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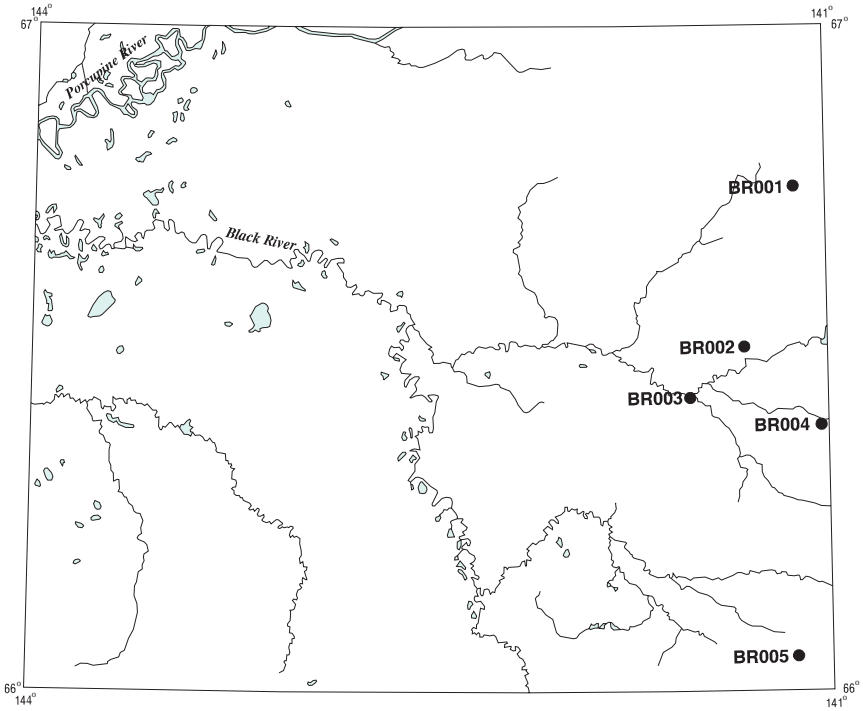
Alaska Resource Data File

Black River quadrangle

Descriptions of the mineral occurrences shown on the accompanying figure follow. See U.S. Geological Survey (1996) for a description of the information content of each field in the records. The data presented here are maintained as part of a statewide database on mines, prospects and mineral occurrences throughout Alaska.



Distribution of mineral occurrences in the Black River 1:250,000-scale quadrangle, Alaska

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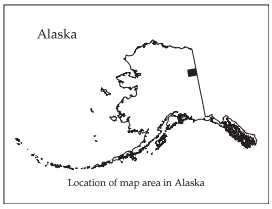
Karen H. Clautice
Alaska Division of Geological and Geophysical Surveys
Fairbanks, Alaska



OPEN-FILE REPORT 03-53

Site name(s): Unnamed (near VABM Fort)

Site type: Prospect

ARDF no.: BR001

Latitude: 66.7578 **Quadrangle:** BR D-1

Longitude: 141.1196

Location description and accuracy:
This prospect is centered about 0.1 mile west-northwest of VABM Fort in the SE1/4 section 1, T. 22 N., R. 30 E. of the Fairbanks Meridian. It extends from about 2,900 to 3,150 feet elevation. The location is accurate within several hundred feet.

Commodities:

Main: Pb, Zn

Other:

Ore minerals:

Gangue minerals: Iron oxides

Geologic description:
This prospect is defined by a northeast-trending gossan, about a 1/4 mile long and approximately 20 feet wide, in dolomite and limestone (K.H. Clautice and J.C. Clough, unpublished field data, 1992). Proterozoic(?) to Cambrian(?) stromatolites occur in limestone float at an elevation of about 3,000 feet, between the upper and lower trenches at either ends of the gossan. A grab sample of gossan from one of the trenches contains 249 ppm lead and 927 ppm zinc (U.S. Bureau of Mines, 1995). Dark gray quartzite overlies the limestone and caps the upper 200 feet of the hill designated VABM Fort . The lithology and fossils indicate that the limestone is part of the Tindir Group (Dover, 1994).

Alteration:
Dolomitization and iron oxides.

