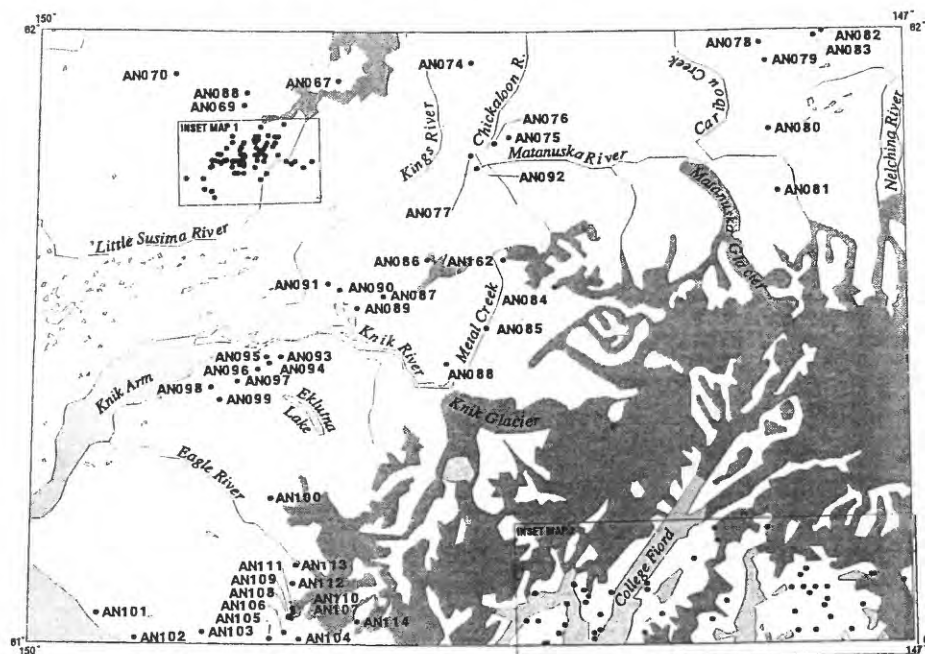


## U.S. Department of the Interior - U.S. Geological Survey

## Anchorage quadrangle

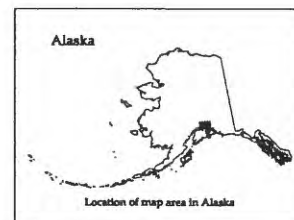
Descriptions of the mineral occurrences shown on the accompanying figure follow. See U.S. Geological Survey (1996) for a description of the information content of each field in the records. The data presented here are maintained as part of a statewide database on mines, prospects and mineral occurrences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



*Distribution of mineral occurrences in the Anchorage  
1:250,000-scale quadrangle, southcentral Alaska*

This and related reports are accessible through the USGS World Wide Web site <http://www-mrs-ak.wr.usgs.gov/ardf>. Comments or information regarding corrections or missing data, or requests for digital retrievals should be directed to Frederic H. Wilson, USGS, 4200 University Dr., Anchorage, AK 99508-4667, email [fwilson@usgs.gov](mailto:fwilson@usgs.gov), telephone (907) 786-7448. This compilation is authored by:

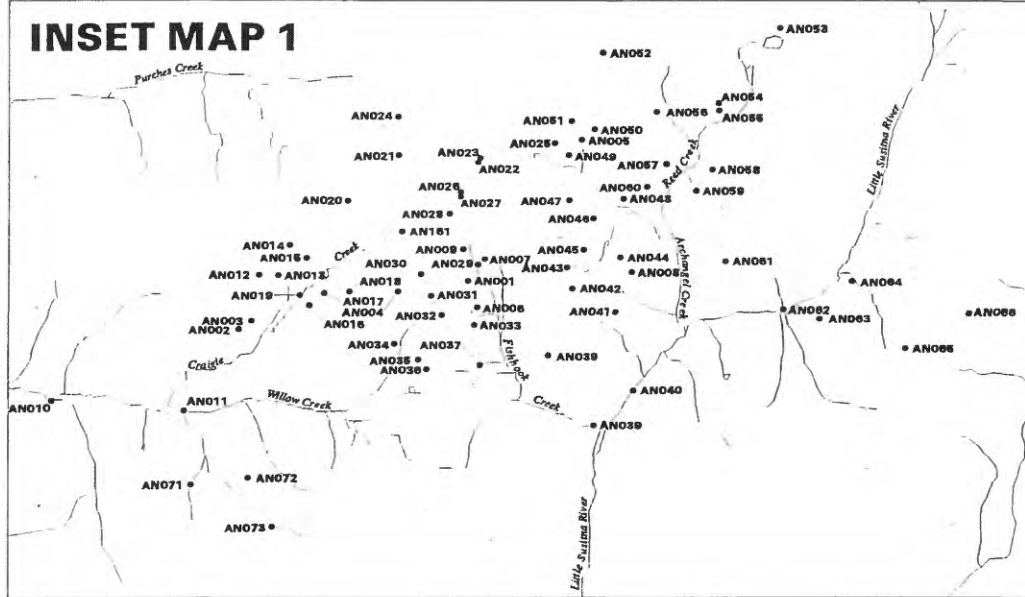
Damon Bickerstaff and Steven W. Huss  
c/o  
U.S. Geological Survey  
4200 University Drive  
Anchorage, AK 99508-4667



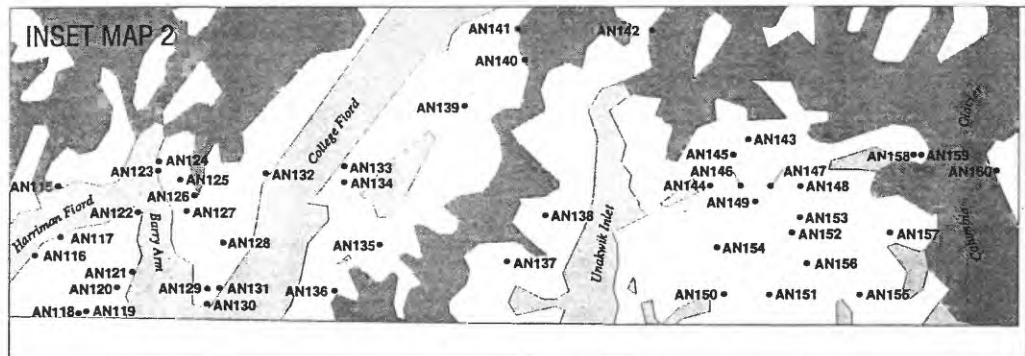
*This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards or with the North American Stratigraphic code. Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.*



### INSET MAP 1



### INSET MAP 2



**Site name(s): Independence****Site type:** Mine**ARDF no.:** AN001**Latitude:** 61.792**Quadrangle:** AN D-7**Longitude:** 149.294**Location description and accuracy:**

West of Fishhook Creek, marked with an adit symbol and labeled 'Independence Mine' on the Anchorage D-7 1:63,360-scale topographic map. Roughly 0.5 miles west of Independence Mine State Historical Park. Accurate within 400 ft. Locality 12 of Cobb (1972) and locality 10 of MacKevett and Holloway (1977).

**Commodities:****Main:** Au, W**Other:** Ag, As, Cu, Mo, Pb, Te, Zn**Ore minerals:**

Arsenopyrite, chalcopyrite, galena, gold, molybdenite, nagayite, pyrite, scheelite, sphalerite, tetrahedrite

**Gangue minerals:** Calcite, quartz**Geologic description:**

Three quartz veins - the Granite Mountain, Independence, and Skyscraper - cut Late Cretaceous quartz diorite of the Willow Creek Pluton. The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

Granite Mountain vein as Capps (1915) described averages about 22 inches thick, but pinches and swells. It is oriented N 14 to 20 W, and dips 10 to 42 SW. A few inches of gouge bounds the vein. The Granite Mountain vein contains free gold, pyrite, chalcopyrite, and specks of unidentified sulfide. All parts of this vein are reported to yield free gold by panning (Katz, 1911). This vein was thought to be an extension of the vein at Gold Cord mine (ARDF number AN007), but is probably not the same vein unless it is displaced at least 300 ft by transverse faulting (Ray, 1954). The Skyscraper vein (also seen in Martin mine - ARDF number AN006) is up to 4 ft thick, strikes approximately

south and dips 10 to 40 W (Ray, 1933). Stoll (1944) described the Independence vein: The vein follows a fault zone and has a maximum thickness of 8 ft. The quartz vein contains calcite, pyrite, arsenopyrite, scheelite, sphalerite, galena, and gold (last mineral deposited). Typical orientation of the vein is N 10 W, dipping 25 W (dip ranges from 55 W to 2 E). Vein attitude modified by at least three 'rolls,' or marked changes in the strike of the vein, that trend NW-SE. Vein is thickest where dip is lowest, highest gold values occur where dip is greatest. Gold occurs in zones of microbrecciation of quartz. Internal structures are the result of minor faulting during and after mineralization. Many minor faults cut vein cleanly rather than drag vein. The Independence vein is cut off at the south end of the main workings by a regional fault (Martin fault). The vein is not found south of the fault, possibly being displaced upward and eroded (Ray, 1954).

**Alteration:**

Oxidation of ore near the surface (Capps, 1915). Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; veins cut the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Yes; medium

**Site Status:** Inactive

**Workings/exploration:**

Staked in July (?) 1907 by William and Eugene Bartholf. Capps (1915) reported that the first mill in the district was put into operation on site in 1908. In 1909, the Alaska Gold Quartz Mining Company drove an adit 140 feet following the Granite Mountain vein. A 3-stamp mill was installed and operated part of the season. Operations were suspended, after ore changed from free-milling to base ore, pending installation of a concentrating table (Brooks, 1910). By 1910, the adit was driven an additional 10 feet and Katz (1911) reported the installation of a 2-stamp water-powered prospecting mill without concentrators. An additional 150 ft of adit was driven in 1911 with 1,500 ft of open-cut work (Brooks, 1912). Over 230 tons of ore were treated and tailings were stockpiled as no concentrator was in use on site (Brooks, 1912). Improvements in 1913 included: a 4-stamp mill (8.5 tons/day capacity), two aerial tramways extending from the ore bodies to the mill, several hundred feet of adit tunnels and stopes, and a number of open cuts on ore body outcrops (Capps, 1914). A concentrating table was in use by 1913.

Independence Gold Mining Company took over the property from Alaska Gold Quartz

Mining Company in 1914. 500 to 600 ft of aggregate underground work was completed by the end of 1914 (Brooks, 1915). Workings (Capps, 1916) included extending the main tunnel, on the Granite Mountain vein, by driving it a total of 540 ft by the end of 1915. The Independence vein was opened in 1914 and 1915 by tunnels 105 ft long and 15 ft long, and by 240 ft of outcrop stripping. Underground development in 1916 consisted of driving a 300 ft adit designed to crosscut the ore body at depth (Brooks, 1918). A new tram was also built to connect the lower level of the mine with the mill. There was no mining in 1917 as operating costs were anticipated to be too high to yield a profit. However, some ore from the Gold Cord (ARDF number AN007) was milled in the Independence mill in 1917 (Capps, 1919). In the early 1920s, the mine was investigated and developed (from the Willow Creek side of the divide) by Kelly Mines Company. Development under Kelly Mines included deeper exploration for auriferous quartz veins including crosscut tunnels below the previous workings. Due to faulting the new tunnels failed to expose sufficient ore. Kelly Mines milled ore sporadically between 1920 and 1924 using the Martin (ARDF number AN006) mill and the stamp mill on the Independence property. The company did not renew the lease for the property (Cohen, 1982). Apparently, the property was inactive from the mid- to late-1920s through the early 1930s. Around 1933 to 1935, the operators of the Gold Cord mine (ARDF number AN007), William Horning and Charles Bartholf, leased the Independence property and milled Independence ore in the Gold Cord mill. A single aerial tram connected the Independence mine workings to the Gold Cord mill (Smith, 1934).

Alaska-Pacific Mines, Inc., managed by Walter W. Stoll, purchased a lease with an option-to-buy on the Independence property in 1935, and began operating the mine in June 1936. The Martin mine (ARDF number AN006) was also operated under lease by Alaska-Pacific Mines in 1936. In October of 1936 Alaska-Pacific Mines sub-leased the Independence mine to the Wasilla Mining Company. Wasilla Mining Company continued operating the mine after Alaska-Pacific Mines purchased the Independence mine in 1937. In February 1938, the Wasilla Mining Company and Alaska-Pacific Mines, Inc. consolidated as Alaska-Pacific Consolidated Mining Co. or APC (Stoll, 1939). With consolidation, the Independence and Martin mines came under a single operator. By the early 1940s, the APC operated the Independence, Martin (ARDF number AN006), and the Gold Bullion (ARDF number AN004) mines. Between 1936 and 1942, APC processed 112,259 tons of ore yielding 140,974 ounces of gold (Pitt, 1942). In October 1942, the War Production Board determined that gold mines were non-essential to the war effort and ordered them closed. Independence mine continued operating because of the presence of scheelite, which coincidentally occurred with the gold ore. For a short time, the mine was able to produce gold and scheelite. Scheelite was hand picked with the use of ultra-violet lights. The War Production Board ordered production from the mine to cease by the fall of 1943. During 1944 and 1945 APC was permitted to continue development work and about 2,350 tons of ore was processed. Dissension from within and without APC slowed down reopening the mine after the war. Due to serious cash problems, the mine was forced to close again in 1946 (Stoll, 1997). The mine stood idle until the spring of 1949 when Walter W. Stoll returned to reopen the mine. Walter Stoll died that spring and the operation was taken over by his son, William M. Stoll. The revival was short lived, APC closed down operations in 1951 and offered mining machinery and equipment for sale in 1958.

With rising gold prices beginning in the mid-1970s, Enserch Exploration Inc. (equally owned by Enserch Corporation and Dallas, Texas businessman Starkey Wilson) began acquiring properties in and around the Independence mine area. Holdings extended for over four miles west of the Independence camp, including the Lucky Shot (ARDF number AN002), War Baby (ARDF number AN003), Gold Bullion (ARDF number AN004), Martin (ARDF number AN006), and Mabel (ARDF number AN008) properties. Coronado Mining Corporation under C. Hawley began cleaning out the old APC water tunnel at Independence in the summer of 1979 (Stoll, 1997). The Independence mine began producing gold again during the summer of 1982. An access decline to the underground workings was completed from the Willow Creek drainage and a new 200 tpd mill was built on Craigie Creek, a location suitable for receiving feed from various nearby sources (Pittman and Mulligan, 1983). In November 1982 Coronado suspended operations. Reasons for the closure were 'problems in the mill,' but Enserch hoped to re-open the mine when the problems were solved. But the project remained closed and reports are that estimates of gold potential were overly optimistic (Woodman, 1983). Or as Stoll (1997) put it, Coronado's drilling campaign apparently 'missed whatever was there.'

In the end, well over 8 miles of underground workings were dug in the Independence mine.

**Production notes:**

Between 1936 and 1942, APC processed 112,259 tons of ore yielding 140,974 ounces of gold (Pitt, 1942). Most mining spanned the 43 years between 1908 and 1951; about 188,000 ounces of gold were recovered (Stoll, 1997).

**Reserves:****Additional comments:**

The property was owned by a number of companies: Alaska Gold Quartz Mining Co., Milo Kelly, Independence Gold Mining Co., Alaska-Pacific Mines, Alaska-Pacific Consolidated Mining Company, and Enserch Exploration Incorporated. Operators include: Under Independence Gold Mining Co.: Kelly Mining Company, Horning/Bartholf, and Alaska-Pacific Mines. Under Alaska-Pacific Mines: Wasilla Mining Company. Under Enserch Exploration Inc.: Coronado Mining Corporation (adapted from Cohen, 1982).

**References:**

Brooks, 1910; Katz, 1911; Brooks, 1912; Brooks, 1913; Brooks, 1914; Capps, 1914; Brooks, 1915; Capps, 1915; Capps, 1916; Smith, 1917, BMB 142; Smith, 1917, BMB 153; Brooks, 1918; Capps, 1919; Brooks, 1922; Brooks and Capps, 1924; Brooks, 1925; Smith, 1932; Ray, 1933; Smith, 1934; Smith, 1936, B 868-A; Smith, 1937; Smith, 1938; Smith, 1939, B 917-A; Mining World, April 1940; Smith, 1941; Pitt, 1942; Smith, 1942, B 933-A; Stoll, 1944; Thorne and others, 1948; Moxham and Nelson, 1952; Ray, 1954; Cobb, 1972, MF-409; Mackevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Cohen, 1982; Pittman and Mulligan, 1983; Eakins and others, 1983; Woodman, 1983; Bundtzen and others, 1984; Kurtak, 1986; Madden and others, 1988; Stoll, 1997.

**Primary reference:** Ray, 1954

**Reporter(s):** D.P. Bickerstaff (USGS contractor); W.J. Nokleberg (USGS); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Lucky Shot; Willow Creek Mines Inc.

**Site type:** Mine

**ARDF no.:** AN002

**Latitude:** 61.779

**Quadrangle:** AN D-7

**Longitude:** 149.405

**Location description and accuracy:**

On the slope of the northwest side of Craigie Creek, 1.8 miles northeast of the junction of Craigie Creek and Willow Creek. Marked with adit symbols and labeled 'Lucky Shot Mine' on the Anchorage D-7 1:63,360-scale topographic map. Locality 5 on plate IV of Chapin (1921), locality 3 from Cobb (1972), and locality 3 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au, Cu

**Other:** Pb, Te (?), Zn

**Ore minerals:**

Arsenopyrite, chalcopyrite, galena, gold, pyrite, tellurides(?), tetrahedrite, sphalerite

**Gangue minerals:** Quartz

**Geologic description:**

Quartz veins cut quartz diorite of the Late Cretaceous Willow Creek Pluton, which is jointed and sheeted near the surface, but has less developed structures underground. The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. According to Ray (1933), auriferous quartz veins are in a block about 1,200 ft wide between two major northeastward-dipping transverse faults. Quartz veins are generally 2 to 4 ft wide and have an approximate strike of N 80 E, and an average dip of 40 N. Veins appear to belong to a single system that is displaced by major cross faults. In places the vein system branches in the hanging wall, while the footwall is marked by slickensides separating lode from fresh, unaltered country rock. Lode is cut off to the east by a fault which is estimated to have offset the vein by 600 to 700 feet to the east, as indicated by identification of the same vein in workings of the adjacent War Baby mine (ARDF number AN003). Veins contain two generations of quartz, marked by the evidence of crumpling of earlier generation and recementation by later generation. Some quartz is deposited in fissures and some in open spaces, while thick quartz lenses appear sporadically, which were likely



caused by repeated movement along fissures. Gold is in well defined ore shoots associated with pyrite, arsenopyrite, chalcopyrite, sphalerite, tetrahedrite, galena, and tellurides (Ray, 1933). Wall-rock alteration seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall rock is intensely chloritized, sericitized, and ankeritized. Reported to be no gold in wall rock (Ray, 1933). Wall-rock alteration seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; veins cut the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Yes; medium

**Site Status:** Inactive

**Workings/exploration:**

Staked in 1918 or earlier. Taken under option by Willow Creek Mines in 1918. Development commenced in 1918 with open pits and a short tunnel. Considered to be one of the major gold producers of the district from 1923 to 1942, except for 1923 and 1928 when fires damaged the surface plant. Development included several open cuts and probably about a mile of underground workings plus stopes, with the average stope width of 4 to 6 ft. Surface improvements consisted of a mill and power plant, assay shop, bunk houses to hold 100 men, and machine and blacksmith shops. The mills capacity in 1931 was 35 tons per day. Old tailings were cyanided starting around 1936 (Smith, 1938). Only the main crosscuts were accessible in 1950.

**Production notes:**

Production records were combined for the Lucky Shot and the War Baby mine (ARDF number AN003). Both mines were simultaneously operated by Willow Creek Mines. Stoll (1997) estimated the total amount of gold recovered from the Lucky Shot - War Baby vein on the northwest wall of Craigie Creek valley to be 252,000 ounces.

**Reserves:**

**Additional comments:**

The combined Lucky Shot - War Baby production of 252,000 ounces of gold makes it (them) the number one producer of gold in the district. A small amount of copper was also produced. Deposit has striking similarity to Mother lode and Grass Valley lodes of California.

**References:**

Chapin, 1920; Chapin, 1921; Brooks, 1923; Brooks and Capps, 1924; Brooks, 1925; Moffit, 1927; Smith, 1929; Smith, 1930, B 810-A; Smith, 1930, B 813-A; Smith, 1932, B 824-A; Ray, 1933; Smith, 1933, B 836; Smith, 1933, B 844-A; Smith, 1934, B 857-A; Smith, 1934, B 864-A; Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939, B 910-A; Smith, 1939, B 917-A; Capps, 1940; Smith, 1941; Smith, 1942, B 933-A; Ray, 1954; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Stoll, 1997.

**Primary reference:** Ray, 1933

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** War Baby; Willow Creek Mines Inc.

**Site type:** Mine

**ARDF no.:** AN003

**Latitude:** 61.781

**Quadrangle:** AN D-7

**Longitude:** 149.399

**Location description and accuracy:**

Marked on map with adit symbol and labeled 'War Baby Mine', above northwest bank of Craigie Creek on the Anchorage D-7 1:63,360-scale topographic map. Nearly 5,000 ft east of VABM Box. Accurate within 100 ft. Locality 3 of Cobb (1972) and locality 3 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:** Cu

**Ore minerals:** Gold

**Gangue minerals:** Quartz

**Geologic description:**

Chapin (1920) reported that four or five parallal quartz veins cut the Late Cretaceous Willow Creek Pluton. The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

Veins generally strike N 80 E, and dip 17 to 62 NW, are found in a 33 ft wide zone, and range in thickness from 1 to 15 inches. Veins appear to belong to a single system that locally branches in the hanging wall. The footwall is marked by slickensides that separate the lode from fresh country rock. The lode is a continuation of the lode at Lucky Shot (ARDF number AN002) that is offset by 600 to 700 ft. The ore mined through 1927 averaged 2.18 oz/ton Au (Ray, 1933).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate altera-

tion predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; veins cut the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Yes; medium

**Site Status:** Inactive

**Workings/exploration:**

Located in 1918, development began almost immediately with the erection of a small mill. The first production from the mine occurred in 1919 after two short tunnels and a crosscut were driven. Willow Creek Mines took over the property in 1921. War Baby was mined, with interruptions, from 1919 until 1940. There were over 2,000 ft of underground workings on 3 levels. Ray (1933) reported that production from 1922 through 1927 was from a single stope measuring 175 by 250 ft with a maximum width of 10 to 12 ft. The ore mined through 1927 averaged 2.18 oz/ton Au (Ray, 1933). There may have been some copper production, however concentrates that were shipped may have come from War Baby or Lucky Shot (ARDF number AN002) (Smith, 1930). By 1950, the mine was long closed and workings were inaccessible (Ray, 1954).

**Production notes:**

Production records were combined for the War Baby and the Lucky Shot mine (ARDF number AN002). Both mines were simultaneously operated by Willow Creek Mines. Stoll (1997) estimated the total amount of gold recovered from the Lucky Shot - War Baby vein on the northwest wall of Craigie Creek valley to be 252,000 ounces.

**Reserves:****Additional comments:****References:**

Chapin, 1920; Martin, 1920; Brooks and Martin, 1921; Chapin, 1921; Brooks and Capps, 1924; Brooks, 1925; Smith, 1926; Moffit, 1927; Smith, 1929; Smith, 1930, B 810-A; Smith, 1930, B 813-A; Smith, 1932, B 824-A; Ray, 1933; Smith, 1934, B 864-A; Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939, B 910-A; Capps, 1940; Smith, 1941; Ray, 1954; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Stoll, 1997.

**Primary reference:** Chapin, 1920

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Gold Bullion; New Bullion; Ready Bullion; Willow Creek Mines Inc.

**Site type:** Mine

**ARDF no.:** AN004

**Latitude:** 61.789

**Quadrangle:** AN D-7

**Longitude:** 149.328

**Location description and accuracy:**

Marked with adit symbols and labeled 'Gold Bullion Mine' on the Anchorage D-7 1:63,360-scale topographic map. Near top of northwestern flank of Bullion Mountain, the divide between Willow and Craigie Creeks. Accurate within 400 ft. Locality 9 of Cobb (1972) and locality 8 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:** Cu, Hg

**Ore minerals:** Chalcopyrite, cinnabar, pyrite, secondary copper minerals

**Gangue minerals:** Quartz

**Geologic description:**

Mine developed on one or more quartz veins 1.5 to 14 ft thick that are intermittently exposed over 3,000 feet of strike length (Capps, 1915). The veins cut the Late Cretaceous Willow Creek Pluton and contain gold, small amounts of pyrite, chalcopyrite, other sulfides, and copper carbonates stains. At least three normal faults are known to displace the veins. Visible slickensides and gouge occur along the vein walls (Katz, 1911). Capps (1915) reported cinnabar in cracks of quartz in one tunnel. According to Chapin (1920), most mining occurred on one vein that strikes N 10 E, and dips 14 NW. The ore mined reported to have averaged about 1.7 oz/ton Au (Ray, 1933).

The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. The K-Ar age from muscovite in a quartz-sericite selvage adjacent to a gold-bearing vein in the mine was 56 m.y., suggesting a Late Paleocene age for mineralization (Silberman and others, 1978). Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954). Oxidation of copper minerals.

**Age of mineralization:**

The K-Ar age from muscovite in a quartz-sericite selvage adjacent to a gold-bearing vein in the mine was 56 m.y., suggesting a Late Paleocene age for mineralization (Silberman and others, 1978).

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Yes; small**Site Status:** Inactive**Workings/exploration:**

First staked by William Bartholf in 1907 (Capps, 1915). From 1909 to 1927, mine was the second largest producer in the district (Ray, 1933). The first ore from the property was from an open cut on a vein outcrop. The ore was carried to the mill 1,600 ft below by pack horse. The 2-stamp mill, on Craigie Creek, had a capacity of six tons a day in 1909 (Stoll, 1997). Stoll (1997) also indicates that a 5-stamp mill was added to the property in 1911, increasing the mill capacity to 21 tons of ore per day. By 1915, a cyanide plant, five tunnels, numerous open cuts, several aerial trams, and other surface improvements were reported (Capps, 1915). According to Capps (1919) underground workings totalled more than 5,220 ft in length. The ore mined reported to have averaged about 1.7 oz/ton Au (Ray, 1933). Ray (1954) reported the old tailings were cyanided in 1939-1940 and several thousand dollars of gold was recovered.

**Production notes:**

Crediting the Gold Bullion lode with the few thousand ounces of gold obtained from the old tailings, a sum of very roughly 77,000 ounces of gold may have been recovered from the property. From 1908 to 1951, the lode was the third largest contributor of gold in the district (Stoll, 1997).

The Ready Bullion was also mined in the mid-1970's and the following is based on oral communications in 1998 with Dan Renshaw who did the work. Ore was recovered from surface pits along the ridge above the Ready Bullion adits from frozen, near-surface portions of the vein that had been left in place during early mining to protect the underground workings.

Several hundred tons were mined that ran 3 to 4 ounces of gold per ton. The ore was

trucked to the Gold Cord mill (ARDF number AN007) on upper Fishhook Creek; the last of it was milled in 1977. Mining stopped with additional ore in sight when the property was folded into a consolidation of a number of properties put together when gold was approaching \$800 per ounce. Subsequently the price of gold retreated to a level that curtailed this effort and there was no additional production from the Ready Bullion. Access to the property during this work was by a steep zig-zag road upward from the head of Little Willow Creek.

**Reserves:****Additional comments:**

For many years this was one of major mines in district. Mining reported nearly all the years between 1909-1927, but very limited data on production. Some literature calls mine New Bullion and Ready Bullion, but generally referred to as Gold Bullion.

**References:**

Brooks, 1910; Katz, 1911; Brooks, 1912; Brooks, 1913; Brooks, 1914; Capps, 1914; Brooks, 1915; Capps, 1915; Capps, 1916; Smith, 1917, USBM B 142; Smith, 1917, USBM B 153; Brooks, 1918; Capps, 1919; Martin, 1919; Chapin, 1920; Martin, 1920; Brooks and Martin, 1921; Chapin, 1921; Brooks, 1922; Brooks, 1923; Brooks and Capps, 1924; Brooks, 1925; Moffit, 1927; Smith, 1929; Smith, 1930, B 810-A; Smith, 1930, B 813-A; Ray, 1933; Smith, 1938; Smith, 1939, B 917-A; Smith, 1941; Smith, 1942, B 933-A; Ray, 1954; Berg and Cobb, 1967; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Stoll, 1997.

**Primary reference:** Capps, 1915

**Reporter(s):** D.P. Bickerstaff (USGS contractor); D.J. Grybeck (USGS); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** Fern; Fern Gold Mining Co.; Fern Gold Leasing Co.; Fern & Goodell; Bartholf-Isaacs; Marmot

**Site type:** Mine

**ARDF no.:** AN005

**Latitude:** 61.825

**Quadrangle:** AN D-6

**Longitude:** 149.241

**Location description and accuracy:**

Marked with adit symbol and labeled 'Fern Mine' on the Anchorage D-6 1:63,360-scale topographic map, at headwaters of Archangel Creek. Accurate within 400 ft. This is locality 19 of Cobb (1972) and locality 16 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:** Pb, Te, W

**Ore minerals:** Arsenopyrite, galena, gold, nagyagite, pyrite, scheelite, tetrahedrite

**Gangue minerals:** Ankerite, quartz

**Geologic description:**

Quartz veins and stringers in shear zone cutting comminuted and kaolinized tonalite of the Late Cretaceous Willow Creek Pluton, a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. The main vein is as wide as 18 ft and is made up of quartz, gouge, and altered tonalite (Ray, 1954). Ore concentrated at intersections of main vein and smaller cross veins. The stringer veins are displaced and broken up into distinct blocks by major post-minerization faults. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling (Ray, 1954). The wall rock has been intensely altered with ankerite, kaolinite, and secondary quartz (Ray, 1933). Metallic minerals include pyrite, arsenopyrite, tetrahedrite, galena, nagyagite, gold, and sparse scheelite (Ray, 1933).

Assay of channel samples indicate a 12 ft sample of quartz stringers in altered country rock has 1.0 oz/ton Au, 8 to 12 inches of massive quartz yielded 0.45 oz/ton Au, and 2.5 ft zone of quartz and altered country rock show 2.3 oz/ton Au (Ray, 1933).

**Alteration:**

Wall rock has been intensely altered with ankerite, kaolinite, and secondary quartz

(Ray, 1933). Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; veins cut the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Yes; medium**Site Status:** Inactive**Workings/exploration:**

An adit was driven 40 ft to vein and then 56 ft along vein in attempt to find the ore shoot exposed at surface (Capps, 1919). By 1920, the adit was driven 300 ft (Chapin, 1920). A mill was installed, and both mine and mill operated in 1922 (Brooks and Capps, 1924). The first gold from the mine was produced in 1922. The Fern Gold Mining Company milled its last ore in 1928. Explored by more than 4,000 ft of underground workings plus stopes on 2 levels by 1931 (Ray, 1933). Workings extended beneath a tunnel of the adjoining Talkeetna mine (ARDF number AN025), but do not connect. In 1931, Thomas McDougal leased the property and worked the mine as the Fern Gold Leasing Company (Stoll, 1997). Mining stopped in 1941 and McDougal gave up the lease in 1945. During the time from 1931 to 1941, two new levels of adits were driven with over 3,000 ft aggregate length. In 1945, A.G. Dodson obtained a lease for the property and operated the mine until his death in late 1950. A mill and cyanide plant were present on the property, however the mill was destroyed by fire in 1946. A new mill was completed in 1948.

Assay of channel samples indicate a 12 ft sample of quartz stringers in altered country rock has 1.0 oz/ton Au, 8 to 12 inches of massive quartz yielded 0.45 oz/ton Au, and 2.5 ft zone of quartz and altered country rock show 2.3 oz/ton Au (Ray, 1933).

**Production notes:**

The Fern mine, under McDougal (1931-1941), had an estimated production worth over \$1,000,000 (Ray, 1954). Stoll (1997) estimates that from the Fern Gold Mining Company's first gold shipments, in 1922, into 1950 under Dodson, the Fern vein yielded roughly 44,000 ounces of gold. In aggregate gold recovery, the Fern lode is the district's fourth most important, after Lucky Shot-War Baby (ARDF numbers AN002 and AN003), Independence (ARDF number AN001), and Gold Bullion (ARDF number AN004).

**Reserves:****Additional comments:**

Marmot and Bartholf-Isaacs prospects probably all became part of Fern property. Capps (1915) reports assessment work at Bartholf-Isaacs prospect in 1914 and Chapin (1921) reports work during the winter of 1919-1920 at Marmot prospect. This is the last references to these two prospects in the literature.

**References:**

Capps, 1914; Capps, 1915; Capps, 1916; Capps, 1919; Chapin, 1920; Chapin, 1921; Brooks and Capps, 1924; Brooks, 1925; Smith, 1926; Moffit, 1927; Smith, 1929; Smith, 1930, B 810-A; Smith, 1930, B 813-A; Smith, 1933, B 836; Smith, 1933, B 844-A; Ray, 1933; Smith, 1934, B 857-A; Smith, 1934, B 864-A; Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939, B 910-A; Smith, 1939, B 917-A; Capps, 1940; Smith, 1941; Smith, 1942, B 926-C; Smith, 1942, B 933-A; Thorne and others, 1948; Moxham and Nelson, 1952; Ray, 1954; Cobb, 1972, MF-409; Cobb, 1975, MR 66; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Stoll, 1997.

**Primary reference:** Ray, 1954

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Martin; Alaska Free Gold Mining Co.

**Site type:** Mine

**ARDF no.:** AN006

**Latitude:** 61.786

**Quadrangle:** AN D-7

**Longitude:** 149.289

**Location description and accuracy:**

On northeastern flank of Skyscraper Mountain, marked with an adit symbol and labeled 'Martin Mine' on the Anchorage D-7 1:63,360-scale topographic map. Accurate within 100 ft. Locality 13 of Cobb (1972) and locality 10 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:** Cu, Pb

**Ore minerals:** Chalcopyrite, galena, gold, pyrite

**Gangue minerals:** Quartz

**Geologic description:**

The Martin mine is the site of the first lode discovery in the district, 1906. At the point of discovery the lode was separated into two quartz bodies about 15 feet apart. The top body showed 5 feet of milling ore and below it from 4 to 10 feet of ore (Capps, 1915). The two major veins, Homestake and Skyscraper veins, cut quartz diorite of the Late Cretaceous Willow Creek Pluton and are in shear zones and are separated by a transverse fault. The Homestake vein, probably a continuation of Granite Mountain vein at Independence mine (ARDF number AN001), is 6 to 24 inches wide, strikes N 10 E, and dips 30 - 42 N. The Skyscraper vein (also known as the Smuggler-Union vein), is also seen in the Independence mine (ARDF number AN001), is 1.5 to 8 ft wide, strikes N 10 E, and dips 45 N (Ray, 1933). Both veins carry free gold, pyrite, chalcopyrite, and a little galena in quartz gangue. The veins are probably cut off by the same faults that are seen in the Gold Bullion mine (ARDF number AN004) (Ray, 1933). Recovery from the Homestake vein was about 1 oz/ton Au (Capps, 1915).

The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritiza-

tion is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; vein cuts the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Yes; small

**Site Status:** Inactive

**Workings/exploration:**

Discovered by Robert Hatcher, the Martin mine is the site of the first lode discovery in the district, 1906. Development included surface stripping, open cuts, and several tunnels, there was a mill, cyanide plant, and aerial tram onsite during active years. In 1911, some ore was milled at the Alaska Gold Quartz Mining Company (Independence mine ARDF number AN001) mill. The mine's own mill was installed in 1912 and enlarged with a cyanide plant added in 1914 (Capps, 1915). By 1918, 9 tunnels having aggregate length of 3,400 ft plus connecting stopes and winzes (Chapin, 1920). An unsuccessful attempt made by Brooklyn Development Co.(Kelly-Willow prospect ARDF number AN032) to undercut the veins with a 1,200 ft tunnel from the west side of Skyscraper Mountain. Abandoned prior to 1931 with the camp and surface plant being dismantled (Ray, 1933). Recovery from Homestake vein was about 1 oz/ton Au (Capps, 1915).

**Production notes:**

Active mining from about 1911 to about 1920, during which time it was one of the major mines of the district (Cobb, 1979). The Martin mine recovered over 95 percent of the estimated 27,000 ounces of gold recovered from the Skyscraper vein and recovered an estimated 1,500 ounces of gold from the Homestake vein, for an estimated total production of about 27,150 ounces of gold for the Martin mine (Stoll, 1997).

**Reserves:****Additional comments:**

Martin mine is the site of first lode-gold discovery in the district in 1906 (Capps, 1915). Martin mine is often confused or combined with Eldorado mine (ARDF number AN033),

however the literature separates the two mines.

**References:**

Katz, 1911; Brooks, 1912; Brooks, 1913; Brooks, 1914; Brooks, 1915; Capps, 1915; Capps, 1916; Smith, 1917, BMB 142; Smith, 1917, BMB 153; Brooks, 1918; Capps, 1919; Martin, 1919; Chapin, 1920; Martin, 1920; Brooks and Martin, 1921; Chapin, 1921; Brooks, 1922; Brooks and Capps, 1924; Brooks, 1925; Smith, 1929; Smith, 1932, B 824-A; Ray, 1933; Smith, 1938; Ray, 1954; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Stoll, 1997.

**Primary reference:** Ray, 1933

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Gold Cord; Gold Cord Mining, Milling, and Power Co.; Golden Bear Mining Co.

**Site type:** Mine

**ARDF no.:** AN007

**Latitude:** 61.797

**Quadrangle:** AN D-7

**Longitude:** 149.286

**Location description and accuracy:**

At headwaters of East Fork Fishhook Creek, marked with an adit symbol and labeled 'Gold Cord Mine' on the Anchorage D-7 1:63,360-scale topographic map. Accurate within 400 ft. Locality 14 of Cobb (1972) and locality 11 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:** Cu, Pb, W, Zn

**Ore minerals:** Arsenopyrite, chalcopyrite, galena, pyrite, scheelite, sphalerite, tetrahedrite

**Gangue minerals:** Quartz

**Geologic description:**

The principal vein mined is in a shear zone as much as 25 ft wide in Late Cretaceous quartz diorite of the Willow Creek Pluton. The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Quartz is present along the foot wall and hanging wall which are separated by sheared quartz diorite, some of which is essentially unaltered. The vein strikes about N 10 W, and dips 30 to 42 W (Ray, 1933). Numerous other shear zones are present and are generally about 3 to 4 ft wide. These contain reticulating quartz veins and mineralized, altered quartz diorite (Chapin, 1920). Wall-rock alteration is intense and consists of replacement by the usual hydrothermal minerals in the district - chlorite, pyrite, sericite, ankerite, and a little calcite (Ray, 1933). Workings in the Gold Cord mine are probably the most difficult in the mining district. Due to the relatively greater number and arrangement of post-mineralization faults. The most important of the faults is the Gold Cord Fault, a major transverse fault striking N 65 W, and dipping 80 to 85 SW. This fault system is about 40 feet wide on the 100 and 400 levels but is 120 feet wide on the 200 level of the mine. The fault material is mostly comminuted, strongly altered quartz diorite. A number of minor transverse faults also cut the vein. These nor-

mal faults trend northwesterly and dip steeply to the northeast; displacements are generally less than 15 feet. The geology is further complicated by several normal and reverse faults (Ray, 1954). The property north of the Gold Cord Fault may prove favorable due to the absence of any major faults.

Ore grade ranged from about 0.1 to 9 oz/ton Au. Most assay values were between 0.75 and 4 oz/ton Au (converted from dollar values given in Ray (1933)). During a 1984 U.S. Bureau of Mines investigation (Kurtak, 1986), a 1.8-ft-wide sample across a quartz vein in the 4,900 ft adit (late 1940's workings) contained 13 ppm gold (0.38 oz/ton).

**Alteration:**

Wall-rock alteration is intense and consists of replacement by the usual hydrothermal minerals in the district - chlorite, pyrite, sericite, ankerite, and a little calcite (Ray, 1933).

**Age of mineralization:**

Late Cretaceous or younger; veins cut the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Yes; small**Site Status:** Active**Workings/exploration:**

First staked in 1915 by Byron and Charles Bartholf. Development work appears to have been sporadic for many years, records indicate 'real' activity began around 1931 (Ray, 1954). By 1933 the camp consisted of a mill (crusher, 10-ton Denver mill, amalgamating plates, and a small concentration table), shops, and living quarters (Ray, 1933). The bulk of the gold produced from the mine was during the six year period from the winter of 1931 through 1937 (Stoll, 1997). Ray (1954) reports that the mine was developed by at least 2,500 ft of workings on several levels over a vertical distance of 200 ft. In 1947 and 1948 two veins near the top of the mountain above the Gold Cord mine were explored by drifting, but no significant amount of gold was found.

The property has been drilled in attempts to locate faulted-out sections of vein and prospect adits driven on other veins have not been particularly successful. The property north of Gold Cord Fault may prove favorable due to the absence of any major faults.

Ore grade ranged from about 0.1 to 9 oz/ton Au. Most assay values between 0.75 and 4 oz/ton Au (assay converted from dollar values reported by Ray (1933)). One batch of 11 tons of ore contained 10.9 oz (1 oz/ton) of gold (Brooks, 1925). During a 1984 U.S. Bureau of Mines investigation (Kurtak, 1986), a 1.8-ft-wide sample across a quartz vein in the 4,900 ft adit (late 1940s workings) contained 13 ppm gold (0.38 oz/ton).

