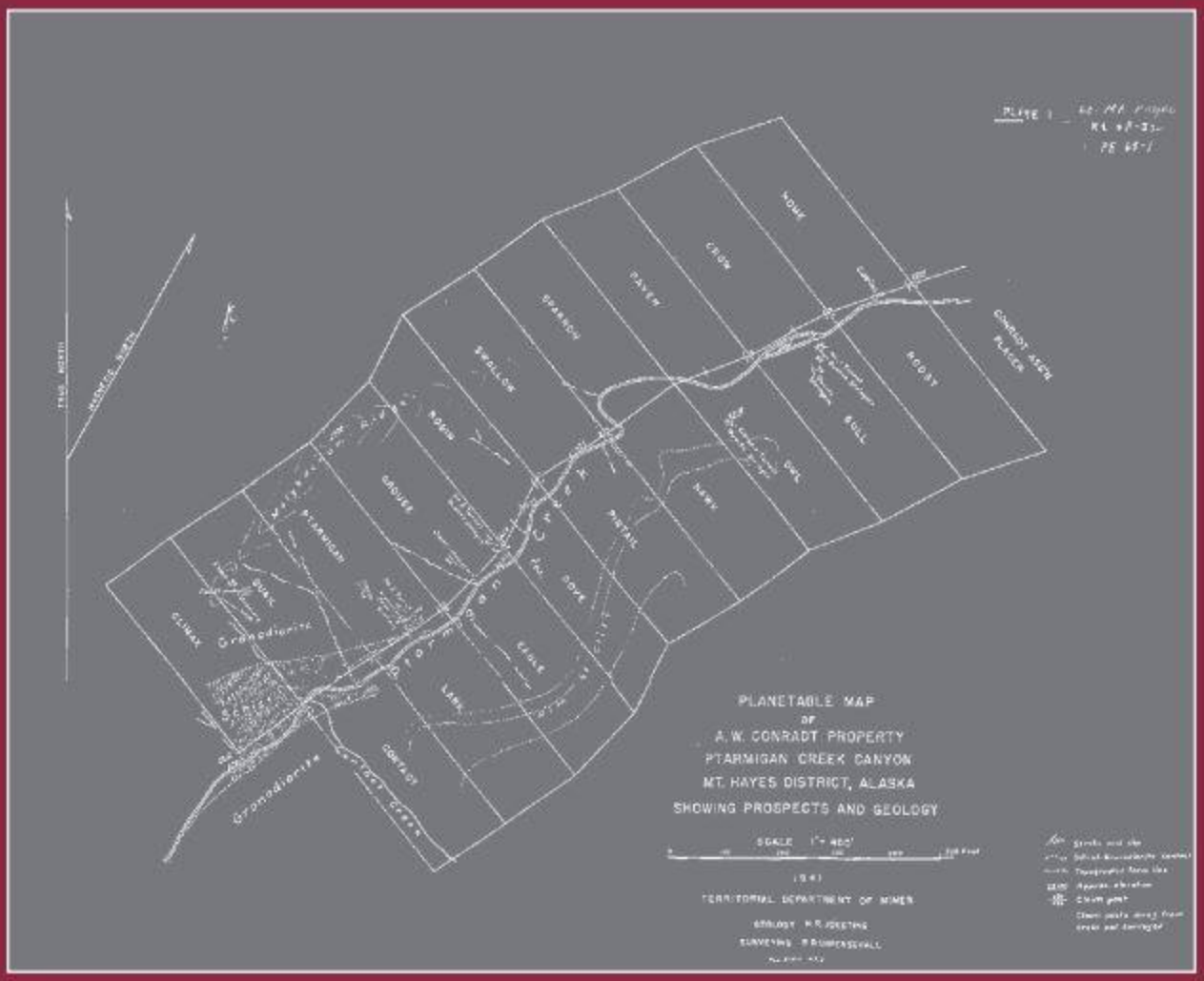
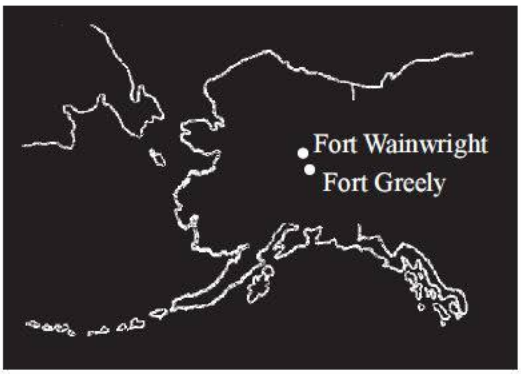
Early Mining History: Fort Wainwright and Fort Greely, Alaska



March 2001

CEMML TPS 01-3

Early Mining History: Fort Wainwright and Fort Greely, Alaska



Ronald J. Burr Neely, Jr.

Edited by:

Glenda R. Lesondak

Prepared by:

Center for Ecological Management of Military Lands
Colorado State University
Ft. Collins, CO 80523-1500

Russell H. Sackett
Natural Resources Branch
U.S. Army Alaska
Fort Richardson, AK 99505-6500

March 2001

CEMML TPS 01 3

TABLE OF CONTENTS

CHAPTERS

LIST OF FIGURES

CHAPTER 1.0 Introduction

Early mining in interior Alaska brought the first significant wave of Euro-Americans settlers to the region. Prospectors, chasing the rumors of pay dirt, followed the trails blazed by early government-sponsored expeditions. Miners and the supporting communities that developed in their wake affected the surrounding natural environment and left marks on the landscape; marks now referred to as cultural resources. These might include trails, prospect diggings, cabins, litter piles, mining equipment such as sluice boxes and dredges, and ore processing mills. More subtle evidences of mining activities that still might be found are overgrown irrigation ditches and waste rock piles. These impacts on the landscape include interior Alaska in the broader patterns of western expansion, exploitation, and settlement.

Miners left behind what are now considered cultural resources in three waves of activity, paralleling the experiences of miners in other regions of the American West. These waves are categorized by a succession of changes in mining processes. In the first wave, individual miners penetrated new mineralized regions. The development of limited partnerships that allowed miners to pool their resources, purchase more equipment, and sustain larger operations defines the second wave. The entrance of large-scale corporations that consolidated claims and used advanced, systematic methods of ore extraction characterizes the third wave. It is important to note that the categories established by this report (Waves I, II, and III) are not mutually exclusive. Miners on Pedro Creek began using steam points as early as 1904.[1] Small individual operations persisted into the 1930s and continued to employ primitive techniques, such as fire to melt the frozen earth. Small-scale dredging, addressed in Wave III, appeared on Fairbanks Creek as early as 1911, but by no means dominated the scene until after 1923. Hydraulic methods, scrapers, drag lines and other equipment indicative of Wave II were used well into the ‘30s and ‘40s.

Environmental conditions in Alaska presented unique challenges to miners – challenges that required innovative techniques unknown to other mining districts in the lower forty-eight states. The history of Alaska mining matches a common cycle of mineral development, but at the same time reveals characteristics that allow historic mining properties in the North to make unique and significant contributions to the broader story of western expansion and settlement.

In later years, the U.S. military developed two installations in the Interior, now known as Fort Wainwright and Fort Greely, in anticipation of military involvement in World War II. The lands encompassed by these military reservations might contain cultural resources related to early mining activity. This document provides the historic background and interpretive tableau from which to evaluate historic mining sites on the forts.

1.1 Purpose of Document

The Directorate of Public Works consulted with the Alaska State Historic Preservation Office to coordinate and implement an *Integrated Cultural Resource Management Plan (ICRMP) for 2001–2005* for Fort Wainwright and Fort Greely. Section 2.4 of the ICRMP expresses the need to develop historic context reports as they “lay the foundation for understanding why historic properties exist on Forts Wainwright and Greely” (p. 11). This document serves to meet this goal for the early mining sites on the forts. Secondly, Section 2.4.2 of the ICRMP roughly defines historic contexts found on the two forts. These include prehistory, historic mining and the gold rush era, World War II, and the Cold War. This report will expand the historic mining context introduced in the 2001–2005 ICRMP.

[1] James C. Hildebrandt, *The History of Placer Mining in Alaska.* Thesis. (Fairbanks: University of Alaska, 1948) p. 38. [Hereafter cited as J.C. Hildebrandt, *The History of Placer Mining in Alaska*]

Beyond providing a historic context for early mining sites, this document offers an extensive bibliography about mining history in interior Alaska, specifically in the Upper Tanana Valley around the towns of Fairbanks and Delta Junction. It also outlines the potential for locating cultural resources on the military reservations adjacent to these towns, defines the natural and man-made landscapes indicative of mining, and, should a site be discovered, provides guidelines to evaluate sites for inclusion in the National Register of Historic Places (NRHP)

This report will assist the Cultural Resources Manager to remain in compliance with cultural resources laws and regulations (defined in Section 3 1 of the ICRMP), notably in facilitating the Section 106 process of the National Historic Preservation Act. It will also begin fulfillment of the ICRMP Public Education initiative forwarded in Section 3 2 4 3, and it will commence step one in the first year action plan (Section 6 4) to "begin developing historic context documentation necessary for evaluating eligibility" (The full citation for this document is in the bibliography).

1.2 Materials Presented

Creating a picture of early mining in the Upper Tanana Valley requires compiling information from a wide range of sources. Early mining references are detailed in the bibliography of this report. In general the information comes from four main sources: United States Geologic Survey (U.S G S) reports and bulletins, Alaska Division of Geologic and Geophysical Surveys (D G.G S), mineral patent information from the State Recorder's Office, and other reports available at the University of Alaska Fairbanks Rasmuson Library and Archives.

The Alaska D.G.G.S , the U S G S , and the Bureau of Land Management have published the *Guide to Alaska Geologic and Mineral Information*, which outlines the sources for mining research in Alaska. This useful document explains in detail where much of the information presented here is located. Other sources of information include the Alaska Department of Natural Resources, Division of Mines, the Bureau of Land Management, and the Geophysical Library at the University of Alaska Fairbanks. In-house reports from the Directorate of Public Works, Environmental Department at Fort Wainwright that deal with cultural resources, environmental impact statements, and historic preservation also assisted in the completion of this report

CHAPTER 2.0 Geology and Nature of Gold Deposits in Interior Alaska

An extensive number of geologic reports cover interior Alaska and the mineral potential of the region. The bibliography of this report contains some of those references. The United States Geologic Service Bulletins, Professional Papers, Reports of Investigations, and Information Circulars, dating from 1898 to the present, offer the most comprehensive picture of the nature of mineralized deposits on lands now encompassed by forts Wainwright and Greely. The following is a brief geographic, topographic, climatic, and geological description that explains the potential for mineral extraction in the region. This is compiled primarily from the early reports of Alfred H. Brooks, U.S.G.S. geologist for Alaska in the first quarter of the twentieth century, and Louis M Prindle, also of the U.S.G.S. and a contemporary of Brooks.

The mining regions near Fort Wainwright and Fort Greely exist along clear flowing tributaries of the Tanana and Delta rivers. The terrain surrounding these watercourses is rolling hills that range from 1500–3000 feet above sea level. The lower elevations of Fairbanks near the Tanana River are approximately 400–450 feet above sea level. The larger hills are locally referred to as "domes," such as Pedro and Murphy domes.[2] This region is part of the larger Yukon-Tanana Upland Plateau that extends north of the Alaska Range to the southern reaches of the Brooks Range. The terrain is rugged and extremely wet in the bogs and lowlands.

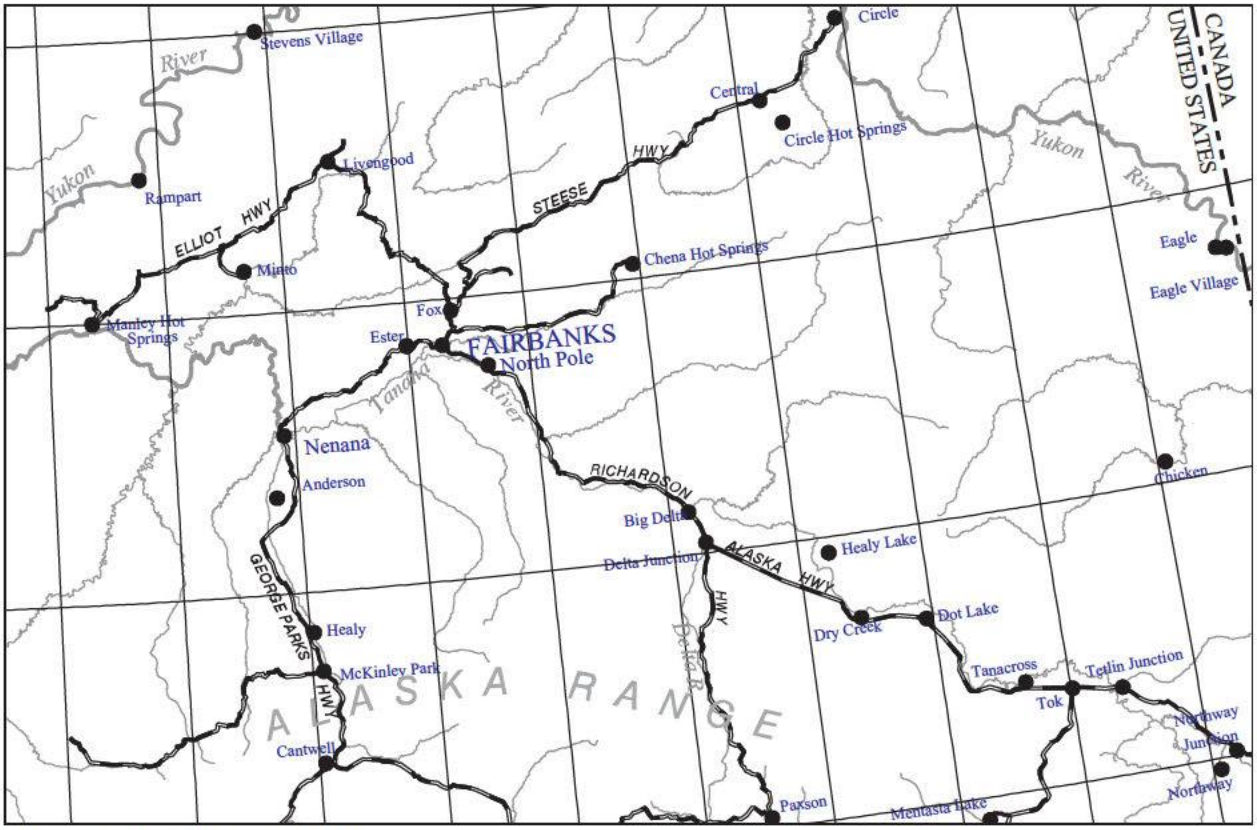


Figure 1. Map of Interior Alaska.

[2] Louis M. Prindle, *The Gold Placers of the Fortymile, Birch Creek, and Fairbanks Regions, Alaska*, Department of Interior, U.S.G.S., Bulletin 251 (Washington D.C.: GPO, 1905), p. 17.

The region has a continental climate. Cold, long winters and warm, short summers typify the Interior Records indicated a range of temperature from + 91 to – 47 degrees Fahrenheit in 1918.[3] The long daylight hours of the summer combined with the boggy nature of the lowlands provide a prime environment for thick vegetative cover. Spruce, birch, and aspen trees dominate the large plant community, while alder and willow create extensive ground cover. The area is difficult if not impossible to traverse during the summer. Snow and ice-cover allow for easier access during the winter months.

