CULTURAL RESOURCES SURVEY FOR PROPOSED MINING DEVELOPMENT ACTIVITIES IN THE BIG HURRAH CREEK AREA, SEWARD PENINSULA, ALASKA

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1.0 INTRODUCTION

1.1 Project Background

The Alaska Gold Company and Bristol Environmental & Engineering Services Corporation (BEESC) are planning mineral exploration and mining development of the patented lode mine holdings known as Big Hurrah located on Little Hurrah Creek. The area is approximately 35 miles east of the city of Nome, Alaska, in the Solomon River drainage system (Figure 1). As part of these development activities, a cultural resource survey was performed in compliance with Section 106 of the National Historic Preservation Act. The Area of Potential Effect (APE) consists of approximately 235 acres with several historic buildings in situ, including a large stamp mill, the Hurrah Quartz Mine, on which construction began in 1901, and the first 10 of 20 stamps were operating by 1903 (Nome Nugget 1902; Smith et. al 1942). Northern Land Use Research, Inc. (NLUR) was contracted by BEESC to perform a Determination of Eligibility (DOE) for inclusion of the historic mine buildings to the National Register of Historic Places, and to perform an evaluation phase archaeological reconnaissance of the surrounding area.

Between June 9th and 14th, 2005, NLUR archaeologists, Carol Gelvin-Reymiller, and Leonard Hanson traveled to Little Hurrah Creek and conducted the survey. This report provides the project setting, cultural chronology and history of the Nome and Northwestern Alaska region, and previous archaeological investigations near the project area. The results of the survey and subsurface testing are described, and recommendations are made concerning the status of the historic structures on the site.

1.2 Project Setting

The APE is situated at the confluence of Big Hurrah Creek and Little Hurrah Creek approximately 8 miles northeast of the unincorporated village of Solomon and 35 miles east of the town of Nome (Figure 1). Big Hurrah Creek is an eastern tributary of the Solomon River, which flows into the eastern limit of Safety Sound. The Solomon River drains highlands that rise between the coast of Norton Sound and the Niukluk River. The APE lies approximately 500 air miles northwest of Anchorage near the southern coast of the Seward Peninsula (Solomon Quadrangle C-5; Section 03, Township 11S, Range 29W, Kateel River Meridian). The APE varies in elevation from approximately 100 feet above sea level (ASL) to 500 feet ASL. Big Hurrah Creek and the surrounding gold bearing creeks have been mined since 1900, and a number of structures associated with
these mining efforts can be seen along the creeks of the area (USGS 1996). Traditionally, Inupiat people seasonally inhabited the area; the village of Solomon is the closest settlement and has a population of 8 (ADCED 2004).

The climate of the Nome region is maritime during the summer months (early June to mid-November) due to the open water of Norton Sound; however, near the end of November, Norton Sound begins to freeze causing a shift of the region’s climate from maritime to continental (National Climate Data Center 2004). Temperatures in the summer average between 44 and 65 degrees, while winter average temperatures range between -3 and 11 degrees. The area receives approximately 18 inches of precipitation annually, which includes 56 inches of annual snowfall (ADCED 2004).

Flora present in the APE, which is above tree line, is typically lichen, dryas, shrub willow, dwarf birch, cotton grasses, and mosses. Berries, edible greens and roots such as crowberries, salmonberries, low bush cranberries, blueberries, Labrador tea, and wild celery are found in marshy areas and on the beaches (Bockstoce 1979).

Terrestrial mammal species available as subsistence resources in the region include ground squirrel, hare, brown bear, musk ox, wolf, moose, reindeer, fox and, in minimal numbers, caribou. Sea mammals present as coastal resources during various periods of the year include ringed harbor and bearded seals, walrus, and grey, beluga and bowhead whales. Fish resources available include five different species of salmon (chum, pink, king, sockeye, and silver), Pacific herring, Arctic char, grayling, cod, smelt, whitefish, pike and burbot, while, avifauna include ptarmigan, ducks, geese, swan, cranes, sandpiper, gulls, loons, owls, and cormorants (Bockstoce 1979).
2.0 METHODS

2.1 Research Design

The objectives of BEESC and the Alaska Gold Company are to satisfy State and Federal statutes and regulations regarding identification and evaluation of cultural resources located within proposed development areas, and to determine the eligibility of sites or historic structures for inclusion to the National Register of Historic Places. Research methods included an examination of aerial photographs, maps, and pertinent literature. NLUR’s private research library served as the primary source of literature relating to the history and archaeology of the area. The Alaska Heritage Resource Survey (AHRS) files, maintained at the Office of History and Archaeology (OHA), were also consulted, as was the National Register of Historic Places. The AHRS files, a formal compilation of recorded archaeological and historic site locations within Alaska, provided information about reported sites within the Big Hurrah project area. Prior to the survey, Charlotte McCay, the project manager for BEESC, provided maps, derived from the U.S. Geological Survey (USGS), showing project boundaries (Figure 1).

Following literature and files research, NLUR’s focus was to provide appropriate pedestrian surface survey coverage and subsurface testing of the APE for unknown cultural resources, both historic and prehistoric, by designating areas within the APE as having high or low potential. Designations of localities as having a high or low potential for prehistoric site occurrence was based on geomorphological characteristics and distance to water, such as terraces overlooking creeks (see Dixon et al. 1993; Mason et al. 1994; Higgs et al. 1999). In addition, photo documentation of known historic structures was planned for evaluation purposes. During the 2005 investigation, 100% surface pedestrian survey of the APE was conducted with discretionary subsurface testing in areas of high and moderate potential for the presence of cultural resources, and photo documentation was completed for several historic buildings and sites.

2.2 Field Survey Methods

Pedestrian survey consisted of the archaeologists walking parallel transects approximately 15 meters (m) apart (or less) to provide sufficient inspection of the ground surface. Subsurface testing strategies were implemented on a discretionary basis and consisted of trowel and entrenching tool tests. Standard archaeological field methods such as photo and locational documentation were utilized. Coordinates for survey reference points, subsurface test units and locations of cultural resources (see Section 4.0
Survey Results, Table 2) were recorded with a Garmin E-Trex Vista™ hand-held GPS unit¹. Where cultural resources were located during the survey, sufficient data was gathered so that an evaluation could be made using criteria for significance as outlined under 36 CFR 60 and 36 CFR 800. This procedure involved mapping with tape and compass, intensive visual inspection of the ground surface, enumerating, photographing and describing artifact and archaeological features, and conducting discretionary 50 cm² tests by trowel, followed by backfilling.