In 1998, Dan Renshaw continued driving a new adit in search of favorable ore at the Gold Cord mine.



**Production notes:**

From discovery through 1949, mainly between 1931 and 1938, the Gold Cord lode produced around 16,000 ounces of gold (Stoll, 1997).

**Reserves:****Additional comments:**

The site has also been referenced in the literature as Golden Bear Mining Co. and (Gold Cord) Mining, Milling, and Power Co.

**References:**

Capps, 1919; Martin, 1919; Chapin, 1920; Martin, 1920; Chapin, 1921; Brooks, 1925; Smith, 1930, B 813-A; Smith, 1932, B 824-A; Ray, 1933; Smith, 1933, B 844-A; Smith, 1934, B 857-A; Smith, 1934, B 864-A; Smith, 1936; Smith, 1938; Smith, 1939, B 917-A; Smith, 1941; Smith, 1942, B 933-A; Thorne and others, 1948; Moxham and Nelson, 1952; Ray, 1954; Cobb, 1972, MF-409; Cobb, 1975, MR 66; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Bundtzen and others, 1984; Stoll, 1997.

**Primary reference:** Ray, 1954

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Mabel**Site type:** Mine**ARDF no.:** AN008**Latitude:** 61.798**Quadrangle:** AN D-6**Longitude:** 149.215**Location description and accuracy:**

1.3 miles northwest of confluence of Reed Creek and Little Susitna River. Marked with adit symbol and labeled 'Mabel Mine' on the Anchorage D-6 1:63,360-scale topographic map. Accurate within 400 ft. Locality 25 from Cobb (1972) and locality 18 of MacKevett and Holloway (1977).

**Commodities:****Main:** Au**Other:** Cu, Mo, Pb,**Ore minerals:**

Arsenopyrite, chalcopyrite, galena, gold, molybdenite, pyrite, sphalerite, tellurides (?), tetrahedrite

**Gangue minerals:** Quartz**Geologic description:**

Quartz vein, up to 10 ft thick, cuts the Late Cretaceous Willow Creek Pluton. The vein pinches, swells, and breaks up into narrow stringers along strike (Ray, 1933). Minerals in the vein include free gold, arsenopyrite, chalcopyrite, galena, molybdenite, pyrite, sphalerite, unconfirmed tellurides and tetrahedrite. The strike of the vein is usually north and dip ranges from 23 to 66 W, with the most common dip between 35 and 45 W. Vein is offset by two parallel normal faults that strike N 55 W, and dip 74 NE (Ray, 1954). Some of the ore shoots are terminated by these faults. Rocks are reported to show right lateral displacement with net offsets of 100-150 ft. Movement in the fissure containing the vein was, based drag and offset of aplite dikes, reverse.

The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; the quartz vein cuts the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Yes; small**Site Status:** Inactive**Workings/exploration:**

First staked in 1911. Development included open cuts and stripping which traced the vein for about 2,000 ft, plus at least 490 ft of underground workings most of which were below the main level. Site had mill, aerial tram, and a cyanide plant. Ore was taken to the mill by aerial tram, the tailings were saved for future treatment. Most of the mining was south of the Mabel fault, along a major transverse fault. Six tons of ore was shipped to Tacoma in 1912. Intermittent mining and development to 1917, mine produced continually from 1917-1930, and worked intermittently from 1931-1947. Ray (1933) indicated production probably worth more than \$100,000 (about 4,840 fine oz of Au based on gold at \$20.66/oz). Ray (1954) indicated that future development is likely to be expensive and difficult because of lack of data on faulting.

**Production notes:**

Smith (1929) indicated that Mabel mine was one of the principal producing mines in the district. The production probably totaled 4,840 oz of Au by 1933 (Ray, 1933). Stoll (1997) estimated that the mine yielded around 16,000 oz of gold.

**Reserves:****Additional comments:**

Further development would require finding the extensions of the main vein north of the Mabel fault. This would be difficult and expensive since the vein has probably been down-faulted significantly below the level of present workings (Ray, 1954).

**References:**

Capps, 1914; Capps, 1915; Capps, 1916; Smith, 1917; Brooks, 1918; Capps, 1919; Martin, 1919; Chapin, 1920; Martin, 1920; Brooks and Martin, 1921; Brooks, 1922; Brooks, 1923; Brooks and Capps, 1924; Brooks, 1925; Smith, 1926; Moffit, 1927; Smith, 1929; Smith, 1930, B 813-A; Smith, 1932, B 824-A; Ray, 1933; Smith, 1933, B 836; Smith, 1933, B 844-A; Smith, 1938; Smith, 1939, B 917-A; Smith, 1941; Smith, 1942, B 933-A; Ray, 1954; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Stoll, 1997.

**Primary reference:** Ray, 1954

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** High Grade; Kloss and Associates; Kloss and Snider

**Site type:** Mine

**ARDF no.:** AN009

**Latitude:** 61.799

**Quadrangle:** AN D-7

**Longitude:** 149.297

**Location description and accuracy:**

1,000 ft southwest of the headwaters of Fishhook Creek, marked on map with adit symbol and labeled 'High Grade Mine' on the Anchorage D-7 1:63,360-scale topographic map. Accurate within 400 ft. Locality 14 of Cobb (1972) and locality 11 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:** Ankerite, quartz

**Geologic description:**

Three quartz veins in parallel shear zones cut the Late Cretaceous Willow Creek Pluton. The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Shear zones all strike N 10 to 20 W, and dip about 40 SW. Numerous slickensides indicate a steep reverse movement which caused the hanging wall of the shear zone to move upward and to the south (Ray, 1954). Ankerite noted in wall rock and as inclusions in quartz veins (Ray, 1933). Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954). The thickest quartz stringer, up to 12 inches thick, produced a few tons of low-grade ore. One vein netted more than \$1,200 (gold at \$20.67/oz) from a one-ton ore shipment in 1930 (Ray, 1933).

**Alteration:**

Ankerite in wall rock and as inclusions in quartz veins (Ray, 1933). Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but

there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; veins cut the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Yes; small**Site Status:** Inactive**Workings/exploration:**

Discovered by Heinrich Snider and Herman Kloss in the late 1920's (Stoll, 1997). Developed by about 1,000 ft of underground workings, all on one level (Ray, 1954). One vein netted more than \$1,200 (58 oz/ton with gold at gold at \$20.67/oz) from a one-ton ore shipment in 1930 (Ray, 1933).

**Production notes:**

The thickest quartz stringer, up to 12 inches thick, produced a few tons of low-grade ore. One vein netted more than \$1,200 (gold at \$20.67/oz) from a one-ton ore shipment in 1930 (Ray, 1933). Only assessment work and a little development work was done since 1930 (Ray, 1954). May also have been production in 1932, 1934, and 1935; data inconsistent (Cobb, 1979).

**Reserves:****Additional comments:****References:**

Ray, 1933; Smith, 1933, B 836; Smith, 1934, B 857-A; Smith, 1936; Smith, 1937; Ray, 1954; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Kurtak, 1986; Stoll, 1997.

**Primary reference:** Ray, 1954**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98

**Site name(s): Wet Gulch****Site type:** Prospect**ARDF no.:** AN010**Latitude:** 61.76**Quadrangle:** AN D-7**Longitude:** 149.49**Location description and accuracy:**

Along Wet Gulch, a northward flowing tributary of Willow Creek, 4,000 ft north of VABM Wet (Cobb, 1979). Accuracy is poor due to insufficient data.

**Commodities:****Main:** Au**Other:****Ore minerals:** Gold**Gangue minerals:****Geologic description:**

Placer gold claims on stream. The bedrock in the Wet Gulch drainage is Jurassic (?) quartz-albite-chlorite (+/- garnet-biotite) pelitic schist.

**Alteration:****Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** None**Site Status:** Inactive**Workings/exploration:**

Assessment work on placer claims was carried out in 1950 (Ray, 1954).

**Production notes:**

None known.

**Reserves:****Additional comments:**

Very little information on site. Years of prospecting on claims held at confluence of Wet Gulch and Willow Creek, locality 68 of Cobb (1973), resulted in no appreciable production.

**References:**

Ray, 1954; Jasper, 1962; Cobb, 1979, OFR 79-1095.

**Primary reference:** Ray, 1954

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s): Grubstake Gulch and Willow Creek area****Site type:** Mine**ARDF no.:** AN011**Latitude:** 61.76**Quadrangle:** AN D-7**Longitude:** 149.43**Location description and accuracy:**

Claims on Willow Creek above and below the mouth of Grubstake Gulch and those mines located on Grubstake Gulch near its mouth. Generalized location, accurate within a few hundred of feet upstream or downstream. Locality 69 of Cobb (1972) and locality 57 of MacKevett and Holloway (1977).

**Commodities:****Main:** Au**Other:** Cu, W**Ore minerals:** Gold, scheelite**Gangue minerals:****Geologic description:**

Both creek and bench gravels near confluence of Grubstake Gulch and Willow Creek have been mined for placer gold intermittently since 1897. Gold probably is from small quartz veins found in mica-schist bedrock (Cobb, 1973). The bedrock in the Grubstake Gulch drainage is Jurassic (?) quartz-albite-chlorite (+/- garnet-biotite) pelitic schist; minor Eocene hypabyssal mafic intrusions and serpentinized Cretaceous ultramafic rocks. Gold has been found in gravels up to 70 ft deep in the area (Green and others, 1989).

**Alteration:****Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** Yes; small

**Site Status:** Inactive

**Workings/exploration:**

Creek gravels mined for 900 ft along Grubstake Creek in 1904-1906, reportedly 200 ft wide and 2.5 to 3 feet deep (Paige and Knopf, 1907). Gravels mined in 1960 were 12-20 ft deep and exploratory drill holes that were sunk 85-105 ft did not all reach bedrock. Hydraulic and small scale methods used. Bench gravels contain pannable gold, but large boulders make mining difficult (Ray, 1954).

**Production notes:**

Cobb (1973) reported that Grubstake Gulch and the part of Willow Creek immediately below mouth of gulch probably account for considerably more than half the placer gold mined in the Willow Creek district.

**Reserves:**

**Additional comments:**

**References:**

Brooks, 1906; Paige and Knopf, 1907, B 314; Paige and Knopf, 1907, B 327; Brooks, 1910; Brooks, 1911, P 70; Katz, 1911; Brooks, 1912; Brooks, 1913; Capps, 1914; Brooks, 1915; Capps, 1915; Capps, 1916; Brooks, 1918; Brooks, 1922; Smith, 1932, B 824-A; Ray, 1933; Smith, 1933, B 836; Smith, 1933, B 844-A; Smith, 1939, B 910-A; Smith, 1939, B 917-A; Capps, 1940; Moxham and Nelson, 1952; Ray, 1954; Jasper, 1962; Jasper, 1966; Cobb, 1972, MF-409; Cobb, 1973, B 1374; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Bundtzen and others, 1984; Green and others, 1989.

**Primary reference:** Cobb, 1973, B 1374

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s): Wolverine****Site type:** Prospect**ARDF no.:** AN012**Latitude:** 61.79**Quadrangle:** AN D-7**Longitude:** 149.4**Location description and accuracy:**

On ridgetop to northwest of Craigie Creek, 1.3 mile northeast of VABM Box. Accurate within 1,500 ft. Locality 4 of Cobb (1972) and locality 4 of MacKevett and Holloway (1977).

**Commodities:****Main:** Au**Other:** Cu**Ore minerals:** Arsenopyrite, bornite, chalcopyrite, gold, pyrite**Gangue minerals:** Quartz**Geologic description:**

Tertiary and Late Cretaceous tonalite is cut by a granitic dike and quartz veins. Quartz veins, up to 16 inches wide, and narrow quartz stringers are generally in east-trending, north-dipping shear zones. Four faults and sixteen shear zones have been exposed in workings. Pyrite, arsenopyrite, and chalcopyrite reported in quartz vein, but these sulfides make up less than 2 percent of veins. Up to 3.6 oz/ton Au, but commonly less than 0.5 oz/ton Au (Jasper, 1962).

The tonalite is part of the Willow Creek Pluton, a zoned pluton. The outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; the veins cut the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** None**Site Status:** Inactive**Workings/exploration:**

Explored by 474 ft of underground workings; 323 ft of crosscuts, 56 ft of drifts, 75 ft raise, and 20 ft winze to the surface were reported. In addition, surface cuts were present. Gold values were up to 3.6 oz/ton Au, but commonly less than 0.5 oz/ton Au (Jasper, 1962).

**Production notes:**

No known production.

**Reserves:****Additional comments:**

The productive quartz veins of the district are restricted to those trending east/west and dipping north in major shear zones (Jasper, 1962).

**References:**

Jasper, 1962; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Jasper, 1962**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98

**Site name(s):** Panhandle**Site type:** Prospect**ARDF no.:** AN013**Latitude:** 61.79**Quadrangle:** AN D-7**Longitude:** 149.39**Location description and accuracy:**

On the northwestern side of Craigie Creek near a small unnamed tributary of Craigie Creek, 1.6 mile northeast of VABM Box. Accurate within 1,500 ft. Locality 4 of Cobb (1972) and locality 4 of MacKevett and Holloway (1977).

**Commodities:****Main:** Au**Other:****Ore minerals:** Gold**Gangue minerals:** Quartz**Geologic description:**

Quartz vein from 6 to 8 ft wide, cuts tonalite country rock. The vein strikes N 85 W, and dips 38 N. It is believed to be the same vein as at War Baby (ARDF number AN003) and Lucky Shot (ARDF number AN002) (Chapin, 1920; 1921). The tonalite is part of the Willow Creek Pluton, a zoned pluton. The outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the vein is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; vein cuts the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Chapin (1921) reports that very little work has been done on the prospect.

**Production notes:****Reserves:****Additional comments:**

This prospect has very little data after Chapin's 1921 report.

**References:**

Chapin, 1920; Chapin, 1921; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Chapin, 1921

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Golden Top; Gold Top; Gold Top Mining Co; Kempf

**Site type:** Prospect

**ARDF no.:** AN014

**Latitude:** 61.8

**Quadrangle:** AN D-7

**Longitude:** 149.38

**Location description and accuracy:**

On the ridgetop to the northwest of Craigie Creek at 4,950 ft elevation, 2 miles north-east of VABM Box. Accurate within 2,000 ft. Locality labeled 'Gold Top Prospect' on plate I of Ray (1954), locality 5 of Cobb (1972), and locality 4 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:** Quartz

**Geologic description:**

Gold-bearing quartz veins cut early Paleocene to Late Cretaceous tonalite. Lithologies of this unit includes. biotite-hornblende tonalite and lesser biotite-hornblende quartz diorite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954). Assays from samples taken along drifts showed mostly marginal gold values, a few had 0.75 oz/ton Au (Stoll, 1997).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; veins cut early Paleocene to Late Cretaceous tonalites.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

In the early 1930's, under the management of William G. Smith (Gold Top Syndicate), a steep aerial tramway was strung from Craigie Creek to the prospect - an elevation difference of 1,300 ft. Smith drove an adit (Smith tunnel) 285 ft to reach the Gold Top vein. Drifts both east and west followed the vein for a total of 850 ft. Amount of work done on prospect might indicate the presence of some gold, however it was never reported and apparently was not economical (Smith, 1934). Forty assays that had been made from samples taken along the east and west drifts in 1940 showed mostly marginal gold values, a few had 0.75 oz/ton Au (Stoll, 1997).

**Production notes:**

No recorded production.

**Reserves:**

**Additional comments:**

Besides being one of the longest traceable vein outcrops in the district, the Gold Top lode had the distinction of attracting more prospectors and promoters than any other lode on the gold belt, all without becoming a producing mine (Stoll, 1997).

**References:**

Brooks, 1910; Brooks, 1912; Smith, 1934, B 857-A; Smith, 1934, B 864-A; Smith, 1936; Ray, 1954; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Stoll, 1997.

**Primary reference:** Smith, 1934

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** Comeback; Gray Eagle

**Site type:** Prospect

**ARDF no.:** AN015

**Latitude:** 61.8

**Quadrangle:** AN D-7

**Longitude:** 149.37

**Location description and accuracy:**

Midway up the ridge northwest of Craigie Creek at 3,800 ft elevation, 2.1 miles north-east of VABM Box. Accurate within 2,000 ft.

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:** Quartz

**Geologic description:**

Details about the prospect are scarce. Most likely, a gold-bearing quartz vein(s) cuts the Late Cretaceous Willow Creek Pluton. The Willow Creek Pluton is a zoned pluton. The outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite.

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; the host of mineralization is the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins ? (Cox and Singer, 1986; model 36a ?)

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

36a ?

**Production Status** Yes; small

**Site Status:** Inactive

**Workings/exploration:**

Apparently only minor surface prospecting.

**Production notes:**

Knik miner Milo Kelly recovered about 60 ounces of gold from a few hundred pounds of ore mined from shallow workings on the Gray Eagle property (Vinal, 1940).

**Reserves:**

**Additional comments:**

This prospect was originally part of the Gold Top (ARDF number AN014) claims.

**References:**

Vinal, 1940; Cohen, 1982; Stoll, 1997

**Primary reference:** Stoll, 1997

**Reporter(s):** D.P. Bickerstaff (USGS contractor)

**Last report date:** 07/30/98

**Site name(s):** Rainbow

**Site type:** Prospect

**ARDF no.:** AN016

**Latitude:** 61.79

**Quadrangle:** AN D-7

**Longitude:** 149.37

**Location description and accuracy:**

On the gentle western slopes of Bullion Mountain, east of Craigie Creek; approximately 1 mile northwest of VABM Luck. Accurate within 1,000 feet.

**Commodities:**

**Main:** Au ?

**Other:**

**Ore minerals:** Gold ?

**Gangue minerals:** Quartz ?

**Geologic description:**

Details about the prospect are unavailable. Most likely, a gold-bearing quartz vein(s) cuts the Late Cretaceous Willow Creek Pluton. The Willow Creek Pluton is a zoned pluton. The outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite.

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; the host of mineralization is the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Cohen, 1982; Stoll, 1997.

**Primary reference:** Stoll, 1997

**Reporter(s):** D.P. Bickerstaff (USGS contractor)

**Last report date:** 07/30/98

**Site name(s):** Golden Light

**Site type:** Mine

**ARDF no.:** AN017

**Latitude:** 61.79

**Quadrangle:** AN D-7

**Longitude:** 149.36

**Location description and accuracy:**

Above southeast bank of Craigie Creek, about 1 mile upstream from its intersection with Willow Creek Road. Accurate within 2,000 ft. Locality 6 of Cobb (1972) and locality 5 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au(?)

**Other:**

**Ore minerals:** Gold(?)

**Gangue minerals:** Quartz ?

**Geologic description:**

No specific data reported about the prospect. Most likely, gold-bearing quartz vein(s) cut the Late Cretaceous Willow Creek Pluton. The Willow Creek Pluton is a zoned pluton. The outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite.

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; host is the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

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

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

Development and erection of a mill reported in 1919 (Chapin, 1921). No other data about type of deposit or gold content.

**Production notes:****Reserves:****Additional comments:****References:**

Chapin, 1921; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Chapin, 1921

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Ryan

**Site type:** Prospect

**ARDF no.:** AN018

**Latitude:** 61.79

**Quadrangle:** AN D-7

**Longitude:** 149.35

**Location description and accuracy:**

On the gentle western slope of Bullion Mountain, east of Craigie Creek; approximately 1 mile north of VABM Luck. Accurate within 2,000 feet.

**Commodities:**

**Main:** Au ?

**Other:**

**Ore minerals:** Gold ?

**Gangue minerals:** Quartz ?

**Geologic description:**

Details about the prospect are unavailable. Most likely, a gold-bearing quartz vein(s) cuts the Late Cretaceous Willow Creek Pluton. The Willow Creek Pluton is a zoned pluton. The outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite.

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; the host of mineralization is the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Apparently only minor surface prospecting.

**Production notes:****Reserves:****Additional comments:**

This prospect located from Plate I of Ray (1954), no description of the prospect appears in the text. Ray closes the narrative on lode mines and prospects with: 'Numerous small prospects are scattered throughout the mining district, but aside from those discussed above they have not been sufficiently prospected or are not well enough exposed to justify a description herein.'

**References:**

Ray, 1954.

**Primary reference:** Ray, 1954

**Reporter(s):** D.P. Bickerstaff (USGS contractor)

**Last report date:** 07/30/98



**Site name(s):** Craigie Creek

**Site type:** Occurrence

**ARDF no.:** AN019

**Latitude:** 61.79

**Quadrangle:** AN D-7

**Longitude:** 149.38

**Location description and accuracy:**

Occurrence located along the length of Craigie Creek. Locality 70, 71, and 72 of Cobb (1972).

**Commodities:**

**Main:** W

**Other:** Cu, Mo

**Ore minerals:** Magnetite, molybdenite, pyrite, scheelite, zircon

**Gangue minerals:**

**Geologic description:**

Jasper (1967) reported the bedrock of the area to be quartz diorite and likewise, the float in the creek is quartz diorite. Pan concentrates in stream gravel contained up to 90 percent magnetite, 1 percent pyrite, up to 10% zircon, and locally up to 15 percent scheelite.

Bedrock in the vicinity is the Willow Creek Pluton, a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite.

**Alteration:**

**Age of mineralization:**

Willow Creek Pluton is Late Cretaceous.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Assays of pan concentrates yield up to 130 ppm Cu and up to 5 ppm Mo (Jasper, 1967).

**Production notes:****Reserves:****Additional comments:****References:**

Jasper, 1967; Cobb, 1972, MF-409; Cobb, 1975, MR 66; Cobb, 1979, OFR 79-1095.

**Primary reference:** Jasper, 1967

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Purches Creek; Purchase Creek

**Site type:** Occurrence

**ARDF no.:** AN020

**Latitude:** 61.81

**Quadrangle:** AN D-7

**Longitude:** 149.35

**Location description and accuracy:**

1,000 ft northwest of the head of Craigie Creek. Accurate within 2,500 ft. Locality 4 and 5 of Capps and Tuck (1935) and locality 7 of Cobb (1972).

**Commodities:**

**Main:** Au

**Other:** Ag, Cu

**Ore minerals:** Chalcopyrite, gold, pyrite, silver

**Gangue minerals:** Quartz

**Geologic description:**

Two occurrences were reported by Capps and Tuck (1935). The first is a quartz vein exposed in a tributary on the divide between Craigie Creek and Purches Creek drainages (Capps and Tuck locality 4). The vein is 1 ft wide, strikes S 20 W, and dips 30 S, and can be traced for several hundred feet. It is composed of 'bull' quartz and contains chalcopyrite, gold, and silver. The second occurrence is a crushed piece of quartz float from the next tributary to the west (Capps and Tuck locality 5). It contained disseminated pyrite, gold, and silver. At the first locality described above, assays show the vein to contain 0.16 oz/ton Au and 0.2 oz/ton Ag. At the second locality described, the quartz float assayed 0.01 oz/ton Au and 0.2 oz/ton Ag.

These occurrences are located near the contact of the Willow Creek Pluton and an early Paleocene and Late Cretaceous granite body. The Willow Creek Pluton is a Late Cretaceous zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. The early Paleocene and Late Cretaceous granite is generally a biotite-muscovite granite with granodiorite and lesser quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger based on the bedrock in the vicinity.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** None**Site Status:** Inactive**Workings/exploration:**

Two occurrences were sampled by Capps and Tuck (1935). At the first locality described above, assays show the vein to contain 0.16 oz/ton Au and 0.2 oz/ton Ag. At the second locality described, the quartz float assayed 0.01 oz/ton Au and 0.2 oz/ton Ag (Capps and Tuck, 1935).

**Production notes:****Reserves:****Additional comments:**

Capps and Tuck (1935) also mention that on the lower Purches Creek there are numerous pegmatite dikes, but no minerals of value were found in them. Purches Creek has also been labeled Purchase Creek on some older maps.

**References:**

Capps and Tuck, 1935; Cobb, 1972, MF-409; Cobb, 1979, OFR 79-1095.

**Primary reference:** Capps and Tuck, 1935**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98

**Site name(s):** Gold King; Leona; Brassel Bros.

**Site type:** Prospects

**ARDF no.:** AN021

**Latitude:** 61.82

**Quadrangle:** AN D-7

**Longitude:** 149.33

**Location description and accuracy:**

Near Dogsled Pass, 3,600 ft northwest of the end of the unimproved road that is parallel to Craigie Creek. NE1/4NE1/4 sec. 19, T. 20 N., R. 1 E., of the Seward Meridian. Accurate within 1,000 ft. Locality 6 of Chapin (1921), locality 8 of Cobb (1972), and locality 7 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:** Quartz

**Geologic description:**

Zone of altered quartz diorite and quartz in 19 ft gouge zone. The gouge zone is in the Late Cretaceous quartz diorite of the Willow Creek Pluton. A fissure vein strikes N 70 E, and dips 42 NE. A parallel quartz-feldspar pegmatite dike was found 100 ft below the fissure vein contains vein quartz and a little gold (Chapin, 1921).

The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; zone of mineralization cuts the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** None**Site Status:** Inactive**Workings/exploration:**

Chapin (1921) reports a tunnel was being driven in 1919. Several small veins of rich quartz were exposed in surface excavations, but no record of production.

**Production notes:****Reserves:****Additional comments:****References:**

Chapin, 1921; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Chapin, 1921**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98

**Site name(s):** Holland; Little Willie; Bronson and France

**Site type:** Prospect

**ARDF no.:** AN022

**Latitude:** 61.819

**Quadrangle:** AN D-7

**Longitude:** 149.291

**Location description and accuracy:**

4,500 ft northwest of the end of the unnamed unimproved road that is parallel to Craigie Creek. Marked with adit symbol and labeled 'Holland Prospect' on the Anchorage D-7 1:63,360-scale topographic map. Accurate within 400 ft. This is locality 9 of Chapin (1921), locality 16 from Cobb (1972), and locality 13 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:** Cu, Mo, Pb?

**Ore minerals:** Bornite, chalcopyrite, galena(?), gold

**Gangue minerals:** Quartz

**Geologic description:**

Late Cretaceous tonalite of the Willow Creek Pluton contains a sheared composite quartz vein and pegmatite dike. The vein strikes N 77 W, and dips 26 NE. The central quartz zone consists of a 6 ft central band of quartz bounded by a 1 ft pegmatite hanging wall and a 16 in pegmatite footwall (Ray, 1954). Pegmatite dike shows that reopening took place after consolidation of pegmatite. Glassy quartz was then deposited between pegmatite walls. The quartz and pegmatite again fractured; chalcopyrite, bornite, and pyrite were deposited in fractures and replaced orthoclase in pegmatite (Ray, 1933). Quartz contains stringers of sulfides - including an unidentified bismuth (?) mineral - up to 1 ft long, but less than 2 inches thick (Ray, 1954). Quartz float contains disseminated molybdenite flakes and free gold (Capps and Tuck, 1935).

The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; vein cuts the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins ? (Cox and Singer, 1986; model 36a ?)

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

36a ?

**Production Status** None**Site Status:** Inactive**Workings/exploration:**

Very little development occurred. Workings were all on the surface. The amount of copper contained in this deposit appears to be very small.

**Production notes:****Reserves:****Additional comments:**

This listing includes reference to Bronson and France. It appears that this prospect was a result of Little Willie property being restaked (Jasper, 1962).

**References:**

Capps, 1919; Chapin, 1921; Ray, 1933; Capps and Tuck, 1935; Wedow and others, 1952; Moxham and Nelson, 1952; Ray, 1954; Jasper, 1962; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Silberman and others, 1978; Cobb, 1979, OFR 79-1095.

**Primary reference:** Ray, 1954**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98



**Site name(s): Dixie; Galena-Gold****Site type:** Prospect**ARDF no.:** AN023**Latitude:** 61.82**Quadrangle:** AN D-7**Longitude:** 149.29**Location description and accuracy:**

2,500 ft southeast of head of Purches Creek, within the Purches Creek drainage. Accurate within 1,000 ft. Locality 8 of Chapin (1914, plate IV), locality 16 of Cobb (1972), and locality 13 of MacKevett and Holloway (1977).

**Commodities:****Main:** Au, Cu, Pb**Other:****Ore minerals:** Bornite, chalcopyrite, galena, gold, pyrite**Gangue minerals:** Muscovite, orthoclase, quartz**Geologic description:**

At least one foot of 'good ore' contains chalcopyrite, pyrite, galena, and free gold on surface (Capps, 1919). An 8.5 ft wide pegmatitic vein strikes N 55 W, and dips 55 SE. The coarse, border material consists of quartz, orthoclase, muscovite, and particles of chalcopyrite along the borders. Central part of vein is milky quartz cut by irregular stringers of chalcopyrite and a little bornite (Chapin, 1921).

Country rock is the Late Cretaceous Willow Creek Pluton, a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the vein is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the vein is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; the mineralized host is the Late Cretaceous Willow Creek Pluton.

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Three claims first staked in 1917 on surface expression of 1 ft of 'good ore'. Very little development reported, the prospect was explored in one place by an open-cut across vein Chapin (1921).

**Production notes:****Reserves:****Additional comments:****References:**

Capps, 1919; Chapin, 1921; Cobb, 1972, MF 409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Chapin, 1921

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Smith

**Site type:** Prospect

**ARDF no.:** AN024

**Latitude:** 61.83

**Quadrangle:** AN D-7

**Longitude:** 149.33

**Location description and accuracy:**

On south side of Purches Creek about 1 mile from its head, at an elevation of 3,500 feet. Accurate within 1,000 ft. Locality 3 on plate 1 of Capps and Tuck (1935), locality 17 of Cobb (1972), and locality 14 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:** Quartz

**Geologic description:**

Quartz vein, that is reported to carry gold, is found in a shear zone that is 2 to 3 ft wide. The zone is in quartz diorite and consists of sheared diorite, gouge, and quartz (Capps and Tuck, 1935). The bedrock is an early Paleocene and Late Cretaceous granitic pluton. Wall-rock alteration within a few inches of the vein is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the vein is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; shear zone cuts a Late Cretaceous granitic pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** None**Site Status:** Inactive**Workings/exploration:**

A small tunnel and a number of pits expose the shear zone (Capps and Tuck, 1935).

**Production notes:****Reserves:****Additional comments:**

The Cobb (1972) locality appears to be more than 2 miles too far northeast.

**References:**

Capps and Tuck, 1935; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Capps and Tuck, 1935**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98

**Site name(s):** Talkeetna; Matanuska Gold Mining Company; Talkeetna Mining Company; Consolidated Mining Company; Fern Gold Mining Co.

**Site type:** Mine

**ARDF no.:** AN025

**Latitude:** 61.824

**Quadrangle:** AN D-7

**Longitude:** 149.254

**Location description and accuracy:**

Near headwaters of Fairangel Creek, a tributary to Archangel Creek. Marked with quarry symbol and labeled 'Talkeetna Mine' on the Anchorage D-7 1:63,360-scale topographic map. Accurate within 400 ft. Locality 16 from Chaplin (1921, plate VI), locality 19 of Cobb (1972), and locality 16 of Mackevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:** Mo

**Ore minerals:** Gold, molybdenite, pyrite

**Gangue minerals:** Quartz

**Geologic description:**

Alaskite dikes and younger, irregular quartz veins cut a coarse gray quartz diorite of the Late Cretaceous Willow Creek Pluton. The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. The dikes have been described as both aplitic and pegmatitic and locally carry a few unnamed black minerals, hornblende, and tourmaline. The veins trend N 75 E and tend to pinch and swell. The veins that follow conjugate fractures in the quartz diorite are 12 to 18 inches thick, with a maximum width of 5 to 8 ft. The veins not following the dike contain considerable gold, averaging nearly 5 oz/ton Au. The pyrite in the veins have mostly been leached, leaving cubical cavities (Capps, 1915). A 30 inch thick vein follows the dike, but no reports of content are available (Brooks, 1925). Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954). A surface grab sample of the vein walls, collected by the U.S. Bureau of Mines, contained 0.57 g/ton Au (0.017 oz/ton Au) (Kurtak, 1986).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; dikes and veins cut the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Yes; small**Site Status:** Inactive**Workings/exploration:**

Explored by small open cuts and several hundred feet of underground workings in several adits. Development began in 1910 with two small open cuts, tunnelling planned for 1910-1911. Mining was reported from 1917-1923 and one tunnel was reported to be 500 ft long in 1923 (Brooks, 1925). A tramway once led from adit portal to a camp and mill below. The mine was inaccessible in 1950 (Ray, 1954). An average grade of 5 oz/ton Au was reported for the veins cross-cutting the dike (Capps, 1915). By 1933, the Talkeetna mine was undercut by, but not connected with, the workings of the Fern mine (ARDF number AN005). The same company, Fern Gold Mining Company, owned both the Talkeetna mine and Fern mine by about 1925.

A surface grab sample of the vein walls, collected by the U.S. Bureau of Mines, contained 0.57 g/ton Au (0.017 oz/ton Au) (Kurtak, 1986).

**Production notes:**

Unknown, mining (and some milling) was reported from 1917-1923.

**Reserves:****Additional comments:****References:**

Katz, 1911; Brooks, 1912; Capps, 1914; Capps, 1915; Capps, 1916; Brooks, 1918; Capps, 1919; Martin, 1919; Chapin, 1920; Martin, 1920; Brooks and Martin, 1921; Chapin, 1921; Brooks and Capps, 1924; Brooks, 1925; Moffit, 1927; Ray, 1933; Smith, 1942, 926-C; Ray, 1954; Cobb, 1972, MF-409; MacKevett and Holloway, 1977;

Cobb, 1979, OFR 79-1095; Kurtak, 1986.

**Primary reference:** Capps, 1915

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Marion Twin**Site type:** Mine**ARDF no.:** AN026**Latitude:** 61.812**Quadrangle:** AN D-7**Longitude:** 149.299**Location description and accuracy:**

2,000 ft east-northeast of the end of the unimproved road that parallels to Craigie Creek. Marked with quarry symbol and labeled 'Marion Twin Mine' on the Anchorage D-7 1:63,360-scale topographic map. Accurate within 400 ft. Locality 15 of Cobb (1972) and locality 12 of MacKevett and Holloway (1977).

**Commodities:****Main:** Au**Other:** Cu, Pb**Ore minerals:** Chalcopyrite, galena, gold**Gangue minerals:** Quartz**Geologic description:**

Quartz vein, 2 to 10 inches thick, cuts quartz diorite of the Late Cretaceous Willow Creek Pluton. The thin, gently NW dipping quartz vein is in a shear zone and contains free gold, pyrite, galena, and chalcopyrite. The vein has been broken by post-mineralization faulting. The ore plays out where vein rolls upward into a shear zone, south of the mine (Ray, 1954).

The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).



**Age of mineralization:**

Late Cretaceous or younger; vein cuts the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Yes; small**Site Status:** Inactive**Workings/exploration:**

The extent of the mine was an open cut about 50 ft x 30 ft.

**Production notes:**

Capps and Tuck (1935) reported that in 1929 and 1930 a few tons of rich ore was mined; some ore was sent to a smelter and some ore was sent to the company's mill on the Little Susitna River (at Lonesome Mine ARDF number AN063). Last production was reported in 1935.

**Reserves:****Additional comments:****References:**

Smith, 1932, B824-A; Smith, 1933, B 836; Smith, 1934, B 857-A; Capps and Tuck, 1935; Smith, 1936; Smith, 1937; Smith, 1938; Ray, 1954; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Ray, 1954**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98

**Site name(s):** Schroff-O'Neil; Newman and Miller; Miller-Newman

**Site type:** Mine

**ARDF no.:** AN027

**Latitude:** 61.811

**Quadrangle:** AN D-7

**Longitude:** 149.299

**Location description and accuracy:**

2,000 ft east of the end of unimproved road that parallels Craigie Creek. Marked with quarry symbol and labeled 'Schroff-O'Neil Mine' on the Anchorage D-7 1:63,360-scale topographic map. Accurate within 400 ft. Locality 15 of Cobb (1972) and locality 12 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:** Cu, Pb, Te, Zn

**Ore minerals:**

Altaite, chalcopyrite, coloradoite(?), galena, gold, nagyagite, pyrite, sphalerite, tetrahedrite

**Gangue minerals:** Quartz

**Geologic description:**

Mine located on an erosional remnant of a 1 to 6 inch thick quartz vein that cuts the Willow Creek Pluton. The coarsely crystalline quartz vein carries gold; the tellurides nagyagite, altaite, and coloradoite(?); galena in large cubes; pyrite; sphalerite; chalcopyrite; and tetrahedrite. The vein strikes N 70 E and dips 21 to 34 NW. The main vein is crossed by a barren copper-stained quartz vein. Ore deposition was apparently localized at the vein intersections. Nagyagite is an important mineral in that free gold shows a preference to it, especially in the richer ore. Some nagyagite and gold deposition appear to be contemporaneous (Ray, 1954).

The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; vein cuts the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Yes; small

**Site Status:** Inactive

**Workings/exploration:**

Developed by 60 ft of open cuts in 1923 (Brooks, 1925). Most of the erosional remnant was mined out by 1950 (Ray, 1954).

**Production notes:****Reserves:****Additional comments:**

This mine apparently was originally referred to as the Newman and Miller prospect (Brooks, 1925).

**References:**

Chapin, 1921; Brooks, 1925; Ray, 1954; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Ray, 1954

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Black

**Site type:** Prospect

**ARDF no.:** AN028

**Latitude:** 61.807

**Quadrangle:** AN D-7

**Longitude:** 149.304

**Location description and accuracy:**

2,000 ft southeast of the end of the unnamed, unimproved road that is parallel to Craigie Creek. Marked an adit symbol and labeled 'Black Prospect' on the Anchorage D-7 1:63,360-scale topographic map. Accurate within 400 ft.

**Commodities:**

**Main:** Au ?

**Other:**

**Ore minerals:** Gold ?

**Gangue minerals:** Quartz

**Geologic description:**

Very little information available on this prospect. Presumably the occurrence is similar to others in the area - auriferous quartz veins cutting quartz diorite. Country rock is the Late Cretaceous Willow Creek Pluton, a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite.

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; the mineralized host is the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins ? (Cox and Singer, 1986; model 36a ? )

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

36a ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Roehm (1937) reported that Sydney Black was developing a small property with two men employed on Craigie Creek, near the head.

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Roehm, 1937.

**Primary reference:** Roehm, 1937

**Reporter(s):** D.P. Bickerstaff (USGS contractor)

**Last report date:** 07/30/98

**Site name(s): Bluebird****Site type:** Prospect**ARDF no.:** AN029**Latitude:** 61.8**Quadrangle:** AN D-7**Longitude:** 149.29**Location description and accuracy:**

West of Fishhook Creek, 1,000 ft south of Gold Cord mine - ARDF number AN007. Accurate within 1,000 ft. Locality 14 of Cobb (1972) and locality 11 of MacKevett and Holloway (1977).

**Commodities:****Main:** Au**Other:****Ore minerals:** Gold**Gangue minerals:** Quartz**Geologic description:**

Capps (1919) reports a large body of quartz with visible gold in tonalite. The tonalite is part of the Late Cretaceous Willow Creek Pluton. The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the vein is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the vein is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; quartz body cuts the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**  
36a

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**  
Explored by open cuts and a 30 ft shaft (Capps, 1919).

**Production notes:**

**Reserves:**

**Additional comments:**  
Bluebird prospect is often grouped with Gold Cord mine (ARDF number AN007), but Capps (1919) clearly reports it to be south of Gold Cord and originally independently operated.

**References:**  
Capps, 1919; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Capps, 1919

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Jap**Site type:** Mine**ARDF no.:** AN030**Latitude:** 61.79**Quadrangle:** AN D-7**Longitude:** 149.32**Location description and accuracy:**

On slope 2,500 ft northwest of headwaters of Upper Willow Creek. Accurate to within 3,000 ft. Locality 12 of Cobb (1972) and locality 10 of MacKevett and Holloway (1977).

**Commodities:****Main:** Au**Other:****Ore minerals:** Gold**Gangue minerals:** Quartz**Geologic description:**

At least two quartz veins that range from a few inches to 18 inches in width and yield high assays of gold cut the Late Cretaceous Willow Creek Pluton. The veins may represent a faulted northward extension of the Gold Bullion vein (see Gold Bullion - ARDF number AN004) or may also represent the westward extension of either the Independence vein or Skyscraper vein (see Independence - ARDF number AN001) south of the Martin fault (Ray, 1954).

The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).



**Age of mineralization:**

Late Cretaceous or younger; vein cuts the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Yes; small**Site Status:** Inactive**Workings/exploration:**

Development included four adits 400, 100, 25, and 30 ft in length (Brooks, 1925). A small mill was installed in 1915 (Capps, 1916). The prospect tunnels are now inaccessible, but the vein has been explored by diamond drilling (Ray, 1954).

**Production notes:**

No attempt was made to mine ore carrying less than \$100/ton (about 4.85 oz/ton) in gold (Brooks, 1925). Total production, if any, is unknown.

**Reserves:****Additional comments:****References:**

Capps, 1916; Capps, 1919; Brooks, 1925; Ray, 1954; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Brooks, 1925**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98

**Site name(s):** Nugget; Willow Creek Mines Co.

**Site type:** Prospect

**ARDF no.:** AN031

**Latitude:** 61.79

**Quadrangle:** AN D-7

**Longitude:** 149.31

**Location description and accuracy:**

Near headwaters of Upper Willow Creek. Site located (Smith, 1917) between Gold Bullion (ARDF number AN004) and Kelley-Willow prospect (ARDF number AN032) at the headwaters of Willow Creek. Accurate within 1 mile.

**Commodities:**

**Main:** Au(?)

**Other:**

**Ore minerals:** Gold(?)

**Gangue minerals:**

**Geologic description:**

No specific data reported about the prospect. Most likely, consists of gold-bearing quartz vein(s) cutting the Late Cretaceous Willow Creek Pluton. Bedrock is the Late Cretaceous Willow Creek Pluton. The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite.