Geologically the region represents rock classes of both the igneous and sedimentary types [4] Geologic maps illustrate that prime mining regions are located on areas comprised primarily of metamorphosed sediments These sediments include mica-schists, crystalline limestones, and the Birch Creek schist series. These formations indicate mineralized areas and hint at the existence of gold and other valuable minerals. The Interior lowlands are silts, sands, and gravels that represent conditions less conducive to placer and lode mining. The Yukon Training Area of Fort Wainwright and the southern reaches of Fort Greely (particularly Greely West) include the metamorphosed sediments indicative of locatable minerals Comparatively, the Tanana Flats Training Area and mid to northern reaches of Fort Greely reveal the existence of primarily sands, silts, and gravels, indicating a low potential for early mining activity.

Gold found in the mineralized localities described above is typically retrieved from deep placer formations. A formation of gold mixed with gravel is found along watercourses. Due to the weight of gold and geologic erosion, the gold sinks and is deposited below the streambeds near bedrock In Fairbanks, the depth of gold ranged from surface deposits to pay streaks 100 feet down. These placer gold formations were primarily classified as creek placers in the Fairbanks and Delta Junction (a k.a. Big Delta) mining districts Other placer categories include bench placers, hillside placers, and river bar placers to name a few [5] Discontinuous permafrost or overburden, the frozen soil between the surface and bedrock, is a geologic characteristic of the Interior that greatly affected historic mining activities Due to the nature of the deep gold deposits, U S G.S Geologist Chester Purington made the following observations of mining near Fairbanks:

> Mining operations have been made difficult by the short available season, the lack of grade to the streams, poor water supply, poverty of timber resources, high cost of labor and transportation, concentration of gold on and in the bedrock, and the comparatively large thickness of barren overburden, the frozen, or worse still, half-frozen condition of the gravel…[6]

It can be assumed that prospectors at mining sites located on Fort Wainwright and Fort Greely would have faced the same conditions and used the same methods to overcome the environmental difficulties of placer mining just as mines in other northern regions did.

[3] Norman L. Wimmler, *Placer Mining Methods and Costs in Alaska*, Department of Interior, Bureau f Mines, Bulletin 259 (Washingt n D.C.: GPO, 1927), p. 2 .

[4] Ibid, p. 23.

[5] Chester W. Purington, *Methods and Costs of Gravel and Placer Mining in Alaska*, Department f the Interior, U.S.G.S., Bulletin 263 (Washington D.C.: GPO, 1905) p. 27. [Hereafter cited as C.W. Purington, *Methods and Costs*] Purington provides a detailed account of the nature f placer dep sits through ut Alaska. He n tes that the Fairbanks district was c mprised f creek deposits.

[6] Ibid., p. 3 .

Chapter 3.0 Upper Tanana Valley Discovery

Mineral exploitation in the Upper Tanana Valley followed pre-established economic growth patterns found throughout the American West. In this sense, mining in Alaska was not unique but replicated a settlement model seen repeatedly during America's westward expansion; a process that has been well documented in scholarly reports and in many other writings about mining on the frontier. The cycle began with discovery, followed by the spread of the news, and then the first wave of the stampede entered the new region. Soon the easily worked ground was mined dry, and more intensive methods requiring much more capital were necessary. Large companies, often working on consolidated claims, replaced the individual miner. More permanent architecture took the place of the temporary tent communities erected by the first prospectors. Interior Alaska, as a mining region, shared other characteristics such as isolation, nucleation, and homogenization with most western mining districts.[7] The story of gold near Fairbanks and the subsequent population boom re-enforces a pattern found in nearly every mining camp of the West.

There are, however, conditions in interior Alaska that make it a singular mining region when compared to others in the lower forty-eight. For example, William S. Greever notes that "the discovery of gold by George Washington Carmack in 1896 precipitated a wild stampede from Seattle to the Yukon, a rush similar to the earlier ones in many ways but unique in the difficulties imposed by northward travel and the problems raised by the harsh climate."[8] In Alaska the Interior is an area distinguished geologically by discontinuous permafrost. To mine the deep auriferous placer and lode deposits, miners had to invent special, area-specific methods to penetrate the frozen earth. The need to use innovative techniques uncommon to other mineralized regions increased the significance of mining in Alaska. C.H Purington of the U.S.G.S. reported that miners in the northern gold fields "found that in Alaska much of their previous work experience proved of no special benefit" and that attempts to apply "mechanical methods of established reputation elsewhere have frequently resulted in ignominious failure."[9]

Mining the placer gold took time and capital. The Fairbanks mining district expanded at a much more sustainable level when compared to the economic stability of other regions, such as Nome, Alaska, or the gold and silver rushes of Colorado. The gold deposits lasted longer in Fairbanks, and the application of new technology allowed for the recovery of low-grade ore long after the initial boom. The boom and bust cycle extended itself in interior Alaska, and gold production continued into the industrialized mining era of the 1920s and 1930s. The heavy machinery associated with industrial mining in the Interior, such as dredges and drag lines, and the extent to which the mines extracted ore, further increased the significance of the Tanana Valley mines. The sustained levels of production also contributed greatly to mineral production throughout the United States, bolstering the Interior mining's national significance as well.

3.1 Early Explorers

There are a few early expeditions worthy of mention as they add to the knowledge of the mineral potential in the Upper Tanana region. These expeditions are also important to early mining as they replicate the pattern of settlement found outside of Alaska. In unknown regions of the United States, the government sponsored expeditions to explore new territories and write official reports of the natural resources potential,

[7] Richard V. Francaviglia, *Hard Places: Reading the Landscape of America's Historic Mining Districts* (Iowa City: University of Iowa Press, 1991), chapter two. This book deals extensively with the traits common to mining regions through a comparative analysis of different towns and mines in the American West.

[8] Willaim S. Greever, *The Bonanza West: The Story of the Western Mining Rushes, 1848-1900* (Norman: University of Oklahoma Press, 1963), p. 331.

[9] C.W. Purington, *Methods and Costs*, p. 29.

inhabitants, and other features of the area. This was the motivation behind Lewis and Clark's exploration of the Louisiana Territory in 1803, and later with the exploration of the unfamiliar and unknown lands of the American Southwest by John W Powell in the 1870s. The growth of knowledge about Alaska relied first and foremost on the dissemination of information provided by government officials. These reports based their information on stories told by native inhabitants and early trappers and traders In some cases, prospectors and other trappers closely followed the trails blazed by government expeditions. In others, a few trappers and prospectors generated enough rumor and curiosity that the government learned from them about unexplored lands.

Trappers and traders preceded the government and established themselves in the Tanana Valley as early as the 1840s Russian traders entered the Interior by travelling up the Yukon to trade with the native inhabitants at Nuklukayet (a k a Weare and Tanana) near the confluence of the Yukon and Tanana rivers.[10] Trappers from the Hudson Bay Company soon joined the Russians in Alaska's interior. While these men traversed much of the country, the Tanana, the largest river flowing into the Yukon, remained mostly a mystery. Local Indians knew it as the River of the Mountains. White men were reported to only have explored the first few miles of the river.[11] Arthur Harper, Alfred Mayo, and Leroy "Jack" Napoleon McQuestern came to Fort Yukon in 1873 and spent the next few seasons exploring the mineral potential of the region, including the upper reaches of the Tanana River.[12] In 1878 Harper and Mayo ascended the Tanana River on a prospecting expedition that led them 250 to 300 miles up the river near present day Fairbanks [13] Nothing of significance resulted from these expeditions. For the next decade the Tanana remained a relatively unknown region to Euro-Americans

In 1885 Lt. Henry T. Allen entered the Tanana Valley after crossing the Alaska Range from the Copper River Basin on an approach from the south. His expedition generated the first official government map of the Tanana River.[14] Lt. Allen's report provided the first concrete information on the Tanana watershed. However it was not until Alfred Hulse Brooks, under the employment of the United States Geologic Survey, visited the region in 1898 that the mineral potential of the area was reported in detail.[15] He noted of his exploration that "We have seen that traces of gold have been found throughout the region examined by our party, and that the conditions for its occurrence are in many respects favorable…the same horizons that carry the gold in the Fortymile and Birch Creek districts are represented in the White and Tanana River basins."[16] Alfred Brooks became the leading authority on Alaska's geology and topography while surveying for the United States Geologic Survey over the next 20 years. His reports, combined with those of Allen and the prospectors, Arthur Harper and Alfred Mayo, paved the way for others to follow.

3.2 Early Gold Discoveries

The prospectors Harper and Mayo did report the existence of placer gold in the Yukon Tanana region, but their discoveries went unheard. The Klondike strikes in Canada and the Fortymile River region discoveries in Alaska held the attention of miners during the 1880s and 1890s. There was at the time no need to investigate the possibility of more mineral deposits in the harsh climate and hard-to-reach areas of interior Alaska.

---

[10] Cecil Francis R be, *The Penetration of an Alaskan Frontier: The Tanana Valley and Fairbanks*. Thesis. (Yale University, 1943), p. 17. [Hereafter cited as R be, *The Penetration*].

[11] Ibid., p. 21.

[12] Ibid., p. 21.

[13] Alfred H. Brooks, *The Mount McKinley Region Alaska* Department f the Interior, U.S.G.S., Pr fessi nal Paper 70 (Washingt n D.C.: GPO, 1911), p. 25.

[14] Ibid., and C.M. Naske and L.J. Rowinski, *Fairbanks: A Pictorial History* (N rf lk: D nning C , 1981) p. 11-13, which c ntains photographs of Lt. Allen and the map he drew of the Tanana River c. 1885.

[15] L.M. Prindle, *A Geologic Reconnaissance of the Fairbanks Quadrangle Alaska*, Department f the Interior, U.S.G.S., Bulletin 525 (Washingt n D.C.: GPO, 1913), p. 13; and Alfred H. Br ks, *A Reconnaissance in the Tanana and White River Basins Alaska in 1898*, Department f the Interior, U.S.G.S., 2 th Annual Rep rt Part VII (Washingt n D.C.: GPO, 1900).

[16] Alfred Brooks, *A Reconnaissance in the Tanana and White River Basins Alaska in 1898*, p. 488.

One experienced prospector realized that the booms of the Klondike and Fortymile regions would eventually play out. He also realized the mineral potential of the Tanana basin as did Alfred Brooks in 1898. His name was Felix Pedroni (subsequently referred to as Felix Pedro), a prospector with mining experience dating back to Italian coal fields where his father worked, and a man who prospected the rushes to the Kondike and Fortymile regions.[17] In 1898 Pedro discovered gold in the Tanana hills but was forced to return to Circle City due to low supplies. In subsequent ventures he was unable to locate his initial discovery location. Pedro and his prospecting partner, Bert Johnson, left Circle City again in 1901 outfitted for an extended trip to relocate the lost gold creek earlier found by Pedro. They found gold on a small tributary to the Salcha River and Pedro named it Ninety-Eight Creek, thinking he had at last found the lost creek of 1898.[18] Yet again no pay streak revealed itself. His partner left and his initial discovery was written off as rumor.

Pedro remained determined and continued prospecting the hills with a new partner, Tom Gilmore, in search of gold Their supplies and spirits low, both men were planning to return to Circle City to work and purchase supplies for another trip set for the following year. Atop a hill, now known as Pedro Dome, they saw smoke from a steamer on the Tanana River. Instead of making the 165-mile trudge back to Circle, Pedro and Gillmore hiked the 20-some miles down to the Tanana and discovered the river steamer *Lavelle Young* was dropping off supplies with the trader E T. Barnette [19] Pedro purchased supplies from Barnette for the winter and reported that he was prospecting the area. This chance meeting led to the development of Fairbanks, then known as Barnette's Cache, as a supply center for miners and prospectors.[20]

Pedro struck gold in 1902 on a small stream 12 miles northeast of Fairbanks. News quickly spread and the rush was on to the Interior. Prospectors aflame with gold fever poured into the Tanana Valley Development exploded in the region over the next five years and permanently fixed Fairbanks and the Interior on the map.

[17] Terrence C le, *Crooked Past: The History of a Frontier Mining Camp: Fairbanks, Alaska* (University f Alaska Press: Fairbanks, 1991) p. 13. [Hereafter cited T. C le, *Crooked Past*].

[18] Ibid., p. 15.

[19] Robe, *The Penetration* p.1 9.

[20] The f unding of Fairbanks and the early activities f Pedr and Barnette are presented here in a very simplified form. Who was act ally with Pedro, where he was prospecting, and the beginning f Fairbanks are c vered most c mpletely in C le's Cr ked Past, th ugh many variations f the st ry can be f und.

CHAPTER 4.0 Wave I – Prospectors and Individual Placer Operations, 1902–1910

The historic context report produced by Northern Land Use Research, Inc. for the Fort Knox Gold Mine notes that Pedro's activities "broadly reflect a way of life of early prospectors."[21] He and the first wave of bonanza miners initiated the cycle of settlement and exploitation found throughout western mining regions. These men traveled alone or with a partner and covered enormous tracts of land in search for gold. It was often upon a prospector's word that stampedes began and mining regions developed. Duane A. Smith described the growth and settlement process of mining regions in terms of "urbanization," where the work of individuals attracted others and a nascent community began forming.[22] This was the case with Fairbanks and the adjacent mining districts of the Upper Tanana Valley.

The lack of geographic and geologic knowledge of the Tanana in 1900 clearly made it an isolated area. The "easiest" access to the region was by riverboat. If travelling from Seattle, a miner sailed the coast of Alaska to the Yukon Delta and secured a seat on a steamer, such as the aforementioned *Lavelle Young*, for the final journey up to the gold camps – a journey that took weeks to complete. The other alternatives included the route that Pedro took, an arduous 165-mile trek and sled ride across the hills from Circle City and the Fortymile district to the Salcha River watershed, down to the Tanana, and into the gold fields. Getting to Circle City required either a steamer up the Yukon or hiking the Chilkoot Pass Trail from Skagway. Another route, pioneered by Lt. Allen's expedition in 1885, went over the Alaska Range from Valdez. Before Captain Wilds Richardson established a trail as a government road, this route was essentially impossible to traverse.

The Interior's isolation limited easy access and hindered the export of ore to mills and markets once production began. One of the chief concerns in Fairbanks was access from the mines to the outside. Trails developed immediately and set the course for the development of railroads, but this took more time. Prospectors and small-scale miners working in a relatively unpopulated and unconnected region of Alaska characterize Wave I, 1902–1910.

Nucleation quickly followed isolation and generated a well-defined settlement pattern, both in an analytical sense and in a visual sense seen on the landscape.[23] The chance meeting of E.T. Barnette and Felix Pedro resulted in the development of Fairbanks as a central supply location to the outlying towns. Fairbanks represented the hub of intense commercial development connected by spokes (rivers, roads and railways) to the outlying creeks and tent communities where the mines were located. A glance at transportation routes delineated on topographic maps shows the hub-and-spoke image typical of mining regions.

4.1 Early Mining Techniques and Equipment

Felix Pedro and the first wave of gold seekers that came to Fairbanks used primitive mining methods, such as drift mining, that were common to other northern gold camps.[24] The early prospectors also managed without much capital or equipment. The frozen overburden presented a unique difficulty for these men. This deep gravel, under which the gold was located, needed to be thawed. Initially, miners built wood fires on the ground then excavated the melted ice and gravel around the fire. After about a foot of digging, the miners

[21] Robert A Sattler, et al., *Fort Knox Project Cultural Resource Program Mitigation Report*, Northern Land Use Research, Inc. (Fairbanks: NLUR, 1994) p. 24. Available through NLUR.

[22] Duane A. Smith, *Rocky Mountain Mining Camps: The Urban Frontier* (Bloomington: Indiana University Press, 1967), p. 4.

[23] Richard Francaviglia in *Hard Places* discusses isolation and nucleation as common characteristics to mining camps. This example puts a little twist to his interpretation.