Age of mineralization:

Deposit model:
Mississippi Valley type lead-zinc deposit? (Cox and Singer, 1986; model 32?)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
32?

Production Status: No

Site Status: Inactive

Workings/exploration:
At least two shallow, hand-dug trenches mark the ends of a 1/4 mile-long gossan.

Production notes:

Reserves:

Additional comments:

References:
Clough and others, 1993; Dover, 1994; U.S. Bureau of Mines, 1995.

Primary reference: Clough and others, 1993

Reporter(s): K.H. Clautice (Alaska Division of Geological and Geophysical Surveys)

Last report date: 3/14/02

Site name(s): Unnamed (west of Rice Gulch Creek)

Site type: Occurrence

ARDF no.: BR002

Latitude: 66.5172 **Quadrangle:** BR C-1

Longitude: 141.3142

Location description and accuracy:

This occurrence is at an elevation of about 2,250 feet, approximately 2.7 miles west-northwest of VABM Circle and 4.2 miles west of the junction of Rice Gulch Creek and the Salmon Fork of Black River. It is in T. 19 N., R. 30 E., of the Fairbanks Meridian. The location is accurate to within 500 feet.

Commodities:

Main: Asbestos, Cu

Other:

Ore minerals: Asbestos, chalcopyrite

Gangue minerals: Quartz

Geologic description:

The general area of this occurrence is underlain mainly by undivided Lower Cambrian and Proterozic rocks of the Tindir Group, which consists predominantly of carbonate, quartzite, argillite, and subordinate volcanic rocks (Dover, 1994). Geologic mapping by Doyon Limited (1987) delineated a small ultramafic body at the western end of a ridge of quartzite and phyllite. The ultramafic body contains minor chalcopyrite and asbestos. The asbestos occurs in 2-inch- to 5-inch-wide veins. Limited outcrop of the ultramafic body did not allow an accurate determination of the density and extent of the asbestos veins. Quartz veins in the ultramafic body contain chalcopyrite (Doyon Limited, 1987).

Alteration:

Age of mineralization:

Deposit model:

Asbestos and chalcopyrite associated with a small ultramafic body.

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

Production Status: None

Site Status: Undetermined

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:

Doyon Limited, 1987; Dover, 1994.

Primary reference: Doyon Limited, 1987

Reporter(s): K.H. Clautice (Alaska Division of Geological and Geophysical Surveys)

Last report date: 3/15/02

Site name(s): Unnamed (base of Pink Bluff)

Site type: Occurrence

ARDF no.: BR003

Latitude: 66.4411 **Quadrangle:** BR B-2

Longitude: 141.5205

Location description and accuracy:

This occurrence is an outcrop at the base of Pink Bluff about 50 feet from the south bank of the Salmon Fork of Black River. It is about 0.2 mile downstream of the mouth of Runt Creek, in the SW1/4SW1/4 section 27 (almost on boundary with section 28), T. 19 N., R. 29 E., of the Fairbanks Meridian. The location is accurate within several hundred feet.

Commodities:

Main: Pb, Zn

Other:

Ore minerals: Galena, sphalerite

Gangue minerals: Calcite

Geologic description:

Sphalerite and galena occur in a gossan zone about 60 feet long and 2 feet wide in mottled pink and gray dolomite (K.H. Clautice, unpublished field data, 1992). A grab sample of massive galena veined with calcite assays 80.69 percent lead, and a sample of dense, brick-red gossan contains 18,557 ppm zinc (U.S. Bureau of Mines, 1995). Lead isotope ratios (Clough and others, 1993) are similar to those of Lower Cambrian (about 520 Ma) 'Older Carbonate' -hosted zinc-lead deposits in western Canada (Godwin and others, 1982). Dover (1994) maps the dolomite as part of the Lower Cambrian and Proterozoic, Tindir Group, which consists predominantly of carbonate, quartzite, argillite, and subordinate volcanic rocks. Stromatolites resembling those of the Pack Formation of the Tindir Group occur in the vicinity (Doyon Limited, 1977).

Alteration:

Iron oxides.