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; host is the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins ? (Cox and Singer, 1986; model 36a ?)

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

36a ?

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

Smith (1917) is vague at best and only reports that it's being operated by Willow Creek Mines Co. in 1916.

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Smith, 1917, BMB 153; Cobb, 1979, OFR 79-1095.

**Primary reference:** Smith, 1917

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Kelly-Willow; Gold Center; Brooklyn Development Co.; Brooklyn-Willow Creek Gold Mining Co.

**Site type:** Prospect

**ARDF no.:** AN032

**Latitude:** 61.784

**Quadrangle:** AN D-7

**Longitude:** 149.306

**Location description and accuracy:**

Near headwaters of Upper Willow Creek. Marked with adit symbol on the Anchorage D-7 1:63,360-scale topographic map, and labeled 'Kelly-Willow Prospect'. Accurate within 100 ft. Locality 11 from Cobb (1972) and locality 9 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:** Pb(?)

**Ore minerals:** Galena(?), gold, pyrite

**Gangue minerals:** Quartz

**Geologic description:**

One 4-foot-wide vein having three different stringers each about 6 inches thick cuts quartz diorite of the Late Cretaceous Willow Creek Pluton. Veins have a general strike of N 23 W, and dip of 35 SW (Capps, 1919). Assays of a narrow quartz stringer showed 1.25 oz/ton Au, while assays over full the width of vein were very low (Ray, 1954). Owners reported five mineralized veins on the property. One mineralized vein is probably the Independence vein; projection of the vein to the surface would be on patented claims of the Independence mine (ARDF number AN001).

The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends

more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; veins cut the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Undetermined.

**Site Status:** Inactive

**Workings/exploration:**

Located around 1909. Developed sporadically by open cuts and possibly as much as 1,000 feet of underground workings mainly along barren shear zones, from about 1909 to 1948. Exploration occurred via four tunnels and inclined shaft. The mill on the property may never have been used but the mine map shows stoped area. Assays of narrow quartz stringer showed 1.25 oz/ton Au, while assays over full width of vein were very low (Ray, 1954).

**Production notes:**

Undetermined production, data in the literature is confusing. A Chilean mill was freighted at least part way to the prospect in 1914, but was not installed (Capps, 1915). Information may be confused with neighboring properties which, at times, were under the same ownership (Cobb, 1979). There may have been production, as the mine map shows a stoped area.

**Reserves:****Additional comments:**

The information on this site is inconsistent due to changing ownership and consolidation of many properties under same name.

**References:**

Brooks, 1910; Katz, 1911; Brooks, 1912; Capps, 1914; Capps, 1915; Smith, 1917, BMB 153; Capps, 1919; Chapin, 1921; Brooks, 1922; Brooks and Capps, 1924; Brooks, 1925; Ray, 1954; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Ray, 1954

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Eldorado; Alaska Free Gold Mining Co.

**Site type:** Mine

**ARDF no.:** AN033

**Latitude:** 61.782

**Quadrangle:** AN D-7

**Longitude:** 149.29

**Location description and accuracy:**

Marked with an adit symbol and labeled 'Eldorado Mine' on the Anchorage D-7 1:63,360-scale topographic map, on eastern flank of Skyscraper Mountain - north of Hatcher Pass. Accurate within 400 ft.

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:** Quartz

**Geologic description:**

Capps (1915) reported a 1 to 18 inch wide gougy quartz vein cuts the Late Cretaceous Willow Creek Pluton. The quartz vein strikes N 24 W, and dips 36 W, and consists of solid quartz, associated with some clayey gouge. The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. The vein and host are oxidized to depths of 30 ft (Capps, 1915). Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

The vein and host are oxidized to depths of 30 ft (Capps, 1915). Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; vein cuts the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Yes; small

**Site Status:** Inactive

**Workings/exploration:**

Developed by several large open cuts and an inclined 30 ft adit. In 1911 a few tons of ore from the property was milled in the mill of the Alaska Gold Quartz Mining Co., (the Independence mine - ARDF number AN001) and yielded the first gold produced from this mine. Reportedly in 1912 about 100 tons of ore was dragged down a trail to a point from which it could be trammed to the mill (Capps, 1915). Stoll (1997) indicated that in the summer of 1939 the old shaft was reopened and retimbered by Alaska Pacific Consolidated Mining Co., and shipments of near-surface quartz were sent down to the old mill. In July the following summer the shaft was deepened, staying beneath the Eldorado vein. A raise to the vein and a drift northward along it were driven, finding ore with gold values good enough for the mill. By the summer of 1941 further exploration at Eldorado was 'outranked' by other ore-hunting plans.

**Production notes:**

A few tons milled in 1911, about 100 tons milled in 1912 (Capps, 1915). Undetermined amount of ore trammed to the mill in 1939 and 1940.

**Reserves:****Additional comments:****References:**

Capps, 1915; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Stoll, 1997.

**Primary reference:** Capps, 1915

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** Upper Willow Creek

**Site type:** Occurrence

**ARDF no.:** AN034

**Latitude:** 61.78

**Quadrangle:** AN D-7

**Longitude:** 149.33

**Location description and accuracy:**

Near headwaters of Upper Willow Creek, 1 mile below head, along valley walls. Accuracy within 1.5 miles. Localities 73 and 74 of Cobb (1972).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Chalcopyrite, gold

**Gangue minerals:**

**Geologic description:**

Jasper (1967) reports traces of chalcopyrite and gold in float concentrates. The bedrock in the lower part of the valley consists of Jurassic? quartz-muscovite-albite-chlorite (+/- garnet-biotite) pelitic schist; in the upper valley the bedrock is the Willow Creek Pluton, a Late Cretaceous zoned pluton.

**Alteration:**

**Age of mineralization:**

Jurassic ? or younger.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Unknown

**Production notes:****Reserves:****Additional comments:****References:**

Jasper, 1967; Cobb, 1972, MF-409; Cobb, 1979, OFR 79-1095; Winkler, 1992.

**Primary reference:** Jasper, 1967

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s): Mammoth****Site type:** Prospect**ARDF no.:** AN035**Latitude:** 61.77**Quadrangle:** AN D-7**Longitude:** 149.32**Location description and accuracy:**

On the southwestern flank of Skyscraper Mountain, 3,500 ft southwest of VABM Pass. Accurate within 1,000 ft. Locality 7 on Plate III from Capps (1915), locality 11 on Plate VI from Chapin (1921), locality 10 of Cobb (1972), and locality 9 of MacKevett and Holloway (1977).

**Commodities:****Main:** Au**Other:** Cu**Ore minerals:** Chalcopyrite, copper carbonates, gold, pyrite**Gangue minerals:** Quartz**Geologic description:**

Quartz body 28 to 30 ft wide in quartz diorite of the Late Cretaceous Willow Creek Pluton. The quartz contains gold, pyrite, chalcopyrite, and copper carbonates. The quartz body strikes east and dips 68 N. The quartz body is faulted away about 30 ft from entrance to tunnel and further investigation could not locate any extensions of the quartz body (Capps, 1915).

The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; the quartz body is in the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins ? (Cox and Singer, 1986; model 36a ?)

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

36a ?

**Production Status** None**Site Status:** Inactive**Workings/exploration:**

Capp (1915) reported that a 285 ft tunnel with crosscuts and a raise had been developed by 1913. It was later added onto with 100 ft of additional tunnel (Capps, 1916). Extension of the quartz body was never found.

**Production notes:****Reserves:****Additional comments:****References:**

Capps, 1914; Capps, 1915; Capps, 1916; Chapin, 1921; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Capps, 1915**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98

**Site name(s):** Lydell

**Site type:** Prospect

**ARDF no.:** AN036

**Latitude:** 61.77

**Quadrangle:** AN D-7

**Longitude:** 149.31

**Location description and accuracy:**

On the southern flank of Skyscraper Mountain 3,200 ft south-southwest of VABM Pass. Accurate within 2,000 ft.

**Commodities:**

**Main:** Au ?

**Other:**

**Ore minerals:** Gold ?

**Gangue minerals:** Quartz

**Geologic description:**

Quartz veins along the contact of Late Cretaceous quartz diorite and Jurassic (?) mica schist, smaller quartz veins are also present in the schist (Katz, 1911). The quartz diorite is part of the Late Cretaceous Willow Creek Pluton, a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954). The schist is a Jurassic (?) quartz-albite-chlorite (+/- garnet-biotite) pelitic schist.

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; vein cuts the Late Cretaceous Willow Creek Pluton. Or Jurassic (?) or younger if the veins cutting the schist are unrelated to the quartz vein along

the contact.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Unknown amount of work completed, no important mineral values were found (Katz, 1911).

**Production notes:****Reserves:****Additional comments:**

Katz did not visit this prospect but obtained the information from 'reliable sources'.

**References:**

Katz, 1911; Ray, 1954; Cobb, 1979, OFR 79-1095.

**Primary reference:** Katz, 1911

**Reporter(s):** D.P. Bickerstaff (USGS contractor)

**Last report date:** 07/30/98

**Site name(s):** Hatcher Creek

**Site type:** Occurrence

**ARDF no.:** AN037

**Latitude:** 61.77

**Quadrangle:** AN D-7

**Longitude:** 149.29

**Location description and accuracy:**

In the stream bed of Hatcher Creek, a tributary of Fishhook Creek . Accurate within 1,000 ft. Locality 75 of Cobb (1972).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:**

**Geologic description:**

Placer gold in concentrated float sample (Jasper, 1967). Bedrock is Jurassic (?) quartz-muscovite-albite-chlorite (+/- garnet-biotite) pelitic schist.

**Alteration:**

**Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986: model 39a)

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

39a

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Grain of gold in concentrated float sample (Jasper, 1967).

**Production notes:****Reserves:****Additional comments:****References:**

Jasper, 1967; Cobb, 1972, MF-409; Cobb, 1979, OFR 79-1095; Winkler, 1992.

**Primary reference:** Jasper, 1967

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** Rae; San Juan; Jennings Group

**Site type:** Prospect

**ARDF no.:** AN038

**Latitude:** 61.78

**Quadrangle:** AN D-7

**Longitude:** 149.25

**Location description and accuracy:**

At VABM Fish, 3,500 ft east-northeast of mouth of Hatcher Creek, a tributary of Fishhook Creek. Accurate within 1,500 ft. Locality 23 from Cobb (1972) and locality 19 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:** Cu, Pb

**Ore minerals:** Chalcopyrite, copper carbonates, galena, gold, pyrite

**Gangue minerals:** Quartz

**Geologic description:**

Fault or shear zone in gneissic quartz diorite contains clay or gouge with some quartz carrying free gold, chalcopyrite, pyrite, galena, and copper carbonates. Shear zone or fault is oxidized and is 8 to 18 inches thick. The zone strikes generally northeast and dips 43 N. Pegmatitic rocks with large crystals of quartz and feldspars containing gold reported nearby. Ore not similar to ore in the rest of the district (Capps, 1915).

The gneissic quartz diorite is part of the Willow Creek Pluton, a Late Cretaceous zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite.

**Alteration:**

Shear zone is oxidized (Capps, 1915).

**Age of mineralization:**

Late Cretaceous or younger; shear zone cuts the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins ? (Cox and Singer, 1986; model 36a ?)

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

36a ?

**Production Status** None**Site Status:** Inactive**Workings/exploration:**

Explored primarily by open cuts. There is not enough data to prove or disprove the presence of valuable ore bodies in the vein cutting the gneissic quartz diorite, but pegmatitic rocks show encouraging assays indicating gold to be present (Capps, 1915).

**Production notes:****Reserves:****Additional comments:**

Capps (1915) reports the San Juan and Rae prospects separately, however because these prospects are very near one another, they are often reported together as one. The San Juan prospect, contains the pegmatitic material with reported good assays, while the Rae prospect (part of the Jennings Group) has insufficient data about the vein.

**References:**

Capps, 1914; Capps, 1915; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Capps, 1915**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98

**Site name(s):** Fishhook Creek

**Site type:** Prospect

**ARDF no.:** AN039

**Latitude:** 61.76

**Quadrangle:** AN D-6

**Longitude:** 149.23

**Location description and accuracy:**

On Fishhook Creek (a tributary to Little Susitna River) at 1,680 ft elevation. Accurate within 2,000 ft. Locality 76 of Cobb (1972) and locality 58 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:**

**Geologic description:**

Placer gold, which is likely derived from morainal deposits, is fairly coarse. In the creek bed, the gold decreased with depth and bedrock was never reached. There are too many boulders for profitable mining.

**Alteration:**

**Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** Yes; small

**Site Status:** Inactive

**Workings/exploration:**

Numerous locations were prospected along the creek and at a point about 0.5 miles above its mouth, the creek was diverted. A 12 ft pit was sunk in the former creek bed and showed fair returns. However, Capps reported that there are too many large boulders for profitable mining.

**Production notes:**

Very little production.

**Reserves:****Additional comments:****References:**

Capps, 1914; Capps, 1915; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Capps, 1915

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Miller

**Site type:** Prospect

**ARDF no.:** AN040

**Latitude:** 61.77

**Quadrangle:** AN D-6

**Longitude:** 149.21

**Location description and accuracy:**

On the east side of the Little Susitna River, about 1 mile below the mouth of Fishhook Creek. Accurate within 1,500 ft. Locality 9 on plate II of Capps (1915).

**Commodities:**

**Main:** Au(?)

**Other:**

**Ore minerals:** Gold(?), pyrite, unidentified sulfides

**Gangue minerals:** Quartz

**Geologic description:**

An altered alaskite dike cuts Jurassic amphibolite and foliated quartz diorite containing local, minor quartz-feldspar gneiss. Locally this dike has been called a vein, and it was only after thin-section analysis was it discovered to be a dike. The 'ore' is white to greenish-gray in color and in places contains considerable sulfides. The dike is not well defined, and little of it is exposed (Capps, 1915).

**Alteration:**

**Age of mineralization:**

Jurassic or younger; dike is in Jurassic metamorphic rocks.

**Deposit model:**

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

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

Developments include two cabins and a tunnel driven 30 ft along the altered alaskite dike. Capps (1915) reports that only assessment work has been done and no value for the ore can be determined because assays are said to have given conflicting returns.

**Production notes:****Reserves:****Additional comments:****References:**

Katz, 1911; Capps, 1914; Capps, 1915; Cobb, 1979, OFR 79-1095.

**Primary reference:** Capps, 1915

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Stiles; Styles; Shough

**Site type:** Prospect

**ARDF no.:** AN041

**Latitude:** 61.79

**Quadrangle:** AN D-6

**Longitude:** 149.22

**Location description and accuracy:**

West of Little Susitna River, 4,000 ft north from the intersection of Willow Creek Road and Fern Mine Road. Accurate within 2,500 ft. Locality 27 from Chapin (1921), locality 13 from Ray (1933), locality 24 of Cobb (1972), and locality 18 of Mackevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:** Cu, Pb

**Ore minerals:** Azurite, chalcocite(?), galena, gold, iron oxides

**Gangue minerals:** Quartz

**Geologic description:**

Gold-bearing quartz veins cut Late Cretaceous tonalite of the Willow Creek Pluton and at least one vein was reported to parallel a large aplite dike. The veins strike E to N 13 E, and dip 62 W; are 1 to 3 ft thick; and carry azurite, galena, iron oxide, chalcocite (?), and little or no free gold. The property is east of a fault zone that may have been a conduit for mineralizing solutions (Capps, 1915). The aplite dike on the property is part of the largest and most persistent aplite in district which is supposedly traceable for 6 miles (Ray, 1933). Aplite dike shows evidence of hydrothermal alteration.

The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate altera-

tion predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954). Aplite dike shows evidence of hydrothermal alteration. Oxidation of Fe and Cu minerals.

**Age of mineralization:**

Late Cretaceous or younger; veins cut the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

Capps (1915; 1916) reported remarkably high assays, several thousand dollars a ton in gold. At least 420 ft of underground workings: 150 ft driven by 1916 along a vein with moderate amounts of gold, the objective being a fault zone exposed on the surface. In 1931 an adit was driven 270 ft, with the last 100 ft in the aplite dike, but no mention of whether vein was found (Ray, 1933).

**Production notes:**

No data on production.

**Reserves:****Additional comments:**

This prospect is referred to in some literature as Stiles, Styles, and/or Shough, but all appear to be the same prospect.

**References:**

Brooks, 1913; Capps, 1914; Capps, 1915; Capps, 1916; Ray, 1933; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Capps, 1915

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** Rae-Wallace; Alaska Free Gold Mining Co.; Rosenthal

**Site type:** Mine

**ARDF no.:** AN042

**Latitude:** 61.791

**Quadrangle:** AN D-6

**Longitude:** 149.243

**Location description and accuracy:**

Near head of Sydney Creek, marked with quarry symbol and labeled 'Rae-Wallace Mine' on the Anchorage D-6 1:63,360-scale topographic map. Accurate within 400 ft. Locality 11 of Capps (1915), locality 22 from Cobb (1972), and locality 18 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Arsenopyrite, gold, pyrite

**Gangue minerals:** Quartz

**Geologic description:**

At least two quartz veins cut the Late Cretaceous Willow Creek Pluton. The first vein is 1 to 3 ft thick and strikes N 40 W, and dips 10 SW, and contains finely disseminated pyrite and irregularly distributed free gold. The other vein is 6 to 12 inches thick, strikes east, and dips 55 S; it contains pyrite, arsenopyrite, and presumably gold (Capps, 1919). The veins are so close to the mountain top that the amount of mineralized material is small.

The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Some vein material shows oxidation (Capps, 1919). Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyri-

tization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; veins cut the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Yes; small**Site Status:** Inactive**Workings/exploration:**

Explored by several hundred feet of underground workings in at least two tunnels and some open cuts. Development work began in 1914. Two tunnels with aggregate length of 125 ft were dug by 1915. By 1917, one tunnel was extended to a length of 330 ft (Capps, 1914; 1915; 1916; 1919). No activity reported since 1929, when mine activity was intermittent and a little ore was mined.

**Production notes:**

Amount of production unknown, but probably small.

**Reserves:****Additional comments:****References:**

Capps, 1914; Brooks, 1915; Capps, 1915; Capps, 1916; Capps, 1919; Brooks and Capps, 1924; Smith, 1932, B 824-A; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Capps, 1919**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98

**Site name(s):** Mohawk

**Site type:** Prospect

**ARDF no.:** AN043

**Latitude:** 61.8

**Quadrangle:** AN D-6

**Longitude:** 149.25

**Location description and accuracy:**

Near headwaters of Sydney Creek, a tributary of Archangel Creek. Accurate within 2,500 ft. Locality 20 of Cobb (1972) and locality 17 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Arsenopyrite, gold

**Gangue minerals:** Quartz

**Geologic description:**

A white banded quartz vein cuts a gouge zone in quartz diorite country rock of the Late Cretaceous Willow Creek Pluton. The vein strikes N 35 W, dips 45 SW, and contains arsenopyrite and gold. The vein swells and pinches with a maximum thickness of 30 inches (Capps, 1919).

The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; vein cuts the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

Explored by 160 ft tunnel and another 30 ft tunnel that never penetrated loose surficial material (Capps, 1919).

**Production notes:****Reserves:****Additional comments:****References:**

Capps, 1919; Chapin, 1921; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Capps, 1919

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Smith and Sutherland; Smith-Sargent (?)

**Site type:** Prospect

**ARDF no.:** AN044

**Latitude:** 61.8

**Quadrangle:** AN D-6

**Longitude:** 149.22

**Location description and accuracy:**

Prospect block of four claims on the southeastern portion of the Sidney Creek basin. Sidney Creek is a tributary to Archangel Creek. Accurate within 1 mile radius.

**Commodities:**

**Main:** Au(?)

**Other:**

**Ore minerals:** Gold(?)

**Gangue minerals:**

**Geologic description:**

No specific data reported about the prospect mentioned in Capps (1919). Most likely, gold-bearing quartz vein(s) cut the Late Cretaceous Willow Creek Pluton. Bedrock is the Late Cretaceous Willow Creek Pluton. The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite.

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; host is the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins ? (Cox and Singer, 1986; model 36a ?)

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

36a ?

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

Capps (1919) reported a 40 ft tunnel caved in on the property.

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Capps, 1919; Cobb, 1979, OFR 79-1095.

**Primary reference:** Capps, 1919

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Keystone

**Site type:** Prospect

**ARDF no.:** AN045

**Latitude:** 61.8

**Quadrangle:** AN D-6

**Longitude:** 149.24

**Location description and accuracy:**

On mountainside west of Sydney Creek, approximately 1 mile southwest of the confluence of Sydney Creek with Archangel Creek. This is locality 24 from Figure 9 (Cohen, 1982). Accurate within 1,000 feet.

**Commodities:**

**Main:** Au ?

**Other:**

**Ore minerals:** Gold ?

**Gangue minerals:** Quartz ?

**Geologic description:**

Details about the prospect are unavailable. Most likely, a gold-bearing quartz vein(s) cuts the Late Cretaceous Willow Creek Pluton. The Willow Creek Pluton is a zoned pluton. The outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite.

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; the host of mineralization is the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins ? (Cox and Singer, 1986; model 36a ?)

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

36a ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Apparently only minor surface prospecting.

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Cohen, 1982.

**Primary reference:** Cohen, 1982

**Reporter(s):** D.P. Bickerstaff (USGS contractor)

**Last report date:** 07/30/98



**Site name(s):** Arch; Fern, Taulman & Goodell; Sidney Ridge property

**Site type:** Prospect

**ARDF no.:** AN046

**Latitude:** 61.807

**Quadrangle:** AN D-6

**Longitude:** 149.234

**Location description and accuracy:**

On the south side of Archangel Creek. Marked with adit symbol and labeled 'Arch Prospect' on the Anchorage D-6 1:63,360-scale topographic map. Accurate within 400 ft. Locality 21 of Cobb (1972) and locality 17 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold, minor sulfides

**Gangue minerals:** Quartz

**Geologic description:**

Quartz vein 12 to 20 inches thick occurs in a gouge zone which cuts the Late Cretaceous Willow Creek Pluton. The overall thickness of the quartz and gouge measures as much as 40 inches. The quartz, as seen in the dump, is banded and consists of interlocking quartz crystals surrounding pieces of altered country rock. Minor sulfide minerals present. Assays show about 1.45 oz/ton Au (Capps, 1915).

The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; vein cuts the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

Developed by two adits and some drifts of which the total length is unknown. Assays show about 1.45 oz/ton Au; reported as \$32/ton Au, with Au at \$20.67 per fine oz in 1915 (Capps, 1915). Two small hydropowered mills were being planned in the summer of 1914. Stoll (1997) indicated that the mills were never delivered, possibly due to the onset of WWI. By 1919, the old workings had mostly caved. Sampling conducted in the mid-1940's turned up promising gold values, hinting that the prospect was a 'sleeper' (Stoll and McDonald, 1946). In 1984, miners were reopening a caved area to access old stopes which reportedly still contained ore.

In 1984, the U.S. Bureau of Mines collected a 100 pound bulk sample from the surface ore dump. The +1/2 inch fraction contained 0.013 oz/ton Au and 0.2 oz/ton Ag; the -1/2 inch fraction contained 0.03 oz/ton Au and 0.003 oz/ton Ag (Kurtak, 1986).

**Production notes:**

Unknown production.

**Reserves:****Additional comments:****References:**

Capps, 1914; Capps, 1915; Capps, 1916; Capps, 1919; Stoll and McDonald, 1946; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Kurtak, 1986; Stoll, 1997.

**Primary reference:** Capps, 1915

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Webfoot; Reed and Fiske; Grimes

**Site type:** Prospect

**ARDF no.:** AN047

**Latitude:** 61.811

**Quadrangle:** AN D-6

**Longitude:** 149.246

**Location description and accuracy:**

On west side of upper Archangel Creek, marked with adit symbol and labeled 'Webfoot Prospect' on the Anchorage D-6 1:63,360-scale topographic map. Accurate within 400 ft. Locality 20 from Cobb (1972) and locality 17 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:** Cu

**Ore minerals:** Gold, malachite

**Gangue minerals:** Quartz

**Geologic description:**

A 2.5 to 5 ft wide auriferous quartz vein cuts the Late Cretaceous Willow Creek Pluton. The vein strikes due north and dips 33 to 40 W (Ray, 1954). Malachite staining was noted on some the quartz in dump (Capps, 1915). Kurtak (1986) reported that a 2.5-ft-wide chip sample across a quartz vien on the edge of a stope contained 0.44 ppm (0.013 oz/ton) Au, while a surface exposure contained 0.21 ppm ( 0.006 oz/ton) Au.

The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954). Sericitic alteration on vein margins (Kurtak, 1986).

**Age of mineralization:**

Late Cretaceous or younger; vein cuts the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** None**Site Status:** Inactive**Workings/exploration:**

Vein explored by open cuts and about 300 ft of underground drifts. The ore is reported to be a large tonnage of low-grade material (Ray, 1954). Kurtak (1986) reported that a 2.5-ft-wide chip sample across a quartz vein on the edge of a stope contained 0.44 ppm (0.013 oz/ton) Au, while a surface exposure contained 0.21 ppm (0.006 oz/ton) Au.

**Production notes:**

No record of production (Cobb, 1972).

**Reserves:****Additional comments:**

Capps (1915) refers to Webfoot or area very near Webfoot as the Grimes prospect and Katz (1911) uses the name Reed and Fiske.

**References:**

Katz, 1911; Capps, 1914; Capps, 1915; Capps, 1919; Chapin, 1920; Chapin, 1921; Brooks and Capps, 1924; Ray, 1954; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Kurtak, 1986.

**Primary reference:** Ray, 1954**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98

**Site name(s):** Gold Quartz; Alaska Quartz; Hilltoro

**Site type:** Prospect

**ARDF no.:** AN048

**Latitude:** 61.81

**Quadrangle:** AN D-6

**Longitude:** 149.22

**Location description and accuracy:**

On north side of Archangel Creek at 2,900 ft elevation, 1,000 ft upstream from Sidney Creek, a tributary to Archangel Creek. Marked on the Anchorage D-6 1:63,360-scale topographic map as two unlabelled adit symbols. Accurate within 400 ft. Locality 26 of Cobb (1972) and locality 20 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:** Quartz

**Geologic description:**

Gold-quartz veins cut the Late Cretaceous Willow Creek Pluton. The veins are reported to be up to two feet thick, but pinch out within 40 feet of portal (Capps, 1916; 1919). Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954). A U.S. Bureau of Mines grab sample of quartz float contained 0.06 ppm (0.002 oz/ton) Au (Kurtak, 1986).

The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite.

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; veins cut the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

Prospected by two tunnels, 20 ft and 212 ft long. Capps (1919) reported that the quartz vein in the longer tunnel is 16 inches thick and pinches out 40 ft from portal. Beyond that point, the tunnel follows a fault zone containing gouge. U.S. Bureau of Mines grab sample of quartz float contained 0.06 ppm (0.002 oz/ton) Au (Kurtak, 1986).

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Capps, 1916; Capps, 1919; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Kurtak, 1986.

**Primary reference:** Capps, 1919

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s): Rutland****Site type:** Prospect**ARDF no.:** AN049**Latitude:** 61.82**Quadrangle:** AN D-6**Longitude:** 149.25**Location description and accuracy:**

Approximately 1,500 feet west-southwest of the end of Fern Mine Road. This is locality 18 from Figure 9 (Cohen, 1982). Accurate within 1,000 feet.

**Commodities:****Main:** Au ?**Other:****Ore minerals:** Gold ?**Gangue minerals:** Quartz ?**Geologic description:**

Details about the prospect are unavailable. Most likely, a gold-bearing quartz vein(s) cuts the Late Cretaceous Willow Creek Pluton. The Willow Creek Pluton is a zoned pluton. The outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite.

**Alteration:****Age of mineralization:**

Late Cretaceous or younger; the host of mineralization is the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins ? (Cox and Singer, 1986; model 36a ?)

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

36a ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Apparently only minor surface prospecting.

**Production notes:**

**Reserves:**

**Additional comments:**

Stoll (1997) merely mentioned that the Rutland prospect was located to the west of the Fern mine (ARDF number AN005).

**References:**

Cohen, 1982; Stoll, 1997.

**Primary reference:** Stoll, 1997

**Reporter(s):** D.P. Bickerstaff (USGS contractor)

**Last report date:** 07/30/98



**Site name(s):** Little Gem (Hatcher); Little Gem Gold Mining Company

**Site type:** Prospect

**ARDF no.:** AN050

**Latitude:** 61.83

**Quadrangle:** AN D-6

**Longitude:** 149.24

**Location description and accuracy:**

At the headwaters of Archangel Creek, approximately 1,000 ft northeast of the end of the Fern Mine Road. Accurate within 1,000 ft. This is locality 19 of Cobb (1972) and locality 16 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:** Quartz

**Geologic description:**

A 1 to 10 inch thick quartz vein cuts quartz diorite of the Late Cretaceous Willow Creek Pluton. The vein contains a very rich streak, 1/2 to 2 inches thick, with abundant coarse specks of free gold. The vein is reportedly traceable for 1,500 ft (Capps, 1915; 1919).

The Willow Creek Pluton is a zoned pluton. The outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the vein is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the vein is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; vein cuts the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Undetermined.

**Site Status:** Inactive

**Workings/exploration:**

Staked in 1913. Development included two tunnels, 25 ft and 60 ft in length. Mill and material for tram was present but not installed in 1917 (Capps, 1915; 1919). Probably eventually became part of the Fern property - ARDF number AN005 (Cobb, 1979).

**Production notes:**

Unknown.

**Reserves:****Additional comments:****References:**

Capps, 1914; Capps, 1915; Capps, 1916; Capps, 1919; Chapin, 1920; Ray, 1954; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Capps, 1919

**Reporter(s):** D.P. Bickerstaff (USGS contractor)

**Last report date:** 07/30/98

**Site name(s):** Giant Gold Mining Company

**Site type:** Prospect

**ARDF no.:** AN051

**Latitude:** 61.83

**Quadrangle:** AN D-6

**Longitude:** 149.25

**Location description and accuracy:**

Approximately 2,000 feet north-northwest of the end of Fern Mine Road. This is locality 20 from Figure 9 (Cohen, 1982). Accurate within 1,000 feet.

**Commodities:**

**Main:** Au ?

**Other:**

**Ore minerals:** Gold ?

**Gangue minerals:** Quartz ?

**Geologic description:**

Details about the prospect are unavailable. Most likely, a gold-bearing quartz vein(s) cuts the Late Cretaceous Willow Creek Pluton. The Willow Creek Pluton is a zoned pluton. The outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite.

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; the host of mineralization is the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins ? (Cox and Singer, 1986; model 36a ?)

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

36a ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Apparently only minor surface prospecting.

**Production notes:**

Unknown.

**Reserves:**

**Additional comments:**

Very limited data about the prospect in the literature. Possibly (?) became part of the Fern Mine (ARDF number AN005). Stoll (1997) mentioned that the Giant Gold Mining Company prospect was located to the north of the Fern mine.

**References:**

Cohen, 1982; Stoll, 1997.

**Primary reference:** Stoll, 1997

**Reporter(s):** D.P. Bickerstaff (USGS contractor)

**Last report date:** 07/30/98

**Site name(s):** Lane; Anchorage Gold Mines Co.; Glaciers

**Site type:** Prospect

**ARDF no.:** AN052

**Latitude:** 61.845

**Quadrangle:** AN D-6

**Longitude:** 149.232

**Location description and accuracy:**

One mile west-northwest of headwaters of Glacier Creek, a tributary of Reed Creek. Marked with adit symbol and labeled 'Lane Prospect' on the Anchorage D-6 1:63,360-scale topographic map. Accurate within 400 ft. Locality 18 of Cobb (1972) and locality 15 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold, pyrite

**Gangue minerals:** Quartz

**Geologic description:**

Quartz vein cuts tonalite of the Late Cretaceous Willow Creek Pluton. The coarse, vuggy vein is 8 inches thick and contains numerous isolated pieces of free gold (Ray, 1954). The vein trends N 25 W, and dips 35 to 38 SW, and is exposed underground for 25 ft. Gold also occurs as hairlike masses in pyrite and in a dark-gray sulfide. Wall-rock alteration within a few inches of the vein is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954). Kurtak (1986) also reported that gold was visible in quartz float on the adit dump. A grab sample of dump float contained 9.4 ppm (0.27 oz/ton) Au and a grab sample of the vein quartz contained 2.5 ppm (0.07 oz/ton) Au.

The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite.

**Alteration:**

Wall-rock alteration within a few inches of the vein is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chlo-

ritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; vein cuts the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

Prospect explored by 20 ft tunnel and an aerial tram was being installed in 1950 (Ray, 1950). Kurtak (1986) reported that gold was visible in quartz float on the adit dump. A grab sample of dump float contained 9.4 ppm (0.27 oz/ton) Au and a grab sample of the vein quartz contained 2.5 ppm (0.07 oz/ton) Au. It appears that any high grade ore that previously existed has been mined out (Kurtak, 1986).

**Production notes:**

No recorded production.

**Reserves:****Additional comments:****References:**

Chapin, 1920; Ray, 1954; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Kurtak, 1986.

**Primary reference:** Ray, 1954

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Reed Creek

**Site type:** Prospect

**ARDF no.:** AN053

**Latitude:** 61.85

**Quadrangle:** AN D-6

**Longitude:** 149.15

**Location description and accuracy:**

1,000 ft north of the unnamed lake that is the headwater of Reed Creek, a tributary of Archangel Creek. Accurate within 2,500 ft. Locality 33 of Cobb (1972) and locality 24 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Cu, Mo, W

**Other:**

**Ore minerals:** Chalcopyrite, molybdenite, scheelite

**Gangue minerals:**

**Geologic description:**

Low-grade molybdenum-copper mineralization, probably in a pegmatite dike that cuts Tertiary to Late Cretaceous tonalite (Jasper, 1967). Downstream, samples (locality 85 of Cobb, 1972) in stream gravels contain scheelite (Jasper, 1967).

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; mineralization is hosted by a Tertiary to Late Cretaceous tonalite.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Explored by adit driven in 1917, which is now largely covered by talus (Jasper, 1967).  
Data on prospect is limited.

**Production notes:****Reserves:****Additional comments:**

Information on deposit is very non-specific. Mackevett and Holloway (1977), assumed deposit to be a pegmatite carrying molybdenite and chalcopyrite probably on the basis of regional geology. Other references mention only low-grade molybdenite-copper mineralization.

**References:**

Martin, 1919; Smith, 1942, B 926-C; Jasper, 1967; Cobb, 1972, MF-409; Cobb, 1975, MR 66; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Jasper, 1967

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** Bailey

**Site type:** Prospect

**ARDF no.:** AN054

**Latitude:** 61.83

**Quadrangle:** AN D-6

**Longitude:** 149.18

**Location description and accuracy:**

In upper Reed Creek valley, about 1 mile north-northeast from the end of the unimproved road that is parallel to Reed Creek. Accurate within 2,000 ft. Location 32 of Cobb (1972).

**Commodities:**

**Main:** Ag, Au

**Other:** Cu, Mo

**Ore minerals:** Bornite, chalcopyrite, covellite, molybdenite, pyrite

**Gangue minerals:**

**Geologic description:**

Shear zone in tonalite of Late Cretaceous to Tertiary age. Maloney (1966) reported the shear zone to be 200 ft wide and could be traced for 1,500 ft. The shear zone contains bornite, chalcopyrite, covellite, molybdenite, and pyrite; and strikes east, dipping 75 to 80 N. Mineralization is exposed over an area of 50 ft by 500 ft and over a vertical distance of 300 ft. Assays indicated 0.6 oz/ton Au, 1.81 oz/ton Ag, 4.58 percent Cu, and 2.06 percent Mo (Maloney, 1966).

**Alteration:**

Sericitization and carbonitization dominate (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; shear zone cuts Late Cretaceous to Tertiary tonalite.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Old adit, said to have been 40 ft long, was covered by rock slide prior to 1963. Assays indicated 0.6 oz/ton Au, 1.81 oz/ton Ag, 4.58 percent Cu, and 2.06 percent Mo (Maloney, 1966).

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Maloney, 1966; Cobb, 1972, MF-409; Cobb, 1979, OFR 79-1095.

**Primary reference:** Maloney, 1966

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Mogul**Site type:** Prospect**ARDF no.:** AN055**Latitude:** 61.83**Quadrangle:** AN D-6**Longitude:** 149.17**Location description and accuracy:**

In upper Reed Creek valley, about 1 mile north-northeast from the end of the unimproved road that is parallel to Reed Creek. Accurate within 2,000 ft. Locality 32 of Cobb (1972) and locality 22 of MacKevett and Holloway (1977).

**Commodities:****Main:** Au**Other:****Ore minerals:** Gold, sulfides**Gangue minerals:** Quartz**Geologic description:**

Gouge zone containing quartz veins in early Paleocene and Late Cretaceous quartz diorite. The vein quartz is drusy and contains scattered unspecified sulfides and much iron oxide. The quartz vein is 1 to 4 inches thick in all three open cuts. In one cut the vein is separated from another 12 inch quartz vein by 18 inches of altered quartz diorite. The vein was reported to have given high assays in gold (Capps, 1915).

The early Paleocene and Late Cretaceous quartz diorite is part of a pluton which is mostly biotite-hornblende tonalite with lesser biotite-hornblende quartz diorite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954). Oxidation of sulfide minerals.

**Age of mineralization:**

Late Cretaceous or younger; veins cut early Paleocene and Late Cretaceous quartz diorite.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Development consists of three open cuts made across vein which reportedly had high assays in gold (Capps, 1915).

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Capps, 1914; Capps, 1915; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Capps, 1915

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Snowbird; Snow King; Sherry

**Site type:** Mine

**ARDF no.:** AN056

**Latitude:** 61.832

**Quadrangle:** AN D-6

**Longitude:** 149.205

**Location description and accuracy:**

Above west bank of Glacier Creek, a tributary to Reed Creek. Marked with adit symbol and labeled 'Snowbird Mine' on the Anchorage D-6 1:63,360-scale topographic map. Accurate within 400 ft. Locality 33 of Chapin (1921, plate VI), locality 31 of Cobb (1972), and locality 23 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:** Quartz

**Geologic description:**

Mineralized shear zones and quartz veins in tonalite or quartz diorite of the Late Cretaceous Willow Creek Pluton. Exploration encountered four shear zones, two of which contained gold in quartz lenses in gouge and sheared rock. The shear zones generally strike northeast and dip 52 to 70 NW. Two shear zones were barren, one yielded a few good assays, and one had encouraging assays (Ray, 1954). Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite.

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; vein cuts the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Yes; small**Site Status:** Inactive**Workings/exploration:**

Explored by about 2,000 ft of crosscuts and drifts. Work to open up a quartz vein was reported in 1919. The vein was reported to be stripped for 4,000 ft (Chapin, 1921). By 1925, owner Mike Sherry reported an adit driven 120 ft. The adit reportedly had a quartz vein at the working face (Brooks, 1925). An aerial tram and mill were installed and a little ore was mined and milled in 1950. The 'encouraging' shear zone (of the four shear zones encountered) hit bad ground as a raise was being put up (Ray, 1954).

**Production notes:**

In the fall of 1950 a small amount of ore mined and milled - the first and the last to be milled on Glacier Creek (Stoll, 1997).

**Reserves:****Additional comments:**

Brooks (1925) reports that Mike Sherry developed a prospect on the west side of Reed Creek valley in 1923. It is generally assumed that this is the same as Snowbird and Snow King. Ray (1954) refers to this location as Snowbird, while Chapin (1921) refers to it as Snow King; appears that they are the same mine.

**References:**

Chapin, 1921; Brooks, 1925; Ray, 1954; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Kurtak, 1986; Stoll, 1997.

**Primary reference:** Ray, 1954**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98

**Site name(s):** Homebuilder; McCoy; Babcock-McCoy; Idamar

**Site type:** Prospect

**ARDF no.:** AN057

**Latitude:** 61.82

**Quadrangle:** AN D-6

**Longitude:** 149.2

**Location description and accuracy:**

West of Reed Creek, 1,600 ft west of the confluence of Goodhope Creek with Reed Creek. Accurate within 2,000 ft. Locality 31 on plate VI of Chapin (1920), locality 29 of Cobb (1972), and location 20 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold, pyrite

**Gangue minerals:** Quartz

**Geologic description:**

Quartz vein 5 to 9 ft wide cuts intrusive rocks near the contact of the Willow Creek Pluton and early Paleocene to Late Cretaceous tonalite. Vein orientation given as striking NW and dipping SW (Capps, 1915) and N 70 E/35 NW (Brooks, 1925). The quartz vein contains gold (which can be panned) and considerable pyrite (Brooks, 1925).

The Late Cretaceous Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. The younger intrusive body includes biotite-hornblende tonalite and lesser biotite-hornblende quartz diorite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

At least Late Cretaceous or younger - possibly Paleocene or younger; vein cuts rocks near the contact of the Late Cretaceous Willow Creek Pluton and an early Paleocene to Late Cretaceous tonalite.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** None**Site Status:** Inactive**Workings/exploration:**

Staked by Fred McCoy in 1913 (Stoll, 1997). By 1915, veins were prospected by numerous open cuts, only some of which reached undisturbed bedrock (Capps, 1915). Capps (1919) reported a crosscut being driven in 1917 to undercut the gold-bearing quartz vein. In 1919, J.B. Larsen staked the Idamar claims, and began minor surface stripping (Chapin, 1921). By 1925, the crosscut was being driven to intersect the vein 300 ft below the surface workings.