[24] Genevieve Alice Parker, *The Evolution of Placer Mining Methods in Alaska*, p. 19. Parker gives a detailed account of the wood burning method including some of the difficulties, such as forcing the heat down and not at the walls of the growning shaft. She also offers an extensive discussion of thawing using the fire method.

started another fire and repeated the process to sink a shaft into the frozen overburden. Miners could "sink a hole about one foot per twelve hour day."[25] A shaft would be melted to bedrock, anywhere from 20 to 100 or more feet, then the miners would "drift" in the direction of the pay streak. The miners removed the overburden and auriferous gravel with a man-powered hoist called a windlass. This was done in the winter.

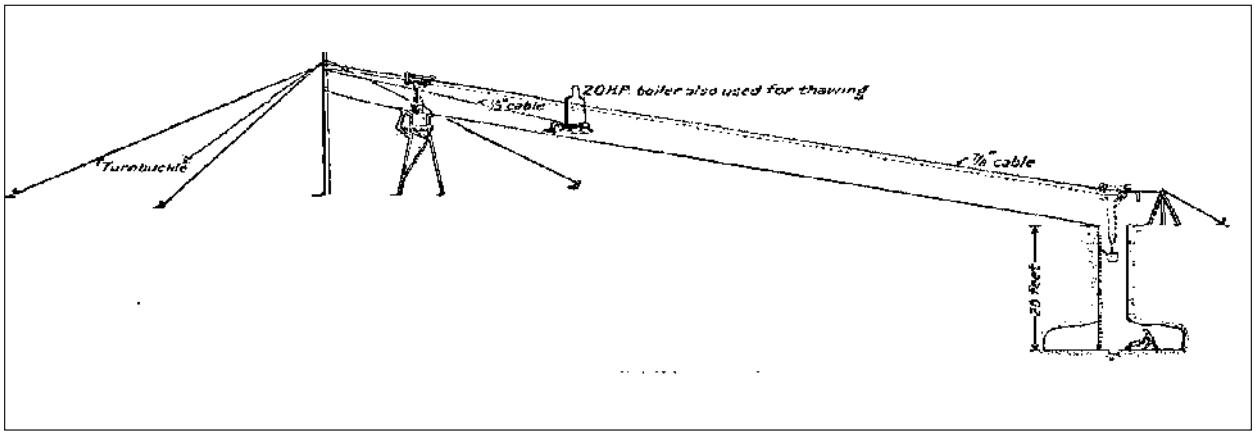


Figure 2. Diagram of Drift Mine in Interior Alaska.

The resulting ore-bearing gravel was dumped in large conical piles, which the miners shoveled into rockers and sluice boxes during the summer. This method depended on the ready availability of water. The men sometimes had to construct extensive ditches and flumes to route the water to their machinery. Gold, being heavier than the other rock, sank to the bottom of the rockers and sluices where small cleats or grooves along the bottom caught the gold. The waste material then flowed over the top and out the end.

Drift mining operations during the initial era were small and tended to concentrate on the easy to reach gold deposits. A brief survey of headlines in the *Tanana Miner* between the years of 1906–1907 revealed that one or two men worked a claim using the drift method described above with equipment such as picks, shovels, sluices, rockers, windlasses, and occasionally a small, twenty to thirty horsepower boiler. Other equipment on site would include wire and rope, wood scraps, nails, bolts, and other maintenance-oriented tools. Miners sometimes built cabins near the placer deposits, but more often they stayed in tents. Small operations using primitive methods and minimal equipment define the Wave I context of mining between 1902–1910.

4.2 Landscape Features

The natural topography remains the same throughout the development of the Upper Tanana Valley. Rolling hills, punctuated by larger domes and carved rugged by numerous creeks and rivers, comprise the landscape. The vegetative growth is extremely dense and is dominated by coniferous and deciduous trees throughout.

During Wave I, 1902–1910, miners had a minor impact on the landscape. They harvested timber for fuel and construction but not nearly at the scale seen in subsequent years. The miners re-routed creek channels for sluicing operations by digging small ditches. These insignificant alterations would have eroded after the operation ceased and by no means compare to the extensive streambed alterations of later years. The shafts and drifts were underground. The exterior conical piles of gravel identified a drift mine, but they were shoveled through sluices within a season and washed away. Many of the large-scale operations worked the same ground as the early drift miners and erased any evidence of their activities. Overall, early drift mines would be difficult, if not impossible, to find with a search based on visual evidence alone. These men labored quickly, recovered the easiest pay streaks, and moved on, leaving few lasting impacts on the landscape. Trails

[25] J. C. Hildebrandt, *The History of Placer Mining in Alaska*, p. 36.

connecting the mines to Fairbanks would be considered landscape features, but thedenseregeneration of vegetation has probably hidden any evidence of these pathways.

4.3 Property Types and Descriptions

Early mining sites would be hard to discern. Prospectors may have camped in some of the valleys and most likely prospected on land now withdrawn for Army installations. Heavy overgrowth and the extremely temporary nature of their work would make these sites virtually impossible to locate There may be a test hole, marked by a depression in the ground and a pile of rocks. The miners may have flattened an area of ground to set up a tent. However, most of the gold was located in streambeds, and erosion has likely taken its course on these types of sites. Records do report the existence of early claims (see Chapter 8 *Mining Activity Locations*) which were probably filed upon the discovery of a good prospect. An ideal historical mining site would contain sluice box remains, small boilers, shovels, flat areas for tents, wood scraps and other equipment related to mining and property upkeep.

Year	Production Total	Year	Production Total
1903	$40,000	1907	$7,845,000
1904	$400,000	1908	$9,180,000
1905	$6,000,000	1909	$9,650,000
1906	$9,320,000	1910	$6,244,300
		TOTAL	**$48,679,300**

Figure 3. Gold Prod ction Totals Fairbanks Mining District During Wave I 1902–1910.[26]

[26] The pr duction totals f the Fairbanks Mining District were c mpiled from the annual rep rts f Phillip S. Smith, *The Mineral Industry in Alaska*, which he calculated each year for the U.S.G.S. rep rts and bulletins.

Chapter 5.0

Wave II – Transition to Wage Labor and Industrialized Placer Operations, 1910–1923

By 1910, a movement towards more capital intensive mining that involved limited partnerships and replaced individual operators characterized Wave II. Headlines and articles that previously mentioned one or two men operating a claim now discussed partnerships and nascent mining corporations forming in the Fairbanks and Delta Junction areas. The *Fairbanks Daily News-Miner* reported that men such as J.W. McCord were now accompanied by several associates in their operations.[27] Other stories indicated the formation of small associations, such as Kirkpatrik & Sharp, or Ross, Murphy, and McCarty.[28] Gone were the days of individual operators and easy gold. Miners realized that more investment and man-power were necessary to continue extracting the deep placer gold deposits. This translates to larger operations and more intense impacts on the land.

Partnerships and nascent corporations generated enough capital for operations to begin purchasing more industrialized equipment. Pedro Creek received a pump and engine as the claims were continually producing gold ore.[29] This gold ore sparked enough interest to cause some mining capitalists to form dredging companies, such as the Lemon-Alaska Dredging Company that was incorporated on November 8th 1910.[30] These stories dominated the mining news from 1910–1923. The miners solidified their claims and combined their interests to facilitate the mineral exploitation in Interior Alaska in a more cost-effective way.

5.1 Mining Techniques and Equipment Used

Mining towns throughout the West typically stimulated the rapid expansion and capital investment for the development and expansion of transportation.[31] By 1906 entrepreneur Falcon Joslin had tied Fairbanks to the major creek towns with the Tanana Mines Railway (later known as the Tanana Valcot Railroad). One newspaper article reported that "on her trial trip yesterday afternoon the big mogul of the Tanana Mines Railway made the distance between Fairbanks and Gilmore without any load, like a streak of greased lightening."[32] Also in Wave II, work began in earnest on the Valdez-Fairbanks Trail, and ideas for a government-sponsored railroad connecting Alaska's southern coast with the Interior began surfacing. All these improvements acted to lower the cost of shipping goods and equipment to the mines, which, in turn, resulted in the mechanization of placer methods.

Where pans and sluice boxes had dominated Wave I, miners in Wave II employed more mechanized methods of placer mining. Steam thaw points quickly replaced fires in the first stage of the operations. Steam points, constructed of hollow 3/4 inch iron tubes, ranged in length from 6 to 24 feet. Miners hammered these tubes into the ground at set intervals, usually four to ten feet apart. An attendant pumped steam to the points and into the ground to melt the overburden. One or two men could operate a field of thaw points, continuously pounding the points into the ground as it melted. This increased the rate of thawing from one foot per day to two feet per hour. Other thaw points used cold water to melt the overburden.[33]

---

[27] *Fairbanks Daily News-Miner,* Thursday April 28, 1910.

[28] Ibid., August 10, 1910.

[29] Ibid., August 04, 1910.

[30] Ibid., November 10, 1910.

[31] Randall Eugene Rohe, *The Geographical Impact of Placer Mining in the American West, 1848-1974*, Thesis. (Boulder: University of Colorado, 1978) p. 365. [Hereafter cites as Rohe, *The Geographical Impact*] While this book provides excellent contextual information for placer mining, it surprisingly does not cover the rushes to Alaska and the intensive placer operations that dominated the Interior.

[32] *Tanana Miner*, 1906.

[33] The thaw point description came from Norman L. Wimmler, *Placer Mining Methods and Costs in Alaska*, Department of Interior, Bureau of Mines, Bulletin 259 (Washington D.C.: GPO, 1927), p. 74-86. This bulletin offers detailed descriptions of placer operations throughout the state with many references in the Fairbanks area. Genevieve Parker, in *The Evolution of Placer Mining in Alaska*, covers the variety of points used, such as the Barrack, Schelenberger, Matthews, nipple, and gun-barrel points.[34] Ibid., p. 87-134. Again Wimmler offers detailed explanations of these methods.

Miners used a variety of methods to remove the melted muck, gravel and pay dirt in Wave II. Open-cut, also known as open pit mining, removed all the surface material down to bedrock. Shoveling the materials aside was the most primitive way to remove overburden, now done only at small operations. Larger mines utilized mechanized equipment such as self-dumping carriers, drag lines, cableway excavators and steam-powered scrapers to pile the gravel and gold into large conical piles.[34] Once the piles gained size, laborers shoveled the material into sluice boxes to recover the gold. Some mines also employed high pressure hoses, called giants, in a method known as hydraulic mining. The lack of grade to the watercourses limited the amount of pressure available and impeded the development of large-scale hydraulic operations in the Interior.[35] Ideal historic sites would contain wire, metal scraps, boilers, engines, thaw points, hoses, water pumps and other equipment used to operate and maintain the machines and hoisting equipment. This type of industrialized operation was common to both open-cut and drift mining and characterized Wave II.

5.2 Landscape Features and Property Type Descriptions

In Wave II the industrialized mining landscape dominated the Upper Tanana Valley. This physical transformation is one of the defining traits of mining districts throughout the American West.[36] The most distinctive element of this landscape was the large conical piles of ore-bearing muck. Wooden rail bridges, cables and towers, and hoses interconnected the piles to the drift mine. Denuded hillsides were another feature of Wave II landscape. Wood was the primary fuel source, also used for shaft supports, haul line towers, sluices, and a variety of other purposes. Together, the barren hills and muck piles defined the image of mining in the Interior from 1910 to 1923. The open-cut mines left permanent scars on the land, creating large pits, many of which filled with water after mining ceased. The pits extended well beyond the banks of the creeks and ranged from 10 to 80 feet below the surface. Drift mining still produced large conical piles of dirt, but the ground disturbance was much less degrading than that of the open pits.

Figure 4. Example of Typical Hydraulic Operation in Alaska c.1905.

Open pit mines also required the stream flow to be diverted, which altered the natural landscape. Miners often diverted water from other creeks using piping, ditches, and flumes that sometimes traversed miles of hillsides to gain elevation and to generate enough power to operate giants and sluices. These ditches represented an intensified human imprint on the landscape. Other effects on water resources included increased siltation that subsequently impacted fish and other wildlife along the creek beds, changes in flow directions, and erosion along the watersheds.[37]

Another impact mining operations had on the land was the destruction of vegetation, common to both open-cut mining and hydraulic operations. This ranged from cutting trees to the wholesale stripping of vegetation. This indicator may be difficult to discern by the modern observer since much of the plant cover has been

[34] Ibid., p.87-134. Again, Wimmler offers detailed explanations of these methods.
[35] Genevieve Parker, *The Evolution of Placer Mining in Alaska*, p.47.
[36] Richard Francaviglia, *Hard Places*, p. 127.
[37] Unnatural direction changes in creek courses, other channel alterations, and the presence of ponds can also be used in identifying a mining landscape.

reestablished, completely masking any effects from mining.[38] In some open cuts and hydraulic areas, water content and bedrock exposure have prevented new plants from growing, and growth is slowest along the banks of the pits [39] Mining further affected the distribution of plant species. Cleared areas created zones where once minor species of plants could then flourish [40]

By the end of Wave II, the Interior mining districts displayed a man-made environment of stream diversions, lumber piles, mine waste rock and tailings. Gravel piles and mining equipment littered the landscape. From a broader birds-eye perspective, roads, trails, and railways connected once isolated regions to the main distribution center at Fairbanks.

Year	Production Total	Year	Production Total
1911	$4,544,	1918	$, 0
1912	$4,176,	1919	$73 , 0
1913	$3,32 ,	192	$5 , 0
1914	$2,514,	1921	$57 , 0
1915	$2,465,	1922	$693,000
1916	$1,800,000	1923	$6 3 0
1917	$1,310,000		
		TOTAL	**$24,113 000**

Figure 5. Gold Prod ction Totals, Fairbanks Mining District, Wave II 1910–1923.

[38] A drive t the mining creeks ar und Fairbanks makes the re-vegetati n p int quite bvious.

[39] R he, *The Geographical Impact*, p. 2 8.

[40] Ibid., p. 219. Rohe cited a case in California where a placer perati n pened up new gr und where n nnative tree species flourished and changed the floral c mp sition f the land. This p tential als exists in Alaska, th ugh further investigati n is necessary. There may be a p tential t determine a mined area by the level f re-vegetati n that has occurred, r by an unusual distribution and c mp sition f plant species.

CHAPTER 6.0 Wave III–Industrialization and Corporate Placer Mining, 1923–1942

The government-sponsored Alaska Railroad reached Fairbanks in 1923, providing the Interior mining districts with cheap transportation for fuel and equipment. Many of the high-grade placers had been depleted by this time, but the transportation advances now made mining low-grade deposits a feasible operation. The capital investment necessary for such operations was well beyond the reach of individual operators, partnerships, and small companies. Wave III is characterized by the consolidation of individual claims into the ownership of larger corporations. In 1924, the Fairbanks Exploration Company (F.E. Co), a subsidiary of the U.S. Smelting Refining, and Mining Company, entered Fairbanks and began intensive corporate-based mining operations. Other corporations developed and matured in this era, such as the Fairbanks Gold Dredging Company, the Chatham Dredging Company, and the Tanana Valley Gold Dredging Company.[41] Miners now became wage laborers for these companies. Dredging to extract ore became commonplace and the landscape changed dramatically with the implementation of dredges. Dredging "applied the mass production of Henry Ford's America to placer mining."[42] Interior Alaska provided the proving ground for America's technological advancement in the 1920s and 1930s.

Dredging by no means replaced drift mining. The latter remained the only effective way to extract auriferous rock from deep deposits. Hydraulic and open pit operations also continued into Wave III. Heavy equipment (Caterpillars) replaced shovels. Airplanes replaced snowshoes and dog teams. All these methods reflect a systematic and calculated effort to mine whatever remained, a characterization of Wave III.