¹ All coordinates were collected using the Universal Transverse Mercator (UTM) grid with reference to the 1927 North American Datum (NAD 1927).³ Much of this section uses narrative presented in Potter et al. (2000).
3.0 ENVIRONMENTAL AND CULTURAL SETTING

3.1 Cultural Chronology of the Southern Seward Peninsula

Several well-known traditions that represent past cultures, or stages in past cultural prehistory, have been established based on archaeological assemblages from the southern Seward Peninsula and to the south along Norton Sound. Three sites in particular, Iyatayet, Nukleet and Cape Nome, include cultural components which represent and define these traditions, known as Denbigh, Choris, and Norton. The sites of Iyatayet and Nukleet on Cape Denbigh were excavated during the late 1940s and early 1950s by J. Louis Giddings, who surveyed the coast of Norton Bay from Cape Moses to Elim, as well as other areas of the Alaskan northwest (Giddings 1964). John Bockstoce (1979) excavated at Cape Nome from 1969 to 1976. Below is a brief review of the cultural chronology of the Seward Peninsula and Norton Sound region.

American Paleoarctic Tradition (12,000 to 7,000 years ago)³

This culture complex is thought to have appeared after, or possibly contemporaneous with a Paleoindian Tradition (see Ackerman 1996 for discussion of the Spein Mt. Paleoindian component in the Kuskokwim River drainage). Certain stone tool types, especially distinctive cores, blades, and burins found in American Paleoarctic sites are remarkably similar to stone technologies from northeast Eurasia, suggesting cultural connections across the Bering Land Bridge. American Paleoarctic tool kits are generally thought to have been oriented toward the production of composite antler and stone projectiles, used to dispatch late Pleistocene-early Holocene fauna. The interior Alaska variant of the American Paleoarctic, termed the Denali Complex, has several western expressions in the Kuskokwim area at the Nukluk Mt. sites, Iluk site, and Lime Hills sites (West 1967; Ackerman 1996). In the Solomon Creek drainage, there are no known sites of American Paleoarctic age, though archaeological materials from the Trail Creek Caves to the north on the Seward Peninsula have considerable time depth and the presence of microblades and antler spearheads (Larsen 1968; Schaaf 1988). In other sites in northwest Alaska, Onion Portage on the Kobuk River, excavated by Giddings and others since the 1940s, reveals human occupation beginning with the Akmak phase approximately 9000 years before present (BP) (Giddings 1967; Anderson 1988). In areas more distant, the Anangula site in the Aleutians is considered an example of the Siberian Paleoarctic Tradition (McCartney and Veltre 1996), and several researchers have suggested that sites in the Kuskokwim River drainage, collectively termed the Kagati complex, may record human presence during the end of this time period (Ackerman 1987; West 1996).
Northern Archaic Tradition (6000 to 2000 years ago)

At some point after 6000 years ago, side-notched projectile points of various forms begin to appear in interior, northern, and western Alaska archaeological assemblages. These are a hallmark of the cultures termed the Northern Archaic Tradition (Anderson 1968). The broad occurrence of this point type throughout interior and northern Alaska and the Yukon Territory, along with distinctive scraping implements and other lithic tools, may represent the spread from the east and south of a new boreal forest-oriented cultural tradition (Anderson 1988). Sites of this tradition are found along the Yukon River to the east of St. Michael Island and throughout the interior.

Arctic Small Tool Tradition (4500 years ago to A.D. 900)

This tradition, abbreviated as ASTt, is characterized by a lithic artifact assemblage consisting of microblades, burins, small bifaces, and side blades, and a lack of ground or polished stone tools (Irving 1962, 1964; Anderson 1984). The tradition has been further defined and expanded beyond the earliest component named Denbigh, (4700 to 3500 yrs BP) to include later cultures such as Choris (3400 to 2400 yrs BP, mainly north of the Bering Strait), Norton (2400 yrs BP to A.D. 1000), and Ipiutak (A.D. 100 to A.D. 1200, mainly north of the Bering Strait) (Irving 1964; Dumond 1987). These archaeologically defined cultures known as Choris, Norton and Ipiutak each have lithic assemblages which display similarities to each other; they are separated and defined primarily based on presence or absence of pottery, stylistic differences of pottery and organic artifacts, and inferred subsistence systems (Giddings 1957, 1964; Larsen and Rainey 1948). Closest to the Solomon drainage, at the Old Beach Site on Cape Nome, a small Denbigh-related lithic assemblage was found on the earliest formed beach ridge (Beach Ridge 1) on the cape (Bockstoce 1979). Choris sites on the Seward Peninsula are located at Cape Espenberg and around Teller (Schaaf 1988). At Cape Nome, Bockstoce (1979) identified two phases of Norton, early and late, at the Old Beach Site. The early Norton assemblage appears to indicate a heavy reliance on net fishing, hunting caribou and sealing, while the late Norton assemblage indicates a lack of net fishing and possibly increased reliance on caribou hunting and sealing (Bockstoce 1979). Ipiutak sites along the northern coast of the Seward Peninsula date from 1500-1200 BP at Cape Espenberg and Deering (Bowers et al. 1999; Giddings and Anderson 1986; Harritt 1994; Larsen 2001). Ipiutak is characterized by elaborate carved burial goods with highly stylized engraving, the use of iron, and the absence of pottery. Although Ipiutak is not considered to have extended into the Golovin/Elim coastal area, preliminary results from an archaeological excavation at Kitchauvik near Golovin indicate that the site dates to the Ipiutak time-period. At least three artifacts from the site are consistent with the Ipiutak style (Sweeney 1999).
Specialized cultures also developed on the Bering Sea islands at this time, such as the Old Bering Sea, Okvik, and Punuk, which focused on walrus or whale hunting. There are clear differences at sites north and south of the Bering Strait, with the Norton culture persisting south of the Strait until the arrival of the Thule culture. Typical artifacts of these sites feature checked stamped pottery, ground slate tools, large labrets of bitumen or jet, oil lamps, and net sinkers. Viewed in a larger sense, changes in stone tool technology introduced by the ASTt are interpreted by archaeologists as representative of the original Eskimo people, probably of Asiatic origin, who intensively exploited coastal as well as inland resources, and who introduced the bow and arrow (Oswalt 1967; Anderson 1984; Dumond 1987; Fitzhugh and Crowell 1988). Linguists suggest the language at the time of earliest ASTt was the root language that split into Yupik and Inupiaq (Lutz 1982; Woodbury 1984; Krauss 1988).

