UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUMMARIES OF DATA ON AND LISTS OF REFERENCES TO METALLIC AND SELECTED NONMETALLIC MINERAL OCCURRENCES IN THE AMBLER RIVER QUADRANGLE, ALASKA, SUPPLEMENT TO OPEN-FILE REPORT 75-628

PART A -- SUMMARIES OF DATA TO JANUARY 1, 1981

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Open-File Report 81-570 A
1981

Introduction

This report was prepared as a supplement to a 1975 report which summarized data on mineral occurrences in the Ambler River and other quadrangles in northern Alaska (Cobb, E. H., 1975, Summary of references to mineral occurrences (other than mineral fuels and construction materials) in northern Alaska: U.S. Geological Survey Open-File Report 75-628, 106 p.). As a result of suggestions from users of the series of which the 1975 report is a part, this supplement is released in two parts: Part A, which presents summaries of data to January 1, 1981, and Part B, which consists of reference lists for each occurrence.

In Part A data from most reports released between the cut-off date (January 1, 1975) for the original report and January 1, 1981, have been incorporated in rewritten or new summaries where appropriate. For each occurrence described in Part A the name, U.S. Bureau of Mines mining district, reference that has the occurrence plotted on a map, list of mineral commodities, and location data are in the same format as in the 1975 report. Also included is an updated list of synonyms, owner, operator, and claim names.

In both parts citations are in standard bibliographic format with the exception that references to reports and maps in numbered publication series also show, in parentheses, an abbreviation for the report or map series and the number of the report or map. Abbreviations used are:

AOF	Alaska Division of Geological and Geophysical Surveys Open-File Report
B	U.S. Geological Survey Bulletin
C	U.S. Geological Survey Circular
GR	Alaska Division of Geological and Geophysical Surveys (and predecessor State agencies) Geologic Report
IC	U.S. Bureau of Mines Information Circular
OF	U.S. Geological Survey Open-File Report
MF	U.S. Geological Survey Miscellaneous Field Studies Map
P	U.S. Geological Survey Professional Paper
RI	U.S. Bureau of Mines Report of Investigations
TDM	Alaska Territorial Department of Mines Pamphlet
USBM OF	U.S. Bureau of Mines Open-File Report

In Part B citations to the principal references used in preparing summaries in Part A are preceded by an asterisk. The form of citation used in the reference list for each occurrence is considered sufficient identification for each numbered report or map to be found easily in most libraries. Complete references to reports without identifying numbers are listed at the end of Part B.

The following five U.S. Bureau of Mines Open-File Reports were not used in preparing this supplement, because descriptions of most occurrences are not sufficiently detailed to allow evaluation of deposits. In many descriptions it is not possible to determine if a potentially valuable

mineral was identified or if the report is based solely on an analysis of a sample collected during a geochemical survey. Most specific data are also in other reports, such as Degenhart and others, 1978 (USBM OF 103-78) and Grybeck, 1977 (OF 77-166C).

Staff, Alaska Field Operations Center, 1978, Mineral data appraisal of the proposed Noatak National Ecological Reserve, Alaska: A preliminary comment: U.S. Bureau of Mines Open-File Report 67-78, 33 p.

_____1978, Mineral appraisal of the proposed Gates of the Arctic Wilderness National Park, Alaska: A preliminary comment: U.S. Bureau of Mines Open-File Report 109-78, 29 p.

_____1978, Mineral appraisal of the proposed Kobuk Valley National Park, Alaska: A preliminary comment: U.S. Bureau of Mines Open-File Report 110-78, 31 p.

_____1979, A mineral appraisal of the areas traversed by the Kobuk, Killik, Alatna and John Rivers and the North Fork of the Koyukuk River, Brooks Range, Alaska: A summary report: U.S. Bureau of Mines Open-File Report 36-79, 23 p.

_____1979, A mineral appraisal of the areas traversed by the Salmon and Noatak Rivers in the western Brooks Range; A summary report: U.S. Bureau of Mines Open-File Report 50-79, 16 p.