6.1 Mining Techniques and Equipment

The dredge became the predominant method of mining the lower-grade ores in the Fairbanks and Delta Junction (Tenderfoot/Richardson/Goodpaster) regions. The *Farthest North Collegian*, noted that "the methods adopted by companies whose original investment in a venture is large are far different from the whimsical, non-technical, impractical methods practiced by the majority of small operators…a thorough and complete system of prospecting is outlined, with intent to define within mathematical limits, the width of the paystreak, depth of muck and gravel, volume of dirt necessary to be moved, as well as to give a conservative estimate of the probable value per cubic yard."[43]

The area had to be drilled and assayed to determine not only the value of the ore, but also to find the direction in which the pay streak ran, the nature of the frozen ground, the contour of the bedrock, and the depth of the groundwater.[44] The companies employed professional surveyors and engineers to accomplish this stage. Once testing established the depth, value, and direction, the ground needed thawing. Dredging companies relied on thaw point systems. This required thaw points, connecting hoses, pumps, boilers, hammers, and other maintenance and operating equipment.

Thawed land required stripping before the area was suitable for dredges. Stripping methods used drag lines, hydraulic giants, and bulldozers. These machines moved the thawed overburden by cable cars, conveyor belts, and dump trucks. One mining report estimated that it took "the company [F.E. Co.] at least three years

[41] Clark C. Spence, *The Northern Gold Fleet: Twentieth Century Gold Dredging in Alaska* (Chicago: University of Illinois Press, 1996), p. 48. The Alaska Polar Regions Archives, University of Alaska Fairbanks, hold manuscript collections for the Fairbanks Gold Dredging Company and the Tanana Valley Gold Dredging Company.

[42] Ibid., p. 7.

[43] *Farthest North Collegian*, June 1926, 4(3).

[44] Norman L. Wimmler, *Placer Mining Methods and Costs in Alaska*, p. 176.

to prepare a tract for dredging, as the surface vegetation must be taken off, the overburden thawed and disposed of, and the frost in the gold-bearing gravel thoroughly removed before it can be excavated."[45]

With the overburden disposed of and the gold-bearing rock thawed, dredging operations could commence Mining companies built extensive systems of power plants, ditches and facilities to support the operations. The F.E. Company constructed the 90-mile-long Davidson Ditch for a water supply, and also built a steam power plant that contained 1,000 horsepower boilers, the dredges themselves, and all the support shops, bunkhouses, and miscellaneous items.[46] Dredges were huge machines, constructed of wood and steel in lengths well over a hundred feet and heights as tall as three stories They employed large buckets to dig up the ore, and contained an internal grinder and mill for processing. One estimate gave a sense of these massive operations, noting for the 1931 season that stripping removed 7,001, 000 cubic yards of muck, thawing totaled 8,133,00 cubic yards, and the dredges handled 6,916,000 cubic yards.[47]

This was the pinnacle of industrial and corporate mining in interior Alaska. Sites from this era may contain the hydraulic giants, dredges and associated equipment, or display characteristics of drift mining with hoists. Isolated mines may also have airstrips and winter tractor trails for access

6.2 Landscape Features and Property Type Descriptions

Wave III mining impacted the land more seriously than the two previous eras. The effects of hydraulic operations, described in the Wave II section, grew during the Wave III time frame. Open-cut mines and dredges had long-term effects on the landscape and left unique scars.

Dredges completely removed any vegetation in their path. They deposited the waste rock in huge snakelike piles coiling from side to-side along the valley floor. The revegetation of dredged areas does not easily mask the disrupted landscape. The trees, shrubs, and weeds that grow in the detritus piles have a unique symmetry that follows the rivulets and contours of the dredge pile. Such extensive gravel piles are still very easy to spot Dredges also diverted watercourses, polluted streams, and greatly changed the appearance of the visual landscape Hydraulic methods also left visible scars void of vegetation Streambeds were diverted and upturned, and muck filled the valley floors.

Although a significant impact on terrain, a longer description of dredging is not warranted for this paper No dredging operations occurred on Fort Wainwright or Fort Greely There was hydraulic mining, and some operators used tractors, backhoes, and other heavy equipment (See Chapter 8 *Mining Activity Locations*)

Year	Production Total	Year	Production Total
1924	$680,000	1934	$5,474,000
1925	$520,000	1935	$5,317,000
1926	$462,000	1936	$5,642,000
1927	$347,000	1937	$4,891,000
1928	$940,000	1938	$5,653,000
1929	$1,138,000	1939	$5,041,000
1930	$2,782,000	1940	$7,315,000
1931	$2,486,000	1941	$5,402,000
1932	$2,785,000	1942	$5,955,000
1933	$3,077,000		
	TOTAL		**$65 907,000**

Figure 6. Gold Prod ction Totals, Fairbanks Mining District, Wave III, 1923–1942.

[45] Philip S. Smith, *The Mineral Industry in Alaska in 1939*, Department of Interi r, U.S.G.S., Bulletin 926-A (Washingt n D.C.: GPO, 1941), p. 42. [Hereafter cited as P. Smith, *The Mineral Industry 1939*]

[46] E.D. Gardener and C.H. J hns n, *Placer Mining in the Western United States Part Three: Dredging and Other Forms of Mechanical Handling of Gravel and Drift Mining*, Department f Interior, U.S. Bureau f Mines, Inf rmation Circular 6788 (Washingt n D.C.: GPO, 1935), p. 54.

[47] Ibid., p. 55.

CHAPTER 7.0 Decline of Mining and Development of Military Bases in Interior Alaska

The last phase of the mining cycle suggested by Rodman Paul was that of decline. This is the inescapable fate of all nonrenewable extractive industries. Through the '20s and '30s, dredges operated on deposits earlier judged too low grade to sustain a profitable mine. The bonanza streaks were gone. Corporate mining relied upon technological advancements and the high market value of gold to continue recovering low-grade ore. Indications of decline appeared as early as W.W.I in 1917. Placer gold production decreased from $11,140,000 in 1916 to $3,873,000 by1920.[48] Yet the industry, due to industrialization and corporate investment, recovered from this slump, and gold production increased over the next 15 years.

The decline of early mining in interior Alaska had little to do with the recovery levels of marginal gold deposits and had much to do with the anticipatory planning and entry of the United States into World War II. Specifically, the decision of the War Production Board in their L-208 order prohibited the mining of gold unless it was a by-product of a strategic mineral.[49] This order effectively halted gold mining placer operations in Alaska's interior regions and serves as a solid benchmark from which to conclude the historic context of early mining.

While the government suspended gold production during World War II, mining continued in earnest after the war. Though this period extends beyond the focus of this report, it is important to recognize that mining around Fairbanks is alive and profitable. Two very large gold mines, True North and Fort Knox, both north of Fairbanks, still operate today. One should view the historic mines in the Fairbanks and Delta Junction region as part of an active industry, not just as artifacts and relics of a bygone era.

Before nonessential mining ceased operations in 1942, the U.S. military had plans for interior Alaska. With the Japanese threat to the West during World War II and the exposure of U.S. territory to Russia via the polar flight route during the Cold War, Alaska became center stage for military activity. The U.S. Air Corps viewed interior Alaska as a prime location for an airfield and base. In 1939 they constructed Ladd Field to serve as a cold weather testing station for new equipment and tactical maneuvers. With the outbreak of the war it became an air depot for fueling and repairing aircraft as the central station for the Air Transport Command and base for shipping planes to Russia under the lend-lease program.[50] It became Ladd Air Force Base in 1947 with the establishment of the Air Force as a separate branch of the military.

In 1961 Ladd AFB was transferred to the Army and named Fort Jonathan Wainwright. The Army acquired surrounding lands for training purposes. These included the Yukon Training Area and the Tanana Flats Training Area.[51] Near the town of Delta Junction, the Air Command established another refueling and rest stop. Put on inactive status in 1945, the site was later chosen for the first post-war cold weather mission known as Exercise Yukon.[52] This post continued to grow throughout the Cold War just as Fort Wainwright did. The military also acquired training and tactical maneuver areas around Delta Junction known now as Donnely Training Areas East and West. In total, Army lands on Fort Wainwright and Fort Greely now encompass approximately 1.6 million acres of interior Alaska.

---

[48] P. Smith, *The Mineral Industry,1939*, p. 13.

[49] John C. Boswell, *History of the Alaskan Operations of the United States Smelting, Refining, and Mining Company* (Fairbanks: Mineral Industries Laboratory, 1979), p. 58. Boswell, former administrator of the F.E. Co., offers an excellent source for dredging techniques, F.E. Corporate history, names of miners, and other mining related topics. The book contains photographs and diagrams that help illustrate the mining landscape around Fairbanks in the 1930s.

[50] Center for Ecological Management of Military Lands, *Alaska Army Lands Withdrawal Renewal: Final Environmental Impact Statement*, Vol II. U.S. Army Alaska, 1998, p. 12.

[51] The property history of Fort Wainwright and Greely is rather complex, and is explained to some extent in the Final EIS for the land withdrawals. The boundaries for this report followed the Army land boundaries delineated on the 1:50,000 scale maps of Fort Wainwright and Fort Greely, available at DPW-Environment, Fort Wainwright, Alaska.

[52] Ibid., p. 13.

Chapter 8.0 Mining Activity Locations

The previous chapters provided the context in which to place early mining sites in the Upper Tanana Valley and the mining districts near Fairbanks and Delta Junction. Mining sites located on Fort Wainwright and Fort Greely will fall in one or more of the three waves described. The following chapters discuss where the majority of mining activity took place and then looks at Fort Wainwright and Fort Greely to determine areas of known and potential historic mining sites.

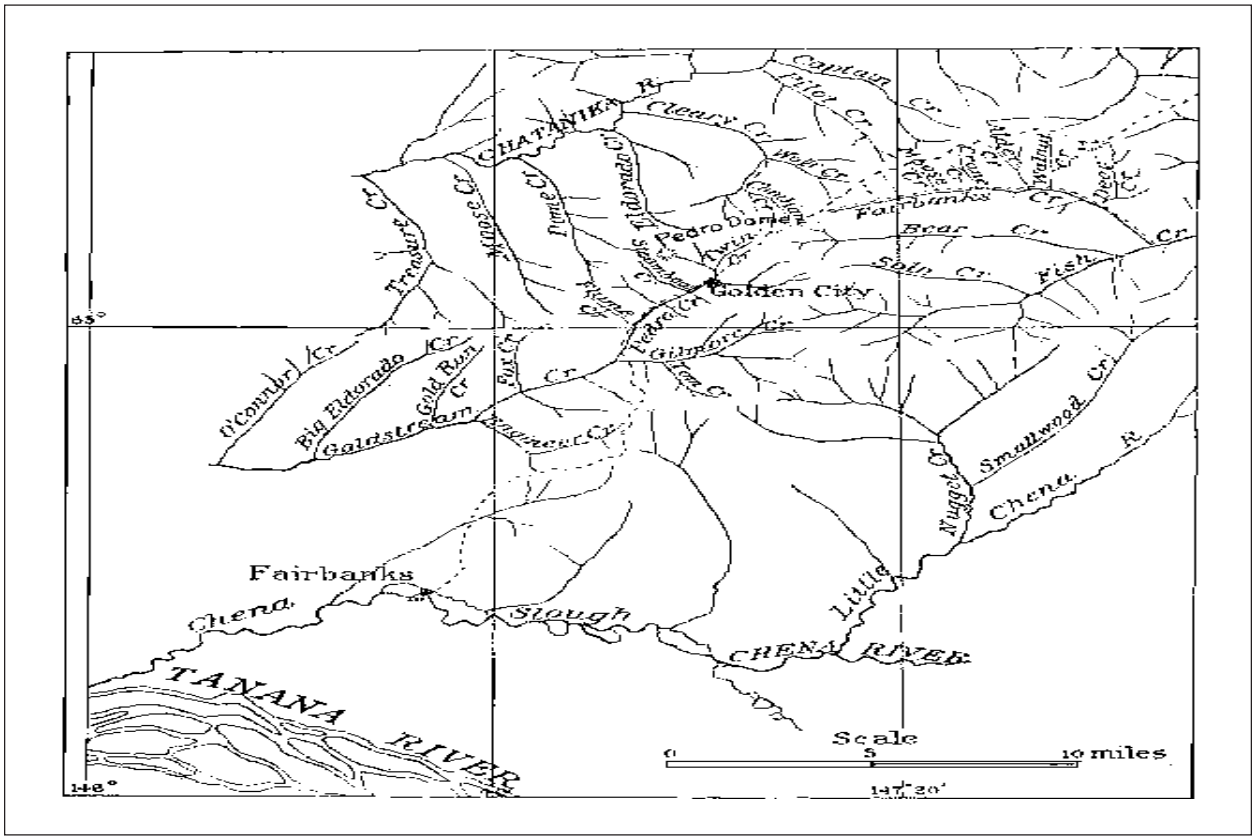


Figure 7. Map of Fairbanks Mining District and Principal Creeks

8.1 General

Miners quickly discovered and operated on the gold-bearing creeks of the Upper Tanana Valley. By 1904 the mineralized belts had been exposed and the regions of lode and placer mining activity became well established. From this date forward, the creek names and mined areas changed very little. In his report on placer mining methods and costs, Chester Purington lists the following creeks: Fairbanks, Cleary, Pedro, Chatham, and Twin.[53] All are north and slightly west of Fort Wainwright. The central town of the Fairbanks Mining District was Chatanika. Louis Prindle expanded this list to include Goldstream (a continuation of Pedro below Gilmore) and Wolf Creek.[54] Other activity fell northwest of Fairbanks around Ester Dome and the neighboring creeks. Other strikes near forts Wainwright and Greely were made. Of significant note are the Caribou and Butte creeks to the east of the Yukon Training Area.

[53] C. W. Purington, *Methods and Costs*, p. 208.

[54] Louis M. Prindle, *The Gold Placers of the Fortymile, Birch Creek, and Fairbanks Regions, Alaska,* Department of Interior, U.S.G.S., Bulletin 251 (Washington D.C.: GPO, 1905), p. 67.

By 1916 the list of creeks had expanded very little. Other strikes were made, but well out of the area of concern for this study. J.B. Mertie of the U.S.G.S. reported on lode mining in the Fairbanks District. His list of active creeks included, in addition to the ones listed above, Big Eldorado Creek, which flows into Goldstream north of Fairbanks, and Eva Creek in the Ester Dome area. Edward Cobb, surveyor for the U.S.G.S., listed all the gold-producing creeks in the Fairbanks Quadrangle. Many of these creeks supported small and insignificant operations. One can tell by the length of names under each creek which watercourses were the largest contributors in the district. Names that stand out include Ester, Engineer (also a tributary of Goldstream), Eva, Gilmore, and Pedro creeks. Even today the active gold mines such as Fort Knox and True North continue to mine in this general region. Mines that were located on lands now controlled by the Army were peripheral in nature compared to these productive creeks.

8.2 Fort Wainwright

Fort Wainwright and its associated training areas contain both the most and least conducive areas to mineral exploitation on military lands. In the case of Tanana Flats, the latter applies. The area is mostly bog and muskeg. Silt and sand form the main soil composition. There are few to no valuable minerals located in this region. As mentioned earlier, most of the mining activity took place just beyond the reaches of the present-day military boundaries.

8.2.1 Tanana Flats Training Area

The geology of the Tanana Flats is not the mineralized rock indicative of gold and other valuable mineral resources. The region due south of Fairbanks, to the northern foot of the Alaska Range, includes bogs, black spruce, permafrost, and silts absent of auriferous material. The area is known mostly for cultural resources related to indigenous activities such as hunting and not for any significant Euro-American impacts during 1902–1942. Perhaps the buttes and other hilly regions of the flats were explored and prospected, but no evidence reveals mining-related activity in the area There are a few gravel operations south of Fairbanks and North Pole along the Tanana River, adjacent to but not in military holdings.