**Thule Culture (A.D. 1000 to A.D. 1800)**

This tradition has also been called the Northern Maritime or the Neo-Eskimo tradition and covered the arctic from Greenland to Siberia (Collins 1964). The area encompassing the Seward Peninsula and Norton Sound region is considered within the Western Thule cultural influence, which also includes sites on the Siberian coast, St. Lawrence Island, the northern Alaska coast, and coasts of the Alaska Peninsula. During this time, sea mammal hunting from strategic promontories, an increased reliance on the hunting of marine resources along the coast in general may have become a preferred subsistence strategy (Ford 1959; Collins 1964; Bockstoce 1979; Giddings and Anderson 1986; Stanford 1976). At Cape Nome, the earliest representation of Western Thule is the Cape Nome phase. Coastal Western Thule may have developed from Birnirk (1300 to 1000 BP) or other related phases, such as Punuk, that developed a versatile sea mammal hunting strategy. Western Thule subsistence apparently consisted of land hunting, fishing and seal hunting, with a strong reliance on small seals (Anderson 1984; Dumond 1984, 1987). Artifactual assemblages are characterized by polished slate tools, and show evidence of heavy reliance on coastal resources, especially open water hunting and the use of boats, the use of dog traction, and winter ice sealing. Sites indicate large populations focused on whale hunting, supplemented by small game and caribou. Dwellings were semi-subterranean having living spaces with raised wall benches on three sides, sometimes at two levels, with underground entrances often having storage spaces attached or with ground level entrances. These structures had central hearths, central smoke holes, and wood framed walls and ceilings covered with sod (Edmonds 1966; Oswalt 1967; Nelson 1983).
From historical accounts following contact with Euroamericans in the 1800s, it is known that the Kauweramiut, Malimiut, and Unalikmiut Eskimo groups occupied the Seward Peninsula and Norton Sound region (Ray 1984). Inupiaq is the traditional language of the Kauweramiut and Malimiut, while the Unalikmiut spoke a sub-dialect of central Alaskan Yupik (Woodbury 1984). Trade around northwest Alaska and across Bering Strait was well-established long before explorers entered the area, with Kauweramiut, Malimiut, and Unalikmiut having specialized traders within their groups (Oswalt 1967; VanStone 1984). Kotzebue and Shesalik, on the north coast of Kotzebue Sound and Point Spencer at Port Clarence along the southwestern edge of the Seward Peninsula, were among the regional trade centers, and were visited by natives from throughout northwestern Alaska as well as from Siberia (VanStone 1984; Ray 1984). In 1884, approximately 1400 natives were observed at a trade fair at Kotzebue (Oswalt 1967). Trading partners and kinship ties were an important part of social networks; encounters between groups under circumstances other than specified trading events could be hostile (Oswalt 1967).

The traditional settlement and subsistence pattern for most Eskimo groups has been described as a Central Based Wandering system (after Beardsley, in Oswalt 1967). Resources in the Bering Strait region are relatively abundant but not necessarily uniform (Burch 1984). Winter was often spent in a more permanent village and summers were spent moving between camps in pursuit of seasonal resources. Villages had a community or men’s house (qargi) which was generally centrally located, and on high ground if possible. Permanent winter houses were semi-subterranean with walls and roof of wood, a long entrance tunnel, and an oogruk (walrus) gut skylight. A small central fireplace and low sleeping platforms were in the main room and the kitchen was usually separate. In addition to the central hearth, heat and light were also provided by pottery lamps (Burch 1984, 1998).

Captain James Cook was the first European explorer to travel beyond the Seward Peninsula to as far north as Kotzebue Sound on his voyage in 1778. Kotzebue Sound was explored in 1816 by Otto Von Kotzebue, while he was looking for the Northwest Passage on behalf of the Russian-American Company. Kotzebue traded with the native people he encountered, and observed that they already had western trade goods and were very knowledgeable regarding trading practices. In 1820, Shishmarev and Visiliev each manned a Russian-American Company ship in the sound, and met American trader Pigot in the region as well. In 1825, the British Captain Beechey came to Kotzebue Sound in an attempt to meet the first Franklin Expedition as it came across the Arctic coast (Grauman

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2 Some of this section, with modifications, is from Gelvin-Reymiller and McGowan 2004.
The Russian American Company sent a ship annually from St. Michael to Kotzebue Sound starting in 1833 (Ray 1984). By the mid-1800s, Euroamerican presence in northwestern Alaska was annual, but sustained contact did not begin until the turn of the century. As a result, major impacts to the native culture of northwest Alaska were felt later than they were in southwestern or southeast Alaska where permanent settlements and trading posts were established much earlier. As William Fitzhugh points out in his introduction to Nelson’s classic ethnography (Nelson 1983: 23), the “trading posts” of the Bering Strait area were ships that went to the people in their traditional locations.

The first whaler to venture through the Bering Strait was the Superior out of Sag Harbor, New York in 1848, and whalers from the already established North Pacific fishery soon followed. Port Clarence on the southwestern edge of the Seward Peninsula, Kotzebue Sound, and Point Hope were favored stopping points for whaler to trade (Ray 1975; Grauman 1977; VanStone 1984; Williss 1986). Between 1849 and the mid-1850s, several British ships wintered in Kotzebue Sound (1849) or Port Clarence while searching for survivors from the second Franklin expedition. Members of these crews conducted the first exploration of the interior of the Seward Peninsula by Euroamericans (Grauman 1977). In the mid-1860s, Western Union Telegraph Company sent work parties to Alaska to build a telegraph line linking the U.S. and Siberia. A party of 41 men was stationed at Port Clarence with instructions to construct a line across the Seward Peninsula, though the line was never completed because the trans-Atlantic cable had successfully been laid in 1867. The leader of this group, Daniel B. Libby, had noticed signs of gold in some of the interior creeks on the Seward Peninsula, and when the Klondike Rush began in 1897, he returned to western Alaska to re-locate those finds (Cole 1984). Following the United States’ purchase of Alaska from Russia in 1867, the first U.S. government presence in northwest Alaska was by the Revenue Marine ship Wayanda in 1868 and by the Reliance in 1870. It was not until 1880, however, that annual patrols of the revenue service were instigated to control trade in guns and liquor, conduct census and scientific studies, and provide aid and rescue service.