(Agnes Cr.)	Gold
Kiana district OF 78-120I, loc. 16	Ambler River (10.3, 3.9) approx. 65°13'N, 157°29'W approx.

A little placer gold was recovered. Most of the work was prospecting in 1930's rather than mining. See also (Ambler Valley).

(Ambler R., headwaters)	Copper
Kiana district OF 78-120I, locs. 59-61	Ambler River (16.3-16.7, 10.1-10.9) 67°33'-67°36'N, 156°30'-156°34'W

Malachite in quartz veins or conglomerate. At loc. 60 (67°35'N, 156°32'W) quartz veins (traceable for at least 50 m) in marble near contact with phyllite also contain azurite and chalcopyrite.

(Ambler Valley)	Gold
Kiana district	Ambler River E 1/2 quad.

Coarse gold reported to have been mined. See also (Agnes Cr.), to which the principal reference to this occurrence probably refers.

Arctic (Camp)	Copper, Gold, Lead, Silver, Zinc
Shungnak district OF 78-120I, loc. 42	Ambler River (18.0, 3.55) 67°11'N, 156°21'W

Polymetallic stratabound volcanogenic deposit within a suite of low- to medium-grade igneous and pelitic schists. Pyrite, chalcopyrite, and sphalerite comprise 20%-90% of sulfide horizons 0.3 to more than 18 m thick in a triangular-shaped mineralized zone about 1,030 x 730 m in plan and about 90 m thick. Principal sulfides are accompanied by small amounts of pyrrhotite, chalcocite, bornite, and galena, and traces of tennantite. Small gossan cap. Sulfides occur as high-grade disseminations and as massive layers parallel to foliation and original bedding. Host rock of volcanic origin has U-Pb age of 360 $\pm$ 10 m.y.; interlayed marble contains poorly preserved Devonian(?) fossils. The deposit was metamorphosed about 90 m.y. ago. Deposit was drilled and estimated to contain 27-32 million tonnes (30-35 million tons) of material averaging 4% Cu, 5.5% Zn, 1% Pb, 5.14 g tonne (1.5 oz/ton) Ag, and a small amount of Au.

(Asbestos Mtn.)	Asbestos, Jade, Quartz, Talc
Shungnak district OF 78-120I, loc. 29	Ambler River (14.9, 1.45) 67°01'N, 156°50'W

Serpentinized ultramafic body contains veins and veinlets of cross- and slip-fiber tremolite and chrysotile asbestos, small deposits of talc and soapstone, and nephrite. During World War II about 33.1 tonnes (36.5 tons) of tremolite was mined from a trench and shipped to use in filters. About 0.9 tonne (1 ton) of chrysotile was shipped at the same time. A little over 1/2 ton of USBM samples tested was found not suitable for spinning. Optical quartz crystals collected from float from veins near the head of Dahl Cr. were shipped in 1943. 76-m adit designed to intersect asbestos veins exposed at surface did not disclose minable material. Includes ref-

erences to bedrock occurrences at head of Dahl Cr. and to Ing-Ihk. See also (Dahl Cr.) Shungnak quad.

(Aurora Mtn.) — Copper, Gold, Lead, Silver

Shungnak district — Ambler River (13.0-13.5, 1.2-1.35)
OF 78-120I, locs. 21, 22 — 67°03'-67°04'N, 157°02'-157°06'W

Host rocks at loc. 21 (67°04'N, 157°06'W) consist of quartz-mica schist underlain by carbonate. Schist has thinly interlayered pyrite and chalcopyrite. Brownish-weathering dolomitic zones in carbonate have disseminated blebs of chalcopyrite and bornite with malachite on weathered surfaces [Mayfield, personal observation, 1978]. At loc. 22 (67°03'N, 157°02'W) [commonly called Pardners Hill] structure is generally synclinal with dolomitic limestone (some reefoid) above (probably a fault contact) phyllitic schist. Near contact chalcopyrite, bornite, galena, and secondary copper minerals are in dolomitic reef breccia. Selected samples of sulfide minerals contained as much as 1.37 g/tonne (0.04 oz/ton) Au and 47.9 g/tonne (1.4 oz/ton) Ag. Explored by a 22-ft shaft, an adit, trenching, and drilling. Data on grade and tonnage not available. Has been no mining. Includes references to (Pardner(s) Hill) and to lodes at head of Cosmos Cr.