**Production notes:****Reserves:****Additional comments:**

Capps (1917) refers to this prospect as McCoy or Babcock-McCoy claim, Chapin (1921) refers to it as Idamar, and Brooks (1925) calls it Homebuilder. Possibly these are three separate prospects, but all are in close proximity.

**References:**

Capps, 1914; Capps, 1915; Capps, 1916; Capps, 1919; Chapin, 1921; Brooks and Capps, 1924; Brooks, 1925; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Stoll, 1997.

**Primary reference:** Brooks, 1925**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98



**Site name(s):** Mary Ann

**Site type:** Prospect

**ARDF no.:** AN058

**Latitude:** 61.82

**Quadrangle:** AN D-6

**Longitude:** 149.18

**Location description and accuracy:**

East of Reed Creek, about 2,500 ft east-northeast of the mouth of Good Hope Creek a tributary of Reed Creek. Accurate within 2,500 ft. Locality 32 of Chapin (1921), locality 30 of Cobb (1972), and locality 22 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au ?

**Other:**

**Ore minerals:** Gold ?

**Gangue minerals:** Quartz

**Geologic description:**

Quartz vein traced along outcrop of early Paleocene and Late Cretaceous tonalite. The lithology is dominantly biotite-hornblende tonalite with lesser biotite-hornblende quartz diorite. Wall-rock alteration within a few inches of the vein is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954). No data on possible gold content (Cobb, 1979).

**Alteration:**

Wall-rock alteration within a few inches of the vein is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; vein cut early Paleocene and Late Cretaceous tonalite.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Undetermined**Site Status:** Inactive**Workings/exploration:**

In 1919 a tunnel was being driven to intersect a quartz vein that had been traced along the surface (Chapin, 1921).

**Production notes:****Reserves:****Additional comments:****References:**

Chapin, 1921; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Chapin, 1921**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98

**Site name(s): Good Hope****Site type:** Prospect**ARDF no.:** AN059**Latitude:** 61.82**Quadrangle:** AN D-6**Longitude:** 149.19**Location description and accuracy:**

Claim staked on the east side of lower Reed Creek, along Goodhope Creek. Accurate within 1 mile radius.

**Commodities:****Main:** Au**Other:****Ore minerals:** Gold**Gangue minerals:** Quartz**Geologic description:**

A quartz vein several feet wide in Tertiary to Late Cretaceous biotite-hornblende tonalite and lesser biotite-hornblende quartz diorite is reported to contain gold (Capps, 1919). Wall-rock alteration within a few inches of the vein is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954). Free gold can be panned from the vein.

**Alteration:**

Wall-rock alteration within a few inches of the vein is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; quartz vein cuts Tertiary to Late Cretaceous tonalites and quartz diorites.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Undetermined**Site Status:** Inactive**Workings/exploration:**

First staked in 1916. Vein exposed by two large open cuts (Capps, 1919).

**Production notes:****Reserves:****Additional comments:****References:**

Capps, 1919; Cobb, 1979, OFR 79-1095.

**Primary reference:** Capps, 1919**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98

**Site name(s):** Opal

**Site type:** Prospect

**ARDF no.:** AN060

**Latitude:** 61.82

**Quadrangle:** AN D-6

**Longitude:** 149.21

**Location description and accuracy:**

West of Reed Creek, 3,000 ft southwest of the confluence of Goodhope Creek with Reed Creek. Accurate within 2,000 ft. Locality 30 of Chapin (1921, plate VI), locality 28 from Cobb (1972), and locality 20 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold, pyrite

**Gangue minerals:** Quartz

**Geologic description:**

Two parallel veins have been traced in the quartz diorite country rock of the Late Cretaceous Willow Creek Pluton. The veins strike N 50 E, and dip 50 NW. The upper vein is 3 to 4 ft wide and consists of quartz and gouge in altered quartz diorite. The lower vein is 3 to 5 ft wide and consists of quartz stringers and gouge in altered quartz diorite. Both veins carry pyrite and free gold, and reportedly are cut by faults (Chapin, 1921).

The Willow Creek Pluton is a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; veins cut the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

Tunnels started in 1919. The prospect was explored by surface excavations and about 300 ft of underground workings as of 1923 (Brooks, 1925).

**Production notes:**

No record of production.

**Reserves:****Additional comments:****References:**

Chapin, 1921; Brooks and Capps, 1924; Brooks, 1925; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Chapin, 1921

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Archangel; Le Roi Mining Co.; Alaska-Willow Creek

**Site type:** Prospect

**ARDF no.:** AN061

**Latitude:** 61.8

**Quadrangle:** AN D-6

**Longitude:** 149.17

**Location description and accuracy:**

North of Little Susitna River, 1.25 miles west-southwest of Idaho Peak summit. Accurate within 500 ft. Locality 27 of Cobb (1972) and locality 21 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:** Quartz

**Geologic description:**

A gold-quartz vein, up to 38 inches thick, cuts Late Cretaceous to Tertiary age tonalite (Capps, 1916). The tonalite ranges in composition from biotite-hornblende tonalite to, lesser, biotite-hornblende quartz diorite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; vein cuts Late Cretaceous to Tertiary tonalite.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**  
36a

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Capps (1916) reports that Archangel prospect had two 35 ft tunnels. In 1925, Brooks refers to what appears to be the same prospect as the Alaska-Willow Creek claim and reports it to have an adit driven 240 ft.

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Capps, 1916; Brooks, 1925; Chapin, 1920; Chapin, 1921; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Capps, 1916

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** Little Susitna River

**Site type:** Occurrence

**ARDF no.:** AN062

**Latitude:** 61.79

**Quadrangle:** AN D-6

**Longitude:** 149.14

**Location description and accuracy:**

Multiple occurrences along upper reaches of Little Susitna River, centered near VABM Creek. Accurate within 1.5 miles upstream and downstream from plotted point. Locality 77-84 of Cobb (1972).

**Commodities:**

**Main:** Cu, W

**Other:**

**Ore minerals:** Chalcopyrite, magnetite, pyrite, scheelite

**Gangue minerals:**

**Geologic description:**

Concentrate samples in stream gravels contain a few grains of scheelite and chalcopyrite (Jasper, 1967). Assays yielded up to 110 ppm Cu and 5 ppm Mo (Jasper, 1967). Nearby crystalline rocks include Tertiary to Cretaceous biotite-hornblende tonalite, and Jurassic amphibolite and foliated quartz diorite. Creek float dominantly quartz diorite.

**Alteration:**

**Age of mineralization:**

Jurassic or younger, based on ages of bedrock in the area.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Assays yielded up to 110 ppm Cu and 5 ppm Mo (Jasper, 1967). Other pan concentrates include magnetite, pyrite, and zircon.

**Production notes:****Reserves:****Additional comments:****References:**

Jasper, 1967; Cobb, 1972, MF-409; Cobb, 1975, MR 66; Cobb, 1979, OFR 79-1095.

**Primary reference:** Jasper, 1967

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Lonesome; Gold Mint; Kelly Gold Mint; Hatcher

**Site type:** Mine

**ARDF no.:** AN063

**Latitude:** 61.786

**Quadrangle:** AN D-6

**Longitude:** 149.122

**Location description and accuracy:**

At the end of the unimproved road that runs parallel to the upper portion of the Little Susitna River. Marked with multiple adit symbols and labeled 'Lonesome Mine' on the Anchorage D-6 1:63,360-scale topographic map. The Gold Mint workings are about 2,000 ft east of road terminous. Accurate within 400 ft. Locality 35 from Cobb (1972) and locality 25 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Ag, Au

**Other:** Cu

**Ore minerals:** Altaite, chalcopyrite, gold, nagyagite, pyrite

**Gangue minerals:** Quartz

**Geologic description:**

Quartz in narrow stringers and veins up to 18 inches wide cut fine-grained, fractured diorite or gabbro of early Paleocene to Late Cretaceous age. Stringers and veins contain free gold, pyrite, chalcopyrite, and the tellurides nagyagite and altaite. Veins strike N 35 to 50 W, and dips 40 to 62 SW. One vein is displaced several feet along a transverse fault (Ray, 1933; Ray, 1954). Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

A similar vein deposit is exposed to the southeast in an area of Eocene conglomerate of the Arkose Ridge Formation. This could indicate a post-Eocene age for mineralization of Lonesome mine gold deposits, because it may be younger than the Eocene continental rocks overlying the batholith of the Willow Creek district. A 2 to 3 inch vein of quartz assayed 19 oz/ton Au and 22 oz/ton Ag. The same vein is exposed and oxidized at surface and shows 400 oz/ton Ag (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends

more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954). Surface oxidation.

**Age of mineralization:**

Late Cretaceous or younger based on host rock age. A similar vein deposit is exposed to the southeast in an area of Eocene conglomerate of the Arkose Ridge Formation. This could indicate a post-Eocene age for mineralization of Lonesome mine gold deposits, because it may be younger than the Eocene continental rocks overlying the batholith of the Willow Creek district (Ray, 1954).

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Yes; small

**Site Status:** Inactive

**Workings/exploration:**

Developed by surface trenching and several hundred feet of underground workings on 3 levels. By 1921 a tunnel was being driven on the upper vein and surface pits were being dug on the lower veins (Chapin, 1921). By 1922 the underground workings totalled 435 ft of adit, crosscut, shaft and raise. Mill was running in 1922 (Brooks and Capps, 1924). A five-stamp mill stood beside the Little Susutina River in the early 1930s. From 1946 to 1949 a new mill was installed and some underground development was done. The new mill and camp were built around 1946 although two five-stamp mills still stood in the old mill building (Stoll, 1997) The mine operated intermittently until 1949.

A 2 to 3 inch vein of quartz assayed 19 oz/ton Au and 22 oz/ton Ag. The same vein is exposed and oxidized at surface and shows 400 oz/ton Ag (Ray, 1954). There is considerably more silver in these veins than in other veins of the district.

**Production notes:**

Smith (1930) listed the Marion-Twin Gold Mining Company, the owner of the Lonesome Mine, as one of the largest producers in the district in 1928. Production reported intermittently between 1931 and 1949. Amount of total production is unknown.

**Reserves:****Additional comments:****References:**

Chapin, 1921; Brooks and Capps, 1924; Brooks, 1925; Smith, 1929; Smith, 1930, B 810-A; Smith, 1930, B 813-A; Smith, 1932, B 824-A; Ray, 1933; Smith, 1933, B 836;

Smith, 1933, B 844-A; Smith, 1934, B 857-A; Smith, 1934, B 864-A; Ray, 1954; Berg and Cobb, 1967; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Stoll, 1997.

**Primary reference:** Ray, 1954

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Maverick**Site type:** Prospect**ARDF no.:** AN064**Latitude:** 61.79**Quadrangle:** AN D-6**Longitude:** 149.11**Location description and accuracy:**

Along south side of Lone Tree Creek. 1,500 ft upstream from confluence of Lone Tree Creek and Little Susitna River. Accurate within 1,000 ft. Locality 34 from Cobb (1972) and locality 25 of MacKevett and Holloway (1977).

**Commodities:****Main:** Au**Other:** Cu**Ore minerals:** Chalcopyrite, gold, pyrite**Gangue minerals:** Quartz**Geologic description:**

Chapin (1921) reported prospect to be similar in appearance to the upper Gold Mint vein, i.e. Lonesome Mine (ARDF number AN063). Reported to be a 2 ft wide quartz vein containing gold and chalcopyrite. There is no data on amount of gold or chalcopyrite, nor the mode of occurrence. Chapin (1921) assumed that these two minerals are present based on appearance.

The bedrock is an early Paleocene and Late Cretaceous pluton which is mostly biotite-hornblende tonalite with lesser biotite-hornblende quartz diorite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; vein cuts early Paleocene and Late Cretaceous tonalite or quartz diorite.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Unknown

**Production notes:****Reserves:****Additional comments:**

References often combine data for Maverick and Gold Mint/Lonesome veins (ARDF number AN063).

**References:**

Chapin, 1921; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Chapin, 1921

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s): Lone Tree Gulch****Site type:** Occurrence**ARDF no.:** AN065**Latitude:** 61.78**Quadrangle:** AN D-6**Longitude:** 149.08**Location description and accuracy:**

At 4,000 ft elevation, 2,000 ft east-northeast of headwaters of Lone Tree Gulch, a tributary to Little Susitna River. Accurate within 1,000 ft. Locality 36 of Cobb (1972) and locality 26 of MacKevett and Holloway (1977).

**Commodities:****Main:** Cu**Other:****Ore minerals:** Copper**Gangue minerals:****Geologic description:**

Jasper (1967) reports scattered occurrences of copper mineralization, most likely copper stain, in Tertiary to Late Cretaceous tonalite. There is no visible continuity between occurrences.

**Alteration:****Age of mineralization:**

Late Cretaceous or younger; host is Tertiary to Late Cretaceous tonalite.

**Deposit model:****Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):****Production Status** None**Site Status:** Inactive**Workings/exploration:**

Lack of continuity for appreciable distances has discouraged prospectors (Jasper, 1967).



**Production notes:**

No production.

**Reserves:****Additional comments:****References:**

Jasper, 1967; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Jasper, 1967

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Moose Creek; Northwestern

**Site type:** Prospect

**ARDF no.:** AN066

**Latitude:** 61.79

**Quadrangle:** AN D-6

**Longitude:** 149.05

**Location description and accuracy:**

West of Moose Creek on a ridgetop 1.3 miles north-northeast of Arkose Peak summit. Accurate within 2,500 ft. Locality 37 from Cobb (1972) and locality 27 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Ag, Au, Cu, Zn

**Other:** Ni

**Ore minerals:** Chalcopyrite, copper, gold, magnetite, nickel, pyrite, pyrrhotite, silver, sphalerite

**Gangue minerals:**

**Geologic description:**

Heavily mineralized zone in Jurassic gneissic hornblende quartz diorite. The 25-30 ft thick zone reportedly traced for 7,000 ft along surface. Zone contains irregular masses, veins, and disseminations of pyrite, pyrrhotite, chalcopyrite, magnetite, and sphalerite. The zone trends parallel to gneissic banding; strikes N 60 to 75 W, and dips 65 S to vertical (Capps, 1919). It's bordered by disseminated sulfides and capped by gossan. One massive sulfide body measuring 25 by 80 ft was exposed in an open cut. The sulfides also occur in segregated masses.

Assays show 0.04 to 0.08 oz/ton Au, 0.8 to 1.2 oz/ton Ag, 5.6 percent Cu, and one sample had 0.03 percent Ni (Capps, 1919).

**Alteration:**

Surface gossan.

**Age of mineralization:**

Jurassic or younger; host is a Jurassic age gneissic hornblende quartz diorite.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Explored by open cuts and a short, 32 ft adit. Assays show 0.04-0.08 oz/ton Au, 0.8-1.2 oz/ton Ag, 5.6 percent Cu, and one sample had 0.03 percent Ni (Capps, 1919).

**Production notes:**

No record of production (Berg and Cobb, 1967).

**Reserves:**

**Additional comments:**

**References:**

Brooks, 1918; Capps, 1919; Chapin, 1921; Capps, 1940; Wedow and others, 1952; Jasper, 1965; Berg and Cobb, 1967; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Berg and Cobb, 1967

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Kashwitna River

**Site type:** Occurrences

**ARDF no.:** AN067

**Latitude:** 61.92

**Quadrangle:** AN D-6

**Longitude:** 148.96

**Location description and accuracy:**

Generalized point for three widely spaced sample locations. Upper reaches of Kashwitna River, 4.2 miles northeast of Montana Peak. Accurate within 1.5 miles. Locality 9, 10, and 11 of Capps and Tuck (1925).

**Commodities:**

**Main:** Ag, Au, Cu

**Other:**

**Ore minerals:** Bornite, chalcocite, chalcopyrite, gold, pyrite

**Gangue minerals:** Quartz

**Geologic description:**

Capps and Tuck (1935) report quartz float and numerous quartz veins containing small amounts of pyrite and copper minerals such as chalcopyrite and less commonly borite and chalcocite. Three different occurrences were examined. Veins are as thick as 2 ft and cut hornblende diorite and quartz diorite gneiss. Some veins have been displaced via post-mineral faults, and felsic dike rock is found at some localities. Assays show small amounts of gold (no more than 0.02 oz/ton) and 5.0 oz/ton Ag.

Bedrock in the vicinity includes: 1) early Paleocene and Late Cretaceous tonalite. The lithology is dominantly biotite-hornblende tonalite and lesser biotite-hornblende quartz diorite; and 2) Jurassic (?) amphibolite and foliated quartz diorite and local, minor quartz-feldspar gneiss.

**Alteration:**

**Age of mineralization:**

Early Paleocene or younger ?; mineralization is hosted in both early Paleocene to Late Cretaceous tonalite and Jurassic ? quartz diorite gneiss.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Assays show small amounts of gold (no more than 0.02 oz/ton) and 5.0 oz/ton Ag (Capps and Tuck, 1935). Capps (1940) reports that some samples collected from the Kashwitna Basin are nearly pure bornite.

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Capps and Tuck, 1935; Capps, 1940; Wedow and others, 1952; Cobb, 1979, OFR 79-1095.

**Primary reference:** Capps and Tuck, 1935

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Blue Quartz Mining Co.

**Site type:** Prospect

**ARDF no.:** AN068

**Latitude:** 61.9

**Quadrangle:** AN D-7

**Longitude:** 149.28

**Location description and accuracy:**

Prospect located near the head of the north fork of Peters Creek, a northern tributary of Willow Creek. Chapin (1921) reported the creek name as Peterson Creek but the name has since changed. Accurate within 1 mile. Sec. 21, T. 21 N., R. 1 E., of the Seward Meridian.

**Commodities:**

**Main:** Au

**Other:** Cu

**Ore minerals:** Chalcopyrite, gold, pyrite, tetrahedrite

**Gangue minerals:** Orthoclase, quartz, tourmaline

**Geologic description:**

Chapin (1921) reported that three parallel granitic dikes cut tonalite country rock. The dikes are composed of quartz, orthoclase, and clusters of tourmaline. They strike N 63 E and one of these dikes, 8 ft wide, gradually passes along its strike into a quartz vein. The vein carries some gold and visible particles of chalcopyrite and tetrahedrite. Several short, intersecting gash veins of quartz intersect this main vein with considerable pyrite. These veins pinch out a short distance from the main fissure, but the persistence of the fissure vein is unknown. It appears to merge into a granite dike in one direction and is untracable due to debris (talus or glacial deposits ?) in the other direction.

The bedrock is the Late Cretaceous Willow Creek Pluton, a zoned pluton: the outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite. Wall-rock alteration within a few inches of the veins is intense, but seldom extends more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Alteration:**

Wall-rock alteration within a few inches of the veins is intense, but seldom extends

more than 10 to 12 inches beyond the quartz filling. Sericitization and carbonate alteration predominate, but there is some pyritization and in the outer parts of the alteration zone chloritization is present (Ray, 1954).

**Age of mineralization:**

Late Cretaceous or younger; the dikes and veins cut the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins (Cox and Singer, 1986; model 36a)

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

36a

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

Explored by open cuts made on both the main vein and the gash veins, and a tunnel was started on the main vein (Chapin, 1921).

**Production notes:****Reserves:****Additional comments:****References:**

Chapin, 1921; Cobb, 1979, OFR 79-1095.

**Primary reference:** Chapin, 1921

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Peters Creek; Peterson Creek

**Site type:** Occurrence

**ARDF no.:** AN069

**Latitude:** 61.88

**Quadrangle:** AN D-7

**Longitude:** 149.29

**Location description and accuracy:**

In basin of largest northern tributary at Peters Creek headwaters. Peters Creek is a tributary to Willow Creek. Accurate within 1 mile. Locality 6 and 7 on plate 1 of Capps and Tuck (1935).

**Commodities:**

**Main:** Ag, Au, Cu

**Other:**

**Ore minerals:** Bornite, chalcopyrite, gold

**Gangue minerals:** Quartz

**Geologic description:**

Capps and Tuck (1935) reported quartz float containing small amounts of chalcopyrite, bornite, gold, and silver. Sample assay values are as high as 0.02 oz/ton Au and 0.60 oz/ton Ag. Country rock in the area is the highly sheared Late Cretaceous and Tertiary biotite-muscovite granite and Late Cretaceous quartz diorite of the Willow Creek Pluton.

Two samples were assayed. The first sample showed trace amounts of Au and 0.04 oz/ton Ag, while the second showed 0.02 oz/ton Au and 0.60 oz/ton Ag (Capps and Tuck, 1935).

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; host for mineralization is a Late Cretaceous and Tertiary biotite-muscovite granite and Late Cretaceous quartz diorite of the Willow Creek Pluton.

**Deposit model:**

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

**Production Status** None



**Site Status:** Inactive

**Workings/exploration:**

Two samples were assayed. The first sample showed trace amounts of Au and 0.04 oz/ton Ag, while the second showed 0.02 oz/ton Au and 0.60 oz/ton Ag (Capps and Tuck, 1935).

**Production notes:**

**Reserves:**

**Additional comments:**

Peters Creek has also been known as Peterson Creek.

**References:**

Capps and Tuck, 1935; Cobb, 1979, OFR 79-1095.

**Primary reference:** Capps and Tuck, 1935

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Little Willow Creek

**Site type:** Occurrence

**ARDF no.:** AN070

**Latitude:** 61.93

**Quadrangle:** AN D-7

**Longitude:** 149.53

**Location description and accuracy:**

Mountains north of Little Willow Creek, 2.3 miles south of VABM Witna. Accurate within 1 mile radius. Locality 8 on plate 1 of Capps and Tuck (1935).

**Commodities:**

**Main:** Cu

**Other:**

**Ore minerals:** Bornite, chalcocite

**Gangue minerals:**

**Geologic description:**

Capps and Tuck (1935) briefly comment on irregular, thin stringers of bornite and chalcocite in Paleocene to Late Cretaceous quartz monzonite. None of the stringers are more than an inch in width and 1 to 4 ft long.

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; thin stringers cut Paleocene to Late Cretaceous quartz monzonite.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

**Production notes:****Reserves:****Additional comments:****References:**

Capps and Tuck, 1935; Cobb, 1979. OFR 79-1095.

**Primary reference:** Capps and Tuck, 1935

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s): Thorpe****Site type:** Mine**ARDF no.:** AN071**Latitude:** 61.743**Quadrangle:** AN C-7**Longitude:** 149.425**Location description and accuracy:**

Along the West Fork of Grubstake Gulch, marked with a quarry symbol and labeled 'Thorpe Mine' on the Anchorage C-7 1:63,360-scale topographic map. Accurate within 400 ft. Locality 19 of Ray (1933, plate 11), locality 1 from Cobb (1972), and locality 1 of MacKevett and Holloway (1977).

**Commodities:****Main:** Au**Other:** Ag**Ore minerals:** Gold, silver**Gangue minerals:** Quartz**Geologic description:**

Quartz stringers and veins up to 3.5 ft wide in shear zones that cut foliation and bedding of Jurassic (?) quartz-albite-chlorite (+/- garnet-biotite) pelitic schist bedrock. Veins strike N 50 W, and dips 53 NE (Ray, 1954). Shear zones at Thorpe mine have different attitudes from those of productive veins in tonalite commonly found in region. Veins in schist at Thorpe were the probable source of placer gold in Willow Creek and Grubstake Gulch. Assays show \$25.92 Au (Au at \$20.67/oz). The gold occurs principally as native metal, but it contains more silver than that from the veins (to the north) in the quartz diorite (Ray, 1933).

**Alteration:****Age of mineralization:**

Jurassic (?) or younger; veins cut Jurassic (?) pelitic schist.

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

**Production Status** Yes; small

**Site Status:** Inactive

**Workings/exploration:**

Staked prior to 1924. Developed by several hundred feet of workings; open cuts and several adits, however only one crosscut was accessible in 1950. Reportedly a mill and tram were installed prior to 1942. Ray (1933) reported assays to show \$25.92 Au (Au at \$20.67/oz).

**Production notes:**

Mining reported 1924-1925 and 1942-1943, amount of production not known.

**Reserves:**

**Additional comments:**

Thorpe is the only productive mine in the Willow Creek district in schist rather than intrusive rocks (Ray, 1954).

**References:**

Smith, 1926; Moffit, 1927; Smith, 1932, B 824-A; Ray, 1933; Smith, 1942, B 933-A; Ray, 1954; Berg and Cobb, 1967; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Ray, 1954

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Wheeler; Betts and Dimmick

**Site type:** Prospect

**ARDF no.:** AN072

**Latitude:** 61.74

**Quadrangle:** AN C-7

**Longitude:** 149.4

**Location description and accuracy:**

Prospect located above northeast bank of Grubstake Gulch, 4,500 ft southwest of VABM Home. Accurate within 2,500 ft. Locality 2 of Cobb (1972) and locality 2 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold, hematite, pyrite

**Gangue minerals:** Quartz

**Geologic description:**

According to Jasper (1962) a 17 inch quartz vein carries pyrite, massive hematite, and bands of schist cuts Jurassic (?) quartz-muscovite-albite-chlorite (+/- garnet-biotite) pelitic schist. There is no visible gold, but high gold values were reported. Vein cuts across schistosity of country rock at orientations favorable to persistence of the vein structure over long distance, probably along a strongly developed shear zone.

**Alteration:**

**Age of mineralization:**

Jurassic (?) or younger; vein cuts Jurassic ? schist.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Auger-hole sampling led to discovery of two caved open cuts which were reexcavated in 1962. Vein reported to have been traced in auger holes for several thousand feet. No gold visible, but high gold values reported (Jasper, 1962).

**Production notes:****Reserves:****Additional comments:****References:**

Jasper, 1962; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Jasper, 1962

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Unnamed

**Site type:** Occurrence

**ARDF no.:** AN073

**Latitude:** 61.73

**Quadrangle:** AN C-7

**Longitude:** 149.39

**Location description and accuracy:**

Upper reaches of Grubstake Gulch, 3,000 ft downstream from head of gulch. Accurate within 1 mile. Locality 143 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Talc

**Other:**

**Ore minerals:** Talc (soapstone)

**Gangue minerals:**

**Geologic description:**

MacKevett and Holloway (1977) report talc (soapstone) associated with serpentinite. The serpentinite is part of the serpentinitized Late Cretaceous ultramafic rocks of the area. The serpentinite is located in a shear zone that also cuts Jurassic (?) quartz-albite-chlorite (+/- garnet-biotite) pelitic schist.

**Alteration:**

Serpentinization

**Age of mineralization:**

Late Cretaceous or younger; talc occurs in Late Cretaceous ultramafic rocks.

**Deposit model:**

Low-temperature metamorphism of ultramafic rocks.

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

**Production Status** None

**Site Status:** Inactive



**Workings/exploration:**

Unknown

**Production notes:**

Small tonnages of soapstone are provided for arts and handicraft industries (Eakins and others, 1983).

**Reserves:****Additional comments:****References:**

MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Eakins and others, 1983.

**Primary reference:** MacKevett and Holloway, 1977

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Kings River

**Site type:** Occurrence

**ARDF no.:** AN074

**Latitude:** 61.95

**Quadrangle:** AN D-4

**Longitude:** 148.5

**Location description and accuracy:**

Reported by Jasper (1965) to be north of east fork of Kings River. Accuracy is poor, but based on the geologic map of Winkler (1992) the coordinates should be within a 2.5 mile radius.

**Commodities:**

**Main:** Cu

**Other:**

**Ore minerals:** Chalcopyrite, malachite

**Gangue minerals:**

**Geologic description:**

Jasper (1965) reports that a prospector noted occasional blebs of malachite and chalcopyrite in and above a Late Triassic(?) unfossiliferous and massive to poorly bedded limestone. Locally the limestone occurs as lenses as much as 30 m thick in shear zones within the Early Jurassic to Late Triassic(?) Talkeetna Formation. The extent of mineralization is not known. When Brooks (1918) first reported this occurrence he reported, based on vague data, that the deposit was similar to the occurrence on Moose Creek (ARDF number AN066).

**Alteration:**

Oxidation of Cu minerals.

**Age of mineralization:**

Late Triassic (?) or younger; the mineralization is in limestones within the Early Jurassic to Late Triassic(?) Talkeetna Formation.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

The extent of mineralization is not known (Jasper, 1965).

**Production notes:**

**Reserves:**

**Additional comments:**

Location and geologic descriptions in reports are vague.

**References:**

Brooks, 1918; Jasper, 1965; Cobb, 1979, OFR 79-1095; Winkler, 1992.

**Primary reference:** Jasper, 1965

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Schoonoven Creek; Boulder Creek

**Site type:** Occurrence

**ARDF no.:** AN075

**Latitude:** 61.83

**Quadrangle:** AN D-4

**Longitude:** 148.37

**Location description and accuracy:**

About 2 miles upstream from confluence of Boulder Creek with the Chickaloon River. Schoonoven Creek has been renamed Boulder Creek. Accurate within 2,500 ft. Locality 87 of Cobb (1972) and locality 60 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:**

**Geologic description:**

Placer gold prospects in and below canyon where Tertiary Chickaloon Formation is cut by diabase intrusions (Mendenhall, 1900).

**Alteration:**

**Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

No record of commercial production (Cobb, 1979).

**Production notes:****Reserves:****Additional comments:**

Schoonoven Creek is now called Boulder Creek.

**References:**

Mendenhall, 1900; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Mendenhall, 1900

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Chickaloon River

**Site type:** Occurrence

**ARDF no.:** AN076

**Latitude:** 61.82

**Quadrangle:** AN D-4

**Longitude:** 148.42

**Location description and accuracy:**

North of the town of Chickaloon, 2.5 miles upstream along the banks of the Chickaloon River, below the confluence of Boulder Creek with Chickaloon River. Accurate within 2,500 ft. Locality 86 of Cobb (1972) and location 59 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:** Quartz

**Geologic description:**

Colors of placer gold reported from lower stream course, below Boulder Creek, in the late 1800's. Unconfirmed report of auriferous quartz vein on lower Chickaloon Creek made by Mendenhall (1900).

**Alteration:**

**Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** Yes; small

**Site Status:** Inactive

**Workings/exploration:**

Unknown

**Production notes:****Reserves:****Additional comments:**

Most of the mining activity was probably in the upper reaches of the Chickaloon River in the Talkeetna Mountains quadrangle.

**References:**

Mendenhall, 1900; Brooks, 1912; Brooks, 1915; Brooks, 1922; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Mendenhall, 1900

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Marshall Creek

**Site type:** Occurrence

**ARDF no.:** AN077

**Latitude:** 61.8

**Quadrangle:** AN D-4

**Longitude:** 148.5

**Location description and accuracy:**

Reported to be a small stream downstream from village of Chickaloon. Marshall Creek is not currently used as a placename. Accuracy is unknown.

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:**

**Geologic description:**

Fine gold found in stream gravel, gravel is not of local derivation (Mendenhall, 1900).

**Alteration:**

**Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

Hand-mining methods of stream sediment.



**Production notes:****Reserves:****Additional comments:**

Limited information available.

**References:**

Mendenhall, 1900; Cobb, 1979, OFR 79-1095.

**Primary reference:** Mendenhall, 1900

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Horn Mountain

**Site type:** Occurrence

**ARDF no.:** AN078

**Latitude:** 61.98

**Quadrangle:** AN D-2

**Longitude:** 147.5

**Location description and accuracy:**

On southeast flank of Horn Mountain, 2,000 ft north of headwaters of Wood Creek. The occurrence extends along the flank, northeast of the point given. Accurate within 2,000 ft. Locality 71 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Zeolites

**Other:**

**Ore minerals:** Heulandite, laumontite, mordenite

**Gangue minerals:**

**Geologic description:**

Zeolite-bearing tuff beds formed by burial diagenesis and low-grade regional metamorphism of Early Jurassic tuffaceous rocks of the Talkeetna Formation. Zeolites are at least 30 meters thick extending for 14 kilometers and composed of 50 percent commercial grade mordenite. Heulandite occurs in thin, tabular crystals and laumontite is present in smaller amounts. Mordenite is an alteration product of volcanic sandstones and replacement of glassy shards of vitric tuffs (Hawkins, 1973). During the time of formation, the zeolite-bearing rock was subjected to a maximum temperature of 200 degrees Celsius and fluid pressures of 0.5 to 3 kilobars. This is equivalent to 1 to 10 kilometers burial depth (Hawkins, 1976).

**Alteration:**

Mordenite is an alteration product of volcanic sandstones and replacement of glassy shards of vitric tuffs (Hawkins, 1973).

**Age of mineralization:**

Early Jurassic or younger; the zeolited tuff beds are part of the Early Jurassic tuffaceous rocks of the Talkeetna Formation.

**Deposit model:**

Burial diagenesis and low-grade regional metamorphism of tuffaceous rocks (Hawkins, 1976).

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Surface mapping and sampling.

**Production notes:**

**Reserves:**

**Additional comments:**

Horn Mountains are probably the largest known high-grade mordenite deposit in North America.

**References:**

Hawkins, 1973; Hawkins, 1976, SR 9; Hawkins, 1976, SR 11; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Hawkins, 1976

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Alfred Creek; Alaska Gold Mining. Co.; Caribou Creek

**Site type:** Mine

**ARDF no.:** AN079

**Latitude:** 61.95

**Quadrangle:** AN D-2

**Longitude:** 147.48

**Location description and accuracy:**

Location given is arbitrary point on Alfred Creek (between Pass Creek and Bench Creek, both tributaries of Alfred Creek, because exact location of placers unknown. Accurate within 2 miles. Locality 88 of Cobb (1972) and locality 61 of MacKevett and Holway (1977).

**Commodities:**

**Main:** Au

**Other:** Pt

**Ore minerals:** Gold, platinum

**Gangue minerals:**

**Geologic description:**

Placer gold found along length of stream. Lower part of the stream course cuts through Cretaceous shale, while upstream it cuts through Jurassic sandstone and shale. The Jurassic sandstone and shale is cut by small dikes. Ridge north of creek capped by Tertiary volcanic rocks that may be underlain by conglomerate, which could be source of placer gold in the creek (Martin and Mertie, 1914).

**Alteration:**

**Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** Yes; small

**Site Status:** Inactive

**Workings/exploration:**

Small scale placers worked sporadically for many years. Total production said to be about 70-75 fine ounces of gold. Minor amounts of platinum are found with gold.

**Production notes:**

Total production said to be about 70-75 fine ounces of gold.

**Reserves:**

**Additional comments:**

Exact locations of placer mines are unknown.

**References:**

Brooks, 1913; Martin and Mertie, 1914; Chapin, 1918; Brooks and Capps, 1924; Brooks, 1925; Jasper, 1965; Cobb, 1972, MF 409; Cobb, 1973, B 1374; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Martin and Mertie, 1914

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s): Sheep Mountain****Site type:** Mine**ARDF no.:** AN080**Latitude:** 61.84**Quadrangle:** AN D-2**Longitude:** 147.47**Location description and accuracy:**

Near upper reaches of Glacial Fan Creek, southern flank of Sheep Mountain, 3,300 ft south of VABM Gun. Accurate within 1.5 miles. Locality 48 of Cobb (1972) and locality 37 of MacKevett and Holloway (1977).

**Commodities:****Main:** Clay, Cu, Gypsum**Other:** Au**Ore minerals:** Azurite, bornite(?), chalcocite(?), chalcopyrite, gypsum, kaolin, malachite, pyrite**Gangue minerals:** Calcite, epidote, quartz, sericite, serpentine**Geologic description:**

Early Jurassic greenstone and minor interbedded sandstone and shale is intruded by numerous mafic dikes and at least one body of unmineralized Jurassic granite. Greenstone has been hydrothermally altered and contains at least 6 separate gypsiferous deposits in altered zones along joints and shear zones. Deposits composed of pods and stringers of gypsum, quartz, alunite, kaolin minerals, pyrite and serpentine minerals (Eckhart, 1953). The gypsum-bearing material averages 25 to 30 percent gypsum, with a maximum of 50 percent.

In addition also reported from same general area are: (1) small irregular quartz-calcite-epidote veins in greenstone containing chalcopyrite, malachite, azurite and possibly bornite and chalcocite (Berg and Cobb, 1967); (2) disseminated chalcopyrite in greenstone over 5 ft thick zone subparallel to bedding (Martin and Mertie, 1914); (3) trace gold in samples of pyritic greenstone (Berg and Cobb, 1967); and (4) minor anomalous concentrations of copper and gold associated with some of the alteration zones and nearby veins (MacKevett and Holloway, 1977).

**Alteration:**

Large area of south flank of Sheep Mountain is strained dark red from oxidation of pyrite in greenstone (Berg and Cobb, 1967). Oxidation of Cu minerals.

**Age of mineralization:**

Jurassic or younger; mineralization hosted by an Early Jurassic greenstone.

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

**Production Status** Yes; small

**Site Status:** Inactive

**Workings/exploration:**

The gypsiferous material averages 25 to 30 percent gypsum, with a maximum of 50 percent. The six deposits indicated and inferred reserves contain about 659,000 short tons of gypsum material, of which about 50 tons of this material had been mined (Eckhart, 1953). In addition, about 55 tons of clay was mined for the manufacture of fire brick and boiler lining. Samples of pyritic greenstone assayed trace gold (Berg and Cobb, 1967), and nearby veins in alteration zones show concentrations of copper and gold (MacKevett and Holloway, 1977).

**Production notes:**

About 50 tons of gypsum had been mined (Eckhart, 1953). In addition, about 55 tons of clay was mined for the manufacture of fire brick and boiler lining.

**Reserves:**

The six deposits indicated and inferred reserves contain about 659,000 short tons of gypsum material (Eckhart, 1953).

**Additional comments:****References:**

Brooks, 1913; Martin and Mertie, 1914; Brooks, 1915; Capps, 1927; Eckhart, 1953; Rutledge and others, 1953; Jasper, 1965; Berg and Cobb, 1967; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Eckhart, 1953

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Rusaw Creek

**Site type:** Occurrence

**ARDF no.:** AN081

**Latitude:** 61.74

**Quadrangle:** AN C-2

**Longitude:** 147.44

**Location description and accuracy:**

In mountains west of the South Fork of the Matanuska River. Sec. 15, T. 19 N., R. 11 E., of the Seward Meridian. Accurate within 1 mile. Locality 49 from Cobb (1972) and locality 38 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Cu

**Other:**

**Ore minerals:** Chalcopyrite, magnetite

**Gangue minerals:**

**Geologic description:**

Disseminated chalcopyrite and magnetite in a small, mafic segregation in a Jurassic age quartz diorite (Jasper, 1965). Copper deposits probably similar to those reported on Sheep Mountain - ARDF number AN080 (Berg and Cobb, 1967).

**Alteration:**

**Age of mineralization:**

Jurassic or younger; mineralization hosted by mafic segregations in a Jurassic quartz diorite.

**Deposit model:**

Porphyry Cu ? (Cox and Singer, 1986; model 17 ?)

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

17 ?

**Production Status** None

**Site Status:** Inactive



**Workings/exploration:**

Unknown

**Production notes:****Reserves:****Additional comments:**

Reported to be similar to deposits at Sheep Mountain - ARDF number AN080.

**References:**

Jasper, 1965; Berg and Cobb, 1967; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Jasper, 1965**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98

**Site name(s):** Poorman Creek

**Site type:** Mine

**ARDF no.:** AN082

**Latitude:** 62

**Quadrangle:** AN D-1

**Longitude:** 147.28

**Location description and accuracy:**

Mine located near the headwaters of Poorman Creek, a tributary to Crooked Creek. Poorman Creek flows northward into Talkeetna Mountains A-1 map. Accurate within 1,000 ft. Locality 90 of Cobb (1972) and locality 63 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:**

**Geologic description:**

Placer gold in Poorman Creek drainage. Bedrock in lower part of Poorman Creek (in Talkeetna Mountains quadrangle) is conglomerate, shale, and sandstone; upper part of stream is andesite lava and tuff of the Early Jurassic and Late Triassic(?) Talkeetna Formation. The placer ground is about 6 ft deep (Chapin, 1918).

**Alteration:**

**Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** Yes; small

**Site Status:** Inactive

**Workings/exploration:**

Chapin (1918) reports prospecting and a little placer mining in 1914. Gold tends to be flaky, with some small nuggets.

**Production notes:**

A little production, numbers unavailable.

**Reserves:****Additional comments:****References:**

Chapin, 1915; Chapin, 1918; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Chapin, 1918

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** South Creek

**Site type:** Prospect

**ARDF no.:** AN083

**Latitude:** 61.99

**Quadrangle:** AN D-1

**Longitude:** 147.31

**Location description and accuracy:**

Prospect located directly south of Table Mountain on South Creek, a tributary to Crooked Creek. Accurate within 0.5 mi. Locality 89 of Cobb (1972) and locality 62 of MavKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:**

**Geologic description:**

Old placer gold prospects (Martin and Mertie, 1914). Bedrock in area includes various volcanic rocks and subordinate volcanoclastic rocks of the Early Jurassic and Late Triassic? Talkeetna Formation; and fossiliferous marine shales and volcanic-lithic sandstone, siltstone, and subordinate conglomerate of the Cretaceous Matanuska Formation.

**Alteration:**

**Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** Yes; small

**Site Status:** Inactive

**Workings/exploration:**

Claims staked in 1913 (Martin and Mertie, 1914).

**Production notes:**

Production data not available.

**Reserves:****Additional comments:**

Very little available data for site.