In 1890 the U.S. government sponsored domestic reindeer herding, spearheaded by Dr. Sheldon Jackson, as an economic base for Inupiat residents of the Seward Peninsula. Jackson was the Agent for Education in Alaska and also a Presbyterian missionary; consequently, the reindeer herds were nearly all associated with missions and mission schools. The influence of the missions, hospitals, and schools associated with reindeer herding impacted seasonal mobility, as well as language, society, and culture (Grauman 1977; VanStone 1984; Williss 1986; Simon 1998).
The Klondike Gold Rush of 1897 brought large numbers of people north with significant impact on the residents of the Seward Peninsula. Prospecting had been occurring in various places around the Seward Peninsula prior to 1897, based out of locations such as the trading post at Golovin Bay and reindeer stations. In April 1898 the first real strike on the Seward Peninsula occurred on Melsing and Ophir Creeks, and the town of Council City was founded. Over the next 30 years, the mining district around Council City would produce an estimated $12 million worth of gold (Cole 1984). However, as Cole (1984: 19) notes, “the Council City strike was the prelude to a far richer discovery made about 80 miles to the west six months later near Cape Nome” which included the September 1898 strike by the “three Lucky Swedes,” Jafet Lindeberg, Eric Lindblom, and John Brynteson in the Snake River drainage. Standard references on ditch construction were available by 1900; numerous ditches were constructed to augment water supplies at mines on the Seward Peninsula (Bowie 1900; Williams and Reuther 2003). Dredges were introduced in the Nome area as early as 1905, and by 1917 more than 20 dredges had been built (Harlan 1931, in Boswell 1979). Lode mines in Alaska were far fewer in number than placer mines.

History of Early Alaskan Lode-Gold Mines and the Hurrah Quartz Mine
The first stamp mill at a lode-gold deposit in Alaska was built in the Indian Creek valley near Sitka in 1879. Gold bearing quartz veins were sought by prospectors throughout the territory, but deposits with significant yields and economic viability were not numerous. However, early lode-gold mines were located across the territory, processing ores in 1891 on Unga Island off the Alaska Peninsula, by the late 1890s on Gravina, Annette, and Prince of Wales islands, in 1908 at Willow Creek at the head of Cook Inlet, in 1909 at the Cliff mine near Valdez in Prince William Sound, in 1910 on Bedrock Creek near Fairbanks, in 1912 on the Innoko River drainage near Carter Creek, in 1921 at a mine near McGrath on the upper Kuskokwim River, in 1922 in the Iditarod area on Glen Gulch, in 1931 at White Mountain in the Nabesna area, and also at that time at Eva Creek near Ferry on the Nenana River.

Lode mining began in the Solomon River drainage in 1903 at Big Hurrah Creek. The first placer claim had been staked in 1899 near the mouth of Big Hurrah Creek (Cobb 1973:90-91). In the vicinity of the Solomon River drainage, Petrof recorded that the Omilak mine, located approximately 125 miles east of Nome, had been mined for silver-lead ores which include small amounts of gold prior to 1880 (Smith et. al 1942).

The Hurrah Quartz Mine (variously located on Big Hurrah or Little Hurrah Creek because of its placement near the confluence of those two creeks), according to Reports of the Commissioner of Mines for the Territory of Alaska Department of Mines, and by
the Nome Nugget newspaper was active between 1903 and 1908, and remained idle until 1938. Charles D. and Anna Lane and their sons, Louis, Paul, and Tom, developed the lode mine, beginning with construction of the large mill building in 1901 and 1902. Mrs. Lane and her son Tom were the owners of the mine, and Charles was a well-known figure in the gold mining scene, described as “a practical quartz miner for forty years” (Nome Nugget August 20, 1902; June 14, 1904). Charles Lane, president of the Wild Goose Company, had a number of claims on the Peninsula; the family was responsible for building several long ditches in the Kougarok, Casadepaga, and Solomon mining districts, and worked claims on Ophir Creek, Anvil Creek and Nikila Gulch, as well as others.

The Nome Nugget (July 17, 1903) reported that “the stamps of the first quartz mill on Seward Peninsula began…at 2 p.m. yesterday…on the Hurrah quartz mine…” The article notes the camp is complete and teams “are now engaged hauling 300 tons of coal from Solomon to the Mine.” Gasoline engines were used initially to run the mill, but were supplemented by steam powered pistons fueled by coal fired boilers following the completion of ditches that provided adequate water. By August of 1903, ten stamps at the Hurrah Quartz Mine were “dropping regularly and crushing 30 tons of rock daily” (Nome Nugget August 11, 1903). In this newspaper article, Mr. Lane notes that the mill was running well, but gold recovery systems were still “experimental” and a cyanide plant was discussed as an option even at this early date. It is unclear when leaching tanks were put in place, and how many existed by the time tailings were reworked by cyanide processing in the 1940s.

During the 1904 season, ten additional stamps were added to the mill. The chartered schooner Coryphene from Seattle brought the stamps and 1400 tons of supplies to run the mill for another year; the mill ran year-round and employed 40 to 50 people (Nome Nugget June 14, 1904). By January of 1905, the mill employed 55 men (Nome Nugget Jan. 20, 1905). Later that same year, the newspaper noted that prospect shafts at the Hurrah Quartz mine were at depths of 300 feet, and the “mother ledge” of quartz “freely permeated with fine gold” was located (Nome Nugget April 18, 1905). During the following month, a strike by mine workers is reported, whereby 35 men “laid down their tools and quit work” because of a pay scale of $5 dispute (Nome Nugget May 23, 1905). It is unclear whether this dispute had any connection to information revealed in the Nome Nugget article of July 7, 1905 that stated Charles D. Lane had “severed his connections” with the Wild Goose Company.

By 1906, the main shaft was at a depth of 275 feet, with three active levels at even greater depths. The mine, now managed by son Louis Lane, reported an accident in which a
magazine of blasting powder detonated, causing a portion of one of the levels to be filled with debris, though damage was small (Nome Nugget Feb. 20 and April 5, 1906). In several other articles, Hurrah Quartz mine is consistently described as organized and well equipped. An article in the Mining Edition of the Nome Nugget (June 11, 1906) describes the mine:

The only practical demonstration of quartz mining on the peninsula is at the Hurrah mine on Little Hurrah Creek, above Solomon. This mine, of which Mr. L.L. Lane is manager, is well equipped, and is operated in a methodical manner. The ore, which is a siliceous quartz, averages about five feet in width, and lies in a schist formation. It is largely of a free milling character, as the manager informs me that a saving of 80 per cent of the assay value is made on the plates and tables.

