection	Geoscience Map (General)
ARMC005908	Mine map - Plan level 1420 underground workings - Sa Dena Hes joint venture - Jewel Box		Property File Collection	Geoscience Map (General)
ARMC005909	Mine map - Plan level 1395 underground workings - Sa Dena Hes joint venture - Jewel Box		Property File Collection	Geoscience Map (General)
ARMC005910	Mine map - Plan level 1370 underground workings - Sa Dena Hes joint venture - Jewel Box		Property File Collection	Geoscience Map (General)

[illegible]

ARMC005883	Map - Vertical section 1337.5N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005884	Map - Vertical section 1350N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005885	Map - Vertical section 1362.5N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005886	Map - Vertical section 1375N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005887	Map - Vertical section 1387N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005888	Map - Vertical section 1400N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005889	Map - Vertical section 1412.5N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005890	Map - Vertical section 1425N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005891	Map - Vertical section 1437.5N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005892	Map - Vertical section 1450N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005893	Map - Vertical section 1462.5N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005894	Map - Vertical section 1475N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005895	Map - Vertical section 1487.5N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005896	Map - Vertical section 1500N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005897	Map - Vertical section 1512.5N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005898	Map - Vertical section 1525N - Inventory polygons with grades - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005847	Map - Vertical section 1237.5N - Lithologies and Pb-Zn assays - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005848	Map - Vertical section 1250N - Lithologies and Pb+Zn assays - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005849	Map - Vertical section 1275N - Lithologies and Pb+Zn assays - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005850	Map - Vertical section 1300N - Lithologies and Pb+Zn assays - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005851	Map - Vertical section 1312.5N - Lithologies and Pb+Zn assays - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005852	Map - Vertical section 1325N - Lithologies and Pb+Zn assays - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005853	Map - Vertical section 1337.5N - Lithologies and Pb+Zn assays - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005854	Map - Vertical section 1350N - Lithologies and Pb+Zn assays - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005855	Map - Vertical section 1362.5N - Lithologies and Pb+Zn assays - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC005856	Map - Vertical section 1375N - Lithologies and Pb+Zn assays - Sa Dena Hes joint venture - Jewel Box	Property File Collection	Geoscience Map (General)
ARMC004908	Definition study report - Mt. Hundere joint venture	Property File Collection	Report
ARMC005033	Sa Dena Hes joint venture - Jewel Box Hill mineral inventory	Property File Collection	Report
ARMC013334	Frances River, Y.T. - Job 63-20 Mt. Hundere topo map	Property File Collection	Geoscience Map (General)
ARMC019981	Curragh Resources Inc. - Mt. Hundere, Faro operations, Westray Coal, Cirque, Faro operations	Property File Collection	Report
ARMC018640	Field map - 105A/10	Property File Collection	Geoscience Map (General)
ARMC019615	Correspondence to G.M. Hogg Re: Grum zone drilling - Geologic interpretation with map D-3066	Property File Collection	Miscellaneous Company Documents
ARMC010568	Summary report on Hundere-Ritco lead-zinc-silver property	Property File Collection	Report
ARMC00	Diamond drill hole coordinates and source - Mount Hundere	Property File Collection	Drill Log

3887	Diamond drill hole coordinates and source - Mount Hunderere		Property File Collection	Drill Logs
ARMC007570	Mt. Hunderere maps		Property File Collection	Geoscience Map (General)
ARMC007831	Geochemical survey map - Cu, Pb, Zn - Stewart Lake - Anmac project		Property File Collection	Geochemical Map
ARMC013333	Mt. Hunderere area - JP, TU & PJ mineral claims map - Geochemical soil sampling survey - Zinc & lead results by atomic absorption spectrophotometer analysis		Property File Collection	Geochemical Map
YEG197980-pg45	A new geological map of Mt. Hunderere and the area north		Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Annual Report Paper