**References:**

Martin and Mertie, 1914; Chapin, 1915; Chapin, 1918; Cobb, 1972, MF-409;  
MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Martin and Mertie, 1914

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Glacier Fork; Knik River - Glacier Fork

**Site type:** Occurrence

**ARDF no.:** AN084

**Latitude:** 61.59

**Quadrangle:** AN C-4

**Longitude:** 148.2

**Location description and accuracy:**

Near the headwaters of Glacier Fork of the Knik River, near western edge of unnamed glacier. Accurate within 2,500 ft. Locality M-13 of Richter (1967), locality 47 of Cobb (1972), and locality 36 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Ag, Au, Cu, W

**Other:**

**Ore minerals:** Chalcopyrite, pyrrhotite, scheelite

**Gangue minerals:** Quartz

**Geologic description:**

Abundant irregular quartz veins found in iron-stained metasedimentary rocks of the Late Cretaceous Valdez Group and in an adjacent Tertiary quartz diorite stock. The quartz veins contain pyrrhotite and small amounts of chalcopyrite. Assays of vein and float samples show 0.02 oz/ton Au and 0.08 to 0.26 oz/ton Ag (Richter, 1967).

**Alteration:**

Metasedimentary rocks are iron-stained (Richter, 1967).

**Age of mineralization:**

The veins are Tertiary or younger, based on geologic relationships.

**Deposit model:**

Polymetallic vein (Cox and Singer, 1986; model 22c)

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

22c

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Richter (1967) reported assays of vein and float samples show 0.02 oz/ton Au and 0.08 to 0.26 oz/ton Ag. Stream-sediment samples taken downstream contained scheelite.

**Production notes:**

**Reserves:**

**Additional comments:**

Cobb (1972) also notes four localities (110, 111, 112, and 113) spread along Glacier Fork. These all appear to be stream-sediment samples that contained scheelite. Deposit does not appear rich enough or large enough to warrant further prospecting (Richter, 1967).

**References:**

Richter, 1967; Cobb, 1972, MF-409; Cobb, 1973, B 1374; Cobb, 1975, MR 66; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Richter, 1967

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Metal Creek; Sumner and Andrulli

**Site type:** Mine

**ARDF no.:** AN085

**Latitude:** 61.5

**Quadrangle:** AN C-4

**Longitude:** 148.4

**Location description and accuracy:**

Locations reported include the lower and upper sections of Metal Creek from headwaters at Metal Creek Glacier to the Glacier Fork of Knik River confluence. Mineral occurrences span a distance greater than 15 miles, including Anchorage 1:63,360 scale C-4, B-4, and B-5 topographic maps. Includes localities 95-109 of Cobb (1972) and locality 64 and 65 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au, W

**Other:** Ag, Cu, Pt

**Ore minerals:** Gold, native silver, platinum, scheelite

**Gangue minerals:**

**Geologic description:**

A raised terrace of clay and glacial deposits extends up Metal Creek and glacial debris cover most of the high valleys. Placer gold is largely restricted to lower half of Metal Creek and is probably derived from source in basin such as small quartz veins. The gold apparently was deposited in a glacial lake and is currently being reworked by present stream action. Generally, gold is well rounded and less than 1 mm in diameter. The maximum gold content occurs below 600 ft elevation, thus corresponding roughly to the height of the old glacial lake terrace surrounding the lower course of the creek (Richter, 1967). Platinum, pyrite, zircon, copper, native silver, and fairly abundant scheelite are present in many concentrate samples.

Country rock along Metal Creek is Valdez Group interbedded slate, siltstone, and graywacke of Late Cretaceous age that have been metamorphosed to phyllite and quartz mica schist. These rocks are tightly folded, exhibit strong foliation, strike N 10-30 E, and dip nearly vertical. At the headwaters of Metal Creek and Glacial Fork, greenstone containing discontinuous dikes and one stock of quartz diorite are present (Lande, 1927). Quartz veins with pyrite and chlorite are common in the area.

**Alteration:**



**Age of mineralization:**

Placer deposits are Quaternary.

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** Yes; small

**Site Status:** Active?

**Workings/exploration:**

Placer gold was discovered in 1906 and has been mined on a small scale intermittently since that time. The total production probably not worth more than a few thousand dollars. Platinum, pyrite, zircon, copper, native silver, and fairly abundant scheelite are present in many concentrate samples. Placer gold in amounts amenable to mining are present in the lower section of Metal River.

**Production notes:**

The total production of gold probably not worth more than a few thousand dollars (Richter, 1967).

**Reserves:****Additional comments:**

Small scale placer mining for gold should be economically feasible along Metal Creek south from Paradise Creek to junction with Glacier Fork. This area was previously explored and mined by Douglas Sumner and James Andrulli of Eagle River, Alaska. Abundance of scheelite in concentrates is enough to warrant prospecting of the area between Metal Creek and Glacier Fork (Richter, 1967).

**References:**

Paige and Knopf, 1907, B 314; Paige and Knopf, 1907, B 327; Brooks, 1910; Brooks, 1911 B 480; Brooks, 1923; Brooks and Capps, 1924; Smith, 1926; Moffit, 1927; Landes, 1927; Smith, 1929; Smith, 1930, B 810-A; Smith, 1930, B 813-A; Smith, 1938; Richter, 1967; Cobb, 1972, MF-409; Cobb, 1973, B 1374; Cobb, 1975, MR 66; Mackevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Richter, 1967

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Unnamed

**Site type:** Occurrence

**ARDF no.:** AN086

**Latitude:** 61.63

**Quadrangle:** AN C-5

**Longitude:** 148.65

**Location description and accuracy:**

Top of unnamed 7,100 ft peak, nearly surrounded by glaciers. Meltwater from glaciers feed Wolverine Creek, Carpenter Creek, and other unnamed tributaries of Matanuska River. Sec. 24, T. 18 N., R. 4 E., of the Seward Meridian. Accurate within 1 mile. Locality 46 from Cobb (1972), and locality 35 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Cr

**Other:** Ni

**Ore minerals:** Chromite

**Gangue minerals:**

**Geologic description:**

Ultramafic rocks of the Jurassic Wolverine Complex. According to Clark (1972), dunite contains chromite-rich bands 0.5-1 inch thick at the bases of 6 to 12 inch thick layers of olivine cumulate. Chromite bands comprise approximately 5 percent of outcrop and minor anomalous nickel occurs nearby in associated ophiolitic rocks.

**Alteration:**

Slight serpentinization of olivine.

**Age of mineralization:**

Lower to Middle Jurassic

**Deposit model:**

Podiform chromite or Alaskan PGE (Cox and Singer, 1986; models 8a or 9)

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

8a or 9

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Surface mapping and sampling.

**Production notes:**

**Reserves:**

**Additional comments:**

Concentration of chromite is not economical for mining (Clark, 1972).

**References:**

Clark, 1972, OFR 522; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Clark, 1972

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Jim Creek

**Site type:** Occurrence

**ARDF no.:** AN087

**Latitude:** 61.57

**Quadrangle:** AN C-5

**Longitude:** 148.8

**Location description and accuracy:**

Prospect is located 1.5 mile downstream from the headwaters of Jim Creek at a point roughly 1,500 ft north of the creek . Location accurate within 1 mile. Locality 45 of Cobb (1972), and locality 34 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Ag, Cu, Zn

**Other:** Au

**Ore minerals:** Arsenopyrite, chalcopyrite, pyrrhotite, sphalerite

**Gangue minerals:** Calcite, quartz

**Geologic description:**

Heavily silicified greenstone is cut by a vein that averages 1 ft thick. The vein strikes N 80 W, and is approximately vertical. The vein is composed of 40 percent chalcopyrite, 40 percent pyrrhotite, 15 percent sphalerite, and 5 percent calcite; and assays show 15.08 percent Cu, 2.95 percent Zn, 1.75 oz/ton Ag, and trace Au. The greenstone on both sides of the sulfide vein has been replaced by quartz and calcite, and cut by very thin arsenopyrite veins. Assays of replaced wall rock show 0.41 oz/ton Ag and 0.04 percent Cu. An alaskite dike runs approximately 500 ft upslope the sulfide vein prospect and slate outcrops 50 ft downhill from prospect (Landes, 1927).

**Alteration:**

Calcite and quartz replacement of greenstone at periphery of sulfide vein.

**Age of mineralization:**

Mesozoic or younger

**Deposit model:**

Polymetallic vein (Cox and Singer, 1986; model 22c)

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

22c

**Production Status** None**Site Status:** Inactive**Workings/exploration:**

The vein is composed of 40 percent chalcopyrite, 40 percent pyrrhotite, 15 percent sphalerite, and 5 percent calcite; and assays show 15.08 percent Cu, 2.95 percent Zn, 1.75 oz/ton Ag, and trace amounts of Au. Assays of replaced wall rock show 0.41 oz/ton Ag and 0.04 percent Cu (Landes, 1927).

**Production notes:****Reserves:****Additional comments:****References:**

Landes, 1927; Berg and Cobb, 1967; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Landes, 1927**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98

**Site name(s):** Fall Creek

**Site type:** Occurrence

**ARDF no.:** AN088

**Latitude:** 61.46

**Quadrangle:** AN B-5

**Longitude:** 148.58

**Location description and accuracy:**

Occurrence is along Fall Creek, 2,700 ft upstream from confluence of Fall Creek with the Knik River braided-stream system. The location is accurate within 2,600 ft upstream or downstream of plotted location. Locality 94 of Cobb (1972).

**Commodities:**

**Main:** W

**Other:**

**Ore minerals:** Scheelite

**Gangue minerals:**

**Geologic description:**

Richter (1967) reported scheelite in Fall Creek stream-sediment concentrate samples. Fall Creek drains Valdez Group metasedimentary rocks of Late Cretaceous age. Winkler (1992) describes the rocks as thick sequences of drab, rhythmically alternating, multiply deformed turbidite. Lithologies include: metasandstone, metasiltstone, argillite, slate, and phillite, and rare beds of pebbly argillite and metasandstone.

**Alteration:**

**Age of mineralization:**

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Richter (1967) reported that scheelite is found in stream-sediment concentrate.

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Richter, 1967; Cobb, 1972, MF-409; Cobb, 1973, B 1374; Cobb, 1975, MR 66; Cobb, 1979, OFR 79-1095; Winkler, 1992.

**Primary reference:** Richter, 1967

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Jim Lake

**Site type:** Occurrence

**ARDF no.:** AN089

**Latitude:** 61.55

**Quadrangle:** AN C-6

**Longitude:** 148.89

**Location description and accuracy:**

Occurrence is 4,300 ft east of the southern end of Jim Lake. Accurate within 2,000 ft. Locality 80 of Jasper (1967) and locality 93 of Cobb (1972).

**Commodities:**

**Main:** W

**Other:**

**Ore minerals:** Scheelite

**Gangue minerals:**

**Geologic description:**

Jasper (1967) reports a stream sediment sample taken from a stream flowing in Quaternary surficial deposits. Pan concentrates consist of less than 5 percent magnetite, less than 5 percent zircon, about 1 percent pyrite, 2 grains of scheelite, and 1 grain of ilmenite. The creek float consists of granite, greenstone, dike, graywacke, slate and argillite.

**Alteration:**

**Age of mineralization:**

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Pan concentrates consist of less than 5 percent magnetite, less than 5 percent zircon, about 1 percent pyrite, 2 grains of scheelite, and 1 grain of ilmenite (Jasper, 1967).



**Production notes:****Reserves:****Additional comments:****References:**

Jasper, 1967; Cobb, 1972, MF-409; Cobb, 1975, MR 66; Cobb, 1979, OFR 79-1095.

**Primary reference:** Jasper, 1967

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Unnamed

**Site type:** Occurrence

**ARDF no.:** AN090

**Latitude:** 61.58

**Quadrangle:** AN C-6

**Longitude:** 148.95

**Location description and accuracy:**

1.4 miles northeast of VABM Swan (Burnt Butte), at 1,000 ft elevation. Accurate within 1 mile. Locality 78 of Jasper (1967) and locality 92 of Cobb (1972).

**Commodities:**

**Main:** Mo, Zn

**Other:** Pb

**Ore minerals:** Galena, magnetite, pyrite, zircon

**Gangue minerals:**

**Geologic description:**

Stream flowing through Quaternary surficial deposits. Float lithologies include granite, greenstone breccia, dike, argillite, and some hematite. Concentrates contain traces of magnetite, pyrite, zircon, and galena. Assays indicate 125 ppm Zn and 5 ppm Mo (Jasper, 1967).

**Alteration:**

**Age of mineralization:**

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Concentrates have 1 to 2 percent pyrite, 2 grains of galena and trace amounts of magnetite and zircon. Assays indicate 125 ppm Zn and 5 ppm Mo (Jasper, 1967).

**Production notes:****Reserves:****Additional comments:****References:**

Jasper, 1967; Cobb, 1972, MF-409; Cobb, 1979, OFR 79-1095.

**Primary reference:** Jasper, 1967

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** McRoberts Creek

**Site type:** Occurrence

**ARDF no.:** AN091

**Latitude:** 61.59

**Quadrangle:** AN C-6

**Longitude:** 148.99

**Location description and accuracy:**

Along McRoberts Creek: Sec. 6, T. 17 N., R. 3 E., of the Seward Meridian. Accurate within 1 mile. Locality 74 and 75 of Jasper (1967) and locality 91 of Cobb (1972).

**Commodities:**

**Main:** Hg, W

**Other:**

**Ore minerals:** Cinnabar, ilmentite, magnetite, pyrite, scheelite

**Gangue minerals:**

**Geologic description:**

Jasper (1967) reported creek float consisting of granite, greenstone and ultramafic rocks. Concentrates include: magnetite, scheelite, pyrite, ilmenite, and a trace of cinnabar.

**Alteration:**

**Age of mineralization:**

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Pan concentrates contain 50 to 60 percent magnetite, less than 1 percent scheelite, about 1 percent pyrite, a few grains of ilmenite, and 1 grain of cinnabar (Jasper, 1967).

**Production notes:****Reserves:****Additional comments:**

It appears that McRoberts Creek has also been referred to as Bodenburg Creek and Palmer Creek on various maps.

**References:**

Jasper, 1967; Cobb, 1972, MF-409; Cobb, 1975, MR 66; Cobb, 1979, OFR 79-1095.

**Primary reference:** Jasper, 1967

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Matanuska River

**Site type:** Occurrence

**ARDF no.:** AN092

**Latitude:** 61.78

**Quadrangle:** AN D-4

**Longitude:** 148.48

**Location description and accuracy:**

Fine placer gold can be found along the entire length of the Matanuska River. Latitude and longitude coordinates provided place the occurrence near the midpoint of the Matanuska River. The river flows through the Anchorage D-3, D-4, D-5, C-5, and C-6 1:63,360-scale topographic maps.

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:**

**Geologic description:**

Mendenhall (1900) reports that all along the Matanuska River fine colors of placer gold can be found.

**Alteration:**

**Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Stream sediment sampling.

**Production notes:****Reserves:****Additional comments:**

Very general location and deposit information.

**References:**

Mendenhall, 1900; Cobb, 1979, OFR 79-1095.

**Primary reference:** Mendenhall, 1900

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s): Eklutna Tunnel****Site type:** Occurrence**ARDF no.:** AN093**Latitude:** 61.47**Quadrangle:** AN B-6**Longitude:** 149.15**Location description and accuracy:**

Occurrence is reported by Rose (1966) as being inside the Eklutna Tunnel (marked AQ-UEDUCT on map), 300 ft from the north end of the tunnel. The tunnel runs through East Twin Peak, connecting Eklutna Lake with the Eklutna Powerhouse (on south side of Old Glenn Highway). Location is accurate within a few tens of feet. Locality 44 of Cobb (1972) and locality 33 of MacKevett and Holloway (1977).

**Commodities:****Main:** Hg**Other:****Ore minerals:** Cinnabar**Gangue minerals:****Geologic description:**

Athern and Judd (1956) report a very small kidney of cinnabar reported in a 10 ft length of fault gouge about 300 ft from the north end of Eklutna tunnel. The bedrock in the area consists of graywacke and minor interbedded argillite of the Mesozoic McHugh Complex and nearby ultramafic rocks of Middle to Early Jurassic age.

**Alteration:****Age of mineralization:**

Host is Mesozoic.

**Deposit model:**

Almaden Hg ? (Cox and Singer, 1986; model 27b ?)

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

27b ?

**Production Status** None



**Site Status:** Inactive

**Workings/exploration:**

Underground mapping and sampling.

**Production notes:**

**Reserves:**

**Additional comments:**

Rose (1966) reports several other cinnabar occurrences in the Eklutna River drainage and farther southwest near Turnagain Arm, but there is no record of the exact location or extent of any of the occurrences.

**References:**

Athern and Judd, 1956; Rose, 1966; Clark and Bartsch, 1971, OFR 475; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Winkler, 1992.

**Primary reference:** Rose, 1966

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s): Pioneer Creek****Site type:** Prospect**ARDF no.:** AN094**Latitude:** 61.46**Quadrangle:** AN B-6**Longitude:** 149.19**Location description and accuracy:**

Along Pioneer Creek, 1/2 mile south of Pioneer Creek bridge on the Old Glenn Highway, between 800- and 1,500 ft elevation. Accurate within 1,000 feet. This is locality 'Pioneer Creek Area' of Rose (1966), locality 43 of Cobb (1972), and locality 32 of MacKevett and Holloway (1977).

**Commodities:****Main:** Cr**Other:****Ore minerals:** Chromite**Gangue minerals:****Geologic description:**

Jurassic dunite of the Eklutna Sequence containing two mineralized zones about 400 ft apart containing chromite in stringers, small pods, and disseminations. These are separated by olivine and minor clinopyroxene (Bjorklund and Wright, 1948). The lower zone strikes N 50 W, and dips 37 to 78 NE, and can be traced for 50 ft in outcrops and trenches. The upper zone strikes N 10 W, and dips 35 NE, can be traced for 30 ft in trenches, and has a maximum width of 30 ft. There is evidence in the upper zone that indicates some of the dunite may be slumped talus blocks rather than in place (Rose, 1966).

Calculated grades based on weighted average analysis was 6.8 percent chromite for the lower zone and 6.9 percent chromite for the upper zone (Bjorklund and Wright, 1948). The best exposure assayed 7.5 percent chromite across a 13.5 ft zone (Rose, 1966).

**Alteration:**

Slight serpentinization of olivine.

**Age of mineralization:**

Lower to Middle Jurassic

**Deposit model:**

Podiform chromite or Alaskan PGE (Cox and Singer, 1986; models 8a or 9)

**Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):**  
8a or 9

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Trenched by the U.S. Bureau of Mines in 1942. Calculated grades based on weighted average analysis for the lower zone was 6.8 percent chromite and 6.9 percent chromite for the upper zone (Bjorklund and Wright, 1948). The best exposure assayed 7.5 percent chromite across a 13.5 ft zone (Rose, 1966).

**Production notes:**

**Reserves:**

**Additional comments:**

Bjorklund and Wright (1948) considered the deposit to be too small and too low grade to be mineable under conditions prevailing in 1940's.

**References:**

Barnes, 1948; Bjorklund and Wright, 1948; Rose, 1966; Berg and Cobb, 1967; Clark and Bartsch, 1971, OFR 475; Cobb, 1972, MF-409; Clark, 1972, MF 350; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Rose, 1966

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s): Highway****Site type:** Prospect**ARDF no.:** AN095**Latitude:** 61.47**Quadrangle:** AN B-6**Longitude:** 149.2**Location description and accuracy:**

Prospect occurs where rocks outcrop on the south side of the Old Glenn highway, north of West Twin Peak. Location is accurate within 500 ft. This is the 'Highway Area' of Rose (1966), locality 42 of Cobb (1972), and locality 32 of MacKevett and Holloway (1977).

**Commodities:****Main:** Au, Cr, Cu**Other:** Pd, Pt**Ore minerals:** Chromite, gold, native copper**Gangue minerals:****Geologic description:**

Bjorklund and Wright (1948) and Rose (1966) report chromite deposits in Lower to Middle Jurassic dunite found near base of the Eklutna ultramafic body. Near the highway the chromite bands are oriented N 17 E, 85 NW. The chromite-bearing zone is 8 ft wide and contains discontinuous stringers and lenses of chromite from 1/4 to 1 inches wide. The bands are composed of euhedral chromite grains 1-2 mm in diameter in a matrix of olivine and minor clinopyroxene. The chromite bands are displaced as much as 5 ft by minor faults (Bjorklund and Wright, 1948). The dominant rock types are peridotite-dunite and hornblendite-pyroxenite (Clark and Greenwood, 1972). A banded chromite sample (Rose, 1966) was found to contain free gold and native copper.

The weighted average of samples collected in 10 trenches at the prospect had a grade of 5.7 percent chromite. The grade of the rock generally decreases going uphill. Rose (1966) reports that an 8 ft wide road-cut sample averaged 11.5 percent chromite; one 8 inch wide chromite band contained 25.8 percent chromite. Of 16 samples collected by Clark and Greenwood (1972), 12 contained an average value of 0.042 ppm Pt and 0.060 ppm Pd.

**Alteration:**

Slight serpentinization of olivine

**Age of mineralization:**

Early to Middle Jurassic

**Deposit model:**

Podiform chromite or Alaskan PGE (Cox and Singer, 1986; models 8a or 9)

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

8a or 9

**Production Status** None**Site Status:** Inactive**Workings/exploration:**

Exploration is limited to 10 trenches and 1 diamond-drill hole completed by U.S. Bureau of Mines in 1942 (Bjorklund and Wright, 1948). The weighted, average grade of samples collected in 10 trenches at the prospect was 5.7 percent chromite. The grade generally decreased uphill. Rose (1966) reported that an 8-foot-wide, road-cut sample averaged 11.5 percent chromite; one 8-inch chromite band contained 25.8 percent chromite. Of 16 samples collected by Clark and Greenwood (1972), twelve contained an average value of 0.042 ppm Pt and 0.060 ppm Pd.

**Production notes:****Reserves:****Additional comments:**

Deposit too small and too low grade to be minable under conditions prevailing in 1940's (Bjorklund and Wright, 1948).

**References:**

Bjorklund and Wright, 1948; Rose, 1966; Berg and Cobb, 1967; Clark and Greenwood, 1972; Clark, 1972; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Winkler, 1992.

**Primary reference:** Rose, 1966**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98

**Site name(s):** West Twin Peak; West Ridge; Eklutna Creek

**Site type:** Occurrence

**ARDF no.:** AN096

**Latitude:** 61.45

**Quadrangle:** AN B-6

**Longitude:** 149.23

**Location description and accuracy:**

On ridge 2 miles west of West Twin Peak summit, at 2,500 ft elevation. Accurate within 1,000 ft. Locality 41 of Cobb (1972) and locality 31 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Cr

**Other:**

**Ore minerals:** Chromite

**Gangue minerals:**

**Geologic description:**

Chromite-rich dunite of the Jurassic Eklutna Sequence containing bands of chromite up to 1 inch thick found in a zone 10 ft thick. Chromite-rich rock could be traced for about 30 ft before it was covered by talus. Chip samples across a 10 ft zone contained 7.93 percent chromite (Rose, 1966).

**Alteration:**

Slight serpentinization of olivine.

**Age of mineralization:**

Lower to Middle Jurassic

**Deposit model:**

Podiform chromite or Alaskan PGE (Cox and Singer, 1986; models 8a or 9)

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

8a or 9

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Chip samples across a 10 ft zone contained 7.93 percent chromite, with a Cr:Fe ratio of 2:1 (Rose, 1966). Pieces of float containing about 90 percent chromite as large as 4 inches in diameter are found on site.

**Production notes:**

**Reserves:**

**Additional comments:**

Unconfirmed report of the presence of tin ore (Brooks, 1918). Some confusion exists about the name of this locality. Cobb (1972, loc. 41) refers to it as Eklutna Creek, while others refer to it as West Twin Peak.

**References:**

Brooks, 1918; Rose, 1966; Clark and Bartsch, 1971, OFR 475; Cobb, 1972, MF-409; Clark, 1972, MF 350; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Rose, 1966

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Thunderbird Creek

**Site type:** Occurrence

**ARDF no.:** AN097

**Latitude:** 61.43

**Quadrangle:** AN B-7

**Longitude:** 149.3

**Location description and accuracy:**

On ridge, at 1,690 ft elevation, between Thunderbird Creek and Eklutna River. Accurate within 1,000 ft. Locality 40 of Cobb (1972) and locality 30 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Cr

**Other:**

**Ore minerals:** Chromite

**Gangue minerals:**

**Geologic description:**

Jurassic dunite of the Eklutna Sequence contains chromite-rich bands. Chromite occurs as discontinuous stringers and lenses of varying grades. Although the exposure is not as good, this prospect appears to be similar to many in the general area (Rose, 1966). See West Twin Peak occurrence ARDF number AN096, Highway prospect ARDF number AN095, and Pioneer Creek prospect ARDF number AN094.

**Alteration:**

Slight serpentinization of olivine.

**Age of mineralization:**

Lower to Middle Jurassic

**Deposit model:**

Podiform chromite or Alaskan PGE (Cox and Singer, 1986; models 8a or 9)

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

8a or 9

**Production Status** None



**Site Status:** Inactive

**Workings/exploration:**

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Rose, 1966; Clark and Bartsch, 1971, OFR 484; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979.

**Primary reference:** Rose, 1966

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Myers**Site type:** Occurrence**ARDF no.:** AN098**Latitude:** 61.42**Quadrangle:** AN B-7**Longitude:** 149.39**Location description and accuracy:**

Located on northwestern slope (1,500 ft elevation) of Mount Eklutna, 3,500 ft southeast of Mirror Lake. Accurate within 1,000 ft. Labeled as 'Lead-zinc prospect' by Clark and Bartsch (1967), locality 38 of Cobb (1972), and locality 28 of MacKevett and Holloway (1977).

**Commodities:****Main:** Pb, Zn**Other:** Cu**Ore minerals:** Arsenopyrite, chalcopyrite, galena, sphalerite**Gangue minerals:** Calcite**Geologic description:**

Country rock is greenstone and silicified rhyolite of Jurassic to Permian age. A vertical zone about 3 ft wide contains disseminations and small masses of arsenopyrite, pyrite, sphalerite and galena. In addition, a 2 inch wide calcite vein found within a zone of rusty gouge contains disseminated sphalerite, galena, and chalcopyrite (Landes, 1927).

**Alteration:****Age of mineralization:**

Jurassic or younger

**Deposit model:**

Kuroko massive sulfide ? (Cox and Singer, 1986; model 28a ?)

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

28a ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Surface mapping and sampling.

**Production notes:**

**Reserves:**

**Additional comments:**

Not enough base metal mineralization exposed to encourage development work (Landes, 1927).

**References:**

Landes, 1927; Rose, 1966; Berg and Cobb, 1967; Clark and Bartsch, 1971, OFR 484; Cobb, 1972, MF-409; Clark, 1972; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Landes, 1927

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Mount Eklutna

**Site type:** Occurrence

**ARDF no.:** AN099

**Latitude:** 61.4

**Quadrangle:** AN B-7

**Longitude:** 149.36

**Location description and accuracy:**

West slope of Mount Eklutna, 1,000 ft from summit. Accurate within 1000 ft. This is locality 39 of Cobb (1972).

**Commodities:**

**Main:** Cr

**Other:**

**Ore minerals:** Chromite

**Gangue minerals:**

**Geologic description:**

Jurassic dunite of the Eklutna Sequence containing exposures of chromite. Exposures are poor, as are many in the general area (Rose, 1966).

**Alteration:**

Slight serpentinization of olivine.

**Age of mineralization:**

Lower to Middle Jurassic

**Deposit model:**

Podiform chromite or Alaskan PGE (Cox and Singer, 1986; models 8a or 9)

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

8a or 9

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

None

**Production notes:****Reserves:****Additional comments:**

May be source of chromite reported in Peters Creek drainage (Martin, 1920).

**References:**

Martin, 1920; Rose, 1966; Clark and Bartsch, 1971, OFR 484; MacKevett and Holloway, 1977; Cobb, 1972, MF-409; Cobb, 1979, OFR 79-1095.

**Primary reference:** Rose, 1966

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Peters Creek; Jessie B.

**Site type:** Prospect

**ARDF no.:** AN100

**Latitude:** 61.24

**Quadrangle:** AN A-6

**Longitude:** 149.18

**Location description and accuracy:**

Near glacial headwaters of Peters Creek a tributary to Knik Arm, above southwestern bank of creek. NW 1/4SW 1/4 sec. 4, T. 13 N., R. 2 E., of the Seward Meridian. Accurate within 1000 ft. Locality 50 in Cobb (1972) and locality 39 of MacKevett and Holloway, 1977.

**Commodities:**

**Main:** Au

**Other:** Cr(?), Cu, Jade(?), Pb

**Ore minerals:** Chalcopyrite, chromite(?), galena, gold, jade(?), pyrite

**Gangue minerals:** Quartz

**Geologic description:**

Capps (1916) reports quartz veins present in Mesozoic age greenstone and greenstone tuff with minor amounts of interbedded shale of the McHugh Complex. The thin, auriferous quartz veins also carry pyrite, galena, and chalcopyrite. One 2 inch thick vein that strikes N 60 W and dips 75 SW is intersected by an 8 inch thick vein that strikes N 77 W and dips 60 N. Assays as high as 1.84 oz/ton Au.

**Alteration:**

**Age of mineralization:**

Mesozoic or younger

**Deposit model:**

Low-sulfide Au-quartz veins ? (Cox and Singer, 1986; model 36a ? ) or Chugach-type low-sulfide Au-quartz vein 36a.1 ? (Bliss, 1992; model 36a.1 ?)

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

36a ? or 36a.1 ?

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

Explored by several short adits. Assays as high as 1.84 oz/ton Au, reported as \$38/ton, with gold valued at \$20.67/oz (Capps, 1916). Some ore may have been mined, but not shipped, in 1917 (Capps, 1919). Martin (1920) reported discovery of chromite, in 1918, in Peters Creek. Rose (1966) reported a local prospector reported finding jade in Peters Creek.

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Capps, 1916; Capps, 1919; Martin, 1920; Rose, 1966; Berg and Cobb, 1967; Clark and Bartsch, 1971, OFR 475; Cobb, 1972, MF-409; Clark and Yount, 1972; MacKevett and Holloway, 1977; Clark, 1972; Cobb, 1979, OFR 79-1095.

**Primary reference:** Capps, 1916

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Potter

**Site type:** Occurrence

**ARDF no.:** AN101

**Latitude:** 61.05

**Quadrangle:** AN A-8

**Longitude:** 149.77

**Location description and accuracy:**

Float sampled from Potter Creek, 0.75 miles upstream from the intersection of Potter Creek and the Seward Highway. Accurate within 0.5 mile. Locality 114 of Cobb (1972).

**Commodities:**

**Main:** Mo

**Other:**

**Ore minerals:** Magnetite, molybdenite, pyrite, zircon

**Gangue minerals:**

**Geologic description:**

The bedrock in the vicinity is covered by Quaternary surficial deposits. Float consists of graywacke, sandstone, agrillite, and greenstone. Concentrates include magnetite, zircon, molybdenite, and pyrite (Jasper, 1967).

**Alteration:**

**Age of mineralization:**

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Concentrates reported by Jasper (1967) have 45 to 55 percent magnetite, less than 1 percent zircon, 1 grain of molybdenite, and 8 grains of pyrite.



**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Jasper, 1967; Cobb, 1972, MF-409; Cobb, 1979, OFR 79-1095.

**Primary reference:** Jasper, 1967

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Rainbow Creek

**Site type:** Prospect

**ARDF no.:** AN102

**Latitude:** 61.01

**Quadrangle:** AN A-8

**Longitude:** 149.64

**Location description and accuracy:**

Prospect located near banks of Rainbow Creek, 1,500 ft upstream from Seward Highway. Accurate within 0.5 mile. Locality 69 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:**

**Geologic description:**

Placer gold operation, little information available. Lithologies present in creek include graywacke, sandstone, argillite, dike material, and greenstone of the Mesozoic McHugh Complex.

**Alteration:**

**Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

Some mining occurred before 1906, but hydraulic plant not working in 1906 (Paige and Knopf, 1907). Hydraulic pipe being brought in during 1937 and development reported in 1938 (Smith, 1939). Limited data available.

**Production notes:****Reserves:****Additional comments:****References:**

Paige and Knopf, 1907, B 314; Smith, 1939, B 910-A; Smith, 1939, B 917-A; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Smith, 1939

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Bird Creek**Site type:** Prospect**ARDF no.:** AN103**Latitude:** 61.02**Quadrangle:** AN A-7**Longitude:** 149.41**Location description and accuracy:**

Location of placer claims includes the length of Bird Creek, located on the north side of Turnagain Arm. Lode claims located upstream. Locality 68 of MacKevett and Holloway (1977).

**Commodities:****Main:** Au**Other:****Ore minerals:** Gold**Gangue minerals:****Geologic description:**

Placer claims in stream draining Late Cretaceous Valdez Group metasedimentary rocks. Gold found in stream deposits sporadically; an aplite sample from a lode claim in 1898 assayed 0.36 oz/ton Au (Mendenhall, 1900).

**Alteration:****Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** Yes; small**Site Status:** Inactive

**Workings/exploration:**

Placer claims worked for several years between 1898 and most recently in 1938. Most claims proved to be disappointing. In 1915, a tunnel was driven 144 ft in slate to tap an old channel about 8 miles above Bird Creek mouth. Prospector was not successful (Capps, 1916). An aplite sample from a lode claim in 1898 assayed 0.36 oz/ton Au (Mendenhall, 1900).

**Production notes:**

No production data available.

**Reserves:****Additional comments:****References:**

Mendenhall, 1900; Capps, 1916; Smith, 1939, B 917-A; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Capps, 1916

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Crow Creek; Erickson; Holmgren-Erickson property; Crow Creek Mining Co.; Girdwood property; Girdwood Mining Co.

**Site type:** Mine

**ARDF no.:** AN104

**Latitude:** 61

**Quadrangle:** AN A-6

**Longitude:** 149.08

**Location description and accuracy:**

Placer mining occurred all along Crow Creek and in Glacier Creek valley into which Crow Creek flows. The majority of mining activity probably took place in the Seward quadrangle. The locality includes all of Crow Creek. Locality 115 and 116 of Cobb (1972) and locality 66 and 67 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:** Cu

**Ore minerals:** Arsenopyrite, gold, pyrite

**Gangue minerals:** Quartz

**Geologic description:**

Staked in 1896 or 1897. Placer mining and prospecting has occurred in high bench gravels, recent stream deposits, glacial gravels, and avalanche debris along Crow Creek. The history of the creek is complex due to repeated damming by ice in the valley of Glacier Creek, into which Crow Creek flows. Bench deposits and recent stream deposits have the highest grade and have historically produced most of the gold. Glacial deposits and avalanche debris are low grade but may locally contain significant concentrations of gold. The highest grades appear to be associated with old channels in high benches which likely consist of gravels deposited prior to the last glacial advance (Parks, 1933; Jansons and others, 1984). The stream grade is 2.5 percent in lower course.

Crow Creek drains an area where gold lode deposits occur. Bedrock in the area is graywacke, conglomerate, and slate of the Late Cretaceous Valdez Group that have been intruded by many small granitic bodies. Eleven bench and alluvium samples from Crow Creek contained from 0.0013 to 1.17 oz Au/cubic yard. The placer gold is relatively coarse with 0.025 to 0.05 oz nuggets common and an occasional 1 oz nugget panned by recreational miners (Jansons and others, 1984). The largest nugget found at Crow Creek was 4.5 ounces (Toohey, oral commun., 1998).

**Alteration:****Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** Yes; small**Site Status:** Active**Workings/exploration:**

Staked in 1896 or 1897, mined more or less continually until World War II. Prior to 1940, one large and two small hydraulic operations accounted for the majority of the production from Crow Creek. One mechanized operation mined the creek intermittently in 1981 and 1982. Currently Crow Creek is mined by recreational miners and a small suction dredge by Crow Creek Mining Company; and by the Girdwood Mining Company. The largest nugget found at Crow Creek was 4.5 ounces (Toohey, oral commun., 1998).

Eleven bench and alluvium samples from Crow Creek contained from 0.0013 to 1.17 oz Au/cubic yard. The placer gold is relatively coarse with 0.025 to 0.05 oz nuggets common and an occasional 1 oz nugget panned by recreational miners (Jansons and others, 1984).

**Production notes:**

Total estimated production since 1898 is 40,000 to 45,000 oz. Production between 1979 and 1984 was estimated to be approximately 400 oz (Jansons and others, 1984). The largest nugget found at Crow Creek was 4.5 ounces (Toohey, oral commun., 1998).

**Reserves:**

Orris and Bliss (1985) estimated 1,200,000 cubic meters of placer material grading 1.1 gram/cubic meter (0.015 to 0.04 oz/ton) Au for the Crow Creek placer deposits.

**Additional comments:**

Most mining activity probably took place in Seward quadrangle. The entire Crow Creek drainage has been prospected, because it drains an area where lode gold deposits have long been known. Presence of numerous large boulders and cemented gravels may cause mining difficulties (Jansons and others, 1984). Attempts to mine upper basin unsuccessful due to legal difficulties; outcome of litigation to stop mining is unknown to reporter.

**References:**

Mendenhall, 1900; Moffit, 1905; Purington, 1905; Moffit, 1906; Paige and Knopf,

1907, B 314; Brooks, 1911, P 70; Brooks, 1911, B 480; Johnson, 1912; Brooks, 1913; Brooks, 1914; Brooks, 1915; Brooks, 1916; Capps, 1916; Smith, 1917; Brooks, 1918; Martin, 1919; Brooks, 1923; Brooks and Capps, 1924; Capps, 1924; Park, 1933; Smith, 1933; Smith, 1934, B 857-A; Smith, 1934, B 864-A; Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939, B 910-A; Smith, 1939, B 917-A; Smith, 1941; Jasper, 1966; Berg and Cobb, 1967; Cobb, 1972, MF-409; Clark and Yount, 1972; Cobb, 1973, B 1374; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Jansons and others, 1984; Orris and Bliss, 1985; Hoekzema and Fechner, 1986; Toohey, oral commun., 1998.

**Primary reference:** Park, 1933

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** California Creek

**Site type:** Mine

**ARDF no.:** AN105

**Latitude:** 61.01

**Quadrangle:** AN A-6

**Longitude:** 149.18

**Location description and accuracy:**

The headwaters of California Creek are approximately 1/2 mile west of the summit of Raggedtop Mountain. The creek flows dominantly southward into Glacier Creek (in the Seward D-6 topographic quadrangle), about 2 miles upstream from the mouth of Glacier Creek. Majority of mining activity occurred in the Seward quadrangle.

**Commodities:**

**Main:** Au

**Other:** W

**Ore minerals:** Gold, scheelite

**Gangue minerals:**

**Geologic description:**

Erratically distributed placer gold occurs in the California Creek valley. The creek occurs in a steep, narrow avalanche debris-filled glacial valley having little accumulation of gravel. The gravels exposed along California Creek contain considerable clay and are probably glacial till. An alluvial fan at the lower end of the creek contains fine-grained gold. The middle section of the creek is in a bedrock gorge. Grades are reported to be extremely variable (Moffit, 1906; Jansons and others, 1984).

The bedrock through which California Creek flows are Late Cretaceous metasedimentary rocks of the Valdez Group. The metasediments are locally intruded by felsic dikes and plugs. Creek float consists of graywacke, argillite, and granite. Jasper (1967) reported that stream sediment concentrates collected from the lower stream course contained 20 grains of scheelite, about 5 percent magnetite, a little pyrite, and about 20 grains of zircon. Two 0.1 cubic yard bench samples collected at the canyon mouth yielded 0.0006 and 0.0007 oz Au/cubic yard (Jansons and others, 1984).

**Alteration:**

**Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** Yes; small

**Site Status:** Active?

**Workings/exploration:**

In the Turnagain Arm area, the first gold north of the arm was found in 1895 by F.J. Perry and Christopher Spillum, on California Creek (Moffit, 1906). The placer deposits were worked intermittently, with hand placer operations, between 1898 and 1914. In the late 1920s, work was begun along the creek in preparation for a mine that was to be in place by 1930. However, late in 1931, the operators decided to abandon the project. Since 1975 some hand placer activity has also occurred.

Jasper (1967) reported that stream sediment concentrates collected from the lower stream course contained 20 grains of scheelite, about 5 percent magnetite, a little pyrite, and about 20 grains of zircon. Two 0.1 cubic yard bench samples collected at the canyon mouth yielded 0.0006 and 0.0007 oz Au/cubic yard (Jansons and others, 1984). Jansons and others (1984) indicated a low to moderate mineral development potential for a small scale mechanized operation at the lower end of the creek, and for hand placer mining and suction dredging operations.

**Production notes:**

Total estimated production since 1898 is 400 oz (Jansons and others, 1984).

**Reserves:****Additional comments:**

Most of the mining activity along California Creek occurred in the Seward D-6 1:63,360-scale quadrangle.

**References:**

Moffit, 1906; Martin and others, 1915; Capps, 1916; Smith, 1932; Park, 1933; Smith, 1933, B 836; Smith, 1933, B 844-A; Smith, 1934, B 857-A; Smith, 1934, B 864-A; Smith, 1936; Smith, 1938; Jasper, 1967; Cobb and Richter, 1972, MF 466; MacKevett and Holloway, 1977; Tysdal, 1978; Cobb and Tysdal, 1980; Jansons and others, 1984; Hoekzema and Fechner, 1986.

**Primary reference:** Moffit, 1906

**Reporter(s):** D.P. Bickerstaff (USGS contractor)

Last report date: 07/30/98

**Site name(s):** Unnamed (on Raggedtop Mountain)

**Site type:** Prospect

**ARDF no.:** AN106

**Latitude:** 61.02

**Quadrangle:** AN A-6

**Longitude:** 149.13

**Location description and accuracy:**

On northeastern flank of Raggedtop Mountain, 2,400 ft east-northeast of summit (peak 5,215). Accurate within 2,000 ft. This is the prospect location from plate 33 of Park (1933).