The mine is developed only to the 300 foot level, and is equipped with two boilers of a capacity of 100-horsepower each, a hoist geared to a capacity of 140-horsepower, a six-machine compressor driven by a 100-horsepower Corliss engine, and pumps amply adequate for handling any amount of water which may reasonably be expected. At the present time the flow of water is but little more than that required to supply the boilers and mill.

The mill is equipped with twenty stamps, Fru--mier tables and a 50-horsepower gasoline engine.

An average of forty-five men are employed at the mine and mill, and the daily output is seventy-five tons of ore, which is mined and milled at a cost of slightly under $5 per ton (Hine 1906).

Reports during 1907 by Smith (1907:147) of the U.S. Geological Survey (USGS) concur with the above article, that the mine ran smoothly and had been on the same scale for several years, and “continues to be the only productive lode-gold mine in the entire district.” In reports for the 1908 season, Smith (1908:236) detailed the ore processing at the mill. The ore was moved from the shaft into bunkers by hand-pushed trams along the narrow gauge rail, and then automatically fed through the stamps via small hoppers. The crushed material then passed over plates and onto tables for concentration, with the “major part of the gold…won in the upper few feet” of the plates. The crushed material (tailings) from the four tables (two “Frue” type and two locally made) was then carried to settling ponds. The collected concentrates (the amalgam and heavy concentrates from the stamps) were “put into an amalgamating barrel and slowly rotated with steel balls for twelve hours and then retorted and sold to the bank.” This amalgamating barrel may be the tube mill (BH-05-15) that lies outside the mill building, near the Big Hurrah Creek bank. The collected concentrates from the tables were “sacked and shipped to outside smelters for treatment.” In Smith’s 1909 report, he notes a “series of difficulties have arisen which compelled the suspension of operations at this mine during 1908”; the ore itself was not one of the difficulties, but instead there were “questions of management” (Smith 1909:292).
In 1913, the *Nome Daily Nugget* of January 3 reported that several mining properties received patents, among which was the “Big Hurrah quartz properties of Mrs. Anna G. Lane.” The *Daily Nome Industrial Worker* of June 20, 1917 reported that the road associated with the Council City and Solomon River railroad (referenced in an earlier article reporting the salvage of the rails) was to be left in tact due to interest in re-opening the Hurrah Quartz mine. Mertie (1918:425) mentions the mine and confirmed its closure some years prior to his visit to the Seward Peninsula in 1916.

Several miners worked Big Hurrah Creek between the initial closure and the reopening; the creek was worked with a small dredge by Iverson and Johnson in 1922 and with draglines, bulldozers, and hydraulic operations by C.O. Roberts Company of Nome in the 1930s and 1940s with crews of 3 to 7 people. During this time period, Smith, still with the USGS, reported that pending litigation concerning the Big Hurrah lode-gold mine was settled in 1937 “in favor of the Lane Investment Co.” He offered the opinion that this action “should enable mining interests to consider seriously taking steps that may lead to the reopening of the well-known property, which 25 years ago was the most productive lode-gold mine in the entire Seward Peninsula region” (Smith 1939:33). Partly responsible for a decade delay in reopening the mine was an order by the U.S. War Production Board in October of 1942 that closed most lode-gold operations, and caused many lay-offs because of a “War Labor Board ruling upholding a union demand for increased wages” (Stewart 1944:23). The results of these orders were the reduction of active lode mines in Alaska from 126 in 1941 to 34 in 1943. However, by the 1946 biannual Report of the Commissioner of Mines, the Big Hurrah Mine is listed as being operated by C.O. Roberts as “the only productive lode gold mine on Seward Peninsula” (Stewart 1946:17). It is unclear if Roberts was running the lode mine for Lane Investment Co. or running a separate operation. In 1950, the Commissioner of Mines (1950:30) reported that “…the Big Hurrah mine was taken over in 1950 by T.P. Lane of the pioneer mining family, and plans were to rework the tailing of previous operations by cyanidation. A cyanide plant was ordered and received in the fall of 1950 that was expected to be erected and operated during 1951.” Work continued at the mine between 1952 and 1954 with Travis Lane as manager. Activities were directed toward “cyaniding the mill tailings…recovering gold that was lost by the earlier incomplete milling process” (AK Dept. of Mines 1952:19). It is unclear if new ores were also being mined and processed at that time. These activities ceased in late 1954 due to “moving ground and caving in of the shaft” though reopening the mine was considered an option. In that same year, an application was made to acquire funds through the Defense Minerals Exploration Administration (DMEA), a government program to help with costs associated with the exploration for and mining of certain “strategic and critical minerals” (USGS 2003). The
application was filed by Alaska Associates, Limited, for exploration and mining of tungsten at the Big Hurrah Quartz Mine. The application was denied. The DMEA program ceased operation in 1958; another federal program took its place.

3.2 Previous Cultural Resource Research in the Big Hurrah Creek Vicinity

The Territory of Alaska Department of Mines collected the earliest information on cultural resources in their biannual reports on manpower and types of mining activity, although the focus has been on geological examinations of the area, including mapping and mineral investigations (cf. Anderson 1947; Read and Meinart 1986; Werdon et. al 2004). Several anthropologists have worked in the Nome and Solomon area, including Dorothy Jean Ray in the 1960s, J.R. Bockstoce in the 1960s and 70s, and R.G. Buzzell and D. Gibson in the mid 1980s. Bockstoce conducted extensive testing and excavations at the Old Beach Site near the eastern end of Safety Sound, the closest and largest known prehistoric site to the Big Hurrah area. Archaeologists F.G. Rainey and F. Hadleigh West also worked at the site. Buzzell and Gibson identified many of the historic sites recorded in the Alaska Heritage Resources Survey (AHRS) database (see below 3.3 Known Cultural Resources of the Area) pertinent to the Solomon River drainage. Bureau of Indian Affairs (BIA) archaeologists surveyed and recorded a number of sites in the 1970s for the Alaska Native Claims Settlement Act (ANCSA).