Resource/Reserve

Year	Zone	Type	Commodity	Grade	Tonnage	Amount	Reported Amount	43-101 Compliant	Cut-off
2003	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Indicated	zinc	10.4 %	2,190,000		No	Yes	Unknown
Other resources probably exist but do not meet current National Instrument 43-101 standards.; Teck Cominco 2003 Annual Report p. 63. Report does not breakout underground and open pit or by zones. Appears to be remaining resource.									
2003	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Indicated	lead	2.6 %	2,190,000		No	Yes	Unknown
Other resources probably exist but do not meet current National Instrument 43-101 standards.; Teck Cominco 2003 Annual Report p. 63. Report does not breakout underground and open pit or by zones. Appears to be remaining resource.									
1997	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Historical Estimate	zinc	10.2 %	1,400,000		No	No	Unknown
Approximate reserves remaining based on information published at time. Project Status = Care and Maintenance. Indicated Mineral Resources = Possible Reserves.; Northern Miner, 25 Aug/97.									
1997	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Historical Estimate	zinc	11.8 %	700,000		No	No	Unknown
Approximate reserves remaining based on information published at time. Project Status = Care and Maintenance. Indicated Mineral Resources = Possible Reserves.; Northern Miner, 25 Aug/97.									
1997	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Historical Estimate	lead	2.5 %	1,400,000		No	No	Unknown
Approximate reserves remaining based on information published at time. Project Status = Care and Maintenance. Indicated Mineral Resources = Possible Reserves.; Northern Miner, 25 Aug/97.									
1997	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Historical Estimate	lead	4.6 %	700,000		No	No	Unknown
Approximate reserves remaining based on information published at time. Project Status = Care and Maintenance. Indicated Mineral Resources = Possible Reserves.; Northern Miner, 25 Aug/97.									
1997	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Historical Estimate	silver	44 g/t	1,400,000		No	No	Unknown
Approximate reserves remaining based on information published at time. Project Status = Care and Maintenance. Indicated Mineral Resources = Possible Reserves.; Northern Miner, 25 Aug/97.									
1997	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Historical Estimate	silver	56 g/t	700,000		No	No	Unknown
Approximate reserves remaining based on information published at time. Project Status = Care and Maintenance. Indicated Mineral Resources = Possible Reserves.; Northern Miner, 25 Aug/97.									
1990	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Historical Estimate	lead	8.1 %	527,000		No	No	Unknown
Total reserves published at start of operations at Sa Dena Hes project. Indicated Mineral Resources = Possible Reserves, Not Defined Mineral Resource = Oxide Reserves.; Mt. Hunderere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.									
1990	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Historical Estimate	lead	5.2 %	1,189,000		No	No	Unknown
Total reserves published at start of operations at Sa Dena Hes project. Indicated Mineral Resources = Possible Reserves, Not Defined Mineral Resource = Oxide Reserves.; Mt. Hunderere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.									
1990	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Historical Estimate	lead	3.9 %	3,864,000		No	No	Unknown
Total reserves published at start of operations at Sa Dena Hes project. Indicated Mineral Resources = Possible Reserves, Not Defined Mineral Resource = Oxide Reserves.; Mt. Hunderere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.									
1990	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Historical Estimate	lead	16.9 %	75,000		No	No	Unknown
Total reserves published at start of operations at Sa Dena Hes project. Indicated Mineral Resources = Possible Reserves, Not Defined Mineral Resource = Oxide Reserves.; Mt. Hunderere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.									
1990	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Historical Estimate	zinc	12.1 %	527,000		No	No	Unknown
Total reserves published at start of operations at Sa Dena Hes project. Indicated Mineral Resources = Possible Reserves, Not Defined Mineral Resource = Oxide Reserves.; Mt. Hunderere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.									
1990	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Historical Estimate	zinc	12.5 %	1,189,000		No	No	Unknown
Total reserves published at start of operations at Sa Dena Hes project. Indicated Mineral Resources = Possible Reserves, Not Defined Mineral Resource = Oxide Reserves.; Mt. Hunderere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.									
1990	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Historical Estimate	zinc	12.7 %	3,864,000		No	No	Unknown
Total reserves published at start of operations at Sa Dena Hes project. Indicated Mineral Resources = Possible Reserves, Not Defined Mineral Resource = Oxide Reserves.; Mt. Hunderere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.									
1990	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Historical Estimate	zinc	18.8 %	75,000		No	No	Unknown
Total reserves published at start of operations at Sa Dena Hes project. Indicated Mineral Resources = Possible Reserves, Not Defined Mineral Resource = Oxide Reserves.; Mt. Hunderere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.									
1990	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Historical Estimate	silver	109 g/t	527,000		No	No	Unknown
Total reserves published at start of operations at Sa Dena Hes project. Indicated Mineral Resources = Possible Reserves, Not Defined Mineral Resource = Oxide Reserves.; Mt. Hunderere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.									
1990	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Historical Estimate	silver	84 g/t	1,189,000		No	No	Unknown