(Bismark Cr.) — Gold

Shungnak district — Ambler River (12.15, 0.85) approx.
MF-454, loc. 9 — 67°02'N, 157°13'W approx.

Creek gravels near mouth, as much as 20 ft thick, contain flour gold. Two small prospect pits yielded 0.075 and 0.045 oz/yd^3 Au.

(Bismark Mtn.) — Asbestos, Jade

Shungnak district — Ambler River (11.85-11.9, 0.95-1.1)
OF 78-120I, loc. 18 — 67°03'N, 157°15'-157°16'W

Highly serpentinized zones in a large mass of ultramafic rocks in schist contain slip-fiber and short cross-fiber chrysotile in veins and veinlets 1/2- 2 in wide. Two tons of bulk samples shipped during World War II for testing; asbestos not suitable for high-class industrial uses. Magnesite veinlets also present. Nephrite near some serpentinite contacts. See also (Shungnak R.).

(Boulder Cr.) — Gold

Shungnak district — Ambler River (15, 0)(?)
67°01'N, 156°45'W approx.(?)

Small-scale placer gold mining was reported from 1933 to 1939. Location uncertain; tributary of Kogoluktuk R.

(Canyon Cr.) — Gold

Shungnak district — Ambler River (16.15, 0.4)
OF 79-120I, loc. 31 — 67°00'N, 156°38'W

Fine gold found in prospect shaft sunk 40 ft in unfrozen ground without reaching bedrock; in 1931 or earlier.

(Cosmos Cr.)	Asbestos, Gold, Jade
Shungnak district OF 78-120I, loc. 20	Ambler River (12.75 - 12.95, 0.5-0.75) 67°01'-67°02'N, 157°06'-157°08'W

Low-grade chrysotile in thin veinlets in sheared serpentinite near creek. Colors of gold throughout 40 ft of gravel penetrated by prospect shafts; no minable concentrations found. Nephrite boulders in creek gravels have been collected and sold. See (Aurora Mtn.) for data on metallic lodes at head of creek.

(Dead Cr.)	Copper, Lead, Zinc
Shungnak district OF 78-120I, loc. 41	Ambler River (16.8, 3.7) 67°11'N, 156°32'W

Pyrite, chalcopyrite, bornite, sphalerite, and minor galena present as disseminated grains and semimassive lenses in coarse-grained quartz-muscovite schist. Mineralized schist is between layers of greenstone, some of which actually may be tuffaceous or argillaceous dolomite. Several diamond-drill holes put down, but results not released. No data on probable silver and gold content.

(Diane Cr.)	Copper, Zinc
Shungnak district OF 78-120I, loc. 43	Ambler River (18.9, 3.1) 67°09'N, 156°13'W

Disseminated chalcopyrite, bornite, sphalerite, and pyrrhotite in calcareous schist and calc-silicate rocks; mainly as float.

(Horse Cr.)	Copper, Lead, Zinc
Kiana district OF 78-120I, loc. 39	Ambler River (15.3, 5.35) 67°17'N, 156°45'W

Country rock is interbedded porphyroblastic quartz-muscovite-calcite schist, graphitic schist, greenstone (some with definite pillow structures), and weakly metamorphosed semischistose graywacke. Interbedded graywacke and porphyroblastic schist contain pyrite, chalcopyrite, bornite, galena, and sphalerite in lenses, stringers, disseminations, and (in places) massive pods. No data on probable precious-metal content.