3.3 Known Cultural Resources in the Area

The most well known prehistoric/protohistoric sites in the area, designated AHRS SOL-001, 002, and 093, are on the beach ridges along Safety Sound. AHRS SOL-001: Old Beach Site is several hundred house pits located on parallel beach ridges stretching for about 3 km at the southwest end of Safety Sound. Archaeological materials from Denbigh, Norton, Birnirk and Thule cultures and into historic times have been recovered from the site. AHRS SOL-002: Nuk (New Beach Sites), is a site that had over 30 houses, but due to erosion I the 1970s now has 8 house depressions, with extended entryways, remaining. AHRS SOL-093: Nuglene Site (Mupterukshuk Site) is the western locus of the site SOL-002. Less well known, but closer to Big Hurrah Creek is AHRS SOL-068: Okpiktulik (Uqpiktuliq), a village at the mouth of Cache Creek with numerous house pits and graves; and AHRS SOL-111 Imaqliq, a site just southwest of Solomon, reported to be a place where Diomede Islanders were forced to build sod houses and to over winter due to an early storm. AHRS designations for historic mining sites in the vicinity are listed in the table below.
Table 1: AHRS designations for historic mining sites, Solomon River area.

<table>
<thead>
<tr>
<th>AHRS designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOL-003</td>
<td><em>Dickson Railroad Yard</em>: established in 1903, the southern end of the Council City and Solomon River Railroad, the first standard gauge railroad in Alaska. Bankrupt by 1907. Destroyed in 1913 storm.</td>
</tr>
<tr>
<td>SOL-015</td>
<td><em>East Fork</em>: site of a mining camp and railroad station.</td>
</tr>
<tr>
<td>SOL-020</td>
<td><em>Solomon</em>: circa 1920, the most recent location of the town, near Jerusalem Hill. First W.J. Rowe, and later P. Curran moved buildings from Dickson to the site. At mile 34 of the Nome-Council Highway.</td>
</tr>
<tr>
<td>SOL-031</td>
<td><em>Solomon Roadhouse (Curran's)</em>: originally a Council City and Solomon River Railroad building built in Dickson in 1904. Moved and converted to a horse barn in 1918, then remodeled into store and roadhouse in 1930s by Curran, and was closed in 1959.</td>
</tr>
<tr>
<td>SOL-032</td>
<td><em>Council City and Solomon River Railroad</em>: The site, located just north of the Bonanza Bridge, mile 32 Nome-Council Highway is the remains of locomotives, flat cars, track and other equipment associated with the railroad established in 1903.</td>
</tr>
<tr>
<td>SOL-083</td>
<td><em>Bonanza Ferry</em>: operated several years prior to 1906 by Alaska Road Commission. Operated by P. Curran Jr. from 1925 to 1958.</td>
</tr>
<tr>
<td>SOL-084</td>
<td><em>Lee's Lower Dredge</em></td>
</tr>
<tr>
<td>SOL-085</td>
<td><em>Lee's Upper Dredge</em></td>
</tr>
<tr>
<td>SOL-086</td>
<td><em>Charlie Lee's Cabin</em></td>
</tr>
<tr>
<td>SOL-087</td>
<td><em>Johnson's Packing Plant</em></td>
</tr>
<tr>
<td>SOL-089</td>
<td><em>Charlie Lee's Grave</em></td>
</tr>
<tr>
<td>SOL-096</td>
<td><em>Solomon Cemetery</em></td>
</tr>
<tr>
<td>SOL-097</td>
<td><em>Flower's Camp (Bullcon Hill)</em></td>
</tr>
<tr>
<td>SOL-098</td>
<td><em>Quigleys Camp</em>: mining camp where E.W. Quigley moved after leaving his original camp on Big Hurrah Creek</td>
</tr>
<tr>
<td>SOL-112</td>
<td><em>Original Solomon Townsite</em>: originally a small Inupiat village (Amutach, Ongutuk) was located close by. In 1900 gold seekers camped here; the town was destroyed in the 1913 storm.</td>
</tr>
<tr>
<td>SOL-113</td>
<td><em>Old Solomon Village Site</em>: survivors of the 1913 storm moved the flats between the railroad bed and Solomon River, using materials from Dickson to build new structures.</td>
</tr>
<tr>
<td>SOL-116</td>
<td><em>Old Solomon Village Cemetery</em></td>
</tr>
<tr>
<td>SOL-117</td>
<td><em>Oro Fino Mining Camp and railroad station</em></td>
</tr>
<tr>
<td>SOL-118</td>
<td><em>Hallow and Webb Storage Tank</em></td>
</tr>
<tr>
<td>SOL-119</td>
<td><em>Bonanza Warehouse and Tank</em></td>
</tr>
<tr>
<td>SOL-120</td>
<td><em>Shovel Creek Roadhouse</em>: as early as 1905 on area maps, moved from original site. Operated by the three Danielson sisters, used by Alaska Road Commission workers and Lee’s Camp employees.</td>
</tr>
<tr>
<td>SOL-121</td>
<td><em>Lee’s Camp</em>: large mining camp with Quonsets, airstrip, etc., operated continuously since 1936 when Richard and Charlie Lee moved up from Oro Fino.</td>
</tr>
<tr>
<td>SOL-122</td>
<td><em>Ginnivan’s Roadhouse</em>: located near the confluence of East Fork and Solomon River.</td>
</tr>
<tr>
<td>SOL-123</td>
<td><em>Turner’s Roadhouse</em>: located near the mouth of Big Hurrah Creek in the early 1900s but no longer exists.</td>
</tr>
<tr>
<td>SOL-133</td>
<td>Railroad parts</td>
</tr>
<tr>
<td>---------</td>
<td>----------------</td>
</tr>
<tr>
<td>SOL-136</td>
<td><em>Big Hurrah Mine</em>: approximately 8 miles northeast of Solomon.</td>
</tr>
</tbody>
</table>
4.0 Survey Results

NLUR archaeologist Carol Gelvin-Reymiller and archaeological technician Leonard Hanson arrived in Nome on the evening of June 9th, 2005 and were met by an Alaska Gold Company employee, transported to the mining camp at Big Hurrah Creek, and oriented to the project area. The survey and DOE documentation was conducted between June 10th and 14th.