**Commodities:**

**Main:** Ag, Au, Pb

**Other:**

**Ore minerals:** Galena, pyrite

**Gangue minerals:** Quartz

**Geologic description:**

According to Park (1933) a quartz vein, apparently shattered from postmineral movement, cuts Late Cretaceous metasedimentary rocks of the Valdez Group. The metasedimentary rocks are in close proximity to quartz diorite or dacite dikes, sills, irregular pipes, or plugs. The vein strikes N 50 W, dips 40 W, and ranges from 1-24 inches thick with about 7 inches being the average thickness. The vein contains galena, pyrite, and limonite. Numerous small mineralized stringers were seen on the steep mountain side south of this location. Samples taken indicate 0.01 oz/ton Au, 1.4 oz/ton Ag, and 1.12 percent Pb (Park, 1933). Other nearby small prospects have several small but well-mineralized quartz veins that cut both intrusive and metasedimentary rocks.

**Alteration:**

The intrusive rocks have undergone argillic alteration. Oxidation of iron minerals.

**Age of mineralization:**

Tertiary or younger; veins cut Late Cretaceous Valdez Group rocks and Tertiary intrusive rocks.

**Deposit model:**

Chugach-type low-sulfide Au-quartz veins (Bliss, 1992; model 36a.1)

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

36a.1

**Production Status** None**Site Status:** Inactive**Workings/exploration:**

Vein exposed in a 2 ft open cut. Samples taken indicate 0.01 oz/ton Au, 1.4 oz/ton Ag, and 1.12 percent Pb (Park, 1933).

**Production notes:****Reserves:****Additional comments:****References:**

Park, 1933; Clark and Yount, 1972; Cobb, 1979, OFR 79-1095.

**Primary reference:** Park, 1933**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98

**Site name(s):** Jewel; Monarch-Jewel; Crow Creek Gold Corporation; Gunnysack

**Site type:** Mine

**ARDF no.:** AN107

**Latitude:** 61.043

**Quadrangle:** AN A-6

**Longitude:** 149.104

**Location description and accuracy:**

Marked with an adit symbol on Barnes Mountain on the Anchorage A-6 1:63,360-scale topographic map, located on east side of Crow Creek about 1 mile south-southeast of VABM Pass (Crow Pass). Accurate within 400 ft. Locality 3 on plate 33 of Park (1933), locality 53 of Cobb (1972), and locality 42 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:** Ag, Cu, Mo, Pb, Zn

**Ore minerals:** Arsenopyrite, chalcopyrite, galena, gold, molybdenite, pyrite, pyrrhotite

**Gangue minerals:** Quartz

**Geologic description:**

Quartz vein cutting Late Cretaceous argillite and graywacke. Hoekzema and others (1987) reported the country rock to be well-bedded Valdez Group rocks that display a hornfels-like texture as a result of contact metamorphism by a nearby argillically altered quartz diorite stock. Both the vein and sedimentary bedding strike N 30 W, and dip 60 NE. Vein is 2 to 12 inches thick and contains arsenopyrite, pyrite, chalcopyrite, pyrrhotite, molybdenite, galena, and free gold (Park, 1933). Numerous small, quartz diorite intrusive bodies with argillic alteration can be found in the area. The owner of the claim reported another major vein and numerous smaller veins to Park (1933).

Chip samples range from 10.6 to 36.7 g/ton Au, and about 10.6 g/ton Ag (Hoekzema and others, 1987).

**Alteration:**

The intrusive rocks have undergone argillic alteration. Limonite, scorodite, and cerussite present as a result of oxidation (Park, 1933).

**Age of mineralization:**

Late Cretaceous or younger; veins cut Late Cretaceous Valdez Group rocks.

**Deposit model:**

Chugach-type low-sulfide Au-quartz veins (Bliss, 1992; model 36a.1)

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

36a.1

**Production Status** Yes; small

**Site Status:** Inactive

**Workings/exploration:**

First located in 1912. Explored by over 1,240 feet of underground workings, including a 150 foot tunnel driven along the vein. Considerable surface improvements by 1933, including a mill which was partially destroyed by snowslides (Park, 1933). In 1934 site was sold to Augustina Mining Co. and connected to the mill at Agostino mine by a tram (Hoekzema and others, 1987). Chip samples range from 10.6 to 36.7 grams/ton Au, with about 10.6 grams/ton Ag. Hoekzema and others (1987) reported samples taken by the U. S. Bureau of Mines indicate a resource of 3,100 tons with a weighted-average grade of 1.75 oz/ton Au and 0.75 oz/ton Ag. They conclude that the mine has high mineral development potential based on history and sampling.

**Production notes:**

Total recorded production, including that of the Agostino Mine (ARDF number AN109), was 4,932 oz gold and 996 oz silver (Hoekzema and others, 1987).

**Reserves:**

Jansons and others (1984) and Hoekzema and others (1987) reported samples taken by the U.S. Bureau of Mines indicate a resource of 3,100 tons with a weighted-average grade of 1.75 oz/ton Au and 0.75 oz/ton Ag. They conclude that the mine has high mineral development potential based on history and sampling.

**Additional comments:**

Data for Jewell and Agostino (ARDF number AN109) is confused or combined in some references. Both were probably under same management (Crow Creek Gold Corp.) by 1937.

**References:**

Brooks, 1923; Brooks and Capps, 1924; Smith, 1930, B 813-A; Park, 1933; Smith, 1939, B 910-A; Smith, 1939, B 917-A; Smith, 1941; Cobb, 1972, MF-409; Clark and Yount, 1972; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Jansons and others, 1984; Hoekzema and others, 1987.

**Primary reference:** Park, 1933

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS); W.J. Nokleberg

(USGS)

Last report date: 07/30/98



**Site name(s): Brenner****Site type:** Prospect**ARDF no.:** AN108**Latitude:** 61.045**Quadrangle:** AN A-6**Longitude:** 149.115**Location description and accuracy:**

500 ft south-southwest of the end of the unimproved road which follows Crow Creek, west of Barnes Mountain. Marked with prospect symbol the Anchorage A-6 1:63,360-scale topographic map. Accurate within 400 ft. Locality 5 on plate 33 of Park (1933), locality 53 of Cobb (1972), locality 42 of MacKevett and Holloway (1977), and locality A-40 of Jansons and others (1984).

**Commodities:****Main:** Au, Mo(?), Pb, Zn**Other:** Cu**Ore minerals:** Arsenopyrite, galena, gold, marcasite, molybdenite(?), native copper, pyrite, pyrrhotite, sphalerite**Gangue minerals:** Calcite, quartz**Geologic description:**

Country rock is Late Cretaceous coarse-grained, massive graywacke of the Valdez Group. Two quartz-calcite veins, averaging 6 in thick, carry galena, sphalerite, pyrite, pyrrhotite, arsenopyrite, molybdenite (?), and marcasite. One vein strikes at N 45 W, and dips 65 N, while the other vein strikes N 35 E. Chalcopyrite and marcasite occur as veinlets in massive pyrrhotite. Pyrrhotite is also found in veinlets with arsenopyrite. Native copper is also reported to be present (Park, 1933).

According to Jansons and others (1984), chip samples contained up to 0.12 oz/ton Au and up to 0.27 oz/ton Ag. Grab samples contained 0.52 oz/ton Au and 0.50 oz/ton Ag. Some samples contain up to 148 ppm Mo, 0.14 percent Cu, and 0.3 percent As.

**Alteration:**

The deepest oxidation evident is 30 ft below collar of shaft. Most oxidation is above modern water table (Park, 1933).

**Age of mineralization:**

Tertiary or younger

**Deposit model:**

Chugach-type low-sulfide Au-quartz veins (Bliss, 1992; model 36a.1)

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

36a.1

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

Park (1933) reports exploration by 175 foot drift along the west vein and a 54 foot inclined shaft with two levels that run along east vein for 80 feet (upper for 30 feet - lower for 50 feet); total underground workings equal 309 feet. Brenner was only prospect in area that has been opened below water table. According to Jansons and others (1984), chip samples contained up to 0.12 oz/ton Au and up to 0.27 oz/ton Ag. Grab samples contained 0.52 oz/ton Au and 0.50 oz/ton Ag. Some samples contain up to 148 ppm Mo, 0.14 percent Cu, and 0.3 percent As.

**Production notes:****Reserves:**

Reported to have moderate mineral development potential for a small mine (Jansons and others, 1984).

**Additional comments:**

See also: Agostino - ARDF number AN109 and Jewell - ARDF number AN107.

**References:**

Park, 1933; Cobb, 1972, MF-409; Clark and Yount, 1972; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Jansons and others, 1984.

**Primary reference:** Park, 1933

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Agostino; Barnes Property; Monarch Mining Co.; Crow Creek Mining Co.

**Site type:** Mine

**ARDF no.:** AN109

**Latitude:** 61.047

**Quadrangle:** AN A-6

**Longitude:** 149.11

**Location description and accuracy:**

Located on east side of Crow Creek about 0.7 miles south of VABM Pass (Crow Pass), mine is marked with the westernmost adit symbol on Jewell Mountain in the Anchorage A-6 1:63,360-scale map. Locality 53 of Cobb (1972) and locality 42 of MacKevett and Holloway (1977). Accurate within 400 ft.

**Commodities:**

**Main:** Au

**Other:** Ag, Cu, Mo, Pb, Zn

**Ore minerals:**

Argentiferous galena, arsenopyrite, chalcopyrite, gold, molybdenite, pyrite, pyrrhotite, silver, sphalerite

**Gangue minerals:** Calcite, quartz

**Geologic description:**

Park (1933) described the geology: Two quartz veins (called the North vein and the South vein by the owners) cut Late Cretaceous age metasedimentary rocks of the Valdez Group which are intruded by many dikes and small, irregular shaped intrusive bodies of holocrystalline argillically altered quartz diorite. Locally, the bedded rocks strike nearly west and dip 40 N. The country rock has been badly shattered near the veins, and part of the deformation is postmineral, resulting in brecciated vein materials, which in some places have been recemented and again fractured. Both the North and the South veins are traceable for several hundred feet along strike. The South quartz vein ranges in width from 6 inches to about 4 feet, with an average of 9 inches in the tunnel. The strike is from east to S 80 E, and the dip is 55 to 70 N. Many fragments of country rock are isolated in the quartz. The North quartz vein strikes N 80 E, and dips about 70 N. Where exposed in the tunnel and in several surface cuts it is from 10 inches to 3 feet wide, with an average of 1 foot. The North vein appears to be somewhat better defined than the South vein and may be traced farther on the surface. There are several crosscutting veins 6 inches wide that strike a few degrees west of north and dip either east or west. The

North vein offsets these small veins. The crosscutting veins of this north-south system are very persistent and one mineralized vein 6 to 8 inches wide was followed for more than 500 feet. The mineralization includes at least two generations of quartz, small amounts of calcite, galena, arsenopyrite, sphalerite, chalcopyrite, pyrrhotite, molybdenite, pyrite, gold, and silver. The silver occurs alloyed with gold (75 percent Au, 25 percent Ag). When not with gold, the silver seems to be associated with galena. Considerable magnetite is found in the concentrates obtained by panning.

A random samples of molybdenum-bearing cross-vein contained 0.26 percent Mo (Park, 1933). Samples taken by the Bureau of Mines contained up to 234 ppm Au and 92 ppm Ag (Hoekzema and others, 1987). Jansons and others (1984) report 43 chip and grab samples contained from a trace to 6.82 oz/ton Au, trace to 3.94 oz/ton Ag, up to 400 ppm Mo, and 1.34 percent As. Weighted average grade of all chip samples is 0.31 oz/ton Au and 0.31 oz/ton Ag.

**Alteration:**

The intrusive rocks have undergone argillic alteration. Some galena has been altered to cerussite (Johnson, 1912). Limonite and abundant scorodite is also present where arsenopyrite is prominent (Hoekzema and other, 1987).

**Age of mineralization:**

Tertiary or younger

**Deposit model:**

Chugach-type low-sulfide Au-quartz veins (Bliss, 1992; model 36a.1)

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

36a.1

**Production Status** Yes; small**Site Status:** Inactive**Workings/exploration:**

Berg and Cobb (1967) indicated the Agostino Mine was the site of the most extensive development in the Girdwood area. The site was discovered by Conrad Hores in 1909 and prospected or mined (with interruptions) until as recently as 1941. Johnson (1912) reports that development began in 1910. In 1910-11 there were about 675 feet of underground workings on three levels and some open cuts. Owners reported that the free milling ore from main veins averaged \$35 to \$40 per ton (gold at \$20.67/ton), with much higher assays from single samples. Wall rocks were said to not be gold-bearing. After 1911, Brooks (1922) reported plans for some work in 1920 and Smith (1929) reported plans for adding machinery in 1926. Minor production occurred in 1926 and 1928 using a 1-stamp mill, small crusher, and amalgamation plate. Park (1933) indicated the group of claims was originally known as the Barnes property and has changed owners several times. The Monarch Mining Co obtained control several years prior to 1933. This company was taken over by the Crow Creek Mining Co., Inc. which gave a lease and option

to the Bruno Agostino Mining Co. - controlled and operated by four men in partnership. The last group pushed development vigorously during 1931, installing a larger mill that utilized hydropower and three 1,200-foot tram lines (Hoekzema and others, 1987). Development of the property, 1933, included opening two parallel veins, called by the owners the North and South veins. There is one adit 260 feet long on the North vein and one 267 feet long on the South vein. In addition, there are two crosscutting adits, one containing 295 feet of workings and the other 60 feet. A lower adit, planned to crosscut the workings in depth, has been driven 190 feet. A winze on the South vein was open for 40 feet and was reported to be 10 feet deeper but filled with debris. There was also a 10-foot winze on the South vein. The total workings is 1,072 feet and the winze length more than 50 feet (Park, 1933). Production continued from 1933 until 1941. Roehm (1937) reported that development in 1937 consisted of 950 feet of drift, 125 feet of crosscuts, 52 feet of winze, and 4 raises totaling 100 feet. Two levels at elevations of 3,200 ft and 3,300 ft developed the South vein. The North vein was developed on two levels at elevations of 3,285 ft and 3,420 ft. A 60-ft-long adit was developed 500 feet north of the North vein at an elevation of 3,500 ft to examine a north-striking molybdenum-chalcopyrite-bearing vein. Most of the stoping and production appears to have come from the upper level of the south vein.

A random sample of molybdenum-bearing cross-vein contained 0.26 percent Mo (Park, 1933). Samples taken by the Bureau of Mines (Hoekzema and others, 1987) contained up to 234 ppm Au and 92 ppm Ag. Jansons and others (1984) report 43 chip and grab samples contained from a trace to 6.82 oz/ton Au, trace to 3.94 oz/ton Ag, up to 400 ppm Mo, and 1.34 percent As. Weighted average grade of all chip samples is 0.31 oz/ton Au and 0.31 oz/ton Ag. This deposit has high mineral development potential for a small mine, based on history and sampling, if vein extension can be located (Jansons and others, 1984).

**Production notes:**

Total recorded production, including that of the Jewel Mine (ARDF number AN107), was 4,932 oz gold and 996 oz silver (Hoekzema and others, 1987).

**Reserves:****Additional comments:**

There is some confusion in literature distinguishing between this property and the Jewel mine, which apparently was connected to Agostino mill at one time. Both were probably under the same management (Crow Creek Mining Co.) during the 1930's.

**References:**

Johnson, 1912; Martin and others, 1915; Capps, 1916; Brooks, 1922; Smith, 1929; Smith, 1930, B 810; Smith, 1930, B 813; Smith, 1933; Park, 1933; Smith, 1934; Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939, B 910-A; Smith, 1939, B 917-A; Smith, 1941; Smith, 1942; Berg and Cobb, 1967; MacKevett and Holloway, 1977; Cobb, 1972, MF-409; Clark and Yount, 1972; Cobb, 1979, OFR 79-1095; Hoekzema and others, 1987; Jansons and others, 1984.

**Primary reference:** Park, 1933

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Bahrenberg; Treasure Box; Hottentot

**Site type:** Mine

**ARDF no.:** AN110

**Latitude:** 61.053

**Quadrangle:** AN A-6

**Longitude:** 149.098

**Location description and accuracy:**

Mine located at the headwaters of Crow Creek, north of Jewel Mountain. Marked with an adit symbol on the Anchorage A-6, 1:63,360-scale topographic map. Accurate within 400 ft. Locality 52 of Cobb (1972) and location 41 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au,Ag

**Other:** Pb, Zn

**Ore minerals:** Arsenopyrite, galena, gold, pyrite, silver, sphalerite

**Gangue minerals:** Calcite, quartz

**Geologic description:**

Quartz veins cut the country rock of Late Cretaceous argillite of the Valdez Group, which strikes N 25 W, and dips 45 E. Blocks or lenses of argillically altered quartz diorite, which are greater than 6 feet in diameter, intrude the argillite. The main quartz-calcite vein strikes N 80 W, and dips 80 N. The average width is about 8 inches, but the vein has only been prospected to a depth of a few feet. It is possible to trace the vein about 75 feet along the outcrop. The quartz-calcite veins also carry arsenopyrite, pyrite, galena, and sphalerite, with a few spots of visible gold. In one vein, gold is associated with arsenopyrite and the galena is Au-poor; in another vein the reverse is true - the galena is rich and arsenopyrite valueless. Sphalerite is commonly associated with galena. Surface prospecting has revealed several other small veins that strike nearly west and dip 70 N. Four samples averaged 1.65 oz/ton Au and 1.68 oz/ton Ag (Jansons and others, 1984).

**Alteration:**

The intrusive rocks have undergone argillic alteration.

**Age of mineralization:**

Tertiary or younger

**Deposit model:**

Chugach-type low-sulfide Au-quartz veins (Bliss, 1992; model 36a.1)

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

36a.1

**Production Status** Yes; small

**Site Status:** Inactive

**Workings/exploration:**

Development includes a 65 foot long adit, a small surface cut, and an arrastre that was built on the property in 1931 (Park, 1933). Four samples averaged 1.65 oz/ton Au and 1.68 oz/ton Ag. Moderate potential for a small mine (Jansons and others, 1984).

**Production notes:**

Seven tons of ore was shipped to Tacoma smelter previous to 1933. One lot of 1,500 lbs returned \$145 after smelter and shipping charges (Park, 1933). Recorded production is 54 oz gold and 21 oz silver (Jansons and others, 1984).

**Reserves:**

Reserves are about 344 tons (Jansons and others, 1984).

**Additional comments:**

This site originally called the Treasure Box claim.

**References:**

Martin and others, 1915; Capps, 1916; Park, 1933; Cobb, 1972, MF-409; Clark and Yount, 1972; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Jansons and others, 1984.

**Primary reference:** Park, 1933

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** Summit Mountain

**Site type:** Prospect

**ARDF no.:** AN111

**Latitude:** 61.06

**Quadrangle:** AN A-6

**Longitude:** 149.1

**Location description and accuracy:**

West of Summit Mountain peak, 2,000 ft east of VABM Pass. Accurate within 500 ft.  
This is the approximate position from Park (1933) and locality 52 of Cobb (1972).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:** Quartz

**Geologic description:**

According to Park (1933), Late Cretaceous Valdez Group argillite and graywacke are intruded and distorted by an irregular masses of argillically altered quartz diorite. A thin auriferous quartz vein strikes N 30 W, and dips 60 W. Rich float (presumably, in gold) reported just below the outcrop.

**Alteration:**

The intrusive rocks have undergone argillic alteration.

**Age of mineralization:**

Tertiary or younger; veins cut both Late Cretaceous Valdez Group rocks and Tertiary intrusive rocks.

**Deposit model:**

Chugach-type low-sulfide Au-quartz veins (Bliss, 1992; model 36a.1)

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

36a.1

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

Limited surface work reported in the summer of 1931 (Park, 1933).

**Production notes:**

**Reserves:**

**Additional comments:**

See also: Bahrenberg - ARDF number AN110.

**References:**

Park, 1933; Clark and Yount, 1972; Cobb, 1972, MF-409; Cobb, 1979, OFR 79-1095.

**Primary reference:** Park, 1933

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Raven Creek

**Site type:** Prospect

**ARDF no.:** AN112

**Latitude:** 61.1

**Quadrangle:** AN A-6

**Longitude:** 149.1

**Location description and accuracy:**

A tributary of Eagle River, 1.5 miles west of Eagle Glacier toe. Accurate within 5 miles. Locality 70 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:**

**Geologic description:**

Placer gold reported in Raven Creek prospect pits (Park, 1933). The bedrock in the vicinity is the Late Cretaceous Valdez Group; interbedded slate, siltstone, and graywacke of that has been metamorphosed to phyllite and quartz mica schist.

**Alteration:**

**Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Park (1933) reported that a few prospect pits had been sunk and some colors reported. Eight claims were staked in 1929, but owner was killed in an accident and no work has been done since.

**Production notes:****Reserves:****Additional comments:****References:**

Park, 1933; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Park, 1933

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Eagle River; Mayflower

**Site type:** Prospect

**ARDF no.:** AN113

**Latitude:** 61.13

**Quadrangle:** AN A-6

**Longitude:** 149.09

**Location description and accuracy:**

Prospect located near the south bank of Eagle River, 4,500 ft west-northwest of the terminus of Eagle Glacier. Accurate within 2,000 ft. Locality 7 on plate 33 of Park (1933), locality 51 of Cobb (1972), and locality 40 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Ag, Au, Cu, Pb, Zn

**Other:**

**Ore minerals:** Argentiferous galena, arsenopyrite, chalcopyrite, gold, malachite, pyrite, sphalerite

**Gangue minerals:** Calcite, quartz

**Geologic description:**

Mineralized quartz veins in fine-grained, massive metagraywacke of the Late Cretaceous Valdez Group. The host rock shows sheared zones that strike N 5 W and are vertical or dip about 65 NW. Several large interbedded conglomerate lenses and minor argillite are present within the graywacke. Mineralized quartz veins that are less than 1 ft thick and that can be traced for 400 ft, are found in two sheared zones 50 ft apart (Park, 1933). Quartz veins contain galena, pyrite, sphalerite, arsenopyrite, chalcopyrite, and limited malachite. Assays show 0.05 oz/ton Au and 10 to 25 oz/ton Ag (Park, 1933). Calcite veinlets found in joints of graywacke (Martin and others, 1915). The most conspicuous quartz vein can be traced south of the river and probably is also exposed to the north of Eagle River.

**Alteration:**

Oxidation of Cu minerals.

**Age of mineralization:**

Late Cretaceous or younger; the veins cut Late Cretaceous Valdez Group rocks.

**Deposit model:**

Low-sulfide Au-quartz veins ? (Cox and Singer, 1986; model 36a ? ) or Chugach-type low-sulfide Au-quartz vein ? (Bliss, 1992; model 36a.1 ?) or Polymetallic veins ? (Cox and Singer, 1986; model 22c ?)

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

36a, 36a.1, 22c

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Assays show 0.05 oz/ton Au and 10 to 25 oz/ton Ag (Park, 1933). Limited amount of work on prospect by 1933. Smith (1938) reported prospecting in 1936 - vein opened by a few open cuts with apparently encouraging results. By 1951 the prospect could not be found (White, 1952).

**Production notes:**

**Reserves:**

**Additional comments:**

Property originally known as the Mayflower lode (Park, 1933).

**References:**

Martin and others, 1915; Capps, 1916; Park, 1933; Smith, 1938; White, 1952; Berg and Cobb, 1967; Clark, 1972, MF 350; Clark and Yount, 1972; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Jansons and others, 1984.

**Primary reference:** Park, 1933

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s): Twentymile River****Site type:** Occurrence**ARDF no.:** AN114**Latitude:** 61**Quadrangle:** AN A-5**Longitude:** 148.9**Location description and accuracy:**

Includes upper portions of Twentymile River. Twentymile River also flows in the Anchorage A-6 map and southerly into the Seward Quadrangle. Accurate to within 3 miles. This is locality P-42 of Hoekzema and Fechner (1986).

**Commodities:****Main:** Au**Other:****Ore minerals:** Gold**Gangue minerals:****Geologic description:**

Placer gold is disseminated in poorly- to moderately-washed glacial fluvial gravels along the upper portions of Twentymile Creek. Five alluvium samples from the upper portions of Twentymile River contained from a trace to 0.0073 oz Au/cubic yard (Jansons and others, 1984). Numerous large boulders are present (Hoekzema and Fechner, 1986). The bedrock in the region is Late Cretaceous metasedimentary rocks of the Valdez Group.

**Alteration:****Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Five alluvium samples from the upper portions of Twentymile River contained from a trace to 0.0073 oz Au/cubic yard (Jansons and others, 1984).

**Production notes:**

No recorded production, however Hoekzema and Fechner (1986) state the mineral development potential is moderate for small mining operation. Pockets of higher grade material may occur within and adjacent to the river channel (Jansons and others, 1984).

**Reserves:**

**Additional comments:**

**References:**

Jansons and others, 1984; Hoekzema and Fechner, 1986.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** Alaska Homestake; Black and Hogan; SSSS; Bruno #4

**Site type:** Prospect

**ARDF no.:** AN115

**Latitude:** 61.08

**Quadrangle:** AN A-4

**Longitude:** 148.28

**Location description and accuracy:**

On north shore of Harriman Fiord, on eastern point of the inlet into which the Serpentine Glacier flows. Accurate within 0.5 mile. Locality 54 of Cobb (1972), locality 43 of MacKevett and Holloway (1977), and locality A-31 of Jansons and others (1984).

**Commodities:**

**Main:** Ag, Au

**Other:** Pb, Zn

**Ore minerals:** Arsenopyrite, galena, sphalerite

**Gangue minerals:** Quartz

**Geologic description:**

Late Cretaceous Valdez Group graywacke cut by many altered granite dikes and other bodies of Tertiary age. Resulting fissure veins, 2 to 18 inches thick, in graywacke and one in granite dike are quartz-filled. Veins strike N 15 to 40 W, near vertically, and carry galena, gold, arsenopyrite, and sphalerite (Johnson, 1914).

Six samples contained up to 0.02 oz /ton Au and up to 0.04 oz /ton Ag. One vein sampled contained 1.99 oz/ton Au and .2 oz/ton Ag (Jansons and others, 1984).

**Alteration:**

**Age of mineralization:**

Tertiary or younger; veins cut Late Cretaceous Valdez Group graywacke and altered granite dikes of Tertiary age.

**Deposit model:**

Chugach-type low-sulfide Au-quartz veins (Bliss, 1992; model 36a.1)

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

36a.1

**Production Status** Yes; small

**Site Status:** Inactive

**Workings/exploration:**

Johnson (1915) reports that in 1914, 250 ft of tunnels and 2 shallow shafts were reported to have been driven on the veins about 100 ft above sea level. Jansons and others (1984) reported two adits in excess of 275 ft in length with a 64 ft winze; the lower level was inaccessible. Six samples contained up to 0.02 oz /ton Au and up to 0.04 oz /ton Ag. One vein sampled contained 1.99 oz/ton Au and .2 oz/ton Ag. Moderate mineral development potential for a small mine if vein extension is located (Jansons and others, 1984).

**Production notes:**

Recorded production of 83 oz gold and 33 oz silver (Jansons and others, 1984).

**Reserves:**

**Additional comments:**

**References:**

Johnson, 1914; Johnson, 1915; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Jansons and others, 1984.

**Primary reference:** Johnson, 1915

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Singletary-O'Neil

**Site type:** Prospect

**ARDF no.:** AN116

**Latitude:** 61.04

**Quadrangle:** AN A-4

**Longitude:** 148.31

**Location description and accuracy:**

Somewhere along the shore of Harriman Fiord, exact location unknown. Prospect may be located in the Seward D-4 1:63,360-scale map. Latitude and longitude coordinates provided place the prospect in the central portion of Harriman Fiord.

**Commodities:**

**Main:** Au ?

**Other:**

**Ore minerals:** Gold ?

**Gangue minerals:**

**Geologic description:**

Bedrock is Late Cretaceous metasedimentary rocks of the Valdez Group. These metasedimentary rocks are locally intruded by Eocene dacite and minor rhyolite dikes.

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; mineralization (?) is hosted by Valdez Group metasedimentary rocks.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Brooks (1913) reported that some work had been done on the property.

**Production notes:****Reserves:****Additional comments:****References:**

Brooks, 1913; Cobb, 1979, OFR 79-1095.

**Primary reference:** Brooks, 1913

**Reporter(s):** D.P. Bickerstaff (USGS contractor)

**Last report date:** 07/30/98

**Site name(s):** Roth and Johnson; Fiord #1 and #2

**Site type:** Occurrence

**ARDF no.:** AN117

**Latitude:** 61.04

**Quadrangle:** AN A-4

**Longitude:** 148.27

**Location description and accuracy:**

Northwest of Mount Doran, near toe of Toboggan Glacier. Accurate within 2,000 ft (?).  
Locality A-36 of Jansons and others (1984).

**Commodities:**

**Main:** Au (?)

**Other:**

**Ore minerals:** Arsenopyrite, chalcopyrite, galena, pyrite

**Gangue minerals:** Quartz

**Geologic description:**

A quartz vein reportedly occurs between two felsic dikes in Late Cretaceous Valdez Group black slate and metasandstone. The vein is 30 inches wide, traceable for 600 ft, and contains pyrite, arsenopyrite, chalcopyrite, and galena (Roehm, 1938).

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; vein occurs between two felsic dikes in black slates and metasandstones of the Late Cretaceous Valdez Group.

**Deposit model:**

Chugach-type low-sulfide Au-quartz veins (Bliss, 1992; model 36a.1)

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

36a.1

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Unknown

**Production notes:****Reserves:****Additional comments:**

Janson and others (1984) could not locate the occurrence described by Roehm in 1938. However, placer gold and sulfides occur in the vicinity.

**References:**

Roehm, 1938; Jansons and others, 1984.

**Primary reference:** Roehm, 1938

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Olson and Viette; Dominick Ledge

**Site type:** Prospect

**ARDF no.:** AN118

**Latitude:** 61

**Quadrangle:** AN A-4

**Longitude:** 148.25

**Location description and accuracy:**

South slope of Mount Doran 1 mile south-southwest from summit, near a southward flowing drainage west of Lagoon Creek. Accurate within 1/2 mile. Locality A-35 of Jansons and others (1984).

**Commodities:**

**Main:** Ag, Au

**Other:**

**Ore minerals:** Chalcopyrite, gold, pyrite, sphalerite

**Gangue minerals:** Calcite, quartz

**Geologic description:**

According to Jansons and others (1984), quartz-calcite veins are found in a 43 inch wide shear zone cutting metasandstone and metasilstone of the Late Cretaceous Valdez Group. The veins are up to 2 ft wide and contain pyrite, chalcopyrite, sphalerite, and gold. Five chip samples contained up to 0.08 oz/ton Au and 0.02 oz/ton Ag.

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; veins cut metasandstones and metasilstones of the Late Cretaceous Valdez Group.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Explored by a 200 ft adit and some surface stripping. Jansons and others (1984) reported five chip samples contained up to 0.08 oz/ton Au and 0.02 oz/ton Ag. Low mineral development potential (Jansons and others, 1984).

**Production notes:**

No reported production.

**Reserves:****Additional comments:****References:**

Jansons and others, 1984.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** Lagoon Creek

**Site type:** Prospect

**ARDF no.:** AN119

**Latitude:** 61

**Quadrangle:** AN A-4

**Longitude:** 148.24

**Location description and accuracy:**

Near head of Lagoon Creek on the south flank of Mount Doran, 1 mile south of summit. Lagoon Creek flows southward into the Seward D-4 1:63,360 scale map. Accurate within 2,500 ft. Locality A-34 of Jansons and others (1984).

**Commodities:**

**Main:** Ag, Au

**Other:**

**Ore minerals:** Arsenopyrite, chalcopyrite, pyrite

**Gangue minerals:** Quartz

**Geologic description:**

According to Jansons and others (1984), quartz veins and stringers up to 1 ft wide are found in a well developed shear zone in hornfelsed Late Cretaceous metasedimentary rocks of the Valdez Group. The zone is about 12 ft wide along the contact of a 50 ft felsic dike with the Valdez Group rocks. Disseminated grains and massive pods of pyrite, with lesser arsenopyrite and chalcopyrite present.

Six samples contained up to 0.005 oz/ton Au and up to 0.05 oz/ton Ag (Jansons and others, 1984).

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; shear zone cuts metasedimentary rocks of the Late Cretaceous Valdez Group.

**Deposit model:**

Chugach-type low-sulfide Au-quartz veins (Bliss, 1992; model 36a.1 ?) or Epithermal Au vein ?

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

36a.1 ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Development limited to a 15 ft long adit. Jansons and others (1984) reported six samples contained up to 0.005 oz/ton Au and up to 0.05 oz/ton Ag, thus site has low potential for mineral development.

**Production notes:**

No reported production.

**Reserves:**

**Additional comments:**

**References:**

Jansons and others, 1984.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Mitchell and Myers

**Site type:** Prospect

**ARDF no.:** AN120

**Latitude:** 61.02

**Quadrangle:** AN A-4

**Longitude:** 148.2

**Location description and accuracy:**

West side of Barry Arm, 1.3 miles northeast of Peak 3,596 of Mount Doran. Accurate within 0.5 mile. Locality 57 of Cobb (1972) and locality 46 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Au, Pb

**Other:**

**Ore minerals:** Arsenopyrite, galena, gold, pyrite

**Gangue minerals:** Calcite, quartz

**Geologic description:**

Johnson (1914) reported a shattered felsic dike, 60 to 67 inches wide, is cemented by quartz stringers up to 8 inches wide that carry gold, arsenopyrite, galena, and pyrite. The felsic dike is Tertiary in age, and strikes N 50 E, and dips 53-75 W. A nearby 3 ft wide quartz vein strikes N 51 W with a 60 E dip, and contains gold, arsenopyrite, galena, and pyrite in a quartz-calcite gangue. Samples from the dike contain as much as 0.34 oz/ton Au (Johnson, 1914). The felsic dike cuts metasedimentary rocks of the Valdez Group.

**Alteration:**

**Age of mineralization:**

Tertiary or younger; vein cuts a shattered Tertiary felsic dike.

**Deposit model:**

Chugach-type low-sulfide Au-quartz veins (Bliss, 1992; model 36a.1 ?) or Epithermal Au vein ?

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

36a.1 ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Explored by a limited number of open cuts. Samples from the dike contain as much as 0.34 oz/ton Au (Johnson, 1914).

**Production notes:**

No known production.

**Reserves:**

**Additional comments:**

**References:**

Johnson, 1914; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095.

**Primary reference:** Johnson, 1914

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** H.G. Cloes

**Site type:** Prospect

**ARDF no.:** AN121

**Latitude:** 61.03

**Quadrangle:** AN A-4

**Longitude:** 148.17

**Location description and accuracy:**

West shore of Barry Arm, near mouth of unnamed drainage flowing eastward from Mount Doran. Accurate within 1,500 ft. Locality A-33 of Jansons and others (1984).

**Commodities:**

**Main:** Au (?), Cu, Pb

**Other:**

**Ore minerals:** Chalcopyrite, galena, gold (?), pyrite

**Gangue minerals:** Quartz

**Geologic description:**

Roehm (1936) reported a quartz vein that contains pyrite, chalcopyrite, and galena cutting Late Cretaceous metasedimentary rocks of the Valdez Group.

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; quartz vein cuts Late Cretaceous metasedimentary rocks of the Valdez Group.

**Deposit model:**

Chugach-type low-sulfide Au-quartz vein ? (Bliss, 1992; model 36a.1 ?) or Polymetallic veins ? (Cox and Singer, 1986; model 22c ?)

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

36a.1 ? or 22c ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Minor stripping reported (Roehm, 1936).

**Production notes:**

No reported production.

**Reserves:****Additional comments:****References:**

Roehm, 1936; Jansons and others, 1984.

**Primary reference:** Roehm, 1936

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Reiter and Olson; Point Doran; Bruno 1-3

**Site type:** Prospect

**ARDF no.:** AN122

**Latitude:** 61.07

**Quadrangle:** AN A-4

**Longitude:** 148.16

**Location description and accuracy:**

Prospect located near BM Point Doran. Accurate within 500 ft. Locality 56 of Cobb (1972), locality 45 of MacKevett and Holloway (1977), and locality A-32 of Jansons and others (1984).

**Commodities:**

**Main:** Au (?), Cu, Pb, Sb

**Other:**

**Ore minerals:** Chalcopyrite, galena, gold (?), stibnite

**Gangue minerals:** Quartz

**Geologic description:**

Data from J.W. Reiter and M.J. Olson indicated (1913) the presence of quartz veins in Late Cretaceous graywackes. The quartz veins, 6 to 30 inches thick, contain stibnite, chalcopyrite, and galena. One 8 to 36 inch thick vein can be traced 200 ft (Johnson, 1914).

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; veins cut Late Cretaceous graywackes.

**Deposit model:**

Chugach-type low-sulfide Au-quartz veins (Bliss, 1992; model 36a.1 ?) or Epithermal Au vein ?

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

36a.1 ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Probably minor surface prospecting.

**Production notes:**

No known production.

**Reserves:**

**Additional comments:**

**References:**

Johnson, 1914; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Hoekzema, 1984; Jansons and others, 1984.

**Primary reference:** Johnson, 1914

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** Barry Arm; Barry Arm antimony

**Site type:** Mine

**ARDF no.:** AN123

**Latitude:** 61.1

**Quadrangle:** AN A-4

**Longitude:** 148.15

**Location description and accuracy:**

Mine located on the east shore of Barry Arm, near BM Acute (south of Barry Glacier). Accurate within 1 mile. Locality 55 of Cobb (1972), locality 44 of MacKevett and Holloway (1977), and locality A-27 of Jansons and others (1984).

**Commodities:**

**Main:** Sb

**Other:**

**Ore minerals:** Stibnite

**Gangue minerals:**

**Geologic description:**

A zone of brecciated slate is present along a thrust fault that strikes N 68 E, and dips 45-65 N, in Cretaceous slate (Grant and Higgins, 1910). The 6 to 8 ft zone of brecciated slate is cemented by quartz and contains a layer, 1 to 8 inches thick of finely columnar and granular masses of stibnite with associated acicular stibnite crystals and quartz (Brooks, 1916). Stibnite accounts for as much as 1/3 of the mass locally. Ferruginous carbonate is intimately associated with the stibnite. Grant and Higgins (1910) report specimens indicate that the quartz vein was shattered and subsequently intruded by stibnite-bearing solutions. Bedrock is Late Cretaceous Valdez Group metasedimentary rocks.

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; vein cuts Late Cretaceous Valdez Group metasedimentary rocks.

**Deposit model:**

Simple Sb deposits (Cox and Singer, 1986; model 27d)

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

27d

**Production Status** Yes; small**Site Status:** Inactive**Workings/exploration:**

Development restricted to surface stripping and trenching.

**Production notes:**

Approximately 1,000 lbs of stibnite ore taken out before 1910 (Grant and Higgins, 1910).

**Reserves:****Additional comments:**

Possibility of a gold-bearing quartz vein about 5 miles from mouth of Barry Arm and 1 mile inland reported by Johnson (1918).

**References:**

Grant and Higgins, 1910; Brooks, 1916; Johnson, 1918; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Hoekzema, 1984; Jansons and others, 1984.

**Primary reference:** Grant and Higgins, 1910**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)**Last report date:** 07/30/98

**Site name(s):** Capitol Hill

**Site type:** Mine

**ARDF no.:** AN124

**Latitude:** 61.1

**Quadrangle:** AN A-4

**Longitude:** 148.15

**Location description and accuracy:**

Located on the eastern shore of Barry Arm, near BM Acute (south of Barry Glacier). Accurate within 0.5 miles. Locality 55 of Cobb (1972), locality 43 of MacKevett and Holloway (1977), and locality A-28 of Jansons and others (1984).

**Commodities:**

**Main:** Ag, Au, Cu

**Other:**

**Ore minerals:**

**Gangue minerals:**

**Geologic description:**

Quartz vein cuts metasedimentary rocks of the Late Cretaceous Valdez Group. The vein contains gold, silver, and copper (Martin, 1920).

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger based on age of bedrock.

**Deposit model:**

Chugach-type low-sulfide Au-quartz veins (Bliss, 1992; model 36a.1 ?) or Epithermal Au vein ?

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

36a.1 ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

A 40 ft tunnel was driven , but no ore was shipped (Martin, 1920).

**Production notes:**

No reported production.

**Reserves:****Additional comments:****References:**

Martin, 1920; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Jansons and others, 1984.

**Primary reference:** Martin, 1920

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Paymaster; Golden Seal

**Site type:** Prospect

**ARDF no.:** AN125

**Latitude:** 61.09

**Quadrangle:** AN A-3

**Longitude:** 148.12

**Location description and accuracy:**

Located on the east side of Barry Arm, on the slope 1.2 miles northwest of the Mount Curtis summit. Accurate within 0.5 miles. Locality 58 of Cobb (1972), locality 47 of MacKevett and Holloway (1977), and locality A-26 of Jansons and others (1984).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:** Quartz

**Geologic description:**

Data supplied by the Peter Black, who located the site in 1912, indicated a quartz vein 1.5 to 3 ft thick that strikes north and is traceable for 200 to 300 ft. Samples as rich as 4.25 oz/ton Au reported (Johnson, 1914). The bedrock in the area is metasedimentary rocks of the Late Cretaceous Valdez Group.

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; the vein cuts metasedimentary rocks of the Late Cretaceous Valdez Group.

**Deposit model:**

Chugach-type low-sulfide Au-quartz veins (Bliss, 1992; model 36a.1 ?) or Epithermal Au vein ?

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

36a.1 ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Samples as rich as 4.25 oz/ton Au reported (Johnson, 1914).

**Production notes:**

No production.

**Reserves:**

**Additional comments:**

**References:**

Johnson, 1914; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Jansons and others, 1984.