One cultural resource related to mining is the Bonnifield Trail. The Bonnifield Trail traversed the Tanana Flats area, connecting Fairbanks to the valuable mineral deposits on the north side of the Alaska Range just east of the Nenana River The Bonnifield Mining District attracted prospectors in the early developmental stages of the Upper Tanana Valley. The quickest access was the winter trail through Tanana Flats south from Fairbanks, a trail delineated on present-day maps. This trail exemplifies the need for miners to reach markets quickly and illustrates the hub- and-spoke physical arrangement common to mining camps. It is the only mining-related cultural resource in the Tanana Flats Training Area

8.2.2 Yukon Training Area

In contrast to the Tanana Flats Training Area, the Yukon Training Area is the most likely military withdrawal to contain mining-related cultural resources. Located slightly north and running east of the Wainwright cantonment area, the geology and topography of this land indicate a strong potential for gold occurrences Two areas have been identified as pre-1942 in use and thus qualify for more detailed descriptions.[55] One of the sites is well-known and is delineated on military maps.

8.2.2.1 Pine Creek Mine (Including associated operations on Beaver Creek and Emory Creek).

The Alaska Resource Data File[56] indicates two activity locations, Beaver Creek and Pine Creek [57] Documentation at the State Recorder's Office notes that miners filed 54 individual and associated claims between

[55] These mining z nes were l cated through a file-by-file, secti n-by-section search f the Alaska Department f Natural Res urces land rec rd files (KARDEX).

[56] Navigate t www.usgs.gov: lo k for the *Alaska Resource Data File (ARDF)* in the Big Delta Quadrangle (BD).

[57] Ibid., ARDF Number BD 02, site name Beaver Creek and ARDF Number BD032, site name Pine (Pyne) Creek.

1902 and 1939.[58] The local newspaper reported activity on Pine Creek as early as 1904. Charley Pine had prospected the drainage that year, finding good pay dirt in many places, but he failed to locate the main pay streak. This was a low-grade find. Little was reported on Pine Creek between 1904 and 1922. In 1922, records list Charles Fowler, L. Ingebrigsten, R.W. Ferguson, Theodore Goring, and Bertha Fowler as owners in common of associated claims running from Pine Creek to Beaver Creek, including the Maude B and Golden Eagle group on Emory Creek.[59] Over 20 claims and groups comprised the operation. The documentation noted that all of these claims were contiguous, and they are treated as one location for this report.

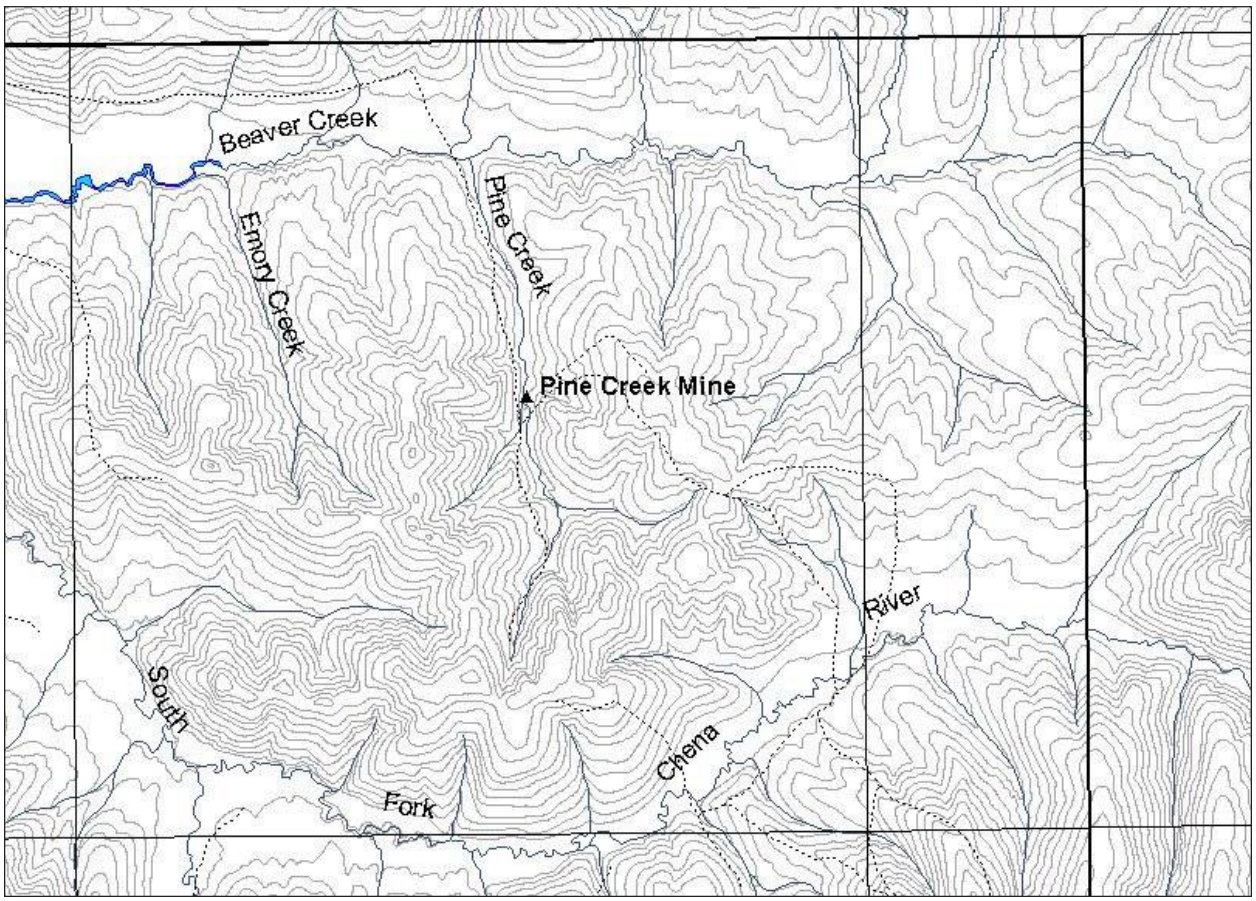


Figure 8. Site Location Map: Pine Creek, Yukon Training Area, Fort Wainwright, Alaska.

In 1922–23, the operators sank five shafts to bedrock, drifted over 400 feet, built a dam, repaired a ditch, and built/repaired a cabin for over $4,700 worth of assessment labor. This activity generated enough interest in the London-based American Development Company to option the ground and conduct drilling and prospecting. This option was dropped by 1925.[60] In 1939 E.L. Brannon leased the ground and worked a number of association claims and new patents.[61] During 1938–39, more than $5,000 was recorded as assessment labor for a large-scale operation that included the use of a tractor and hydraulic setup.[62] In 1942 the owners filed exemption due to the prohibition of gold mining enacted by Congress during World War II.

[58] Mine Location Index (filed by Creek Name) State Recorders Office, p. 394

[59] Affidavits of Labor, Book 9 Page 14. State Recorders Office. Serial Number 58384.

[60] A.S. Higgs, et al, *Cultural Resource Survey Report of the Yukon Training Area and Fort Greely Army Lands Withdrawal, Alaska*, Northern Land Use Research Report (Fairbanks, Alaska: NLUR), p. 51

[61] They include: Silver Dollar, Pittsburgh, Lucky Bench, Pennsylvania, Bear, Gold Dollar, Milwaukee, Jupiter and Mars (Pine Creek); Patent No. 1 and 2 (Quartz Creek, tributary of Pine); Discovery (Nugget Creek, another tributary of Pine); Gilbert, R.W., Golden Pearl, Faith, and Hope (Beaver Creek); and the Favel, Golden Eagle, Boulder, Bullhead, Maude B, and Patents 3 and 4 (Emory Creek).

[62] Affidavits of Labor, Book 11: Page 220. State Recorder's Office, Serial Number 84685.

Figure 9. Cabin dating from early mining activities on Pine Creek (right). Note new roof placed during a later mining period. To the left is one of three cabins on the site dating from the most recent mining activities.

The lack of interest expressed in Pine Creek and the surrounding hills by the American Development Company in 1923 shows that the mines never matured into the industrial and corporate development pattern of Wave III. The significant activity in the watershed falls in the parameters of Wave II mining. The operation drew enough attention for the construction of cabins and an airstrip for access, as well as the utilization of boilers and pumps for hydraulic mining. But it did not warrant the development of truly large-scale operations. Field surveys of the area suggest that nearly one-quarter of the creek has undergone extensive mining, and that garbage dumps, five cabins/structures, a porcupine boiler, and other mining-related artifacts are located on the site.

Recommendation: Activity continued on Pine Creek well into the 1970s, so much of the material is not historic by the fifty-year definition. The methods of mining characterize Wave II with the association of miners and the semi-industrial technology used. Two cabins remain from the early mining activity. However, Pine Creek did not contribute significantly to gold mining in interior Alaska. It was a small mine operating on marginal soils outside the core of the mining district. While the site may contain information useful for understanding and describing Wave II activities, the recent mining has removed the integrity regarding setting and feeling. The remaining buildings are not unique or significant. This site is ineligible for the National Register of Historic Places.

8.2.2.2 Moose/French Ridge

The DNR land records indicated activity along the ridge between Moose and French Creeks.[63] This location places the site on the far western edge of the YMA. The DNR files noted that the last visit to the area was in 1958, the same year a Dan Corben was listed as the owner. No corresponding files were found at DNR. The files noted that this claim was in lands to be withdrawn by the Air Force, and further inspection of the location definitely put this claim on Air Force land at Eielson. The site was sampled for graphite, but no significant activity took place there due to the low quality of the ore.[64] It does not fit within the historic time frame of this study.

Recommendation: This site falls outside present-day Army lands on Fort Wainwright and thus is not a management concern.

8.2.2.3 Ninety-Eight Creek

Ninety-Eight Creek is a small tributary of the Salcha River. This river delineates the southeast boundary of the Yukon Training Area. This drainage has a long history of prospecting. Felix Pedro named this creek

[63] Alaska Department of Natural Resource, Kardex File Number 59-43. Other reference numbers for this site include: DGGS 59-2 Vicinity Map.

[64] Ibid.

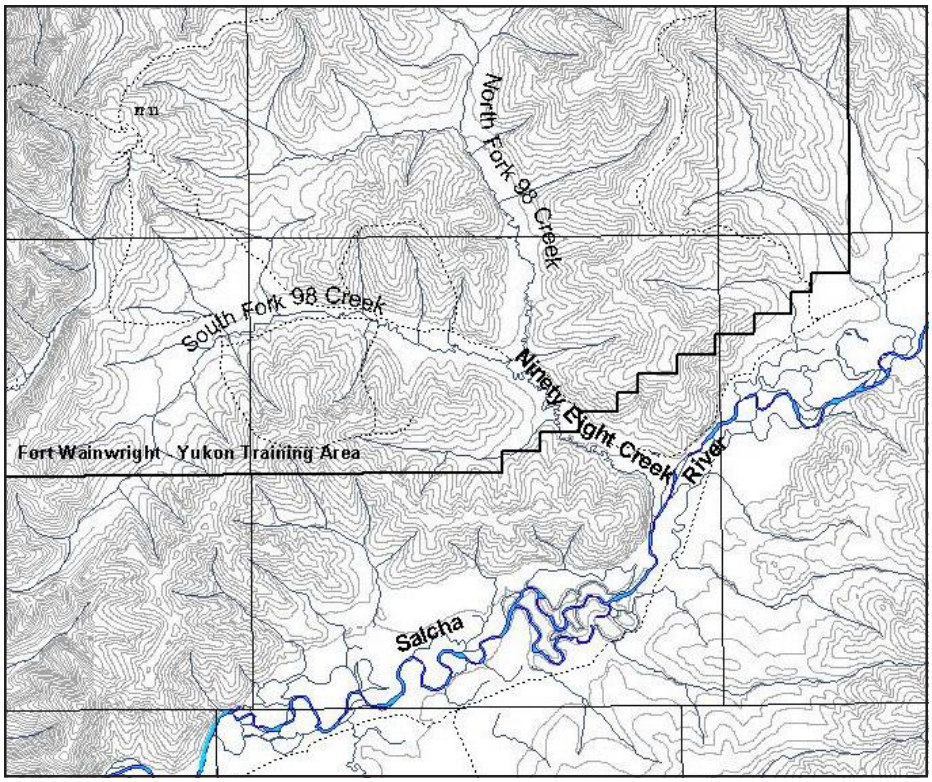


Figure 10. Site Location Map: Ninety-Eight Creek, Yukon Training Area, Fort Wainwright, Alaska.

thinking it was his lost gold discovery from previous expeditions. He filed the Discovery Claim on Ninety-Eight Creek on September 4th, 1901.[65] This connection to Pedro is important as Ninety-Eight Creek is one of the earliest discoveries of gold in the Fairbanks District. Records indicate no activity after Pedro and the original 11 claims until 1938–39. During this time Mike Erceg, George Bishop, Einar Homstad, Joe Ambrose, and Keith Harkness filed for association claims on Ninety-Eight Creek, bringing the claim total to 29.[66]

The next mention of work on the creek came in 1938–39. The Affidavits of Labor Index noted improvements on four claims that year.[67] In 1940–42, miners filed affidavits of labor on twenty-two claims.[68] As with other mines in the region, miners filed exemption from improvements due to the prohibition of gold mining in World War II. The 1938–39 work, done by owner George Bishop, consisted of clearing brush for a landing field, stripping overburden and sinking a shaft on 16 Above. In 1939–40, records show that the owners completed $8,282 worth of improvements consisting of the following: drilling two lines of holes below the mouth of the south fork, building a bridge across Ninety-Eight Creek, constructing another bridge on 20 Above, supplying a cache at the mouth of the creek, utilizing a CAT to move a wannigan, and building a shed on 5 Above. Access to the area was either up the Salcha River on boat, winter trail, or airplane as transportation. Mike Erceg recorded $8,265 annual labor for 2 Below and 20 Above in 1941. This work included building sleds, cutting a 4 ½ mile trail, re-enforcing the bridge, and building a camp on 7 Above. Erceg used a tractor to move the camp equipment, drill, and buildings from 5 Above to 7 Above. This required, aside from re-enforcing the bridge, the construction of two foot bridges. The documents also noted a new cache and the sinking of two holes on 20 Above. At the location, research uncovered a map of claims on Ninety-Eight Creek, and a small collection of photographs. One of these photographs shows tractors dragging buildings and newly constructed bridges. These pictures may depict the camp move in 1941.[69] No

[65] State Recorder's Office: Book 1: Page 580 (microfilm # 171). This lists eleven claims total, all filed in 1901 by different prospectors.

[66] State Recorder's Office: Book ?, Page 437.

[67] State Recorder's Office: Affidavits of Labor, Book 11: Page 183. Claims included the Discovery, 1 Above, 16 Above, and 17 Above. Serial Number 83981.

[68] State Recorder's Office: Affidavits of Labor, Book 11: Pages 331, 404, and 505.

[69] Mike Erceg Collection, University of Alaska Fairbanks, Polar Regions Archives. Ask for the photographs, they are not listed on the finding aid. The photographs are not labeled either. Erceg had operations on many creeks other than Ninety-Eight Creek. Some of the pictures may depict work on Ninety-Eight Creek and can help in future field surveys. The photographs reproduced here matched the description of labor to such an extent that the most probable location was Ninety-Eight Creek.

Figure 11. Mike Erceg Collection, Polar Regions Archives, University of Alaska Fairbanks. Work on Ninety-Eight Creek c.1938–39.

other documentation on early mining was located for the Yukon Training Area.