The survey began in the western portion of the APE, on the left bank of Little Hurrah Creek. Numerous newly placed roads and old cuts are evident just west of the creek. Bench or terrace areas were tested (Figure 3) and traversed beyond the disturbed area to the western limit of the APE, approximately opposite the landing strip between Trilby and Huff Creeks. The area was traversed several times; the higher elevations were surveyed first, then successively lower ground was covered until reaching the road at the base of the hill near Big Hurrah Creek. In the southwestern part of this section, a wooden cable spool was noted, as was a water collection ditch (~ 110’ in length) and a small area of lumber and galvanized metal sheeting (BH-05-01; see Figure 5). This surface scatter is at considerable elevation above the creek in the foothills to the north of Uncle Sam Mountain and outside the APE. Soil development in test pits is minimal; sod is less than 3 cm thick covering fragmented graphitic schist within a silt matrix up to 40 cm below surface level (BSL). At lower elevations still in the western APE, test pits are similar but some have a more saturated matrix, slightly more sod cover and fragmented graphitic schist up to 20 cm in size. The entire area is treeless, which facilitates identification of historic materials. Several old claim posts were noted (wood posts placed in cairns of rock). All overlook areas were also examined closely for surface prehistoric isolates. All test pits were negative for cultural materials.

At the northern edge of the APE, on Big Hurrah Creek just downstream from the confluence with Little Hurrah Creek, we documented a collapsed structure, old vehicle, barrel and other refuse scatter (BH-05-02; see Figure 6). Several trails parallel the roadway, and active erosion is occurring in the areas along Big Hurrah Creek. Cut banks from construction of the existing roadway were examined for indications of prehistoric activity; none were found.

The survey progressed to the eastern portion of the APE on the right bank of Little Hurrah Creek. Several tests were placed in the southeast APE; sod is 10 cm in thickness and covers silver gray saturated silts (Figure 4). Silts are frozen at 20 cm BSL. Tests were negative for cultural material. Farther beyond the creek toward the eastern limit of
the APE, two water collection ditches were identified (BH-05-03; Figure 7). These ditches are heavily overgrown with willows, run parallel to one another approximately 60’ to 80’ apart and follow the contour of the hillside above Big Hurrah Creek. They lie approximately 250’ in elevation along the hillside and are upstream from the Big Hurrah/Little Hurrah confluence, terminating well beyond the eastern limit of the APE opposite Huff Creek. Substantial disturbance was also noted from recent drilling activity in the eastern APE along Little Hurrah Creek nearer the structures associated with the old stamp mill building.

The survey concluded with thorough examination and documentation of the stamp mill building and rail BH-05-04 (see Figures 8-23), and associated structures. Numerous features associated with the stamp mill such as the residence (BH-05-05; Figures 24-27), the powerhouse (BH-05-06; Figure 28), the collapsed ore shaft building and ore car lifting cable drums, steam piston, flywheel and boiler (BH-05-07; Figures 29-32), and extensive scattered equipment and structures (BH-05-08 through BH-05-18; Figures 33-45) were located and documented within the APE. Descriptions of cultural resources observed during the survey are provided in the section below. Locational coordinates on cultural resources are provided in Table 2.

4.1 Cultural Resources Observed During Survey

A total of 18 cultural resources were identified in the field (Figure 2). Each resource is listed in Table 2 and described within this section. Several of these resources have multiple parts or scattered material associated with a feature; a detailed description of features follows.

Table 2. Summary and location of cultural resources observed during the 2005 survey.

<table>
<thead>
<tr>
<th>Description</th>
<th>Field Number</th>
<th>Figure</th>
<th>ZONE</th>
<th>EASTING</th>
<th>NORTHING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short ditch</td>
<td>BH-05-01</td>
<td>5</td>
<td>3</td>
<td>535822</td>
<td>7169374</td>
</tr>
<tr>
<td>Collapsed structure and vehicle</td>
<td>BH-05-02</td>
<td>6</td>
<td>3</td>
<td>536106</td>
<td>7169148</td>
</tr>
<tr>
<td>Parallel ditches</td>
<td>BH-05-03 west end</td>
<td>7</td>
<td>3</td>
<td>536671</td>
<td>7169490</td>
</tr>
<tr>
<td></td>
<td>BH-05-03 east end</td>
<td>3</td>
<td>3</td>
<td>536917</td>
<td>7169420</td>
</tr>
<tr>
<td>Stamp mill bldg and rail, with assoc. scatter (site datum)</td>
<td>BH-05-04 northwest corner</td>
<td>8-23</td>
<td>3</td>
<td>536479</td>
<td>7169729</td>
</tr>
<tr>
<td>Residence</td>
<td>BH-05-05</td>
<td>24-27</td>
<td>3</td>
<td>536513</td>
<td>7169545</td>
</tr>
<tr>
<td>Powerhouse</td>
<td>BH-05-06</td>
<td>28</td>
<td>3</td>
<td>536512</td>
<td>7169532</td>
</tr>
<tr>
<td>Collapsed ore shaft bldg.</td>
<td>BH-05-07</td>
<td>29-32</td>
<td>3</td>
<td>536490</td>
<td>7169529</td>
</tr>
</tbody>
</table>
BH-05-01 Short ditch: The ditch, located slightly outside the APE beyond its southwestern edge, is on the flank of a 1000’ high knob and is on a 30 to 40 degree slope. The ditch is 110’ in length, running roughly east/west, with a drain or flume area approximately 70’ from the eastern end of the ditch. The flume is 6’ wide by 18’ long and has 3’ high by 10’ long mounds on either side. The ditch itself is approximately 1.5’ to 2’ wide, and 1’ to 2’ deep. Associated with the ditch is a wooden cable spool, 3’ in diameter; 1” x 10” lumber scatter; a piece of galvanized sheet metal roofing; and a shallow hole in small stand of willow shrubs. The scatter is upslope from the ditch.

BH-05-02 Collapsed building, vehicle and associated materials: The collapsed building, approximately 16’ x 16’ in size, is 20’ north of the existing road which follows Big Hurrah Creek, and is just west of the confluence of Big Hurrah and Little Hurrah creeks. An older road is directly north between Big Hurrah Creek and the site. The site contains the remains of an old truck (possibly Ford Model T) situated ~20’ west of the structure; material associated with the structure is 4 x 6 lumber, corrugated tin roofing, dimensional 1 by lumber of various sizes, tongue and groove boards, a door with strap hinges and cast hasp, and pieces of Masonite board; seven fuel drums; a shallow hole (possibly outhouse); a section of 1 by angle grating or riffle measuring 1.5’ x 2’, and several old cans. Total size of scatter is 30’ x 65’.