(Hunt R.)	Asbestos, Gold(?)
Kiana district OF 78-120I, loc. 9 (in part)	Ambler River (3.0, 5.8) (in part) 67°20'N, 158°33'W (in part)

Mountain leather and tremolite asbestos with fibers 2 in long from veinlet not more than 1/2 in wide in serpentine at loc. 9 (67°20'N, 158°33'W). Unverified report of vein quartz carrying more than $100/ton in gold (at $20.67) from Hunt R. near Jade Mts.

(Imelyak R.)	Barite, Copper, Lead, Zinc
Noatak district OF 78-120I, locs. 75, 76	Ambler River (11.85, 11.0-11.35) 67°37'-67°38'N, 157°13'W

At loc. 75 (67°38'N, 157°13'W) sphalerite and galena in shear zone less than 1 m wide and barite, malachite, and azurite in vein less than 2 m wide; both in limestone. At loc. 76 (67°37'N, 157°13'W) malachite, azurite, and chalcopyrite in small pods and fracture surfaces in quartz conglomerate below a thrust fault.

(Iron Mtn.) — Iron

Shungnak district — Ambler River (13.85, 1.0)
MF-454, loc. 5 — 67°03'N, 156°59'W

Float specimens of magnetite weighing as much as 100 lb or more are common, but none of this material has been found in place. Magnetite seems to be most common near bedrock contacts between limestone and schist.

(Jade Mtn.) — Asbestos, Jade, Nickel

Kiana district — Ambler River (6.45-8.2, 3.1-3.8)
OF 78-120I, locs. 14, 15 — 67°10'-67°13'N, 157°48'-158°03'W

At loc. 14 (67°12'-67°13'N, 158°03'W) a highly serpentinized ultramafic rock underlying an area of at least 2 mi^2 contains nephrite jade and small amounts of cross-fiber chrysotile and tremolite asbestos; some slip-fiber chrysotile also, with fibers as much as 5 in long. Large nephrite boulders, some weighing several tons, form an extensive residual deposit on hillside. There has been minor production of nephrite from stream gravels. Some nephrite of gem quality has been mined. At loc. 15 (67°10'N, 157°48'W) ultramafic rocks contain garnierite or a closely related nickel mineral. Includes references to: (Jade Cr.), (Jade Hills). See also (Jade Mts.)

(Jade Mts.) — Copper, Lead

Kiana district — Ambler River (5.7, 4.4)
OF 78-120I, loc. 13 — 67°15'N, 158°10'W

A vein in limestone contains malachite, azurite, and galena.

(Jay Cr.) — Gold

Shungnak district — Ambler River (13.95, 1.55)
OF 78-120I, loc. 23 — 67°05'N, 156°57'W

Bedrock is phyllite. A little placer gold was recovered in 1931.

(Kaluich area) — Copper, Fluorite, Lead

Noatak district — Ambler River (5.35-5.6, 9.85-9.95)
OF 78-120I, loc. 6 (in part) — 67°34'N, 158°10'-158°12'W

Contact-metamorphic deposit. Minor amounts of galena, fluorite, and malachite in granite in zone near contact with black, soft siltstone and carbonate rocks over a distance of about 1.6 km. Area of 13 km^2 geochemically anomalous in Pb and Zn.

(Kaluich Cr.) — Copper

Noatak district — Ambler River (4.25, 11.3)
OF 78-120I, loc. 2 — 67°39'N, 158°22'W

Small malachite-stained quartz vein in iron-rich black phyllite, which is geochemically anomalously high in Ag, Ba, Mo, and V in a zone extending along strike for at least 2.5 km.

(Kav) — Antimony, Copper, Silver

Noatak district — Ambler River (14.8, 14.4)
OF 78-120I, loc. 71 — 67°48'N, 156°46'W

Dolomite breccia with quartz veins contains tetrahedrite, tennantite(?), chalcopyrite, azurite, and malachite. Breccia is overlain and underlain by limestone (some marble). Occurrence consists of 3 bedrock exposures and talus in an area of 0.15 mi^2. Samples contained 0.36%-33.8% Cu, as much as 3.2% Sb, small amounts of Pb and Zn, and 0.4-4.9 oz/ton Ag. Insufficient data to determine source of mineralization or to evaluate resource.