Age of mineralization:

Lead isotope ratios (Clough and others, 1993) are similar to those of Lower Cambrian (about 520 Ma) 'Older Carbonate' -hosted zinc-lead deposits in western Canada (Godwin

and others, 1982).

Deposit model:
Southeast Missouri Pb-Zn (Cox and Singer, 1986; model 32a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):
32a

Production Status: None

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:
Brabb, 1970; Doyon Limited, 1977; Godwin and others, 1982; Clough and others, 1993; Dover, 1994; U.S. Bureau of Mines, 1995.

Primary reference: U.S. Bureau of Mines, 1995

Reporter(s): K.H. Clautice (Alaska Division of Geological and Geophysical Surveys)

Last report date: 3/14/02

Site name(s): Unnamed (east-southeast of Racquet Creek)

Site type: Occurrence

ARDF no.: BR004

Latitude: 66.3990 **Quadrangle:** BR B-1

Longitude: 141.0285

Location description and accuracy:

The approximate location of this occurrence is about 1.5 miles east-southeast of the mouth of Racquet Creek, in the SE1/4 section 11, T. 18 N., R. 31 E., of the Fairbanks Meridian. The location is accurate within 1 mile.

Commodities:

Main: Mo

Other: W

Ore minerals: Molybdenite, scheelite?

Gangue minerals:

Geologic description:

Minor molybdenite occurs in a hornfels zone adjacent to a small granitic stock; samples of the hornfels also contain up to 75 ppm tungsten (Doyon Limited, 1987). The general area is underlain by the Lower Cambrian to Proterozoic, Tindir Group, which is predominantly carbonate, quartzite, argillite, and subordinate volcanic rocks. The Tindir Group rocks have been thrust over undivided cherty limestone, shale, and other clastic rocks of Triassic to Missippian age (Dover, 1994).

Alteration:

Hornfels.

Age of mineralization:

Deposit model:

Molybdenite in hornfels

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

Production Status: No

Site Status: Inactive

Workings/exploration:

Production notes:

Reserves:

Additional comments:

References:
Dover, 1994; Doyon Limited, 1987.

Primary reference: Doyon Limited, 1987

Reporter(s): K.H. Clautice (Alaska Division of Geological and Geophysical Surveys)

Last report date: 3/14/02

Site name(s): Midnight Hill; North Midnight

Site type: Prospects

ARDF no.: BR005

Latitude: 66.0517 **Quadrangle:** BR A-1

Longitude: 141.1303

Location description and accuracy:

The approximate center of the area of these prospects is about one mile west of the top of Midnight Hill, in the SW1/4 section 11, T.14 N., R.31.E., of the Fairbanks Meridian. The prospects occur along an east-west trending gossan, about 250 feet wide, that extends for about 900 feet . Another, smaller, gossan is located approximately 1000 feet to the northeast (Bright, 1989). The location is accurate within 500 feet. These prospects are located on Doyon, Ltd. conveyed land.

Commodities:

Main: Zn

Other: Ag, Cu, Pb

Ore minerals: Cerussite, malachite, pyrite, smithsonite, sphalerite

Gangue minerals: Iron oxides, quartz

Geologic description:

Bedrock in the area consists chiefly of Carboniferous to Permian, grayish black shale and argillite, and dark-gray limestone (Brabb, 1970). Upper Proterozoic to Lower Paleozoic, Tindir Group carbonate, quartzite, argillite, and subordinate volcanic rocks also occur (Dover, 1994).

Iron-stained, gossanous, soil and rock outline a prominent, north-trending fault zone that separates Precambrian dark gray limestone and dolomite to the west from Paleozoic quartzite to the east (Doyon Limited, 1987; North Star Exploration, 2002). A limestone block in the middle of the fault zone may either be in place, or, more likely, a fault-displaced fragment. The fault zone is approximately 130 meters wide and occupies a saddle between prominent outcrops of quartzite to the east and more subdued and lower-relief outcrops of limestone and dolomite to the west. The quartzite is massive and blocky; bedding and most fractures strike approximately north and dip 80 to 85 W. Other sets of fractures strike N35W to N55W, and dip 65 to 70 SW; and strike N50E and dip 77 NW. There are minor quartz veinlets in the massive quartzite. Minor iron-oxide staining occurs along some fractures.