Total reserves published at start of operations at Sa Dena Hes project. Indicated Mineral Resources = Possible Reserves, Not Defined Mineral Resource = Oxide Reserves.; Mt. Hundere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.

1990	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Historical Estimate	silver	58 g/t	3,864,000		No	No	Unknown
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Total reserves published at start of operations at Sa Dena Hes project. Indicated Mineral Resources = Possible Reserves, Not Defined Mineral Resource = Oxide Reserves.; Mt. Hundere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.

1990	MT. HUNDERE - TOTAL RESERVES (OPEN PIT & UNDERGROUND)	Historical Estimate	silver	89 g/t	75,000		No	No	Unknown
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Total reserves published at start of operations at Sa Dena Hes project. Indicated Mineral Resources = Possible Reserves, Not Defined Mineral Resource = Oxide Reserves.; Mt. Hundere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.

1990	BURNICK (OPEN PIT & UNDERGROUND)	Historical Estimate	zinc	12 %	527,000		No	No	Unknown
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Individual reserve figures for this occurrence, part of larger property. Indicated Mineral Resources = Possible Reserves.; Mt. Hundere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.

1990	BURNICK (OPEN PIT & UNDERGROUND)	Historical Estimate	zinc	12.7 %	1,967,000		No	No	Unknown
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Individual reserve figures for this occurrence, part of larger property. Indicated Mineral Resources = Possible Reserves.; Mt. Hundere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.

1990	ATTILA (UNDERGROUND)	Historical Estimate	zinc	12.4 %	406,000		No	No	Unknown
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Individual reserve figures for this occurrence, part of larger property.; Mt. Hundere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.

1990	BURNICK (OPEN PIT & UNDERGROUND)	Historical Estimate	lead	.9 %	1,967,000		No	No	Unknown
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Individual reserve figures for this occurrence, part of larger property. Indicated Mineral Resources = Possible Reserves.; Mt. Hundere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.

1990	ATTILA (UNDERGROUND)	Historical Estimate	lead	3.4 %	406,000		No	No	Unknown
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Individual reserve figures for this occurrence, part of larger property.; Mt. Hundere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.

1990	BURNICK (OPEN PIT & UNDERGROUND)	Historical Estimate	lead	.6 %	527,000		No	No	Unknown
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Individual reserve figures for this occurrence, part of larger property. Indicated Mineral Resources = Possible Reserves.; Mt. Hundere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.

1990	BURNICK (OPEN PIT & UNDERGROUND)	Historical Estimate	silver	69 g/t	527,000		No	No	Unknown
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Individual reserve figures for this occurrence, part of larger property. Indicated Mineral Resources = Possible Reserves.; Mt. Hundere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.

1990	BURNICK (OPEN PIT & UNDERGROUND)	Historical Estimate	silver	48 g/t	1,967,000		No	No	Unknown
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Individual reserve figures for this occurrence, part of larger property. Indicated Mineral Resources = Possible Reserves.; Mt. Hundere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.

1990	ATTILA (UNDERGROUND)	Historical Estimate	silver	62 g/t	406,000		No	No	Unknown
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Individual reserve figures for this occurrence, part of larger property.; Mt. Hundere Development, Initial Environmental Evaluation, Volume 1 - Project Description, May 1990. See also Northern Miner 22 Jul/91.