**Primary reference:** Johnson, 1914

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Mount Curtis

**Site type:** Occurrence

**ARDF no.:** AN126

**Latitude:** 61.08

**Quadrangle:** AN A-3

**Longitude:** 148.1

**Location description and accuracy:**

3,000 ft northwest of Mount Curtis summit. Accurate within 2,500 ft. Locality A-25 of Jansons and others (1984).

**Commodities:**

**Main:** Ag, Au

**Other:**

**Ore minerals:** Arsenopyrite, pyrite

**Gangue minerals:** Quartz

**Geologic description:**

According to Jansons and others (1984), quartz veins can be found cutting massive metasediments and slate of the Late Cretaceous Valdez Group. The veins are from 1 to 3 ft thick and contain minor pyrite and arsenopyrite. Only traces of gold and silver were found in the three grab samples.

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; veins cut massive metasediments and slates of the Late Cretaceous Valdez Group.

**Deposit model:**

Chugach-type low-sulfide Au-quartz veins (Bliss, 1992; model 36a.1 ?) or Epithermal Au vein ?

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

36a.1 ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Only traces of gold and silver were found in the three grab samples, thus site has low mineral development potential (Jansons and others, 1984).

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Jansons and others, 1984.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** Simonton & Mills; Alaska Wonder Ledge

**Site type:** Prospect

**ARDF no.:** AN127

**Latitude:** 61.07

**Quadrangle:** AN A-3

**Longitude:** 148.11

**Location description and accuracy:**

On east side of Barry Arm, 5,000 ft southwest of Mt. Curtis summit. Accurate within 0.5 miles. Locality 59 of Cobb (1972), locality 48 of MacKevett and Holloway (1977), and locality A-23 of Jansons and others (1984).

**Commodities:**

**Main:** Ag, Au, Cu, Pb

**Other:**

**Ore minerals:** Azurite, chalcopyrite, galena, gold, malachite, pyrite, sphalerite

**Gangue minerals:** Quartz

**Geologic description:**

North striking quartz veins found in Late Cretaceous Valdez Group graywacke and slate. The vein, 6 to 69 inches thick, can be traced for 200 ft and contains gold, galena, pyrite, and chalcopyrite. The primary vein is intersected by another quartz vein, approximately 4 ft thick (Johnson, 1914). Jansons and others (1984) reported traces of gold and up to 0.25 oz/ton Ag in samples.

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; veins cut Late Cretaceous Valdez Group graywackes and slates.

**Deposit model:**

Chugach-type low-sulfide Au-quartz veins (Bliss, 1992; model 36a.1 ?) or Epithermal Au vein ?

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

36a.1 ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Surface stripping was the only development at the time of the visit of Johnson (1914). Jansons and others (1984) report traces of gold and up to .025 oz/ton Ag found in the three samples that were taken. Low mineral development potential.

**Production notes:**

No reported production.

**Reserves:**

**Additional comments:**

**References:**

Johnson, 1914; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Jansons and others, 1984.

**Primary reference:** Johnson, 1914

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Walters, Brasslin, & Atkinson

**Site type:** Prospect

**ARDF no.:** AN128

**Latitude:** 61.05

**Quadrangle:** AN A-3

**Longitude:** 148.06

**Location description and accuracy:**

On the peninsula between College Fiord and Barry Arm, 2 miles west of BM Fable. Accurate within 0.5 mile. Locality 60 of Cobb (1972), locality 49 of MacKevett and Holway (1977), and locality A-24 of Jansons and others (1984).

**Commodities:**

**Main:** Au, Pb, Zn

**Other:**

**Ore minerals:** Arsenopyrite, galena, gold, sphalerite

**Gangue minerals:** Quartz

**Geologic description:**

Quartz vein, 2 to 8 inches thick, containing arsenopyrite, galena, gold, and sphalerite, cuts Late Cretaceous Valdez Group slate and graywacke. Vein strikes N 11 to 40 E and has a nearly vertical dip. Assays up to 4.25 oz/ton Au reported (Johnson, 1914).

**Alteration:**

Oxidation evident at outcrop (Johnson, 1914).

**Age of mineralization:**

Late Cretaceous or younger; veins cut Late Cretaceous Valdez Group slates and graywackes.

**Deposit model:**

Chugach-type low-sulfide Au-quartz veins (Bliss, 1992; model 36a.1 ?) or Epithermal Au vein ?

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

36a.1 ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Explored by surface excavations and 77 ft of underground workings. Assays up to 4.25 oz/ton Au reported (Johnson, 1914).

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Johnson, 1914; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Jansons and others, 1984.

**Primary reference:** Johnson, 1914

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Last Chance No. 2; Last Chance

**Site type:** Prospect

**ARDF no.:** AN129

**Latitude:** 61.02

**Quadrangle:** AN A-3

**Longitude:** 148.08

**Location description and accuracy:**

Located on the western edge of Barry Arm, 1.6 miles north-northwest of BM Ken - southern tip of Pakenham Point. Accurate within 0.5 mile. Locality 61 of Cobb (1972), locality 50 of MacKevett and Holloway (1977), and locality A-22 of Jansons and others (1984).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Arsenopyrite, gold

**Gangue minerals:** Quartz

**Geologic description:**

Quartz vein cuts Late Cretaceous massive graywacke and minor slate of the Valdez Group. The quartz vein is up to 3 ft thick, strikes N 10 E, and dips 10 W. The vein can be traced for 150 ft and contains large quartz crystals, arsenopyrite, and gold. Assays indicate 0.63 oz/ton Au (Johnson, 1914).

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; vein cuts massive graywackes and minor slates of the Late Cretaceous Valdez Group.

**Deposit model:**

Chugach-type low-sulfide Au-quartz vein ? (Bliss, 1992; model 36a.1 ?) or Polymetallic veins ? (Cox and Singer, 1986; model 22c ?)

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

36a.1 ? or 22c ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Assays indicate 0.63 oz/ton Au (Johnson, 1914). Ground quartz vein yielded free gold.

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Johnson, 1914; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Jansons and others, 1984.

**Primary reference:** Johnson, 1914

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Cameron; Charles Cameron

**Site type:** Prospect

**ARDF no.:** AN130

**Latitude:** 61.01

**Quadrangle:** AN A-3

**Longitude:** 148.08

**Location description and accuracy:**

Located 0.5 mile west Pakenham Point, where Barry Arm enters College Fiord. Accurate within 0.5 mile. Locality 62 of Cobb (1972), locality 50 of MacKevett and Holloway (1977), and locality A-21 of Jansons and others (1984).

**Commodities:**

**Main:** Ag, Au, Cu

**Other:**

**Ore minerals:** Arsenopyrite, chalcopyrite, gold, pyrite

**Gangue minerals:** Calcite, quartz

**Geologic description:**

Quartz vein, 10 to 15 inches thick, cuts Late Cretaceous Valdez Group metasedimentary rocks. Vein strikes north, and dips 50 E, and is sparsely mineralized and contains calcite, an unidentified carbonate mineral, arsenopyrite, chalcopyrite, pyrite, and free gold. Another quartz vein 8 to 15 inches thick is exposed nearby (Johnson, 1914).

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; veins cut Late Cretaceous Valdez Group metasedimentary rocks.

**Deposit model:**

Chugach-type low-sulfide Au-quartz veins (Bliss, 1992; model 36a.1)

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

36a.1

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

Explored by about 100 ft of stripping at surface and a 25 ft adit in 1913 (Johnson, 1914).

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Johnson, 1914; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Jansons and others, 1984.

**Primary reference:** Johnson, 1914

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** Griset and Benson; Eureka and Spruce Groups

**Site type:** Prospect

**ARDF no.:** AN131

**Latitude:** 61.02

**Quadrangle:** AN A-3

**Longitude:** 148.05

**Location description and accuracy:**

West shore of College Fiord, 1.6 miles north of BM Ken - southern tip of Pakenham Point. Accurate within 0.5 miles. Locality 63 from Cobb (1972), locality 51 of MacKevett and Holloway (1977), and locality A-20 of Jansons and others (1984).

**Commodities:**

**Main:** Au (?)

**Other:**

**Ore minerals:** Gold (?)

**Gangue minerals:** Quartz

**Geologic description:**

A nearly vertical quartz vein cuts the metasedimentary rocks of the Late Cretaceous Valdez Group. The vein has an average thickness of 3 ft and has been traced for about 300 ft (Johnson, 1914).

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; vein cuts metasedimentary rocks of the Late Cretaceous Valdez Group.

**Deposit model:**

Chugach-type low-sulfide Au-quartz vein ? (Bliss, 1992; model 36a.1 ?)

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

36a.1 ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Explored by 30 ft crosscut and surface excavations (Johnson, 1914).

**Production notes:****Reserves:****Additional comments:**

The Q. & Q. prospect (ARDF number AN132) may be another name for this prospect.

**References:**

Johnson, 1914; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Jansons and others, 1984.

**Primary reference:** Johnson, 1914

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Q. & Q.**Site type:** Prospect**ARDF no.:** AN132**Latitude:** 61.06**Quadrangle:** AN A-3**Longitude:** 147.97**Location description and accuracy:**

Somewhere along the shore of College Fiord, exact location unknown. Cobb (1979) postulated that the prospect may actually be the Cann and Minor prospect (ARDF number AN0134), or the Grisct and Benson prospect (ARDF number AN131), or neither. Latitude and longitude coordinates provided place the prospect in the central portion of College Fiord.

**Commodities:****Main:** Au ?**Other:****Ore minerals:** Gold ?**Gangue minerals:****Geologic description:**

Bedrock is metasedimentary rocks of the Late Cretaceous Valdez Group. These metasedimentary rocks are locally intruded by Eocene dacite and minor rhyolite dikes in the vicinity of College Fiord.

**Alteration:****Age of mineralization:**

Late Cretaceous or younger; mineralization (?) is hosted by Valdez Group metasedimentary rocks.

**Deposit model:**

Chugach-type low-sulfide Au-quartz vein ? (Bliss, 1992; model 36a.1 ?)

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

36a.1 ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Martin (1920) reported that a 150 foot tunnel was driven in 1918.

**Production notes:**

**Reserves:**

**Additional comments:**

Cobb (1979) postulated that the prospect may actually be the Cann and Minor prospect (ARDF number AN134), or the Griset and Benson prospect (ARDF number AN131), or neither.

**References:**

Martin, 1920; Cobb, 1979, OFR 79-1095.

**Primary reference:** Martin, 1920

**Reporter(s):** D.P. Bickerstaff (USGS contractor)

**Last report date:** 07/30/98

**Site name(s):** Osceola

**Site type:** Prospect

**ARDF no.:** AN133

**Latitude:** 61.1

**Quadrangle:** AN A-3

**Longitude:** 147.9

**Location description and accuracy:**

Prospect located on east shore of College Fiord. Prospect location is approximated, accuracy is unknown.

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:** Quartz

**Geologic description:**

Gold believed to be present in Osceola vein (Johnson, 1918). Country rock is metasedimentary rocks of the Late Cretaceous Valdez Group.

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; the Osceola vein cuts metasedimentary rocks of the Late Cretaceous Valdez Group.

**Deposit model:**

Chugach-type low-sulfide Au-quartz vein ? (Bliss, 1992; model 36a.1 ?)

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

36a.1 ?

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

The main tunnel is believed to have been about 400 ft long. In 1917, five men were working the prospect (Johnson, 1919).

**Production notes:**

No recorded production.

**Reserves:****Additional comments:**

Information concerning the location and workings of this site is vague.

**References:**

Johnson, 1918; Johnson, 1919; Cobb, 1979, OFR 79-1095.

**Primary reference:** Johnson, 1919

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Cann and Minor

**Site type:** Prospect

**ARDF no.:** AN134

**Latitude:** 61.09

**Quadrangle:** AN A-3

**Longitude:** 147.9

**Location description and accuracy:**

Eastern shore of College Fiord, about 2.5 miles northeast of Coghill Point. Accurate within 1 mile. Locality 64 from Cobb (1972), locality 52 of MacKevett and Holloway (1977), and locality A-19 of Jansons and others (1984).

**Commodities:**

**Main:** Au(?), Cu, Zn

**Other:**

**Ore minerals:** Chalcopyrite, pyrite, sphalerite

**Gangue minerals:** Calcite

**Geologic description:**

Bedrock of Late Cretaceous metasedimentary rocks of the Valdez Group is cut by a Tertiary felsic dike. Two quartz veins up to 6 ft thick are found around the shattered felsic dike. Veins slightly mineralized with calcite, sphalerite, chalcopyrite, and presumably gold (Johnson, 1914).

**Alteration:**

**Age of mineralization:**

Tertiary or younger, the quartz veins are associated with the felsic dike.

**Deposit model:**

Chugach-type low-sulfide Au-quartz veins (Bliss, 1992; model 36a.1 ?) or Epithermal Au vein ?

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

36a.1 ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Explored by 65 ft adit along a fault that cuts both quartz and dike rock, and surface stripping prior to 1913 (Johnson, 1914).

**Production notes:**

**Reserves:**

**Additional comments:**

Apparently an unsuccessful gold lode prospect. The Q. & Q. prospect (ARDF number AN132) may be another name for this prospect.

**References:**

Johnson, 1914; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Jansons and others, 1984.

**Primary reference:** Johnson, 1914

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** Lafayette Glacier**Site type:** Occurrence**ARDF no.:** AN135**Latitude:** 61.05**Quadrangle:** AN A-3**Longitude:** 147.85**Location description and accuracy:**

Occurrence in a glacial stream that flows westward from the terminus of Lafayette Glacier. Accurate within 1 mile. Locality A-17 and P-37 of Jansons and others (1984) and locality P-34 of Hoekzema and Fechner (1986).

**Commodities:****Main:** Ag, Au**Other:****Ore minerals:** Gold, pyrite**Gangue minerals:** Quartz**Geologic description:**

Jansons and others (1984) reported disseminated, very fine-grained gold in poorly washed fluvial glacial gravels. A large volume of gravel occurs in the stream flowing from Lafayette Glacier and large boulders are present. The bedrock in the area is metasedimentary rocks of the Late Cretaceous Valdez Group. Quartz vein material and metasedimentary float rock contain pyrite, a trace of gold, and up to 0.12 oz/ton Ag (Jansons and others, 1984).

**Alteration:****Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

There have been no placer workings or production to date and potential for mineral development is low (Jansons and others, 1984). An alluvium sample contained 0.001 oz/cubic yard Au. Two float samples contained a trace of gold and 0.03 and 0.12 oz/ton Ag.

**Production notes:**

No recorded production.

**Reserves:**

**Additional comments:**

**References:**

Jansons and others, 1984; Hoekzema and Fechner, 1986.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Unnamed (near Crescent Glacier)

**Site type:** Occurrence

**ARDF no.:** AN136

**Latitude:** 61.02

**Quadrangle:** AN A-3

**Longitude:** 147.91

**Location description and accuracy:**

At terminus of Crescent Glacier. Accurate within 1,000 ft. Locality A-18 of Jansons and others (1984).

**Commodities:**

**Main:** Ag, Au

**Other:**

**Ore minerals:** Arsenopyrite, chalcopyrite, pyrite

**Gangue minerals:** Quartz

**Geologic description:**

Quartz float contains pyrite, arsenopyrite, and chalcopyrite. A float sample contained no detectable gold and 0.03 oz/ton Ag. Bedrock in the vicinity is the Late Cretaceous metasedimentary rocks of the Valdez Group. A minor amount of placer gold present (Jansons and others, 1984).

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger.

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Quartz float sample contained no detectable gold and 0.03 oz/ton Ag. Placer gold was present in minor amounts. Jansons and others (1984) reported low mineral development potential.

**Production notes:**

No production reported.

**Reserves:****Additional comments:****References:**

Jansons and others, 1984.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Unnamed (northwestern tributary to Jonah Bay)

**Site type:** Occurrence

**ARDF no.:** AN137

**Latitude:** 61.04

**Quadrangle:** AN A-2

**Longitude:** 147.68

**Location description and accuracy:**

Nearly 2 miles up an unnamed stream flowing southward into the northwest corner of Jonah Bay. Accurate within 1 mile. Locality P-33 of Jansons and others (1984) and locality P-35 of Hoekzema and Fechner (1986).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:**

**Geologic description:**

According to Jansons and others (1984), fine gold is disseminated in poorly washed fluvial glacial gravels derived from a glacier on north and east flanks of Unakwik Peak. An alluvium sample contained 0.00013 oz Au/cubic yard. The bedrock on Unakwik Peak is metasedimentary rocks of the Late Cretaceous Valdez Group.

**Alteration:**

**Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

No workings are known to have occurred to date and mineral development potential is reported to be low. An alluvial sample contained 0.00013 oz Au/cubic yard (Jansons and others, 1986).

**Production notes:**

No production reported.

**Reserves:****Additional comments:****References:**

Jansons and others, 1984; Hoekzema and Fechner, 1986.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Unnamed (western tributary to Unakwik Inlet)

**Site type:** Occurrence

**ARDF no.:** AN138

**Latitude:** 61.07

**Quadrangle:** AN

**Longitude:** 147.63

**Location description and accuracy:**

Along unnamed eastward flowing stream on west side of Unakwik Inlet across from Miners Bay. Accurate within 1 mile. This is locality P-32 of Janson and others (1984) and locality P-33 of Hoekzema and Fechner (1986).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:**

**Geologic description:**

Jansons and others (1984) reported fine gold disseminated in poorly washed fluvial glacial gravels. An alluvium sample contained 0.0021 oz Au/cubic yard. The gravels contain boulders up to 5 ft in diameter and moderate clay hardpan. Bedrock in the area is metasedimentary rocks of the Late Cretaceous Valdez Group.

**Alteration:**

**Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

No workings reported. An alluvium sample contained 0.0021 oz Au/cubic yard. Grade is likely low, but local concentrations of economic significance may exist. Moderate potential for small mining operation (Jansons and others, 1984).

**Production notes:**

No production reported.

**Reserves:****Additional comments:****References:**

Jansons and others, 1984; Hoekzema and Fechner, 1986.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** Northwest Fork of Coghill River

**Site type:** Occurrence

**ARDF no.:** AN139

**Latitude:** 61.14

**Quadrangle:** AN A-2

**Longitude:** 147.74

**Location description and accuracy:**

Northwest fork of the Coghill River (north of Coghill Lake). Accurate within 2 miles. Locality P-38 of Jansons and others (1984) and locality P-32 of Hoekzema and Fechner (1986).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:**

**Geologic description:**

According to Jansons and others (1984), gold is found in thin, poorly to moderately sorted alluvial gravels and concentrated on and in slate bedrock exposed in the canyon of the northwest fork of Coghill River. A small amount of gravel occurs in the canyon, but a substantial amount has accumulated above its junction with the main fork of the Coghill River.

Three alluvium samples contained 0.0004 to 0.0063 oz Au/cubic yard. Gold nuggets up to 1/16 in diameter was recovered (Jansons and others, 1984).

**Alteration:**

**Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Three alluvium samples contained 0.0004 to 0.0063 oz Au/cubic yard. Gold up to 1/16 in diameter was recovered. Considerable arsenopyrite was also recovered (Jansons and others, 1984).

**Production notes:**

There is no recorded production, however Hoekzema and Fechner (1986) report the potential for mineral development to be moderate for suction dredging. The grades are low to marginal, but there is a good possibility of identifying local economic concentrations of gold.

**Reserves:**

**Additional comments:**

**References:**

Jansons and others, 1984; Hoekzema and Fechner, 1986.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Unnamed (near Dartmouth Glacier)

**Site type:** Occurrence

**ARDF no.:** AN140

**Latitude:** 61.17

**Quadrangle:** AN A-2

**Longitude:** 147.66

**Location description and accuracy:**

On slope 1 mile north-northeast from terminus of Dartmouth Glacier. Accurate within 3,000 ft. Locality A-16 of Jansons and others (1984).

**Commodities:**

**Main:** Ag, As, Au

**Other:**

**Ore minerals:** Aresenopyrite, galena, pyrite

**Gangue minerals:** Quartz

**Geologic description:**

Jansons and others (1984) reported several sub-parallel quartz veins in shear zones in and along margin of a small granitic stock. The veins are 2 to 12 inches wide and contain disseminated grains and massive pods of arsenopyrite and lesser disseminated galena and pyrite. The granitic stock intrudes metasedimentary rocks of the Late Cretaceous Valdez Group.

Three chip samples averaged 0.15 oz/ton Au and 0.37 oz/ton Ag. Three grab samples contained traces of gold and up to 0.03 oz/ton Ag (Jansons and others, 1984).

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger; shear zones and veins cut a small granitic stock which intrudes metasedimentary rocks of the Late Cretaceous Valdez Group.

**Deposit model:**

Chugach-type low-sulfide Au-quartz veins (Bliss, 1992; model 36a.1 ?) or Epithermal Au vein ?

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

26a.1 ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Three chip samples averaged 0.15 oz/ton Au and 0.37 oz/ton Ag. Three grab samples contained traces of gold and up to 0.03 oz/ton Ag. This location has moderate mineral development potential (Jansons and others, 1984).

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Jansons and others, 1984.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Unnamed (near Yale Glacier)

**Site type:** Occurrence

**ARDF no.:** AN141

**Latitude:** 61.19

**Quadrangle:** AN A-2

**Longitude:** 147.67

**Location description and accuracy:**

Three miles west of Mount Castner summit. Accurate within half mile. Locality A-45 of Jansons and others (1984).

**Commodities:**

**Main:** As, Sb

**Other:**

**Ore minerals:** Stibnite

**Gangue minerals:** Quartz

**Geologic description:**

A 4-inch-wide quartz vein containing stibnite cuts Tertiary granite. The granite intrudes Late Cretaceous metasedimentary rocks of the Valdez Group. A USGS grab sample contained 0.3 percent As and 100 ppm Sb (Jansons and others, 1984).

**Alteration:**

**Age of mineralization:**

Tertiary or younger; vein cuts Tertiary granite.

**Deposit model:**

Simple Sb deposit (Cox and Singer, 1986; model 27d)

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

27d

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Jansons and others (1984) reported a U.S.G.S. grab sample contained 0.3 percent As and 100 ppm Sb.

**Production notes:****Reserves:****Additional comments:****References:**

Jansons and others, 1984.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Unnamed (near Mears Glacier)

**Site type:** Occurrence

**ARDF no.:** AN142

**Latitude:** 61.19

**Quadrangle:** AN A-2

**Longitude:** 147.49

**Location description and accuracy:**

West side of Mears Glacier, 2.2 miles west-northwest of Mount Grosvenor summit.  
Accurate within 2,000 ft. Locality A-44 of Jansons and others (1984).

**Commodities:**

**Main:** Ag, As, Mo

**Other:** Cu

**Ore minerals:** Pyrite

**Gangue minerals:** Quartz

**Geologic description:**

Late Cretaceous metasedimentary rocks of the Valdez Group are cut by a 1 ft wide quartz vein. The vein is heavily limonite-stained and has local copper staining. Pyrite is the only sulfide mineral observed. A USGS grab sample contained 30 ppm Ag, 700 ppm As, and 10 ppm Mo (Jansons and others, 1984).

**Alteration:**

Oxidation of Fe and Cu minerals.

**Age of mineralization:**

Late Cretaceous or younger; veins cuts Late Cretaceous metasedimentary rocks of the Valdez Group.

**Deposit model:**

Polymetallic veins ? (Cox and Singer, 1986; model 22c ? )

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

22c ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Jansons and others (1984) reported a USGS grab sample contained 30 ppm Ag, 700 ppm As, and 10 ppm Mo.

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Jansons and others, 1984.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** War Eagle

**Site type:** Occurrence

**ARDF no.:** AN143

**Latitude:** 61.12

**Quadrangle:** AN A-1

**Longitude:** 147.36

**Location description and accuracy:**

1,700 ft west of Miners Creek headwaters, south of Pedro Glacier. Accurate within 1,000 ft. Locality A-13 of Jansons and others (1984).

**Commodities:**

**Main:** Cu

**Other:**

**Ore minerals:** Copper minerals

**Gangue minerals:**

**Geologic description:**

No data available. Country rock is metasedimentary rock of the Cretaceous Valdez Group.

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger based on the age of the country rock.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Unknown

**Production notes:**

**Reserves:****Additional comments:**

Very little data for this site.

**References:**

Jansons and others, 1984.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Miners River; Miners River Nickel; Miners Bay

**Site type:** Prospect

**ARDF no.:** AN144

**Latitude:** 61.09

**Quadrangle:** AN A-2

**Longitude:** 147.41

**Location description and accuracy:**

Located near the mouth of Miners River, on the east side of Unakwik Bay. It should be noted that the Cobb (1972) locality is plotted too far upstream on MF 409. Accurate within 1 mile. Locality 65 of Cobb (1972), locality 53 of MacKevett and Holloway (1977), locality 73 of Hoekzema (1984) and locality A-14 of Jansons and others (1984).

**Commodities:**

**Main:** Co, Cu, Ni

**Other:**

**Ore minerals:** Chalcopyrite, pentlandite, pyrrhotite

**Gangue minerals:**

**Geologic description:**

A 'vein' or zone that has no sharply defined walls in the diorite country rock has been pyrrhotitized in a zone 10-20 ft wide. This sulfide-bearing rock is iron-stained and contains pegmatitic veins which also carry pyrrhotite. These veins are 0.25 to 2 inches in width and are not sharply defined (Grant, 1906). The pyrrhotite disseminated in the pegmatitic veins carry nickel, cobalt, and copper (Hoekzema and Fechner, 1986).

Chip samples contained from 400 ppm to 2,000 ppm Ni, 93 ppm to 2,000 ppm Co, and 100 ppm to 2,000 ppm Cu. Grab samples contained from 20 ppm to 2,000 ppm Ni, 36 to 800 ppm Co, and 20 ppm to 1,000 ppm Cu. A 260 lb bulk sample contained 2,500 ppm Ni, 200 ppm Co, and 3,100 ppm Cu (Hoekzema, 1984).

**Alteration:**

Pyritization of diorite country rock.

**Age of mineralization:**

Tertiary or younger.

**Deposit model:**

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

**Production Status** Undetermined

**Site Status:** Inactive

**Workings/exploration:**

Exploration consists of an 8 ft and an 218 ft adit. Chip samples contained from 400 ppm to 2,000 ppm Ni, 93 ppm to 2,000 ppm Co, and 100 ppm to 2,000 ppm Cu. Grab samples contained from 20 ppm to 2,000 ppm Ni, 36 to 800 ppm Co, and 20 ppm to 1,000 ppm Cu. A 260 lb bulk sample contained 2,500 ppm Ni, 200 ppm Co, and 3,100 ppm Cu. These results indicate low mineral potential (Hoekzema, 1984).

**Production notes:**

**Reserves:**

Webber and Rutledge (1944) stated that inferred reserves are 11,000 tons at 0.2 percent Ni and 0.2 percent Cu.

**Additional comments:**

Cobb (1972) located this site north of Miners Lake, however Grant (1906) whom serves as Cobb primary references, indicate that it is where Miners River enters into Miners Bay.

**References:**

Grant, 1906; Grant and Higgins, 1910; Webber and Rutledge, 1944; Moffit and Fellows, 1950; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Hoekzema, 1984; Jansons and others, 1984; Hoekzema and Fechner, 1986.

**Primary reference:** Hoekzema, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Miners River; Miners Bay Discovery

**Site type:** Occurrence

**ARDF no.:** AN145

**Latitude:** 61.11

**Quadrangle:** AN A-2

**Longitude:** 147.38

**Location description and accuracy:**

Includes the length of Miners River from Pedro Glacier to Miners Lake. Locality P-31 of Jansons and others (1984) and locality P-31 of Hoekzema and Fechner (1984).

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:**

**Geologic description:**

Gold present in Quaternary alluvial gravels (Jansons and others, 1984). The alluvial gravels are derived from metasedimentary rocks of the Late Cretaceous Valdez Group. A 0.1 cubic yard sample was found to contain 0.005 oz Au/cubic yard (Hoekzema and Fechner, 1984).

**Alteration:**

**Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

A 0.1 cubic yard sample found to contain 0.005 oz Au/cubic yard (Hoekzema and Fechner, 1984).

**Production notes:****Reserves:**

Moderate mineral development potential (Jansons and others, 1984).

**Additional comments:****References:**

Jansons and others, 1984; Hoekzema and Fechner, 1986.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Brown Bear; Norris Lead-Zinc Inc.

**Site type:** Prospect

**ARDF no.:** AN146

**Latitude:** 61.09

**Quadrangle:** AN A-1

**Longitude:** 147.37

**Location description and accuracy:**

On slope south of Miners River, 2,500 ft northwest of Peak 1,290. Accurate within 2,600 ft. Locality A-12 of Jansons and others (1984).

**Commodities:**

**Main:** Ag, Au, Pb, Zn

**Other:**

**Ore minerals:** Galena, pyrite, sphalerite

**Gangue minerals:** Calcite, quartz

**Geologic description:**

Jansons and others (1984) reported two mineralized quartz veins in sandstone, siltstone, and mudstone of the Tertiary Orca Group. The veins are from a few inches to 18 inches wide and contain galena, sphalerite, pyrite, and calcite. Two grab samples contain from 4.45 to 17.78 percent Pb, 12.29 to 28.88 percent Zn, 3.6 to 28.8 oz/ton Ag, and 0.08 to 0.19 oz /ton Au (Pilgrim, 1930).

**Alteration:**

**Age of mineralization:**

Paleocene or younger; veins cut sandstone, siltstone, and mudstone of the Tertiary Orca Group.

**Deposit model:**

Polymetallic veins ? (Cox and Singer, 1986; model 22c ? )

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

22c ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

A 6 ft long adit is the extent of the development. Pilgrim (1930) reported two grab samples contained from 4.45 to 17.78 percent Pb, 12.29 to 28.88 percent Zn, 3.6 to 28.8 oz/ton Ag, and 0.08 to 0.19 oz /ton Au.

**Production notes:**

**Reserves:**

Inferred reserves are 400 tons at 2.5 percent Zn, 0.8 percent Pb, and 8.5 ppm Ag (Dahners, 1947).

**Additional comments:**

**References:**

Pilgrim, 1930; Dahners, 1947; Jansons and others, 1984.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s): Miners River No. 1****Site type:** Occurrence**ARDF no.:** AN147**Latitude:** 61.09**Quadrangle:** AN A-1**Longitude:** 147.33**Location description and accuracy:**

On north-facing slope along an unnamed north-northwest flowing tributary of an eastern fork of Miners River. NW1/4 sec. 33, T. 12 N., R. 12 E., of the Seward Meridian. Accuracy within 2,600 ft. Locality A-9 of Jansons and others (1984).

**Commodities:****Main:** Ag, As, Au, Cu, Pb, Zn**Other:****Ore minerals:** Arsenopyrite, chalcopyrite, galena, sphalerite**Gangue minerals:** Calcite, quartz**Geologic description:**

Sandstone, siltstone, and mudstone of the Tertiary Orca Group are cut by a 450 ft mineralized zone that contains quartz and calcite veinlets. Float rocks found in general area contains sphalerite, galena, arsenopyrite, and chalcopyrite. Three chip samples contained 1.6 to 4.1 ppm Ag and 26 ppm to 0.18 percent As. Selected grab sample contained 4.8 percent Zn, 1.7 percent Pb, 0.5 percent Cu, 55 ppm Ag, 1.7 ppm Au, and 16 percent As (Jansons, 1984).

**Alteration:****Age of mineralization:**

Paleocene or younger; mineralized zone cuts sandstones, siltstones, and mudstones of the Tertiary Orca Group.

**Deposit model:**

Polymetallic veins ? (Cox and Singer, 1986; model 22c ? )

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

22c ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Jansons and others (1984) reported that three chip samples contain 1.6 to 4.1 ppm Ag and 26 ppm to 0.18 percent As. A selected grab sample contained 4.8 percent Zn, 1.7 percent Pb, 0.5 percent Cu, 55 ppm Ag, 1.7 ppm Au, and 16 percent As. Reportedly low potential for mineral development.

**Production notes:**

No production.

**Reserves:**

**Additional comments:**

**References:**

Jansons and others, 1984.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s): Four-in-One****Site type:** Prospect**ARDF no.:** AN148**Latitude:** 61.09**Quadrangle:** AN A-1**Longitude:** 147.29**Location description and accuracy:**

Prospect is on the north-facing slope above the eastern tributary of Miners River, about 1.1 miles west of Kadin Lake. Accurate within 1 mile. Locality A-8 of Jansons and others (1984) and locality 72 of Hoekzema (1984).

**Commodities:****Main:** Ag, Au, Cu, Ni**Other:****Ore minerals:** Chalcopyrite, pyrite**Gangue minerals:****Geologic description:**

Two mineralized shear zones in conglomerate of the Early Tertiary Orca Group range from 5 to 100 ft wide and contain sulfide veinlets and pods of chalcopyrite and pyrite.

Five chip samples contained from 20 ppm to 3 percent Cu and 2.6 to 46 ppm Ag. Four grab samples contained from 195 ppm to 0.94 percent Cu, 2.7 to 8.8 ppm Ag, and 9 ppm to 0.18 percent Ni (Jansons and others, 1984).

**Alteration:****Age of mineralization:**

Paleocene or younger based on the age of the bedrock.

**Deposit model:****Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):****Production Status** None**Site Status:** Inactive

**Workings/exploration:**

According to Jansons and others (1984), a 60 ft adit and open pits were present. The U. S. Bureau of Mines (Jansons and others, 1984) reported five chip samples contained from 20 ppm to 3 percent Cu and 2.6 to 46 ppm Ag. Four grab samples contained from 195 ppm to 0.94 percent Cu, 2.7 to 8.8 ppm Ag, and 9 ppm to 0.18 percent Ni. The potential for mineral development is low.

**Production notes:**

There has been no reported production.

**Reserves:**

Hoekzema (1984) reported that the inferred reserves are 33,500 tons at 0.22 percent Cu and 21.2 ppm Ag. The potential for mineral development is low.

**Additional comments:****References:**

Hoekzema, 1984; Jansons and others, 1984.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Miners River No. 2

**Site type:** Occurrence

**ARDF no.:** AN149

**Latitude:** 61.08

**Quadrangle:** AN A-1

**Longitude:** 147.35

**Location description and accuracy:**

Northwest flank of glacier covered mountain that separates the Miners River drainage and the Wells Bay drainage. The glacier feeds the headwaters of both drainages. Accurate within 1 mile. Locality A-10 of Jansons and others (1984).

**Commodities:**

**Main:** Ag, As, Au, Pb, Zn

**Other:**

**Ore minerals:** Arsenopyrite, galena, pyrite, sphalerite

**Gangue minerals:**

**Geologic description:**

Shear zones cut steeply dipping sandstone, siltstone, and mudstone of the Tertiary Orca Group. The shear zones are reported by Jansons and others (1984) to be from a few inches to 150 ft wide. Galena, sphalerite, and arsenopyrite occur in 0.25 to 6 inch wide veinlets. Pyrite occurs as disseminations and pods in the shear zones.

Chip, grab, and shallow core samples contained 14 ppm to 19 percent Zn, 1 ppm to 17.5 percent Pb, less than 0.003 oz/ton to 13.7 oz/ton Ag, less than 0.001 oz/ton to 0.084 oz/ton Au, and less than 10 ppm to 1.15 percent As (Jansons and others, 1984).

**Alteration:**

**Age of mineralization:**

Paleocene or younger; shear zones cut sandstone, siltstone, and mudstone of the Tertiary Orca Group.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Chip, grab, and shallow core samples contained 14 ppm to 19 percent Zn, 1 ppm to 17.5 percent Pb, less than 0.003 oz/ton to 13.7 oz/ton Ag, less than 0.001 oz/ton to 0.084 oz/ton Au, and less than 10 ppm to 1.15 percent As. Moderate mineral development potential (Jansons and others, 1984).

**Production notes:**

No production.

**Reserves:**

Inferred reserves are 1,500 tons at 4.23 percent Zn, 2.24 percent Pb, and 5.88 ppm Ag (Jansons, 1984).

**Additional comments:**

**References:**

Jansons and others, 1984.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Wells Bay

**Site type:** Prospect

**ARDF no.:** AN150

**Latitude:** 61.02

**Quadrangle:** AN A-2

**Longitude:** 147.39

**Location description and accuracy:**

Eastern shore of the head of Wells Bay, 2,000 ft up an unnamed west flowing stream. Accurate within 1 mile radius. Locality 66 of Cobbs (1972) and locality 54 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Cu

**Other:**

**Ore minerals:**

**Gangue minerals:**

**Geologic description:**

Sulfide deposit that is probably in volcanic rocks of Valdez Group or in Tertiary intrusive rocks (MacKevett and Holloway, 1977).

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger based on bedrock ages.

**Deposit model:**

Kuroko massive sulfide ? (Cox and Singer, 1986; model 28a ?)

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

28a ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Considerable (unspecified) work reported on claims, however none has produced any ore (Moffit and Fellows, 1950).

**Production notes:**

No reported production.

**Reserves:****Additional comments:**

Poor information available on this site.

**References:**

Moffit and Fellows, 1950; Berg and Cobb, 1967; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Jansons and others, 1984.

**Primary reference:** Moffit and Fellows, 1950

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** Wells Bay No. 1

**Site type:** Occurrence

**ARDF no.:** AN151

**Latitude:** 61.02

**Quadrangle:** AN A-1

**Longitude:** 147.33

**Location description and accuracy:**

2.7 miles east of the head of Wells Bay. Accurate within 4,000 ft. Locality 71 of Hoekzema (1984) and locality A-5 of Jansons and others (1984).

**Commodities:**

**Main:** Fl

**Other:**

**Ore minerals:** Fluorite

**Gangue minerals:** Calcite, quartz

**Geologic description:**

A 3 to 12 ft wide vein of fluorite, quartz, and calcite cuts slate of the Early Tertiary Orca Group. The vein can be traced for 100 ft. Hoekzema (1984) reported chip samples from the mineralized zone contain 17.5 percent fluorine.

**Alteration:**

**Age of mineralization:**

Paleocene or younger; the vein cuts slate of the Early Tertiary Orca Group.

**Deposit model:**

Hydrothermal vein

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Hoekzema (1984) reported chips sample from mineralized zone contain 17.5 percent

fluorine. Potential for mineral development is low.

**Production notes:**

No production.

**Reserves:**

Potential for mineral development is low. Inferred reserves are 1,500 tons of 17.5 percent fluorine (Hoekzema, 1984).

**Additional comments:****References:**

Hoekzema, 1984; Jansons and others, 1984.

**Primary reference:** Hoekzema, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Wells Bay No. 2

**Site type:** Occurrence

**ARDF no.:** AN152

**Latitude:** 61.06

**Quadrangle:** AN A-1

**Longitude:** 147.3

**Location description and accuracy:**

On south-facing slope near headwaters of the primary drainage into Wells Bay. NW1/4 sec. 10, T. 11 N., R. 12 E., of the Seward Meridian. Accurate within 3,000 ft. Locality A-6 of Jansons and others (1984).

**Commodities:**

**Main:** Ag, As, Au, Cu, Pb

**Other:**

**Ore minerals:** Arsenopyrite, galena, pyrite, silver

**Gangue minerals:**

**Geologic description:**

Sandstone, siltstone, and mudstone of the Tertiary Orca Group cut by nine shear zones and a felsic dike. Shear zones are 1 to 20 ft wide and contain massive and disseminated pyrite, arsenopyrite, and galena (Jansons and others, 1984).

Jansons and others (1984) reported five chip samples contained up to 1.1 percent Pb, 0.33 percent Cu, 10.6 ppm Ag and .53 percent As. Grab samples contained up to .5 percent Cu, 1.4 ppm Au, 9 ppm Ag, and 5.1 percent As. Chip sample across felsic dike contained 810 ppm As.

**Alteration:**

**Age of mineralization:**

Paleocene or younger; shear zones and a felsic dike cut the sandstone, siltstone, and mudstone of the Tertiary Orca Group.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Jansons and others (1984) reported five chip samples contain up to 1.1 percent Pb, 0.33 percent Cu, 10.6 ppm Ag and .53 percent As. Grab samples contain up to .5 percent Cu, 1.4 ppm Au, 9 ppm Ag, and 5.1 percent As. Chip sample across felsic dike contained 810 ppm As. Potential for mineral development is low.

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Jansons and others, 1984.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Wells Bay No. 3

**Site type:** Occurrence

**ARDF no.:** AN153

**Latitude:** 61.07

**Quadrangle:** AN A-1

**Longitude:** 147.29

**Location description and accuracy:**

On above glacier feeding the headwaters of the primary drainage into Wells Bay. NE1/4 sec. 3, T. 11 N., R. 12 E., of the Seward Meridian. Accurate within 2,000 ft. Locality A-7 of Jansons and others (1984).

**Commodities:**

**Main:** Ag, As, Pb, Zn

**Other:**

**Ore minerals:** Galena, pyrite, pyrrohotite, sphalerite

**Gangue minerals:**

**Geologic description:**

According to Jansons and others (1984), two 1 to 4 ft wide shear zones cut sandstone, siltstone, and mudstone of the Tertiary Orca Group. The shear zones have been mineralized by sphalerite, galena, pyrite, and pyrrohitite.

Chip, grab, and shallow core samples collected show that the zones contain 93 ppm to 4.6 percent Zn, 32 ppm to 2 percent Pb, 0.6 ppm to 4.6 g/ton Ag, 11 ppm to 1.1 percent As (Jansons and others, 1984).

**Alteration:**

**Age of mineralization:**

Paleocene or younger; shear zones cut the sandstone, siltstone, and mudstone of the Tertiary Orca Group.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Chip, grab, and shallow core samples collected show that the zones contain 93 ppm to 4.6 percent Zn, 32 ppm to 2 percent Pb, 0.6 ppm to 4.6 g/ton Ag, 11 ppm to 1.1 percent As. Values indicate a low potential for mineral development (Jansons and others, 1984).