(Kobuk R.) — Jade(?)

Kiana district — Ambler River (0.3, 2.5)
OF 78-120I, loc. 12 — 67°09'N, 158°56'W

Claims staked, 1978-70. "Jade cutting" reported.

Malfiatti — Copper

Kiana district — Ambler River (0.0, 9.25)
MF-454, loc. 1 — 67°32'N, 159°00'W

Prospect on copper lode; reported to be between limestone and schist. Discovered about 1912.

(Midas Cr.) — Gold

Noatak district — Ambler River (18.3, 15.2)
MF-454, loc. 12 — 67°51'N, 156°14'W

Small particles of gold, found in 1904, may have been derived from metamorphic rocks south of the Noatak R. or concentrated from glacial outwash. Piece of quartz float assayed 7.2 ppm Ag and 145 ppb Au.

(Nanielik Cr.) — Barite

Noatak district — Ambler River (0.9, 16.25)
OF 78-120I, loc. 1 — 67°56'N, 158°52'W

One-meter-thick barite vein in limestone. Nearby soil contains 1,000 ppm Pb and 5,000 ppm Zn.

(Natmotirak Cr.) — Copper, Silver

Noatak district — Ambler River (0.75, 12.1)
OF 78-120I, loc. 3 — 67°41'N, 158°53'W

Vein less than 1 m wide in limestone contains visible chalcopyrite and malachite. Rock sample contained 10 ppm Ag.

(Ningyoyak Cr.) — Copper

Noatak district — Ambler River (17.7, 15.7)
OF 78-120I, loc. 64 — 67°52'N, 156°19'W

Malachite and chalcopyrite in quartz-carbonate stringers in phyllite exposed in an area about 75 x 100 ft and to a depth of about 10 ft. Has been a little trenching.

(Pearl Cr.) — Gold

Shungnak district — Ambler River (14.85, 1.8) approx.
OF 78-120I, loc. 32 approx. — 67°05'N, 156°50'W approx.

Small-scale mining in 1933 reported; tributary of Shungnak R.; location uncertain.

(Que Cr.) — Copper

Shungnak district — Ambler River (19.45, 2.8)
OF 78-120I, loc. 44 — 67°08'N, 156°09'W

Stratabound volcanogenic deposit. Disseminated malachite in muscovite-quartz schist for at least 275 m along strike.

(Riley Cr.) — Gold

Shungnak district — Ambler River (14.4-14.55, 0.95-1.05)
OF 78-120I, loc. 28 — 67°03'N, 156°53'-156°54'W

Eluvial placer near head of creek was 200 m long, less than 10 m wide, and about 2 m thick; contained large exotic greenstone boulders. Gold fine, angular, and spongy with considerable attached quartz. Much of gold in bedrock crevices. Bedrock is black slate, phyllite, and limestone; many quartz veins, some of which contain visible free gold. Mining before 1910, in 1917, and annually from 1933 to 1940. Total production probably small.

(Ruby Cr.) — Antimony, Barite, Cobalt, Copper, Fluorite, Germanium, Gold, Lead, Silver, Uranium(?), Zinc

Shungnak district — Ambler River (14.0-14.2, 1.4-1.7)
MF-454, loc. 6 — 67°04'-67°05'N, 156°56'-156°57'W