Recommendation: Ninety-Eight Creek fits in both Wave I and Wave II. It had early prospecting activity followed by more mechanical methods. It did not see industrial mining equipment such as dredges. Although the early claims are associated with a regionally significant person, this was not the discovery that prompted the Interior gold rushes. Pedro's most significant discovery on Pedro Creek is already listed in the National Register of Historic Places. The later activity on Ninety-Eight Creek into the 1930s characterizes Wave II. This was a small mining operation on marginal ground far from the central locations. Mike Erceg and the miners were temporary operators that built small cabins, bridges, and trails to work the creek. His presence was temporary and insignificant in the local production of minerals during Wave II. Therefore, his site is not eligible for the National Register of Historic Places.

8.2.2.4 Fort Wainwright Cantonment Area, Birch Hill

Mining may have occurred north of the cantonment area near Birch Hill. Records report that one claim was located 2 ½ miles northeast of Fairbanks. Another claim was along Columbia Creek, a tributary of Wigwam Creek, also northeast of Fairbanks and potentially within the boundaries of

Figure 12. Mike Erceg Collection, Polar Regions Archives, University of Alaska Fairbanks. Work on Ninety-Eight Creek c.1938–39.

Fort Wainwright [70] No records could be located that corresponded with these two locations. Two U.S.G.S. Bulletins were cited for other references to these locations. Speaking of the Columbia Creek claim, one bulletin noted "prospecting has been done near the divide of that stream [Engineer] and Columbia Creek."[71] In 1933 a U.S.G.S. report commented about a "small quarry opened for road metal (sic) at the point of Birch Hill, about two miles northeast of Fairbanks, [where] two veins are exposed cutting schist."[72] One of these veins was reported to have no value. Approximately sixty feet east of this location, more work on a quart ledge had occurred, but nowhere did it resemble the mineralized veins of the Fairbanks District and held no value on assay Both of these locations represent Wave I prospecting activity, were temporary in use, and held no ore valuable enough to justify a more intensive level of exploitation.

Recommendation: These sites likely left no evidence behind. They fit in the category of prospecting activity described in Wave I Even if such prospecting locations could be found, they hold no value and no significance to the development of early mining. These sites are ineligible for the National Register of Historic Places.

8.3 Fort Greely East and West

8.3.1 Greely East

Research uncovered no early mining activity on the eastern portion of Fort Greely. Some activity was located to the south of Greely East along Jarvis and Ober creeks, both for gold mining and coal deposits. The BLM conducted an Environmental Assessment of Jarvis Creek for a coal lease application in 1981 Work for the EA involved researching the region's potential for containing cultural resources. The document cited U S G.S. Bulletin 926-B, written in 1942 by geologist Fred Moffit.[73] Moffit cited mining evidence, such as dumps and boilers, but all to the south of the military boundary The author of the EA suggested that no significant rush occurred in the area as an extensive review of newspapers yielded no information. Alfred Brooks had noted coal as early as 1911, but no real interest in coal occurred until 1939 The coal fields are also to the south of Greely East. The EA's cultural resources section reported testing in the Jarvis Creek vicinity produced nothing of cultural/historical value, nor did any other efforts

Kardex files at the DNR traced some activity adjacent to but not in Greely West, along Iowa Creek at the western limit of the military reservation. The maps indicate a small parcel of private land within the military boundary named TM1, though nothing could be traced to this location.

8.3.2 Greely West

8.3.2.1 Ptarmigan Creek

Towards the southeast section of Greely West, mining activity took place. John Hajdukovich and his partner, August Conradt, staked claims along Ptarmigan Creek in May and June of 1939 These were the Gold Discovery Association Claim and the Contact Claim, both lode mines [74] Both these men were active in mining throughout the Interior, owning claims near Fairbanks on Goldstream Creek and near Delta on the Salcha and Goodpaster rivers. In 1940 Hajdukovich and Conradt filed for five more association and placer claims along Ptarmigan Creek [75] All of these claims added to Hajdukovich's collection on Ptarmigan Creek.

---

[70] Alaska Department f Natural Res urces, Kardex file numbers 58-220 and 58-23 , respectively. The Kardex also notes ther references, b th U.S.G.S. bulletins: B-849-13, p. 155 and B-525, p. 198, respectively.

[71] Louis Prindle and F.J. Katz, *A Geological Reconnaissance of the Fairbanks Quadrangle, Alaska*, p. 198.

[72] James M. Hill, *Lode Deposits of the Fairbanks District Alaska*, Department f Interior, U.S.G.S., Bulletin 849-B (Washington D.C.: GPO, 1933), p. 155.

[73] Fred H. M ffit, *The Geology of the Gerstle River District* Alaska, Department f Interior, U.S.G.S., Bulletin 926-B (Washingt n D.C.: GPO, 1942).

[74] State Recorder's Office: Book 22: Page 205-06. Serial Number 84031 and 84032.

[75] These include Big Bear Association, Little Bear, Cub, Field, and Gri ly Ass ciation all for g ld. State Rec rder's Office: Bo k 22 Page 492-494. Serial Numbers 86478-86482.

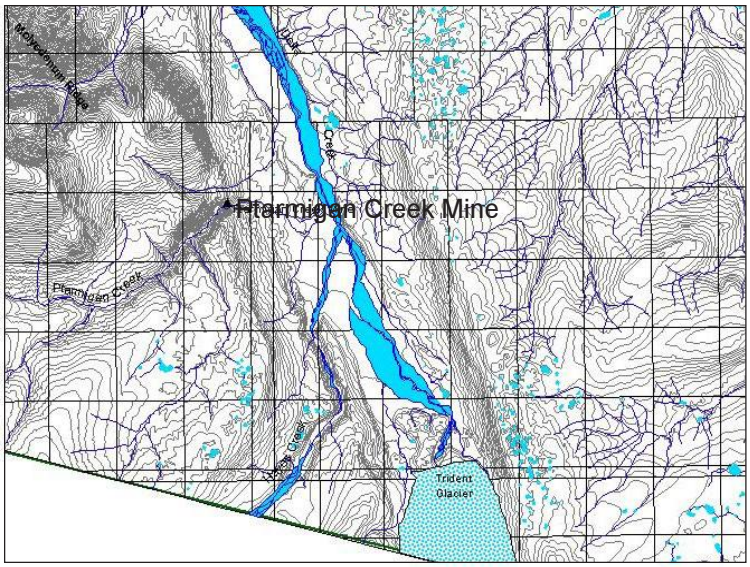


Figure 13. Site Location Map: Ptarmigan Creek, Greely West Training Area, Fort Greely, Alaska.

In 1937 he had staked over 15 claims along the creek valley.[76]

Hajdukovich staked an area along Ptarmigan Creek that had attracted some previous interest. Prospector Frank Gillespie discovered molybdenum in the area in 1914. Considerable prospecting and development was done over the next four years, including the digging of several drifts.[77] In 1918, U.S.G.S. geologist G.C. Martin reported that work was carried out on a molybdenum prospect on the Dry Delta and the veins were reported to contain some gold. At that time, a 100' adit had been dug and a few tons of ore removed, but none had been shipped.[78]

No significant mining activity took place until 1937 when Hajdukovich entered the region. Correspondence revealed that John was the field man, while August Conradt lived in Fairbanks and helped procure supplies for the mining operations and guided hunting trips. Conradt referred to Ptarmigan Creek as "our deal" and was apparently attempting to spark interest from investors or potential buyers. In 1938 August approached a Mr. Vallet about the Ptarmigan Creek deal and seemed enthused in the interest shown by this man.[79] August also secured hydraulic equipment, gaskets for a Cat machine, as well as a plane ride for a welding outfit.[80] It was unclear if all this material was going to Ptarmigan Creek. In 1940 August again wrote to John saying he was planning a visit with Crawford of the Fairbanks Exploration Company to discuss Ptarmigan Creek.[81] It appears that both Hajdukovich and Conradt staked the molybdenum prospects in hopes to sell them to a large corporation when the price was right. In 1950 they attempted to persuade the Kennicott Company to take over Ptarmigan Creek, but the low-grade ore and shaky molybdenum market did not interest the company.[82]

Other documentation on Ptarmigan Creek came in 1941–42, right at the end of this report's era of investigation. In 1941, H.R. Joesting, engineer for the Territorial Department of Mines, spent eight days at the creek sampling the molybdenite deposits.[83] He reported that, in addition to surface prospecting, a number of pits and trenches and four adits had been sunk along the side of the creek. There was a camp consisting of two log cabins on the Home Claim at the lower end of the canyon. The cabins were 20 years old at the time, but still "serviceable and comfortable" due to corrugated iron roofs. A shed contained a forge for sharpening hand steel.[84]

---

[76] State Recorder's Office: Book 21 Page 131-141 – Ptarmigan, Grouse, Dove, Eagle, Quail, Lark, Owl, Hawk, Pintail, Home, Roost, Gull, Robin, Swallow, Sparrow, Raven, and Crow. Serial Numbers 79384-79401. Map of claims included in the appendix of this report.

[77] Phillip S. Smith, *Occurrences of Molybdenum Minerals in Alaska,* Department of Interior, U.S.G.S., Bulletin 926-C (Washington D.C.: GPO, 1942) p. 194-195. Apparently Gillespie never filed for claims, the Recorder's office is void of documentation on Ptarmigan Creek previous of J. Hajdukovich. No mention of the Creek was found in the pre 1937 Affidavits of Labor. The DNR Kardex 68-20 or 68-32 list Conradt and Hajdukovich as owners in 1941.

[78] G.C. Martin, *The Alaska Mining Industry in 1918*, Department of Interior, U.S.G.S., Bulletin 712-A (Washington D.C.: GPO, 1918), p. 24 & 44.

[79] *August Conradt to J. Hajdukovich, January 14th, 1938.* Box 1, Folder 17, John Hajdukovich Collection. Polar Regions Archives, Elmer Rasmuson Library, University of Alaska Fairbanks.

[80] Ibid., August 17th, 1939.

[81] Ibid., June 25th, 1940.

[82] Ibid., March 27th, 1950.

[83] H.R. Joesting, *Geology and Ore Deposits of Ptarmigan Creek, 1941*, on file at the D.G.G.S. reference number PE 68-1.

[84] Ibid., p. 11.

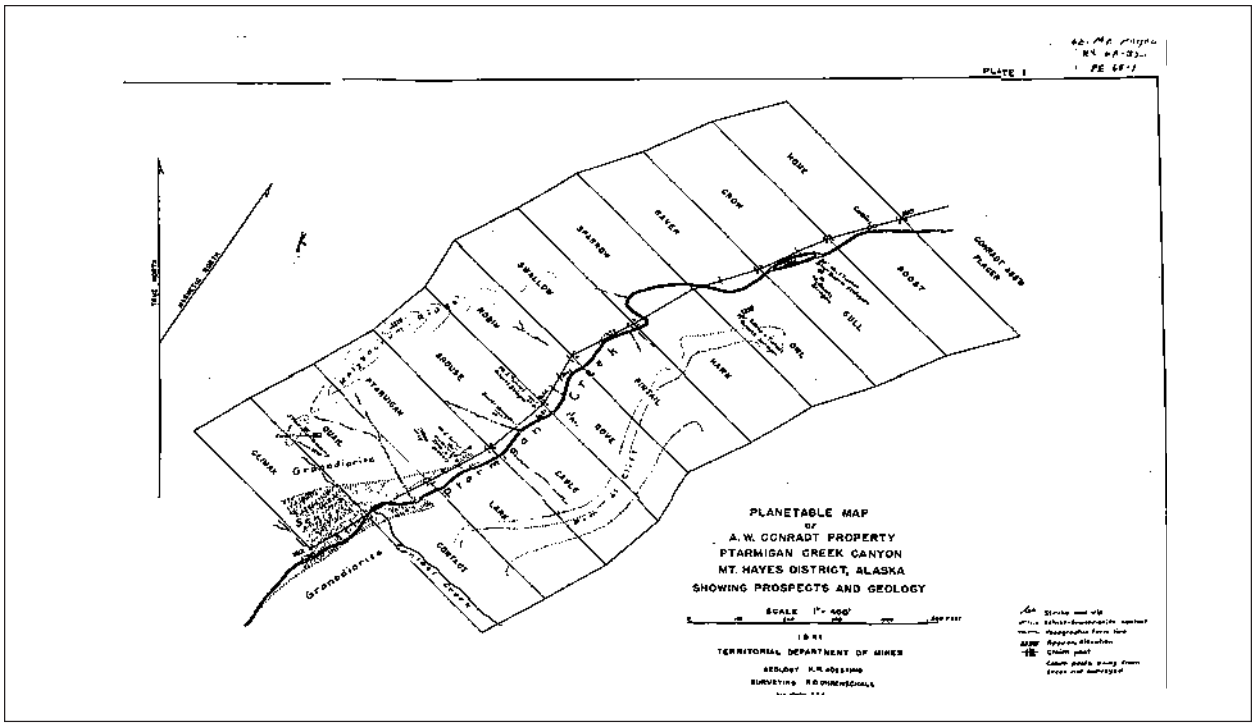


Figure 14. Map of Mining Claims on Ptarmigan Creek.

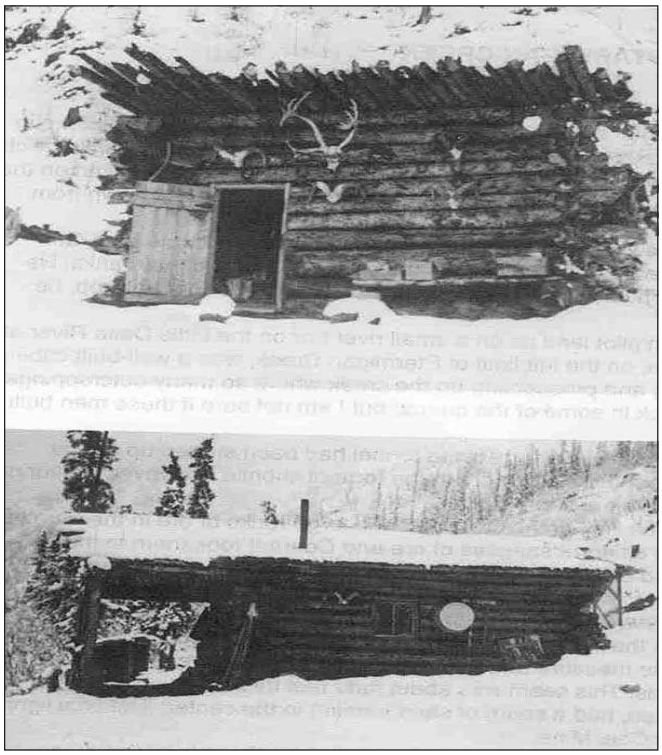


Figure 15. Ptarmigan Creek Cabins, c. 1940.[87]

Even with this development, Joesting concluded that no workable deposits of molybdenite were exposed, though the quartz/gold potential needed further prospecting. In 1942, J.B. Mertie of the U.S.G.S. conferred with August Conradt and summarized the findings of Joesting in his field journal while preparing a U.S.G.S. report.[85] Little ground work happened in 1942 as the owners filed exemption from annual assessment during World War II.

Recommendation: Ptarmigan Creek fits within the historic context established by Wave II and is characterized by the utilization of some industrial technology but not the large corporate presence. The site is directly affiliated with a locally and regionally significant person, John Hajdukovich. Previous documentation suggested that a cabin on Ptarmigan Creek was still habitable and may prove significant to local history.[86] Today, the front wall of the extant cabin has been undermined by Ptarmigan Creek, causing the porch (see Figure 15 and Figure 16) to be washed

[85] J.B. Mertie, Jr. *Ore Deposits of the Eagle and Fairbanks District, 1942.* Field Notes on file at the U.S.G.S. archives, Anchorage, Alaska, p. 52-55.

[86] Georgeanne Reynolds, *Historic Preservation Plan Phase One Inventory of Cultural Resources and Overview*, 1986, page 143. Located in: *Historic Preservation Plan for U.S. Army Lands in Alaska* by Bacon, et al. (Technical Appendix) on file at DPW/Environment, Fort Wainwright, Alaska.