The dark gray limestone and dolomite unit strikes about N77W and dips 26 NE. This

carbonate unit is fine-grained and has a distinctive phyllitic texture probably developed during shearing associated with the faulting. Minor karst development and fossils occur near the base of the unit (Doyon Limited, 1987). Minor black sphalerite occurs on joint surfaces; minor cerussite, smithsonite and malachite are locally present. The bedding steepens adjacent to the fault (North Star Exploration, 2002). Partly oxidized pyrite cubes occur in an east-west-trending, limestone-hosted gossan, 800 feet long by 250 feet wide. The gossan is typically spongy, brick red to black limonite after siderite, and it also contains minor boxworks and smithsonite (Doyon Limited, 1987).

These prospects were discovered in 1976 during follow-up of a color anomaly identified in a petroleum exploration program carried out by Louisiana Land and Exploration. In 1976 and 1978, WGM Inc. conducted soil, silt, and rock sampling, and magnetic and electromagnetic surveys over the area (Doyon Limited, 1987). They collected approximately 500 silt, soil, and rock-chip samples. Grab samples of rocks contain up to 4.4 percent zinc, 587 ppm lead, 34 ppm silver, and 0.16 percent copper. Soil samples contain up to 6,900 ppm zinc. In 1978, WGM, Inc. drilled three BQ holes totaling 800 feet to test the gossan, but the holes did not intersect significant mineralization. The highest zinc assay in the core was 1240 ppm. Geophysical surveys did not indicate a large target at depth (Jirik and others, 1979).

In the mid-1970's, the U.S. Geological Survey (1997) conducted a water geochemical survey in the Black River quadrangle. Their highest zinc anomaly is in Bull Creek, about three miles west of Midnight Hill, which drains this prospect area. Water at that sample site contains up to 1,584 ppb zinc, along with elevated barium, cobalt, chromium, iron, magnesium, manganese, and vanadium.

Alteration:

Partly oxidized pyrite cubes occur in an east-west-trending, limestone-hosted gossan, 800 feet long by 250 feet wide (Doyon Limited, 1987). Typical gossan is spongy, brick red to black limonite after siderite. Small gossans also occur along the north-trending fault zone. Local oxidation of copper, lead, and zinc minerals.

Age of mineralization:

Deposit model:

Appalachian-type zinc deposit in carbonate rocks (Cox and Singer, 1986; model 32b)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

32b

Production Status: No

Site Status: Inactive

Workings/exploration:

These prospects were discovered in 1976 during follow-up of a color anomaly identified in a petroleum exploration program carried out by Louisiana Land and Exploration. In 1976 and 1978, WGM, Inc. conducted soil, silt, and rock sampling, and magnetic and

electromagnetic surveys over the area (Doyon Limited, 1987). They collected approximately 500 silt, soil, and rock-chip samples. Grab samples of rocks contain up to 4.4 percent zinc, 587 ppm lead, 34 ppm silver, and 0.16 percent copper. Soil samples contain up to 6,900 ppm zinc. In 1978, WGM, Inc. drilled three BQ holes totaling 800 feet to test the gossan, but the holes did not intersect significant mineralization. The highest zinc assay in the core was 1240 ppm. Geophysical surveys did not indicate a large target at depth (Jirik and others, 1979).

Production notes:

Reserves:

Additional comments:

These prospects are on Doyon, Ltd. conveyed land. For more information contact Doyon, Ltd., Fairbanks, Alaska.

References:

Brabb, 1970; Jirik and others, 1979; Doyon Limited, 1987; Bright, 1989; Dover, 1994; Schmidt, 1997; North Star Exploration, 2002.

Primary reference: Jirik and others, 1979

Reporter(s): K.H. Clautice (Alaska Division of Geological and Geophysical Surveys)

Last report date: 03/14/02

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U.S. Bureau of Mines, 1995, Final report of the mineral resource evaluation of the Bureau of Land Management Black River and Fortymile River Subunits: U.S. Bureau of Mines Open-File Report 79-95, p. A-161, B-27, C-2, D-4.

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