Deposit structurally and stratigraphically controlled in a 760-m-thick Devonian sequence consisting of dolomite, limestone, and calcareous phyllite. Sulfide minerals fill open spaces and occur as replacement bodies in brecciated reefoid carbonate rocks. Mineralized bodies generally have longest dimension parallel to bedding. Wall rocks typically do not show alteration. Sulfide minerals are mainly pyrite, chalcopyrite, and bornite; others include tennantite-tetrahedrite, sphalerite, chalcocite, galena, pyrrhotite, marcasite, carrollite (a cobalt-copper sulfide), germanite (a germanium-bearing copper-iron sulfide), and covellite. Other minerals identified include cymrite (a hydrous silicate containing barium), malachite, azurite, native copper, native silver, cuprite, barite, and fluorite. An unidentified radioactive mineral is present; selected samples contained as much as 0.02% eU, but the uranium content of the ore apparently is negligible. Origin of deposit is speculative. Sulfur-isotope studies (by Runnels) suggest a magmatic hydrothermal origin and that copper may have come from nearby mafic intrusive rocks. Fritts concluded that the deposit is allochthonous and related to the solutions responsible for serpentinization of mafic rocks in the general area.

Another possible source is magmatic hydrothermal solutions from granitic plutonic rocks underlying the Cosmos Hills dome. Mineralization also may be related in time and origin to volcanogenic deposits to the north such as Arctic deposit. The deposit has been known since the early 1900's, but most exploration (many tens of thousands of feet of drilling, a shaft more than 1,000 ft deep, and drifts on 2 levels) has been since 1957. Current grade and tonnage figures are not available. A resource estimate published in 1975 was 5 million tons of material with 4%-5% Cu. A little placer gold is reported to have been recovered from Ruby Cr. many years ago. Includes references to (Bornite).

(Shishakshinovik Pass)	Antimony, Copper, Gold, Lead, Molybdenum, Silver, Zinc
Noatak and Shungnak districts OF 78-120I, locs. 50-52	Ambler River (18.0-18.4, 7.7-8.4) 67°25'-67°27'N, 156°17'-156°20'W

A prospector reported at loc. 50 (67°27'N, 156°19'W) "a considerable deposit of copper ore..." and native copper in streams. Float from the north side of the divide contained tetrahedrite. Assays of selected samples showed 9.81% Cu, 27.73% Pb, and some Au and Ag. At loc. 51 (67°25'N, 156°20'W) quartzitic rocks in contact aureole around a granite pluton contain numerous small quartz veins and veinlets with chalcopyrite. At loc. 52 (67°25'N, 156°17'W) granite near the contact zone contains minor amounts of galena, sphalerite, and molybdenite; high geochemical anomalies in area; sample of a float boulder contained 2% Pb, 1.6% Zn, and more than 102.8 g/tonne (3 oz/ton) Ag.

(Shungnak R.)	Asbestos, Copper, Gold, Jade, Silver
Shungnak district MF-454, loc. 9	Ambler River (11.75-12.15, 0.2-0.9) 67°00'-67°02'N, 157°13'-157°17'W

Intermittent placer mining from 1898 to as recently as 1940; only slight activity 1915-28. Both creek and bench placers. Bedrock black slate, limestone, and schist in canyon; deeply buried by glacial deposits elsewhere. Coarse gold on and in crevices of bedrock in canyon; very fine gold on false bedrock below canyon. Concentrates mainly magnetite; nuggets of native copper and silver. Data on production poor; total may have been as much as 10,000 oz. Serpentinite with nephrite and some asbestos about half way up canyon. Good quality nephrite jade boulders have been collected from gravels and sold. Includes references to (Shingnek Cr.). See also (Bismark Mtn.).

(Sleat Cr.)	Copper
Kiana district OF 78-120I, loc. 37	Ambler River (12.25, 5.2) 67°17'N, 157°12'W

Malachite staining in muscovite-quartz schist. Volcanogenic deposit.