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Jansons and others, 1984.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Wells Bay No. 4**Site type:** Occurrence**ARDF no.:** AN154**Latitude:** 61.05**Quadrangle:** AN A-2**Longitude:** 147.4**Location description and accuracy:**

On south facing slope above the northernmost drainage of Wells Bay. At 2,000 ft elevation, 2.1 miles north-northeast of the tidal flats in northern Wells Bay. Accurate within 3,000 ft. Locality A-11 of Jansons and others (1984).

**Commodities:****Main:** Ag, As, Au,**Other:****Ore minerals:** Arsenopyrite, pyrite**Gangue minerals:** Quartz**Geologic description:**

Jansons and others (1984) reported a 30-ft-wide, more than 100-ft-long shear zone in graywacke of the Tertiary Orca Group. The shear zone contains fractured graywacke cemented by pyrite, arsenopyrite, and quartz. Eight grab samples contained up to .012 oz/ton Au, less than 0.2 to 0.6 oz/ton Ag, and up to 0.2 percent As.

**Alteration:****Age of mineralization:**

Paleocene or younger; shear zone cuts graywacke of the Tertiary Orca Group.

**Deposit model:****Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):****Production Status** None**Site Status:** Inactive**Workings/exploration:**

Eight grab samples contained up to .012 oz/ton Au, less than 0.2 to 0.6 oz/ton Ag, and up to 0.2 percent As. Jansons and others (1984) indicate low potential for mineral development.

**Production notes:****Reserves:****Additional comments:****References:**

Jansons and others, 1984.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** Globe; Long Bay

**Site type:** Occurrence

**ARDF no.:** AN155

**Latitude:** 61.02

**Quadrangle:** AN A-1

**Longitude:** 147.21

**Location description and accuracy:**

Located 4,000 ft east of the head of the easternmost finger of Long Bay, near 1,000 ft elevation. Accurate within 1 mile. Locality 67 of Cobb (1972) and location 55 of MacKevett and Holloway (1977).

**Commodities:**

**Main:** Cu

**Other:**

**Ore minerals:** Copper sulfides

**Gangue minerals:**

**Geologic description:**

Copper lode discovered in 1917. Ore body was reported to be low grade, several feet wide, and approximately 3,000 ft long. Areas of copper sulfide mineralization and other metals are found at many places in the area between Long Bay and Wells Bay. Probably associated with volcanic rocks of Valdez Group (Johnson, 1919).

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger based on age of bedrock host.

**Deposit model:**

Submarine volcanogenic massive sulfide ?

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Some confusion exists about the amount of development of the copper claim(s) located at the head of Long Bay. Berg and Cobb (1967) reported by they are 'undeveloped', however Moffit and Fellows (1950) reported 'considerable work on claims at the head of Wells Bay and on Long Bay.' It is agreed upon that none have produced any ore.

**Production notes:**

No production.

**Reserves:****Additional comments:****References:**

Johnson, 1919; Berg and Cobb, 1967; Moffit and Fellows, 1950; Cobb, 1972, MF-409; MacKevett and Holloway, 1977; Cobb, 1979, OFR 79-1095; Jansons and others, 1984.

**Primary reference:** Johnson, 1919

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Long Bay No. 1

**Site type:** Occurrence

**ARDF no.:** AN156

**Latitude:** 61.04

**Quadrangle:** AN A-1

**Longitude:** 147.28

**Location description and accuracy:**

Located 2.4 miles north of the western arm of Long Bay, near headwaters of unnamed southward flowing tributary. Accurate within 2,000 ft. Locality A-4 of Jansons and others (1984).

**Commodities:**

**Main:** Ag, As, Pb, Zn

**Other:**

**Ore minerals:** Arsenopyrite, galena, lead, pyrite, sphalerite

**Gangue minerals:**

**Geologic description:**

Greenstone, slate, and graywacke of the Tertiary Orca Group are cut by mineralized shear zones. Zones range from 4 inches to 20 ft wide and contain sphalerite, galena, pyrite, and arsenopyrite (Jansons and others, 1984).

Jansons and others (1984) reported six chip samples contained from 39 ppm to 1.75 percent Zn, less than 1 ppm to 0.14 percent Pb, 0.3 to 8.2 ppm Ag, and less than 10 ppm to 1.6 percent As. Grab samples contained from 36 ppm to 3.2 percent Zn, 5 ppm to 2.6 percent Pb, and less than 0.1 ppm to 8 oz/ton Ag.

**Alteration:**

**Age of mineralization:**

Paleocene or younger; mineralized shear zones cut greenstone, slate, and graywacke of the Tertiary Orca Group.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Jansons and others (1984) reported six chip samples contain from 39 ppm to 1.75 percent Zn, less than 1 ppm to 0.14 percent Pb, 0.3 to 8.2 ppm Ag, and less than 10 ppm to 1.6 percent As. Grab samples contain from 36 ppm to 3.2 percent Zn, 5 ppm to 2.6 percent Pb, and less than 0.1 ppm to 8 oz/ton Ag. The potential for mineral development is moderate, although no development has occurred to date (Jansons and others, 1984).

**Production notes:**

No production.

**Reserves:**

**Additional comments:**

**References:**

Jansons and others, 1984.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Terentiev Lake

**Site type:** Occurrence

**ARDF no.:** AN157

**Latitude:** 61.06

**Quadrangle:** AN A-1

**Longitude:** 147.17

**Location description and accuracy:**

North of Terentiev Lake, at 2,000 ft elevation - 1 mile east of Peak 2,930. Accurate within 2,500 ft. Locality A-43 of Jansons and others (1984).

**Commodities:**

**Main:** Ag, As, Pb

**Other:**

**Ore minerals:** Sulfide minerals

**Gangue minerals:** Quartz

**Geologic description:**

Limonite-stained quartz-cemented fractures in Tertiary biotite +/- hornblende granite. USGS grab samples contained 0.15 percent Pb, 10 ppm Ag, and 0.2 percent As (Jansons and others, 1984).

**Alteration:**

Oxidation of Fe minerals.

**Age of mineralization:**

Tertiary or younger; mineralized fractures cut Tertiary granite.

**Deposit model:**

Low-sulfide Au-quartz veins ? (Cox and Singer, 1986; model 36a ?) or Chugach-type low-sulfide Au-quartz vein ? (Bliss, 1992; model 36a.1 ?)

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

36a ? or 36a.1 ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Jansons and others (1984) reported grab samples contained 0.15 percent Pb, 10 ppm Ag, and 0.2 percent As.

**Production notes:****Reserves:****Additional comments:****References:**

Jansons and others, 1984.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Idle Claim, Columbia Red Metals Group

**Site type:** Prospect

**ARDF no.:** AN158

**Latitude:** 61.11

**Quadrangle:** AN A-1

**Longitude:** 147.14

**Location description and accuracy:**

2,000 ft east of the eastern shore of Kadin Lake. Accurate within 1,000 ft. This is locality A-2 of Jansons and others (1984).

**Commodities:**

**Main:** Ag, As, Cu, Pb, Zn

**Other:**

**Ore minerals:** Arsenopyrite, chalcopyrite, galena, sphalerite

**Gangue minerals:**

**Geologic description:**

Two felsic dikes having chalcopyrite, galena, and sphalerite present in shears. Arsenopyrite occurs within 1/8 inch veinlets in a 15 ft wide felsic dike (Jansons and others, 1984). The felsic dikes intrude sandstone, siltstone, and mudstone of the Tertiary Orca Group.

The chip samples contained 370 ppm to 2.85 percent Zn, 205 ppm to 0.7 percent Cu, 4.4 ppm to 22 ppm Ag, 200 ppm to 0.22 percent Pb, and 72 ppm to 16.5 percent As (Jansons and others, 1984).

**Alteration:**

**Age of mineralization:**

Paleocene or younger; the veins cut felsic dikes which intrude sandstone, siltstone, and mudstone of the Tertiary Orca Group.

**Deposit model:**

Chugach-type low-sulfide Au-quartz vein ? (Bliss, 1992; model 36a.1 ?)

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

36a.1 ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Development has included an 80 ft long tunnel and open pits. Chip samples contained 370 ppm to 2.85 percent Zn, 205 ppm to 0.7 percent Cu, 4.4 ppm to 22 ppm Ag, 200 ppm to 0.22 percent Pb, and 72 ppm to 16.5 percent As. Low mineral development potential (Jansons and others, 1984).

**Production notes:**

No reported production.

**Reserves:**

Inferred reserves are 350 tons at 2.27 percent Zn (Jansons and others, 1984).

**Additional comments:**

**References:**

Jansons and others, 1984.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98



**Site name(s):** Columbia Claim, Columbia Red Metals Group

**Site type:** Prospect

**ARDF no.:** AN159

**Latitude:** 61.11

**Quadrangle:** AN A-1

**Longitude:** 147.13

**Location description and accuracy:**

4,600 ft east of the eastern shore of Kadin Lake, on a peninsula sticking into Columbia Glacier. Accurate within 1/2 mile. Locality A-1 of Jansons and others (1984).

**Commodities:**

**Main:** Ag, Cu, Pb, Zn

**Other:**

**Ore minerals:** Chalcopyrite, galena, pyrite, sphalerite

**Gangue minerals:** Quartz

**Geologic description:**

Jansons and others (1984) reported four shear zones that range in size from 3 inches to 18 ft wide cutting massive, clast-supported pebble, cobble, and boulder conglomerate and matrix-supported pebbly mudstone and sandstone of the Tertiary Orca Group. Shear zones are traceable for 800 ft along strike. Zones contain sulfide occurrences ranging from 1 inch wide veinlets of chalcopyrite and pyrite to 4 ft wide zones of chalcopyrite. Sulfide deposits are traceable for about 200 ft.

Six chip samples contained 700 ppm to 7 percent copper, 0.33 oz/ton to 8 oz/ton Ag, 0.16 to 0.87 percent Zn, and 240 ppm to 720 ppm Pb. Grab sample contained 0.12 percent Cu, 15.4 ppm Ag, 0.18 percent Zn and 815 ppm Pb (Jansons and others, 1984).

**Alteration:**

**Age of mineralization:**

Paleocene or younger; mineralized shear zones are in sedimentary rocks of the Early Tertiary Orca Group.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Open pits, but no production reported. Six chip samples contained 700 ppm to 7 percent copper, 0.33 oz/ton to 8 oz /ton Ag, 0.16 to 0.87 percent Zn, and 240 ppm to 720 ppm Pb. Grab sample contained 0.12 percent Cu, 15.4 ppm Ag, 0.18 percent Zn and 815 ppm Pb. Low mineral development potential (Jansons and others, 1984).

**Production notes:**

No production.

**Reserves:**

Inferred reserves 11,000 tons at 1.57 percent Cu and 50 ppm Ag (Jansons and others, 1984).

**Additional comments:**

**References:**

Jansons and others, 1984.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor); S.W. Huss (USGS)

**Last report date:** 07/30/98

**Site name(s):** Unnamed (near Columbia Glacier)

**Site type:** Occurrence

**ARDF no.:** AN160

**Latitude:** 61.1

**Quadrangle:** AN A-1

**Longitude:** 147.03

**Location description and accuracy:**

Best location in literature is that placer gold occurs in T. 9 S, R. 10 W., of the Copper River Meridian. Could include various deposits of alluvial gravel on the slopes of Great Nunatak.

**Commodities:**

**Main:** Au

**Other:**

**Ore minerals:** Gold

**Gangue minerals:**

**Geologic description:**

Placer gold is present in Quaternary alluvial gravels. The bedrock in the area is monotonous sequences of thin- to thick-bedded sandstone, siltstone, and mudstone of the Eocene and Paleocene Orca Group. Primary sedimentary features indicate deposition by turbidity currents (Winkler, 1992). A 0.1 cubic yard sample contained 0.0005 oz Au/cubic yard (Jansons and others, 1984).

**Alteration:**

**Age of mineralization:**

Quaternary

**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

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

39a

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

A 0.1 cubic yard sample contained 0.0005 oz Au/cubic yard, indicating a low mineral development potential (Jansons and others, 1984).

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Jansons and others, 1984; Winkler, 1992.

**Primary reference:** Jansons and others, 1984

**Reporter(s):** D.P. Bickerstaff (USGS contractor)

**Last report date:** 07/30/98

**Site name(s): Homesteader-Martha****Site type:** Prospect**ARDF no.:** AN161**Latitude:** 61.8**Quadrangle:** AN D-7**Longitude:** 149.3**Location description and accuracy:**

Best location from Cobb (1979) is the NW 1/4 of the Anchorage 1:250,000-scale topographic map. The original reference provided no data on the exact location of the prospect. Latitude and longitude coordinates provided are a generalized location, representing the NW1/4 of the Anchorage 1:250,000-scale topographic map. Prospect probably occurs in the Anchorage D-6 or D-7 1:63,360-scale map.

**Commodities:****Main:** Au ?**Other:****Ore minerals:** Gold ?**Gangue minerals:** Quartz ?**Geologic description:**

Details about the prospect are unavailable. Most likely, a gold-bearing quartz vein(s) cuts the Late Cretaceous Willow Creek Pluton. The Willow Creek Pluton is a zoned pluton. The outer part consists of hornblende quartz diorite and lesser hornblende tonalite; the core consists of hornblende-biotite granodiorite, and lesser hornblende-biotite quartz monzodiorite and biotite quartz monzonite.

**Alteration:****Age of mineralization:**

Late Cretaceous or younger; the host of mineralization is the Late Cretaceous Willow Creek Pluton.

**Deposit model:**

Low-sulfide Au-quartz veins ? (Cox and Singer, 1986; model 36a ?)

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

36a ?

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Brooks and Capps (1924) reported development, but no production, in 1922.

**Production notes:**

**Reserves:**

**Additional comments:**

**References:**

Brooks and Capps, 1924; Cobb, 1979, OFR 79-1095.

**Primary reference:** Brooks and Capps, 1924

**Reporter(s):** D.P. Bickerstaff (USGS contractor)

**Last report date:** 07/30/98

**Site name(s):** Metal Creek

**Site type:** Occurrences

**ARDF no.:** AN162

**Latitude:** 61.63

**Quadrangle:** AN C-4

**Longitude:** 148.39

**Location description and accuracy:**

Near the headwaters of Metal Creek, accuracy unknown.

**Commodities:**

**Main:** Ag, Au

**Other:** Cu

**Ore minerals:** Pyrite

**Gangue minerals:** Quartz

**Geologic description:**

Country rock along Metal Creek is Valdez Group interbedded slate, siltstone, and graywacke of Late Cretaceous age that have been metamorphosed to phyllite and quartz mica schist. These rocks are tightly folded, exhibit strong foliation, strike N 10-30 E, and dip nearly vertical. At the headwaters of Metal Creek and Glacial Fork, greenstone containing discontinuous dikes and one stock of quartz diorite are present (Lande, 1927). Quartz veins with pyrite and chlorite are common in the area. Samples assayed 0.02 oz/ton gold, 0.26 oz/ton silver, and 0.08 percent copper (Richter, 1967).

**Alteration:**

**Age of mineralization:**

Late Cretaceous or younger, veins cut and intrusive rocks intrude the Late Cretaceous Valdez Group sedimentary rocks.

**Deposit model:**

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

**Production Status** None

**Site Status:** Inactive

**Workings/exploration:**

Richter (1967) mentions the only lode deposits of economic significance observed in place to be the small quartz diorite stock at headwaters. Samples assayed 0.02 oz/ton gold, 0.26 oz/ton silver, and 0.08 percent copper. Float samples taken downstream show same amount, 0.02 oz/ton, of gold to be present, but silver and copper were undetectable.

**Production notes:****Reserves:****Additional comments:**

Abundance of scheelite in concentrates is enough to warrant prospecting of the area between Metal Creek and Glacier Fork (Richter, 1967).

**References:**

Landes, 1927; Richter, 1967; Cobb, 1979, OFR 79-1095.

**Primary reference:** Richter, 1967

**Reporter(s):** D.P. Bickerstaff (USGS contractor)

**Last report date:** 09/04/98



## References

- Athern, M.J., and Judd, W.R., 1956, Final engineering geology report on the Eklutna project: unpublished report of the U.S. Bureau of Reclamation, 109 p.
- Barnes, F.F., 1948, Preliminary report on the geology along the route of a proposed tunnel to develop hydroelectric power from Eklutna Lake, Alaska: U.S. Geological Survey Open-File Report 54, 9 p.
- Berg, H.C., and Cobb, E.H., 1967, Metalliferous lode deposits of Alaska: U.S. Geological Survey Bulletin 1246, 254 p.
- Bird, M.L., 1977, Electron-microprobe analyses of chromite and olivine from alpine ultramafic complexes: U.S. Geological Survey Open-File Report 77-236, 69 p.
- Bjorklund, Stuart and Wright, W.S., 1948, Investigation of Knik Valley chromite deposits, Palmer, Alaska: U.S. Bureau of Mines Report of Investigation 4356, 5 p.
- Bliss, J.D., ed., 1992, Developments in mineral deposit modeling: U.S. Geological Survey Bulletin 2004, 168 p.
- Brooks, A.H., 1906, The mining industry in 1905: U.S. Geological Survey Bulletin 284, p. 4-9.
- Brooks, A.H., 1910, Mineral resources of Alaska, report on progress of investigations in 1909: U.S. Geological Survey Bulletin 442, 426 p.
- Brooks, A.H., 1911, The Mount McKinley region, Alaska, with descriptions of the igneous rocks and of the Bonnifield and Kantishna districts, by L.M. Prindle: U.S. Geological Survey Professional Paper 70, 234 p.
- Brooks, A.H., 1911, The mining industry in 1910: U.S. Geological Survey Bulletin 480, p. 21-42.
- Brooks, A.H., 1912, The mining industry in 1911: U.S. Geological Survey Bulletin 520-A, p. 17-44.
- Brooks, A.H., 1913, Mineral resources of Alaska, report on progress of investigations in 1912: U.S. Geological Survey Bulletin 542, 308 p.
- Brooks, A.H., 1914, The Alaskan mining industry in 1913: U.S. Geological Survey Bulletin 592, p. 45-74.
- Brooks, A.H., 1915, The Alaskan mining industry in 1914: U.S. Geological Survey Bulletin 622, p. 15-68.
- Brooks, A.H., 1916, The Alaskan mining industry in 1915: U.S. Geological Survey Bulletin 642, p. 16-71.
- Brooks, A.H., 1916, Antimony deposits of Alaska: U.S. Geological Survey Bulletin 649, 67 p.
- Brooks, A.H., 1918, The Alaskan mining industry in 1916: U.S. Geological Survey Bulletin 662-B, p. 11-62.
- Brooks, A.H., 1922, The Alaskan mining industry in 1920: U.S. Geological Survey Bulletin 722-A, p. 1-74.

- Brooks, A.H., 1923, The Alaskan mining industry in 1921: U.S. Geological Survey Bulletin 739-A, p. 1-50.
- Brooks, A.H., 1925, Alaska's mineral resources and production in 1923: U.S. Geological Survey Bulletin 773-A, p. 1-52.
- Brooks, A.H., and Capps, S.R., 1924, The Alaskan mining industry in 1922: U.S. Geological Survey Bulletin 755, p. 3-49.
- Brooks, A.H., and Martin, G.C., 1921, The Alaskan mining industry in 1919: U.S. Geological Survey Bulletin 714, p. 59-95.
- Bundtzen, T.K., Eakins, G.R., Clough, J.G., Lueck, L.L., Green, C.B., Robinson, M.S., and Coleman, D. A., 1984, Alaska's Mineral Industry - 1983: Alaska Division of Geological and Geophysical Surveys Special Report 33, 56 p.
- Capps, S.R., 1914, Gold lodes and placers of the Willow Creek district: U.S. Geological Survey Bulletin 592, p. 245-272.
- Capps, S.R., 1915, The Willow Creek District, Alaska: U.S. Geological Survey Bulletin 607, 86 p.
- Capps, S.R., 1916, Gold mining in the Willow Creek district: U.S. Geological Survey Bulletin 642-G, p. 147-194, 195-200.
- Capps, S.R., 1919, Gold lode mining in the Willow Creek district: U.S. Geological Survey Bulletin 692-D, p. 177-205.
- Capps, S.R., 1924, Geology and mineral resources of the region traversed by the Alaska Railroad: U.S. Geological Survey Bulletin 755, p. 73-150.
- Capps, S.R., 1927, Geology of the upper Matanuska Valley, Alaska, with a section on the igneous rocks by J.B. Mertie, Jr.: U.S. Geological Survey Bulletin 791, 92 p.
- Capps, S.R., 1940, Geology of the Alaska Railroad region: U.S. Geological Survey Bulletin 907, 201 p.
- Capps, S.R., and Tuck, Ralph, 1935, The Willow Creek-Kashwitna District, Alaska: U.S. Geological Survey Bulletin 864-B, p. 95-113.
- Chapin, Theodore, 1915, Auriferous gravels of the Nelchina-Susitna region: U.S. Geological Survey Bulletin 622, p. 118-130.
- Chapin, Theodore, 1918, The Nelchina-Susitna region, Alaska: U.S. Geological Survey Bulletin 668, 67 p.
- Chapin, Theodore, 1920, Lode developments in the Willow Creek district: U.S. Geological Survey Bulletin 712-F, p. 169-176.
- Chapin, Theodore, 1921, Lode developments in the Willow Creek district: U.S. Geological Survey Bulletin 714-E, p. 201-206.
- Clark, A.L., and Greenwood, W.R., 1972, Geochemistry and distribution of platinum-group metals in mafic to ultramafic complexes of southern and southeastern Alaska: U.S. Geological Survey Professional Paper 800-C, p. C157-C160.
- Clark, S.H.B., 1972, The Wolverine complex, a newly discovered layered ultramafic body in the western

- Chugach Mountains, Alaska: U.S. Geological Survey Open-File Report 522, 10 p.
- Clark, S.H.B., 1972, Reconnaissance bedrock geologic map of the Chugach Mountains near Anchorage, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map 350, 1 sheet, scale 1:250,000.
- Clark, S.H.B., and Bartsch, S.R., 1971, Reconnaissance geologic map and geochemical analyses of stream sediment and rock samples of the Anchorage B-7 quadrangle, Alaska: U.S. Geological Survey Open-File Report 484, 70 p., 2 sheets, scale 1:36,360.
- Clark, S.H.B., and Bartsch, S.R., 1971, Reconnaissance geologic map and geochemical analyses of stream sediment and rock samples of the Anchorage B-6 quadrangle, Alaska: U.S. Geological Survey Open-File Report 475, 63 p., 2 sheets, scale 1:36,360.
- Clark, S.H.B., and Yount, M.E., 1972, Reconnaissance geologic map and geochemical analyses of stream-sediment and rock samples of the Anchorage A-6 Quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map 351, 2 sheets, scale 1:63,360.
- Cobb, E.H., 1972, Metallic mineral resources map of the Anchorage Quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map 409, 1 sheet, scale 1:250,000.
- Cobb, E.H., 1973, Placer deposits of Alaska: U.S. Geological Survey Bulletin 1374, 213 p., 1 plate.
- Cobb, E.H., 1975, Tungsten occurrences in Alaska: U.S. Geological Survey Mineral Investigations Resource Map 66, 1 sheet, scale 1:250,000.
- Cobb, E.H., 1979, Summary of references to mineral occurrences (other than mineral fuels and construction materials in Anchorage quadrangle, Alaska: U.S. Geological Survey Open-File Report 79-1095, 184 p.
- Cobb, E.H., and Kachadoorian, Reuben, 1961, Index of metallic and nonmetallic mineral deposits of Alaska compiled from published reports of Federal and State agencies through 1959: U.S. Geological Survey Bulletin 1139, 363 p.
- Cobb, E.H., and Richter, D.H., 1972, Metallic mineral resources map of the Seward quadrangle, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-466, 2 sheets, scale 1:250,000.
- Cobb, E.H., and Tysdal, R.G., Summaries of data on and lists of references to metallic and selected non-metallic mineral deposits in the Blying Sound and Seward quadrangles, Alaska: U.S. Geological Survey Open-File Report 80-621, 285 p.
- Cohen, K.K., 1982, Independence mine and the Willow Creek mining district: Alaska Division of Parks Miscellaneous Publications, History of Archaeology series, No. 32, 169 p.
- Cox, D.P., and Singer, D.A., eds., 1986, Mineral deposit models: U.S. Geological Survey Bulletin 1992, 379 p.
- Dahners, L.A., 1947, Preliminary report on the Brown Bear lead and zinc claims near Miner Lake, Prince William Sound, Alaska: Alaska Territorial Department of Mines Property Examination 85-14, 7 p., 1 sheet.
- Eakins, G.R., Bundtzen, T.K., Robinson, M.S., Clough, J.G., Green, C.B., Clautice, K.H., and Albanese M.A., 1983, Alaska's mineral industry - 1982, Alaska Division of Geological and Geophysical Surveys Special Report 31, 63 p.

- Eckhart, R.A., 1953, Gypsiferous deposits on Sheep Mountain, Alaska: U.S. Geological Survey Bulletin 989-B, p. 39-61.
- Grant, U.S., 1906, Copper and other mineral resources of Prince William Sound: U.S. Geological Survey Bulletin 284, p. 78-87.
- Grant, U.S., and Higgins, D.F., 1910, Reconnaissance of the geology and mineral resources of Prince William Sound, Alaska: U.S. Geological Survey Bulletin 443, 89 p.
- Green, C.B., Bundtzen, T.K., Peterson, R.J., Seward, A.F., Deagan, J.R., and Burton, J.E., Alaska's Mineral Industry - 1988, Alaska Division of Geological and Geophysical Surveys Special Report 43, 79 p.
- Hawkins, D.B., 1973, Sedimentary zeolite deposits of the Upper Matanuska Valley: Alaska Division of Geological and Geophysical Surveys Special Report 6, 17 p., 1 sheet, scale 1:63,360.
- Hawkins, D.B., 1976, Mordenite deposits and zeolite zonation in the Horn Mountains area, South-central Alaska: Alaska Division of Geological and Geophysical Surveys Special Report 9, 9 p., 2 sheets, scale 1:21,000.
- Hawkins, D.B., 1976, Commercial-grade mordenite deposits of the Horn Mountains, South-central Alaska: Alaska Division of Geological and Geophysical Surveys Special Report 11, 11 p., 1 sheet, scale 1:15,840.
- Herzog, D.A., 1988, References to coastal mineral occurrences (other than mineral fuels and construction materials) of Alaska, indexed by quadrangle: U.S. Bureau of Mines Open-File Report 29-88, p. 53-56.
- Hoekzema, R.B., 1981, Placer sampling and related Bureau of Mines activities on the Kenai Peninsula, Alaska: U.S. Bureau of Mines Open-File Report 138-81, 19-24.
- Hoekzema, R.B., 1984, Strategic and critical mineral development potential of the Chugach National Forest, southcentral Alaska: U.S. Bureau of Mines Open-File Report 215-84, 64 p., 1 sheet.
- Hoekzema, R.B., and Fechner, S.A., 1986, Placer Gold sampling in and near the Chugach National Forest, Alaska: U.S. Bureau of Mines Information Circular 9091, 42 p.
- Hoekzema, R.B., Fechner, S.A., and Kurtak, J.M., 1987, Evaluation of selected lode gold deposits in the Chugach National Forest, Alaska: U.S. Bureau of Mines Information Circular 9113, 62 p.
- Jansons, U., Hoekzema, R.B., Kurtak, J.M., and Fechner, S.A., 1984, Mineral occurrences in the Chugach National Forest, Southcentral Alaska: U.S. Bureau of Mines Open-File Report 5-84, 218 p., 2 sheets, scale 1:250,000.
- Jasper, M.W., 1962, Willow Creek gold district activity, Anchorage quadrangle: Alaska Division of Mines and Minerals report for the year 1962, p. 75-84.
- Jasper, M.W., 1965, Geochemical investigations of selected areas in southcentral Alaska, 1964: Alaska Division of Mines and Minerals Geochemical Report 4, 31 p.
- Jasper, M.W., 1966, Geochemical investigations of selected areas in southcentral Alaska, 1965: Alaska Division of Mines and Minerals Geochemical Report 7, 60 p.
- Jasper, M.W., 1967, Geochemical investigations Willow Creek to Kenai Lake region, Southcentral Alaska: Alaska Division of Mines and Minerals Geochemical Report 14, 47 p.

- Johnson, B.L., 1912, Gold deposits of the Seward-Sunrise region, Kenai Peninsula: U.S. Geological Survey Bulletin 520-F, p. 131-173.
- Johnson, B.L., 1914, The Port Wells gold-lode district, Alaska: U.S. Geological Survey Bulletin 592-G, p. 195-236.
- Johnson, B.L., 1915, Mining on Prince William Sound: U.S. Geological Survey Bulletin 622-E, p. 131-139.
- Johnson, B.L., 1918, Mining on Prince William Sound: U.S. Geological Survey Bulletin 662, p. 183-192.
- Johnson, B.L., 1919, Mining on Prince William Sound: U.S. Geological Survey Bulletin 692-C, p. 143-151.
- Katz, F.J., 1911, A reconnaissance of Willow Creek gold region: U.S. Geological Survey Bulletin 480-G, p. 139-152.
- Kurtak, J.M., 1986, Results of the 1984 Bureau of Mines site specific field studies within the Willow Creek mining district: U.S. Bureau of Mines Open-File Report 17-86, 17 p.
- Landes, K.K., 1927, Geology of the Knik-Matanuska District, Alaska: U.S. Geological Survey Bulletin 792-B, p. 51-72.
- MacKevett, E.M., and Holloway, C.D., 1977, Map showing metalliferous and selected non-metalliferous mineral deposits in the eastern part of southern Alaska: U.S. Geological Survey Open-File Report 77-169-A, 99 p., 1 sheet, scale 1:1,000,000.
- Madden, D.J., Arbogast, B.F., O'Leary, R.M., VanTrump, G. Jr., and Silberman, M.L., 1988, Analytical results, statistical analyses, and sample locality maps of rocks from the Anchorage quadrangle, southern Alaska: U.S. Geological Survey Open-File Report 88-240, 121 p., 2 over-size sheets; sheet 1, scale 1:250,000 and sheet 2, scale 1:24,000.
- Maloney, R.P., 1966, Investigation of the Bailey copper prospect, Willow Creek mining district, south-central Alaska: U.S. Bureau of Mines Open-File Report 3-66, 7 p.
- Martin, G.C., 1919, The Alaskan mining industry in 1917: U.S. Geological Survey Bulletin 692-A, p. 11-42.
- Martin, G.C., 1920, Mineral resources of Alaska, report on progress of investigations in 1918: U.S. Geological Survey Bulletin 712, 204 p.
- Martin G.C., and Mertie, J.B., 1914, Mineral resources of the upper Matanuska and Nelchina valleys, Alaska: U.S. Geological Survey Bulletin 592-H, p. 273-299, map.
- Martin G.C., Johnson, B.L., and Grant, U.S., 1915, Geology and mineral resources of Kenai Peninsula, Alaska: U.S. Geological Survey Bulletin 587, 243 p.
- Mendenhall, W.C., 1900, A reconnaissance from Resurrection Bay to the Tanana River, Alaska, in 1898: U.S. Geological Survey 20th Annual Report, part 7, p. 265-340.
- Mining World, April 1940, Alaska Pacific Consolidated Mining Co., Second Alaska Lode Mine: Mining World, Vol. 2, No. 4, April 1940.
- Moffit, F.H., 1905, Gold placers of Turnagain Arm, Cook Inlet: U.S. Geological Survey Bulletin 259, p.

90-99.

- Moffit, F.H., 1906, Mineral resources of Kenai Peninsula, Alaska; Gold field of the Turnagain Arm region: U.S. Geological Survey Bulletin 277, 80 p.
- Moffit, F.H., 1927, Mineral industry in Alaska in 1925 and administrative report: U.S. Geological Survey Bulletin 792-A, p. 41-49.
- Moffit, F.H., and Fellows, R.E., 1950, Copper deposits of the Prince William Sound district, Alaska: U.S. Geological Survey Bulletin 963-B, p. 47-80.
- Moxham, R.M., and Nelson, A.E., 1952, Reconnaissance for radio-active deposits in south-central Alaska, 1947-1949: U.S. Geological Survey Circular 184, 14 p.
- Orris, G.J., and Bliss, J.D., 1985, Geologic and grade-volume data on 330 gold placer deposits: U.S. Geologic Survey Open-File Report 85-213, 173 p.
- Paige, Sidney and Knopf, Adolph, 1907, Reconnaissance in the Matanuska and Talkeetna basins, Alaska, with notes on the placers of the adjacent regions: U.S. Geological Survey Bulletin 314, p. 104-125.
- Paige, Sidney, and Knopf, Adolph, 1907, Geologic reconnaissance in the Matanuska and Talkeetna basins, Alaska: U.S. Geological Survey Bulletin 327, 71 p.
- Park, F.C., 1933, The Girdwood District, Alaska: U.S. Geological Survey Bulletin 849-G, p. 381-424.
- Pilgrim, E., 1930, Prince William Sound and Valdez Districts. A.D. Thompson's Lead-Zinc Property: Territory of Alaska Department of Mines MR 193-2, p. 19-21.
- Pitt, D.L, 1942, Report on Alaska-Pacific Consolidated Mining Co. Independence Mine. Manuscript on file, Office of History and Archaeology, Division of Parks, Alaska Department of Natural Resources, Anchorage, Alaska.
- Pittman, T.L., and Mulligan, J.J., Alaska Mining in '83: from gold to hardrock & gravel: Alaska Construction and Oil, January 1983, p. 21-23.
- Purington, C.W., 1905, Methods and costs of gravel and placer mining in Alaska: U.S. Geological Survey Bulletin 263, 273 p.
- Ransome, A.L., and Kerns, W.H., 1954, Names and definitions of regions, districts, and subdistricts in Alaska (used by the Bureau of Mines in statistical and economic studies covering the mineral industry of the Territory): U.S. Bureau of Mines Information Circular 7679, 91 p.
- Ray, J.C., 1933, The Willow Creek gold-lode district, Alaska: U.S. Geological Survey Bulletin 849-C, p. 165-229.
- Ray, R.G., 1954, Geology and ore deposits of the Willow Creek Mining district, Alaska: U.S. Geological Survey Bulletin 1004, 86 p.
- Richter, D.H., 1967, Geological and geochemical investigations in the Metal Creek area, Chugach Mountains: Alaska Division of Geological and Geophysical Surveys Geologic Report 25, 17 p., 1 sheet, scale 1:63,360.
- Roehm, J.C., 1936, Summary Report of Investigations in the Chistochina/Slana River, Nabesna, Tiekell, Valdez, Prince William Sound and Kodiak Mining Districts and Itinerary of J.C. Roehm, Asso-

- ciate Engineer to Commissioner of Mines: Territory of Alaska Department of Mines IR-JCR, 18 p.
- Roehm, J.C., 1937, Preliminary report of operating mines and prospects, Willow Creek district, Alaska: MR 85-4, 15 p.
- Roehm, J.C., 1937, Preliminary report of mining activities on Crow Creek, Girdwood District, Alaska: Territory of Alaska Department of Mines Report (1946 supplement), 6p., 2 maps.
- Roehm, J.C., 1938, Summary report of mining investigations in the Port Wells District, Prince William Sound, Alaska: Territorial Department of Mines.
- Rose, A.W., 1966, Geology and chromite-bearing ultramafic rocks near Eklutna, Anchorage quadrangle, Alaska: Alaska Division of Mines and Minerals Geologic Report 18, 25 p., 1 sheet, scale 1:42,000.
- Rutledge, F.A., Thorne, R.L., Kerns, W.H., and Mulligan, J.J., 1953, Preliminary report: Nonmetallic deposits accessible to the Alaska Railroad as a possible source of raw materials for the construction industry: U.S. Bureau of Mines Report of Investigations 4932, 129 p.
- Silberman, M.L., O'Leary, R.M., Csejtey, B. Jr., Smith, J.G., and Conner, C.L., 1978, Geochemical anomalies and isotopic ages in the Willow Creek mining district, southwestern Talkeetna Mountains, Alaska: U.S. Geological Survey Open-File Report 78-223, 33 p.
- Smith, P.S., 1926, Mineral industry of Alaska in 1924 and Administrative Report: U.S. Geological Survey Bulletin 783-A, p. 1-39.
- Smith, P.S., 1929, Mineral industry of Alaska in 1926 and Administrative Report: U.S. Geological Survey Bulletin 797-A, p. 1-66.
- Smith, P.S., 1930, Mineral industry of Alaska in 1927 and Administrative Report: U.S. Geological Survey Bulletin 810-A, p. 1-64.
- Smith, P.S., 1930, Mineral industry of Alaska in 1928 and Administrative Report: U.S. Geological Survey Bulletin 813-A, p. 1-96.
- Smith, P.S., 1932, Mineral industry of Alaska in 1930 and Administrative Report: U.S. Geological Survey Bulletin 824-A, p. 1-109.
- Smith, P.S., 1933, Mineral industry of Alaska in 1930: U.S. Geological Survey Bulletin 836, p. 1-83.
- Smith, P.S., 1933, Mineral industry of Alaska in 1931: U.S. Geological Survey Bulletin 844-A, p. 1-81.
- Smith, P.S., 1934, Mineral industry of Alaska in 1932: U.S. Geological Survey Bulletin 857-A, p. 1-91.
- Smith, P.S., 1934, Mineral industry of Alaska in 1933: U.S. Geological Survey Bulletin 864-A, p. 1-94.
- Smith, P.S., 1936, Mineral industry in Alaska in 1934: U.S. Geological Survey Bulletin 868-A, p. 1-91.
- Smith, P.S., 1937, Mineral industry in Alaska in 1935: U.S. Geological Survey Bulletin 880-A, p. 1-95.
- Smith, P.S., 1938, Mineral industry of Alaska in 1936: U.S. Geological Survey Bulletin 897-A, p. 1-107.
- Smith, P.S., 1939, Mineral industry of Alaska in 1937: U.S. Geological Survey Bulletin 910-A, p. 1-113.

- Smith, P.S., 1939, Mineral industry of Alaska in 1938: U.S. Geological Survey Bulletin 917-A, p. 1-113.
- Smith, P.S., 1941, Mineral industry of Alaska in 1939: U.S. Geological Survey Bulletin 926-A, p. 1-106.
- Smith, P.S., 1942, Occurrences of molybdenum in Alaska: U.S. Geological Survey Bulletin 926-C, p. 161-210.
- Smith, P.S., 1942, Mineral industry of Alaska in 1940: U.S. Geological Survey Bulletin 933-A, p. 1-102.
- Smith, S.S., 1917, The mining industry in the Territory of Alaska during the calendar year 1915: U.S. Bureau of Mines Bulletin 142, 66 p.
- Smith, S.S., 1917, The mining industry in the Territory of Alaska during the calendar year 1916: U.S. Bureau of Mines Bulletin 153, 89 p.
- Stoll, W.C., 1944, Relations of structures to mineral deposition at the Independence Mine, Alaska: U.S. Geological Survey Bulletin 933-C, p. 201-217.
- Stoll, W.M. and McDonald, J.M., 1946, Field notes of a survey of gold prospects in the eastern Willow Creek district, Alaska, W.M. and J.A. Stoll collection, Archives and Manuscripts department, University of Alaska, Anchorage, Alaska.
- Stoll, W.M., 1997, Hunting for gold in Alaska's Talkeetna Mountains 1897-1951: Greensburg, PA, Henry Printing, 301 p.
- Thorne R.L., Muir, N.M., Erickson, A.W., Thomas, B.I., Heide, H.E., and Wright, W.S., 1948, Tungsten deposits in Alaska: U.S. Bureau of Mines Report of Investigations 4174, 22 p.
- Tysdal, R.G., 1978, Mines, prospects, and occurrences map of the Seward and Blying Sound quadrangles, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-880A, 2 sheets, scale 1:250,000.
- Tysdal, R.G., 1978, Map showing placer deposits of the Seward and Blying Sound quadrangles, Alaska: U.S. Geological Survey Miscellaneous Field Studies Map MF-880B, 2 sheets, scale 1:250,000.
- U.S. Geological Survey, 1984, 1984 annual report on Alaska's mineral resources, as mandated by Section 1011 of the Alaska National Interest Lands Conservation Act, Public Law 96-487, of December 2, 1980: U.S. Geological Survey Circular 940, 54 p.
- U.S. Geological Survey, 1996, Descriptions of the fields used to report brief descriptions of mines, prospects, and mineral occurrences in Alaska and Hawaii: U.S. Geological Survey Open-File Report 96-79, 5 p.
- Vinal, E.L., 1940, "Gold Top-Gray Eagle Group of Claims, Craigie Creek Basin, Wasilla Mining District, Alaska." Report prepared for Alaska-Pacific Consolidated Mining Company. W.M. and J. A. Stoll collection, Archives and Manuscripts Department, University of Alaska, Anchorage, Alaska.
- Webber, B.S., and Rutledge, F.A., 1944, Horseshoe Bay deposits, Latouche Island, Prince William Sound, Alaska: U.S. Bureau of Mines unpublished War Minerals Report.
- Wedow, Helmuth, Jr., White, M.G., and Moxham, R.M., 1952, Interim report on an appraisal of the uranium possibilities of Alaska: U.S. Geological Survey Open-File Report 51, 123 p.
- White, M.G., 1952, Preliminary summary of reconnaissance for uranium in Alaska, 1951: U.S. Geologi-



cal Survey Circular 196, 17 p.

Winkler, G.R., 1992, Geologic map and summary geochronology of the Anchorage (1 x 3) quadrangle, southern Alaska: U.S. Geological Survey Map I-2283, 1:250,000.

Woodman, Betzi, Mining news from around the north - a compilation of summer mining activities: Alaska Construction and Oil, September 1983, p. 12-16.