[87] Figure 13 and 14 were copied from Carl O. Tweiten's *Alaska, Big Delta and the Goodpaster Region* (Washington: Valley Press, 1990).

Figure 16. Ptarmigan Creek cabin remains. See lower photograph in Figure 15 for comparison.

away, and the front wall collapsed along with the ridgepole and associated roof structure. However, this site was unproductive and did not contribute in a significant manner to local mining history. Even to Hajdukovich, this was a peripheral holding that he anticipated getting rid of. The cabin does not represent a unique style of architecture or work of a master. And though Hajdukovich may be of local prominence, this property does not reflect his main activities in the region as a hunting guide and trader. This property is ineligible for the National Register of Historic Places. A field survey should be conducted to record any artifacts.

8.3.2.2 Other Historic Areas on Fort Greely West

While not mining sites themselves, other historic resources on Fort Greely are indirectly related to mining. Namely, the Valdez Trail traversed lands on Greely West and was used by miners for shipping supplies and ore. Two roadhouses, Sullivan's and Gordon's, were located along this route, and Rika's Roadhouse was to the north of Fort Greely in present day Big Delta. The Army, in cooperation with the State Historic Preservation Office, relocated Sullivan's Roadhouse to Delta Junction where it now serves as a historic museum. Gordon's Roadhouse, commented on in the Historic Preservation Plan for Army Lands in Alaska, now lies in ruins.[88]

Recommendation: Although Sullivan's Roadhouse was relocated, its original site may be eligible for listing in the National Register of Historic Places under Criteria D—the archaeological information it may yield might be important in understanding the local and regional history. The site consists of the remains of the roadhouse, barn, blacksmith shop, outhouse, root cellar, outbuilding and associated material remains. Gordon's Roadhouse is in ruins and lies directly in an impact zone. Its location needs to be verified. Although in ruins, it may be eligible for listing in the National Register of Historic Places under Criteria D—the archaeological information it may yield might be important in understanding the local and regional history. Both roadhouse sites may also be eligible under Criteria A for association with early transportation systems that assisted in settling and developing the Interior of Alaska. Further research is required on early transportation routes and associated properties on Fort Wainwright and Fort Greely.

8.3.2.3 Black Rapids Training Site

Some mining claims were discovered on or near Black Rapids Training Site. No affidavits of labor or further information were obtained for this area.

Recommendation: No structures or properties directly related to early mining history were detected at this location. Further research may yield past ownership information and further detail on potential improvements. If any mining did occur, it was insignificant and did not contribute to the progress and development of Interior mining history. Presently, no eligible sites exist at Black Rapids.

[88] Ibid., DPW/Environment, Fort Wainwright, Alaska.

Chapter 9.0 Previous Cultural Resource Reports

The U.S. Army has conducted cultural resources surveys on Fort Wainwright and Fort Greely. These projects addressed historic and prehistoric archaeological sites related to indigenous activity in the region. Mining sites and associated features such as buildings, trails, and water diversion ditches are seldom mentioned. The lack of attention to early mining sites reflects the bias of the contractors and consultants hired to complete the survey. What follows is a brief description of previous cultural resources survey work done on the forts in chronological order.

Archaeologists Glenn Bacon and Charles Holmes of Alaskarctic conducted some of the first cultural resources-related surveys and inventories on Fort Greely.[89] In 1979 Holmes conducted an archaeological reconnaissance of Fort Greely. The U.S. Army Corps of Engineers contracted this inventory. The report covers archeological sites but gives no mention of sites related to early mining. In 1980 another survey by Holmes and Bacon resulted in the discovery of four unreported archaeological sites. Excavations of known sites yielded over 4,500 specimens that opened a window into the life in interior Alaska over 11,000 years ago. They concentrated on the cantonment area of Fort Greely, locations near the Gerstle River, and the Black Rapids Training Area. This report offered no record or evidence of early mining sites on the fort.

E. James Dixon and others surveyed portions of Fort Wainwright in 1980. This survey concentrated on the Blair Lakes, Wood River Bluffs, and Clear Bluff areas of the Tanana Flats Training Area and involved intensive ground coverage and field excavation. This report did note the potential for historic era sites on the fort that relate to Fairbanks and the mining development of the Upper Tanana Basin. The report mentions the existence of several cabins near Blair Lakes and other historic features such as the Bonnifield Trail (Tanana Flats). The cabins were associated with Walter "Tex" Blair who used the area in the 1930s, but what he used these cabins for was not described in this report. The authors do note that Blair applied for a manufacturing site application from the BLM in 1960 and was denied. Dry Creek flows near the Blair Lakes region and the headwaters were known as a mineralized area. The potential for the cabins being associated indirectly with mining exists but is unconfirmed at this time.

In 1986 Bacon and others developed a historic preservation plan for U.S. Army lands in Alaska. This report contains an extensive technical appendix including draft Memorandums of Agreement, technical notes, site evaluations, and draft National Register of Historic Places nomination forms. Georgeanne Reynolds prepared the phase one inventory of cultural resources on Army lands. She notes that three historic sites exist on Fort Greely. They include Sullivan's Roadhouse, Gordon's Roadhouse, and the Ptarmigan Creek site. Ptarmigan Creek cabin may contribute to local history, was related to early mining and trapping in the region, and was determined eligible for the National Register of Historic Places in her report. Not enough information existed to make a determination on Gordon's Roadhouse. Sullivan's Roadhouse was already listed on the National Register of Historic Places.

In 1998, U.S. Army Alaska completed its final Environmental Impact Statement concerning the withdrawal renewal of military land in Alaska. A required component of the Environmental Impact Statement involved looking at cultural and historical resources of the determined area. Volume I, Section 3.18, summarizes historical resources on military lands. The document notes the potential for prospecting within the boundaries of the Yukon Training Area, though no historic archaeological sites were identified in this region and its potential to yield new sites was low to moderate.[90] The final EIS comments on the identification of three

[89] Bacon, G. and C. Holmes. 1980. *Archeological Survey and Inventory of Cultural Resources at Fort Greely, Alaska, 1979*. Fairbanks, Alaska: Alaskartic.

[90] This testimony seems strange seeing that the Pine Creek Mine is located in this region and further delineated on the Fort Wainwright maps as the Pine Creek Prohibited Tactical Training Area (PTTA).

historic sites on Greely West and East. The document identifies the Ptarmigan Creek cabin as eligible for the National Register of Historic Places. The other historic sites include Sullivan's Roadhouse and Gordon's Roadhouse, both of which may be indirectly associated to the historic mining era 1902–1942 as possible stay-overs and supply stations for miners travelling through the region. The document notes that Gordon's Roadhouse is in ruins, but potentially eligible for the National Register. The Army moved Sullivan's Roadhouse to Delta Junction as a mitigation project in 1996

In 1999, Northern Land Use Research, Inc. of Fairbanks surveyed portions of the Yukon Training Area and Fort Greely. This report displays a strong bias toward indigenous archaeological sites It does provide some information about historic mining sites This report cites the prospecting activity conducted by Felix Pedro on Ninety Eight Creek in the Yukon Training Area. The report further covers the route of the Fairbanks-Valde Trail through lands on Fort Greely, and mentions the Delta Cut-Off trail along which Sullivan's and Gordon's Roadhouses were located. This report does include a detailed description of the Pine Creek Mine, including its history. They recommended for this site that the camp cannot be considered as a significant historical site because "three of the buildings are modern by historic standards and there is nothing inherently historically significant or unique in the design of the other two cabins."[91] They do suggest that other sites may exist along Pine and Beaver creeks, and the area has potential to yield small shafts and prospector camps dating from the 19th and early 20th century.

The Alaska State Historic Preservation Office coordinated with U S Army Alaska in 2000 to develop the *Integrated Cultural Resource Management Plan 2001–2005 for Forts Wainwright and Greely.* Section 5.3 of this document states that of the 289 historic structures located on the two forts, only six of these properties pre-date the military period [92] One of these sites, a trail, was determined not eligible for the National Register of Historic Places (Valdez-Fairbanks Trail, XBD-133). Two have not yet been evaluated (FAI-071 and FAI-073), two were determined eligible for register inclusion (XMH-226 and XMH-575), and one is not eligible (FAI-212).

This is the work done to date regarding the historic mining sites located on the two forts. This list is not all inclusive but aimed to represent the investigations that had a general scope and possible references to historic mining. A detailed compilation of previous works can be found in the Cultural Resources Plan (ICRMP 2001–2005). These reports tended to focus on indigenous activity and the associated sites in the region.

[91] Higgs et al, *Cultural Resource Survey Report of the Yukon Training Area and Fort Greely Army Lands Withdrawal Alaska* (Fairbanks: Northern Land Use Research, Inc., 1994), vol. 1, p. 51.

[92] 2 1-2005 ICRMP F rt Wainwright and F rt Greely, Alaska, p. 124

Chapter 10.0 Evaluation of Property Types for Eligibilityfor Inclusion in the NRHP

The National Register of Historic Places (NRHP) provides base-line criteria to evaluate the significance of historic properties. The documentation required to nominate a mining site to the register contributes to the historical knowledge of that site. This section outlines the criteria used to establish the significance (national, state, local) and level of integrity of a mining site. The National Park Service, which oversees the National Register, provides detailed bulletins for completing a register nomination and evaluating properties related to the "extraction, benefication, and refining of minerals."[93]

Evaluating the significance of a mining site can pose challenges. Many times a mining property spans different eras of mining, marked by the utilization of a variety of technologies and even the extraction of different minerals. This report provides the framework (Wave I, II and III) to evaluate sites likely to be encountered in field surveys. Once the proper wave(s) has been determined, the following provides a means for judging the significance of National Register sites.

1. **Identify Property Types:** Three basic functions define what type of property may be encountered at a historic mining site. These functions include extraction, benefication, and refining.[94] All three functions can be found at one property, or may be found at different locations interconnected by trails, roads, railways, and watercourses. The nature of gold in the Fairbanks area did not require extensive benefication and refinement, it was 'free' gold in that sense. Sites located on military withdrawals will most likely be related to the extraction function.

   Extraction property types are related to both prospecting/exploration and mine development/exploitation. The former would include hand dug prospecting pits, trenches, bulldozer cuts, and drill holes. In placer mines, these locations will typically be across or directly adjacent to streams. It is these types of properties that sparked mining rushes. Felix Pedro had not yet begun exploitation of gold, he simply found some and reported on it. His holes and trenches thus represent their own property type and have significance because the speculation caused by such sites fueled the growth of Fairbanks and interior Alaska.[95] There may be archaeological evidence surrounding a site that enables researchers to piece together the unwritten history of the area. Sites related to prospecting in the Interior may be more difficult to locate due to overgrowth, erosion, and the inherent temporary nature of this property type. Many dredging operations wiped out the older prospecting properties.

   Mine development and exploitation relate directly to the extraction of an ore body. Physical remains may include shafts and adits, boilers, generators, sluices, dams, rock piles, hydraulic equipment, steam points, blacksmith shops, and worker's housing. These property types represent a prospect where a pay streak was valuable enough to mine more extensively.[96] Dredges and more industrialized methods of placer mining are not represented on Army land.

   Both the prospecting and exploitation locations can be viewed on a site-by-site basis, or collectively as a historic mining landscape or district. Mining landscapes in Fairbanks included denuded hillsides, open pits, rock piles and large bank cuts. National Register Bulletin 30 provides guidelines for evaluating the significance of rural historic landscapes and can be used on mining landscapes as well.

---

[93] See National Register Bulletins *16A:How to Complete the National Register Registration Form, 16B: How to Complete the National Register Multiple Property Documentation Form, and 42: Guidelines for Identifying, Evaluating, and Registering Historic Mining Properties.*

[94] Bruce J. Noble, Jr. and Robert Spude, *Guidelines for Identifying, Evaluating and Registering Historic Mining Properties*, National Register Bulletin 42 (National Park Service: 1992), p. 10.

[95] See the historical sketch of Ninety-Eight Creek in the Activity Locations section.

[96] See Ptarmigan Creek and Pine/Beaver/Emory Creek in the Activity Locations section.

2. **NHRP Criteria:** Once the correct property type has been established, the site or district must be evaluated for its eligibility to the National Register. The National Register of Historic Places has established four criteria to evaluate sites whether they be related to mining, the civil war, unique architecture, or indigenous activity. These criteria apply to early mining sites on Fort Wainwright and Fort Greely and may either highlight the local, state, or national significance of a site. The criteria and relevance to mining properties are as follows:

   A *Association with events that have made a significant contribution to the broad patterns of our history*. Mining properties may qualify under this criteria because of a connection to broad historical themes, such as corporate development, commerce and trade, community planning and development (i.e , company towns), economic development, engineering, invention, and law to name a few. Potentially, mines in interior Alaska contributed to the exploration and settlement of the region, and some mines may contribute to technological inventions and advancements, such as thaw points, required to overcome the unique environmental conditions of the northern regions

   B. *Association with the lives of persons significant in our past* A mining property is significant if it is directly related to a historically significant person National Register Bulletin 32 *Guidelines for Evaluating and Documenting Properties Associated with Significant Persons* provides addition information on this criterion.

   C. *Embody the distinctive characteristics of a type, period or method of construction or that represent the work of a master or that poses high artistic value or the represent a significant and distinguishable entity whose components may lack individual distinction.* Sites eligible under this criterion are unlikely on military lands. Typically this criteria refers to engineering components of a mine site and engineering developments associated with the mineral industry. Significance here relates to an innovation and/or unique design represented at the mine site.

   D. *Have yielded or may be likely to yield information important in prehistory or history* This is the broadest and least definable category of the National Register. Resources that may provide useful information include surviving machinery, waste rock dumps, buildings and structures, prospect pits, foundations, and the like. This criterion requires the implementation of a research design that develops important research questions, identifies and outlines data requirements, and field assessments. Much can be learned from abandoned mine sites, but a clear and well-directed research-based analysis must be created to meet the requirement of this criterion.

3. **Criteria Considerations:** Normally the National Register of Historic Places precludes some sites from qualifying for a nomination. These include cemeteries, birthplaces or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original location, reconstructed historical buildings, commemorative properties, and properties that have achieved significance in the last 50 years. None of the sites identified on forts Wainwright and Fort Greely are precluded from the National Register of Historic Places in regard to these considerations

4. **Integrity:** The last step in evaluating a mining property is measuring the property's ability to convey its significance, otherwise known as integrity. Mining properties must show significance under the above criteria as well as possess integrity. The NRHP has defined seven aspects of a property that help define its integrity. These include location, design, setting, materials, workmanship, feeling, and association. Integrity of a mining property is often difficult to establish due to the passage of time, erosion and deterioration, abandonment, vandalism, and neglect. While individual components of a site may have suffered from these conditions, the combined impact of the components may still maintain a level of integrity that qualifies it for the register. National Register Bulletin 42 covers all of these items of integrity in detail and can be found in the appendix.

The above four steps outline the procedure for evaluating a mining property's eligibility to the National Register of Historic Places. Sites on forts Wainwright and Greely will most likely contribute to the local and sub-state regional significance of mining in Alaska. National significance will be hard to argue on the known sites outlined in the *Activity Location* section. Sites on military land should be evaluated with regard to their unique contribution to the development of Fairbanks, Delta Junction, and the Upper Tanana Valley. Sites may be eligible individually or as a district.

CHAPTER 11.0 Conclusions

The Early Mining Historic Context Report aims to facilitate the interpretation and management of mining sites located on Army land. Much of this document is compliance driven, i.e., it assists the cultural resources manager in determining if a proposed action will negatively affect historic mining resources on forts Wainwright and Greely, Alaska. The document also provides direction and background knowledge to assist future field surveys for mining resources and locations that need further documentation and assessment.