Smucker	Antimony, Copper, Silver, Zinc
Kiana district OF 78-120I, loc. 36	Ambler River (12.4, 5.3) 67°18'N, 157°10'W

Country rock mainly dark-gray, well foliated porphyroblastic muscovite-chlorite schist that locally is graphitic and biotitic. Section repeated several times in nappes. Sulfides (pyrite, sphalerite, and chalcopyrite with local tennantite-tetrahedrite) generally coarse grained in tabular masses with matrix of quartz and calcite; most common hosts are graphitic schist and a fine-grained siliceous rock (possibly a metarhyolite). Drill samples 820 m apart at surface indicated layered sulfide zone(s?) 3-9 m thick assaying 100-255 g/tonne (3-15 oz/ton) ag, 2%-8% Zn, and 1%-1.6% Pb. Volcanogenic deposit. Includes references to: Charlie, Patti, Puzzle

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(Sunshine Cr.) — Copper, Lead

Shungnak district — Ambler River (16.1, 4.1)
OF 78-120I, loc. 40 — 67°13'N, 156°38'W

Details and resource data not published; Bear Creek Mining Co. prospect said to be similar to Arctic deposit. Copper and lead assumed to be present, as probably are other mineral commodities. See also Arctic.

(Tunukuchiak Cr.) — Gold(?)

Noatak district — Ambler River (16.4, 13.4) approx.
67°45'N, 156°33'W approx.

Placer gold reported. Deposit said to be similar to that at Midas Cr. See also (Midas Cr.).

(Wesley Cr.) — Asbestos, Jade, Lead

Shungnak district — Ambler River (13.6, 0.3) approx.
OF 78-120I, loc. 26 approx. — 67°00'N, 157°01'W approx.

Quartz veins in dolomite west of creek contain a little galena; explored by a shallow prospect hole. Tremolite asbestos and gem-quality nephrite jade near head of creek.

Unnamed occurrence — Antimony, Lead

Kiana district — Ambler River (5.9, 8.1)
OF 78-120I, loc. 7 — 67°28'N, 158°08'W

Boulangerite ($Pb_5Sb_4S_{11}$) in reddish-weathering dolomite.

Unnamed occurrence — Asbestos, Copper

Kiana district — Ambler River (1.0, 5.25)
OF 78-120I, loc. 11 — 67°18'N, 158°51'W

Asbestos veinlets and copper staining on fractures in serpentinite.

Unnamed occurrence — Asbestos, Copper

Kiana district — Ambler River (1.35, 5.5)
OF 78-120I, loc. 10 — 67°19'N, 158°48'W

Asbestos in serpentinite. Chalcopyrite and malachite in mafic rocks.

Unnamed occurrence — Copper

Kiana district — Ambler River (16.2, 7.5)
OF 78-120I, loc. 48 — 67°25'N, 156°36'W

Bornite, chalcopyrite, cuprite, and pyrite in a 6-m-thick quartz vein in limestone near contact with granite.

Unnamed occurrence — Copper

Noatak district — Ambler River (18.85, 10.75)
OF 78-120I, loc. 55 — 67°35'N, 156°11'W

Sparse massive sulfide samples containing chalcopyrite and malachite weathering from dolomite near contact with quartzite.

Unnamed occurrence — Copper

Noatak district — Ambler River (12.9, 15.35)
OF 78-120I, loc. 67 — 67°52'N, 157°03'W

Chalcopyrite, malachite, and azurite along fracture surfaces in quartzite.

Unnamed occurrences — Copper

Ambler River

The following occurrences consist of malachite, in some instances accompanied by azurite, in a variety of geologic settings. At no locality was any copper or other sulfide mineral except pyrite identified, though geochemical anomalies for various elements were reported at or near some of the occurrences.

Kiana district

(13.35, 5.0)	67°17'N, 157°02'W	OF 78-120I, loc. 38
(12.25, 5.65)	67°19'N, 157°11'W	do loc. 35
(17.1, 9.65)	67°32'N, 156°27'W	do loc. 57
(1.4, 10.8)	67°37'N, 138°47'W	do loc. 4

Boundary between Kiana and Noatak districts

(17.6, 11.1)	67°37'N, 156°22'W	OF 78-120I, loc. 56

Noatak district

(13.15, 14.7)	67°50'N, 156°01'W	OF 78-120I, loc. 68
(17.9, 12.25)	67°41'N, 156°19'W	do loc. 62
(14.5, 12.75)	67°46'N, 156°49'W	do loc. 72
(13.35, 13.8)	67°46'N, 156°59'W	do loc. 73
(12.45, 13.9)	67°47'N, 157°07'W	do loc. 74
(13.0, 15.55)	67°53'N, 157°02'W	do loc. 66

Unnamed prospect — Copper, Lead

Kiana district — Ambler River (15.8, 7.4)
OF 78-120I, loc. 49 — 67°24'N, 156°39'W

Numerous small quartz veins and veinlets with chalcopyrite and galena in quartzose rocks in contact aureole of granite. Lode claims staked in 1974.

Unnamed prospect	Copper, Lead
Kiana district OF 78-120I, loc. 47	Ambler River (16.85-17.15, 7.3-8.0) 67°24'-67°26'N, 156°27'-156°30'W

Numerous small quartz veins and veinlets with chalcopyrite and galena in quartzose rocks in contact aureole of granite. Claims staked in 1974.

Unnamed occurrence	Copper, Lead, Vanadium, Zinc
Noatak district OF 78-120I, loc. 70	Ambler River (14.45, 15.0) 67°50'N, 156°49'W

Sphalerite, galena, and malachite in small outcrop of quartzite. Nearby black pyritic phyllite contains 1,000 ppm V and 70 ppm Mo.

Unnamed occurrence	Lead
Kiana district OF 78-120I, loc. 46	Ambler River (17.25, 7.1) 67°23'N, 156°27'W

Galena, magnetite, and pyrite in float of quartz vein.

Unnamed occurrence	Uranium
Kiana district OF 78-120I, loc. 80	Ambler River (17.55, 7.65) 67°25'N, 156°23'W

Metatorbernite (copper uranyl phosphate hydrate) in quartzite talus from south side of cirque basin.

Synonyms, Owners, Operators, and Claim Names

Anaconda Co. -- see (Horse Cr.), Smucker
Arctic Circle Exploration Co., Inc. -- see (Asbestos Mtn.), (Cosmos Cr.)
Bear Creek Mining Co. -- see Arctic (Camp), (Aurora Mtn.), (Dead Cr.), (Horse Cr.), (Ruby Cr.), Smucker, (Sunshine Cr.)
Berg -- see (Ruby Cr.)
Bismark Association -- see (Shungnak R.)
(Bornite) -- see (Ruby Cr.)
Brown -- see (Shungnak R.)
Charlie -- see Smucker
Clark Association -- see (Shungnak R.)
Cliff -- see (Horse Cr.)
DH -- see (Horse Cr.)
Dugan -- see (Riley Cr.)
Ferguson -- see (Cosmos Cr.)
Garland -- see (Cosmos Cr.)
General Crude Oil Co. -- see (Horse Cr.), Smucker
Gold Bank Association -- see (Bismark Cr.)
Houston Oil & Minerals -- see (Horse Cr.), Smucker
Ing-Ihk -- see (Asbestos Mtn.)
Ingik -- see (Asbestos Mtn.)
(Jade Cr.) -- see (Jade Mtn.)
(Jade Hills) -- see (Jade Mtn.)
Jim Association -- see (Shungnak R.)
Joe Association -- see (Shungnak R.)
Kennecott Copper Corp. -- see Arctic(Camp), (Ruby Cr.)
Kobuk Alaska Mines (Co.) -- see (Shungnak R.)
McCarmant -- see (Midas Cr.)
Neversweat Association -- see (Shungnak R.)
Noranda Exploration, Inc. -- see Smucker
Norsworthy & Crangle -- see (Shungnak R.)
Northwest Alaska Mines -- see (Shungnak R.)
(Pardner(s) Hill) -- see (Aurora Mtn.)
Patti -- see Smucker
Primer -- see (Jay Cr.)
Puzzle -- see Smucker
(Shingnek Cr.) -- see (Shungnak R.)
Steptoe -- see (Dead Cr.)
Sunshine Mining Co. -- see (Horse Cr.), Smucker
313 Association -- see (Shungnak R.)
Twins Association -- see (Shungnak R.)
Wien -- see (Shungnak R.)