Mining in interior Alaska occurred in three broad phases: Prospectors, Small Operators, and Large Corporate Operations. These three contexts have been developed to provide a framework in which to place historic mining sites on military lands. Aside from the context, this paper is also a definitive work on the potential for locating mining resources on Fort Wainwright and Fort Greely. Extensive research in the Recorder's Office, Division of Geologic and Geophysical Surveys, UAF Rasmuson Library, UAF Polar Regions Archives, Bureau of Land Management, and the Division of Natural Resources Department of Mines, has revealed the activity locations listed in this document. The potential for finding other resources not addressed in this report is very small. Section by section searches of files and land records, year by year searches of newspapers, discussion with surveyors and those in the mineral industry have revealed little additional information beyond the activity locations described in this report.

In conclusion, mining history is not strongly represented on military lands. Three historic mining sites have been found on 1.6 million acres of land. This is both surprising and expected. It is surprising because Fairbanks and the Upper Tanana Valley contained thousands of mines, and the historical identity of the region still attaches itself to these pioneers. Yet, once the geology of the military lands is understood, the limited number of early mine sites is easily explained. The silts and gravel of Tanana Flats does not support mining, as is the case with Fort Greely East and West. Fort Wainwright's Yukon Training Area has the most potential for mining sites, but still lies outside the core of activity in the Fairbanks mining district. The mining sites located on Fort Wainwright and Fort Greely are insignificant and peripheral to the main mining activities in interior Alaska and have been determined not eligible to the National Register of Historic Places by this report.

BIBLIOGRAPHY

General Early Mining Historic Context:

Aigner, J.S., R.D. Guthrie, M.L. Guthrie, R.K. Nelson, W.S. Schneider, and R.M. Thorson. 1986. *Interior Alaska: A Journey Through Time.* Anchorage: The Alaska Geographic Society.

Beistline, E. H. 1981. "Alaska's Mineral Bonanzas of Yesteryear," *Journal of the West,* 20(2) p: 68.

Boswell, J.C. 1979. *History of the Alaska Operations of the Unites States Smelting, Refining, and Mining Company.* Fairbanks: Mineral Industries Research Laboratory.

Cashen, W.R. 1971. *A Brief History of Fairbanks.* Fairbanks, AK: Private Printer.

Castener, J.C. 1900. *Subreport of Lt. Allen* in *Compilations of Narratives of Explorations in Alaska.* Washington DC: Government Printing Office (GPO).

Cole, D. 1999. *Fairbanks: A Gold Rush Town That Beat the Odds.* Fairbanks: Epicenter Press.

Cole, T. 1981. *E.T. Barnette: The Strange Story of the Man who Founded Fairbanks.* Anchorage: Alaska Northwest Publishing Company.

____. 1984. *Crooked Past: The History of a Frontier Mining Camp, Fairbanks, Alaska.* Fairbanks: University of Alaska Press.

Francaviglia, R.V. 1991. *Hard Places: Reading the Landscape of America's Historic Mining Districts.* Iowa City: University of Iowa Press.

Greever, W.S. 1963. *The Bonanza West: The Story of the Western Mining Rushes, 1848- 1900.* Norman: University of Oklahoma Press.

Heiner, V.D. 1977. *Alaska Mining History: A Source Document.* OHA Miscellaneous Publications, File Series 17. Alaska Office of History and Archaeology.

Hildebrandt, J.C. No Date. *The History of Placer Mining in Alaska.* Thesis. Fairbanks: University of Alaska Fairbanks.

Hunt, W.R. 1990. *Golden Places: The History of Alaska-Yukon Mining With Particular Reference to Alaska's National Parks.* Anchorage, Alaska: United States Department of the Interior, National Park Service.

Matheson, J. and B. Halelman. 1981. *Historic Resources in the Fairbanks Northstar Borough, Fairbanks, Alaska*. Fairbanks Northstar Borough.

Mills, R.O. 1998. *Historical Archaeology of Alaskan Placer Gold Mining Settlements:Evaluating Process-Pattern Relationships*. Thesis. Fairbanks: University of Alaska Fairbanks.

Naske, C.M. and L.J. Rowinski. 1981. *Fairbanks: A Pictorial History*. Norfolk, VA: Donning Company Publishers.

Parker, G.A. 1929. *The Evolution of Placer Mining Methods in Alaska.* Thesis. Fairbanks: Alaska Agricultural College and School of Mines.

Page, S 1905. "A Growing Camp in the Tanana Gold Fields, Alaska" *National Geographic*, 16(3) p 104

Paul, R W. 1963. *Mining Frontiers of the Far West 1848-1880* New York: Holt, Rinehart, and Winston.

Reckard, M 1993. *The F.E. Company Industrial Site: Historic Resources and Preservation Potential* Thesis. Eugene: University of Oregon.

Robe, C F 1943. *The Penetration of an Alaskan Frontier: The Tanana Valley and Fairbanks.* Ph D. Dissertation. Yale University.

Rohe, R E. 1978. *The Geographical Impact of Placer Mining in the American West 1848-1974* Thesis. Boulder: University of Colorado.

Smith, D A. 1967. *Rocky Mountain Mining Camps: The Urban Frontier.* Bloomington: Indiana: University Press

____ 1993 *Mining America: The Industry and the Environment 1800-1980* Niwot, Colorado: University Press of Colorado.

Spence, C C 1996 *The Northern Gold Fleet: Twentieth-Century Gold Dredging in Alaska* Chicago: Uni versity of Illinois Press.

Cultural Resource Reports, Surveys and Documents:

Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation, Office of History and Archaeology. 2000. *Integrated Cultural Resource Management Plan 2000-2005 Forts Wainwright and Greely* Lewis, D L. and Sackett, R , Principal and Project Manager, respectively. On file at Directorate of Public Works (DPW)-Environment, Fort Wainwright Alaska

Bacon, G and C. Holmes.1980. *Archeological Survey and Inventory of Cultural Resources at Fort Greely Alaska, 1979* Fairbanks, Alaska: Alaskarctic.

Bacon, G.H., J.A. Ketz, and C M. Mobley. 1986. *Historic Preservation Plan for U.S Army Lands in Alaska* Prepared for the U S Army Corps of Engineers, Alaska District. Prepared by the Alaska Heritage Research Group, Inc. On file at DPW-Environment at Fort Wainwright Alaska.

Center for Ecological Management of Military Lands. 1999 *Alaska Army Lands Withdrawal Renewal Final Environmental Impact Statement*. Fort Collins, CO: Colorado State University. On file at DPW-Environment, Fort Wainwright Alaska

Dixon, James E 1980 *Archeological Survey and Inventory of Cultural Resources: Fort Wainwright, Alaska* Fairbanks, Alaska: University of Alaska Museum.

Higgs, A.S., B A. Potter, P.M. Bowers, and O K. Mason. 1999. *Cultural Resource Survey Report of the Yukon Training Area and Fort Greely Army Lands Withdrawal Alaska*. Fairbanks, Alaska: Northern Land Use Research, Inc On file at DPW-Environment, Fort Wainwright Alaska.

Reynolds, G.L. 1986. *Historic Preservation Plan: U S Army Installations and Satellites in Alaska, Phase 1: Inventory of Cultural Resources and Overview*. Final Report. Prepared for U S Army Corps of Engineers. On file at DPW-Environment, Fort Wainwright Alaska.

Sattler, Robert S., E.J. Dixon, and A.S Higgs 1994. *Fort Knox Cultural Resource Program Mitigation Report* Fairbanks, Alaska: Northern Land Use Research, Inc.

United States Army Corps of Engineers, Alaska District. 1986. *Inventory of Cultural Resources and Overview, Phase 1* in Historic Preservation Plan for U.S. Army Lands in Alaska. See Bacon et al, 1986.

United States Department of the Interior, Bureau of Land Management. 1981. *Jarvis Creek: Preference Right Lease Application Environmental Assessment.* Fairbanks, Alaska: Bureau of Land Management, Northern Office.

U.S.G.S. and Alaska D.G.G.S. Reports, Professional Papers, and Bulletins

Brooks, A.H. 1900. *A Reconnaissance in the Tanana and White River Basins, Alaska in 1898.* Annual Report of the U.S. Geological and Geophysical Survey of the Territories 21(3): 425-494.

_____. 1911. *The Mount McKinley Region, Alaska with descriptions of the igneous rocks and of the Bonnifield and Kantishna Districts.* United States Department of the Interior, U.S. Geologic Survey, Professional Paper 70. Washington D.C.: GPO.

_____. 1913. *Mineral Resources in Alaska, 1912.* Department of Interior, U.S.G.S., Bulletin 542. Washington DC: GPO.

_____. 1916. *Mineral Resources of Alaska.* Department of the Interior, U.S.G.S., Bulletin 662. Washington DC: GPO.

Brooks, Alfred H. and G.C. Martin. 1921. *The Future of Alaska Mining Industry in 1919.* Department of Interior, U.S.G.S., Washington DC: GPO.

Cobb, E.H. 1973. *Placer Deposits in Alaska: An Inventory of the Placer Mines and Prospects of Alaska, their History and Geology.* Department of Interior, U.S.G.S., Bulletin 1374. Washington DC: GPO.

____. 1974. *Geologic Survey Published Maps (other than Topographic Maps) of Alaska, Indexed by Quadrangle*. Department of Interior, U.S.G.S., Open File Report 74-84.

____. 1977. *Placer Deposits Map of Central Alaska.* Department of Interior, Open File Report 77-168-B.

Gardener, E.D. and C.H. Johnson. 1935. *Placer Mining in the Western United States Part Three: Dredging and other Forms of Mechanical Handling of Gravel, and Drift Mining.* U.S. Bureau of Mines, Information Circular 6788. Washington DC: GPO.

Hill, James M. 1933. *Lode Deposits of the Fairbanks District, Alaska.* Department of the Interior, U.S.G.S., Bulletin 849-B. Washington DC: GPO.

Joesting, H.R. 1941. *Geology and Ore Deposits of Ptarmigan Creek.* On file at the D.G.G.S. in Fairbanks, reference number PE 68-1.

Martin G.C. 1918. *The Alaska Mining Industry in 1918.* Department of the Interior, U.S.G.S., Bulletin 712-A. Washington DC: GPO.

____. 1920. *Mineral Resources in Alaska in 1918*. Department of Interior, U.S.G.S., Bulletin 712. Washington DC: GPO.

McCoy, D., R.J. Newberry, P. Layer, J.J. DiMarchi, A. Bakke, J.S. Masterman, and D.L. Minehane. 1997. *Plutonic Related Gold Deposits of Interior Alaska in Mineral Deposits of Alaska*: Economic Geology Monograph 9. Goldfarb and L.D. Miller, eds.

Men ie, W D. and H L. Foster 1978. *Metalliferous and Selected Nonmetalliferous Mineral Resource Potential in the Big Delta Quadrangle Alaska*. Department of Interior, U.S.G S., Open File Report 78-529 D

Mertie, J.B , Jr. 1942. *Ore Deposits of the Eagle and Fairbanks District, 1942* Field Notes, available through the U.S.G.S. Field Notes Archives in Anchorage, Alaska.

Moffit, Fred H 1942. *Geology of the Gerstle River District, Alaska* Department of Interior, U.S.G.S , Bulletin 926-B. Washington DC: GPO.

Newberry, R.J. 1996 *Preliminary Geological Map of the Fairbanks Mining District, Alaska* Alaska Division of Geological and Geophysical Surveys, Public Data File 96-16.

Prindle, L M. 1905. *The Gold Placers of the Fortymile Birch Creek, and Fairbanks Regions, Alaska* Department of the Interior, U S.G S , Bulletin 251. Washington DC: GPO.

_____ 1913. *A Geological Reconnaissance of the Fairbanks Quadrangle, Alaska.* Department of the Interior, U S.G.S., Bulletin 525 Washington DC: GPO

Purington, Charles W. 1905. *Methods and Costs of Gravel and Placer Mining in Alaska.* Depart ment of the Interior, U S G S , Bulletin 263. Washington DC GPO.

Smith, Philip S 1941. *The Mineral Industry in Alaska in 1939* Department of the Interior, U.S.G S , Bulletin 926-A. Washington DC: GPO. Smith authored a series of annual official reports under this title from 1910–1942

___ 1942. *Occurrence of Molybdenum Minerals in Alaska*. Department of Interior, U.S.G S , Bulletin 926-C Washington DC GPO

Smith, Sumner S 1917. *The Mining Industry in the Territory of Alaska During the Calendar Year 1915*. U.S. Mine Inspector of Alaska, Department of Interior, Bureau of Mines. Washington DC: GPO.

Sturmann, Alfred. 1986. *Report of Investigations 86-18, Mining Claim Information for the Big Delta Quadrangle, Alaska* . Alaska State Government, Department of Natural Resources, Division of Geologic and Geophysical Surveys Fairbanks, Alaska

Swainbank, R C. and K.H. Clautice. 1998. *Alaska's Mineral Industry A Summary* Alaska State Governmet, Department of Natural Resources, Alaska Division of Geological and Geophysical Surveys, Information Circular 43.

Thomas, Bruce I. 1973. *Gold Lode Deposits, Fairbanks Mining District, Central Alaska* Department of the Interior, Bureau of Mines, Information Circular 8604. Washington DC: GPO

Wimmler, N.L. 1925. *Placer Mining in Alaska in 1925*. Manuscript MR195-8, on file at Department of Natural Resources, Division of Geological and Geophysical Surveys, Fairbanks, Alaska.

_____ 1927. *Placer-Mining Methods and Costs in Alaska*. Department of Commerce, Bureau of Mines. Washington DC: GPO.

Archival Collections:

Note: The following collections were consulted for any references photographs, or reports regarding mining activity on lands now encompassed by the military withdrawals of Forts Wainwright and Greely These collections are all located at University of Alaska Ed Rasmuson Library Alaska and Polar Regions Ar-

chives

Falcon Joslin Papers.

Fairbanks Gold Dredging Corporation, Ltd, 1902–1964.

Tanana Valley Gold Dredging Company, Ltd.

Mike Erceg Collection

John Hajducovich Papers, 1919–1965.

Newspapers and Magazines:

Note: Many editions of newspapers for the Fairbanks area were reviewed for potential references to mining activity on lands now encompassed by the military withdrawals of Forts Wainwright and Greely For specific dates regarding the citations in this report please consult the footnotes The Elmer Rasmuson Library, University of Alaska Fairbanks, maintains an extensive collection of microfilmed newspapers from Fairbanks dating back to approximately 1906 with a few references before this date

The Farthest North Collegian

The Fairbanks Daily News Miner

The Fairbanks Daily Times

Tanana Daily Miner

Tanana Miner

Alaska Yukon Magazine

The Tanana Goldfields, 1904. Published by Mason and Hill of Fairbanks, Alaska. A special edition of the *Fairbanks Miner.*

Fairbanks Gazette.

Miscellaneous

Department of Natural Resource. Division of Mines and Mining. University Avenue, Fairbanks, Alaska. Look for the KARDEX system and land status files.

State/District Recorders Office, South Cushman St Fairbanks Alaska.

Noble, Bruce J. and Robert Spude. 1992. *Guidelines for Identifying, Evaluating, and Registering Historic Mining Properties* National Register of Historic Places, Bulletin 42 National Park Service.

Tweiten, Carl O. 1990. *Alaska, Big Delta and the Goodpaster Region: The true experiences of young man working in Alaska during the 1930s trapping, prospecting, and mining* Puyallup, Washington: Valley Press

www.usgs.gov: search for the Alaska Resource Data File (ARDF). This site will also allow access into the index of the field note archives in Anchorge, Alaska.

Files and notes used to complete this report will be held at Natural Resource Division, Fort Richardson, and are indexed.