BH-05-03 Parallel ditches: Two hand dug water supply ditches, with visible western ends located southeast (630’ south and 1300’ east) of the stamp mill building extend ~0.16 miles before reaching a small drainage nearly opposite Huff Creek. The ditches, overgrown with willows, continue along the contour of the hill well beyond the APE. Ditches are ~ 3’ in width, and are 60’ to 80’ apart.
BH-05-04 Stamp mill building, rail tracks and associated materials: The stamp mill building has wooden letters at the apex of the west gable “H Q M” which stands for Hurrah Quartz Mine (Figure 9). The building has 5 levels; the footprint for 4 of these levels, basically a rectangle, is 80’ x 40’ with a small room on the east side, and the footprint for the additional level on the north side and lowest level in elevation is 22’ x 110’ (for a total of over 7000 square feet; Figure 46). The building is made of large post and beam timbers (up to 1.5’ by 2’), some with mortise and tenon construction and knee bracing in areas near stamps and ore bunkers requiring substantial support, and some which have been added at a later date. Exterior sides of the building at level 2 are covered with shiplap, level 1 with straight horizontal 1” lumber, and corrugated tin is on upper levels. Parts of the north wall siding have been removed, but support timbers are intact. The eastern most end of level 1 wall has collapsed. Parts of tin roofing are missing on the roof of level 1, western end, and over levels, 2, 3, 4 and 5 on the eastern part of the building (~ 75% of building has intact roofing). Flooring, particularly on level 3 has deteriorated. Some downslope movement has caused separation and displacement of timbers between level 2 and level 3 (Figure 14).

Beginning at the highest elevation, level 5 is the entrance for the ore cars above the ore bunkers (Figure 8). The framing for the 8’ x 11’ opening has partially collapsed; the tracks extending outside the building are intact. Approximately 70’ along the rail track to the south (10’ west side of tracks) lies a rail car with a Jeep engine. Another 12’ beyond that lies an ore car, 6’ west of the track. The ore car dimensions are 3’ wide, 4’ long and 2.2’ deep. The rail track is interrupted by a recent road 120’ from the south side of the stamp mill building. The rail track resumes approximately 100’ to the south and continues to the collapsed ore shaft building.

Level 4 is accessed via a staircase from level 3 along the west wall that has separated from the floor at its upper end, or from a doorway in the south wall of the building. On level 4, the upper parts of the stamps can be accessed, including the flywheels (Figure 19); this level covers level 3, and is supported by timbers on its north side, some of which have shifted position due to downslope movement. Storage of materials was taking place on level 4, though little is in place now. A large mass of sticks and raven droppings is located on this level and on the staircase.

On level 3 there are substantial amounts of objects in situ. The stamps are in their original placements. Stamps 1 and 2 have cast letters “No.15 Demarest & Fullen Angels, Cal. 1899” and “No.22 Demarest & Fullen Angels, Cal. 1899” on the face of the stamp sets, visible on level 3. Stamps 3 and 4, also have cast lettering on the face of the sets, “Union Iron Works. San Francisco Cal. Pattern No. 49” (Figures 16 & 17). Still in situ are the stamp heads, shoes, chuck blocks, guides, tappets, cams, camshafts, weights and stems, and driving mechanisms such as flywheels (see http://booksgeology.com/mining_history_illustrations). Hoppers, affixed to rails for back
and forth movement from ore chutes, are located behind the stamps and are geared (pepper mill type) to feed material automatically to the stamps. Behind the chutes (on the south side of the building) are the two ore bunkers, one of which is 11’ x 12.5’ in size, and the other is 16’ x 12.5’. In front of the stamps are tables that narrow as they become distant from the stamps. Also in front of the stamps are large knee braced timbers, painted red, that form the support structure for the stamps and the floor above (Figure 18). There is a ~7’ drop down to level 2 from the floor of level 3. On the east side of level 3 is a room with workbenches, accessed by going down a short flight of stairs. Beyond this room and outside the existing building is an area, ~ 20’ x 17’, that appears to have once been walled and roofed; the floor boards remain as well as parts of timbers. At the far south end of this area, next to a bank of rock are two large flywheels, 6’ in diameter, with large steam piston attached.

Level 2 contains two large generators, one with cast lettering on the radiator housing “Cummins Diesel” next to an electrical panel, and one with painted art nouveau style yellow lettering, “From Sundfelt Equipment Co., Inc. Seattle, Wash. U.S.A.”. Also on this level are two tilt tables (5.5’ x 14’ in size), covered with burlap and a rubbery sheet material and 0.25” riffling. The tables have hand adjustable geared mechanisms underneath. At the tables is an overhead shaft with belts for power distribution. A pump with cast lettering “W MCO Ni-Hard” is on the floor. Level 2 is accessed by a staircase on the west side of the building and a 7’ x 10’ bifold door, also on the west wall. There is a ~ 4’ drop down to level 1.

Level 1 houses six tanks or vats, four of which are 16’ in diameter (Figure 13). This level is partially collapsed on its eastern end, and roofing is missing on the western end. The bases of the tanks remain, as well as several tank doors, which indicate the height of the tanks were ~ 6’. Metal hoops (five per tank) remain near some of the tanks, as do some wood pieces from the tank sides, which are 2 x 6 staves. The bases are constructed (from the bottom layer up) of 2 x 8 lumber doweled together, then 2 x 3 slats running perpendicular, followed by burlap, then two layers of sail cloth laid on smaller wooden strips. A fifth tank base, 12.3’ in diameter, is made similarly, while a sixth tank is made of riveted metal, is 5.5’ in diameter and in height, and is sunk into the ground at the northwest corner of level 1 (Figure 12).

In the immediate vicinity of the stamp mill building and for hundreds of feet on all sides are various discarded stamp heads and shoes, large metal rollers, timbers, hand tools, corrugated tin, metal and cardboard containers still inside, some with powdery substances, probably soda ash, a sulfite, lime, or some other substance for creating alkaline solutions for a leaching process, large caches of 55 gallon drums, and several rail track cars (Figure 45).
**BH-05-05 Residence:** The residence, built between 1903 and 1913 (see Goetze Collection historic photograph, Figure 50), is located 550’ south and uphill of the mill building and 120’ to the east of the rail tracks between the mill building and the ore shaft building. The main section of the house is 24’2” x 28’4” and two stories high, with a 5’8” porch, partially closed in, along the entire west side; a room attached to the east side of the main section is 8’2” x 15’10” and one story, with a 4’2” x 4’6” porch (or “indoor outhouse”?) attached on the southeast corner. There are two entrances, one through the west wall porch and one through the east wall room. The total is ~1650 square feet.

Exterior siding is split wood shakes, red paint adhering to some, over tarpaper, with molded trim and block bead trim on exterior corners and soffits. The bottoms of the exterior walls are flashed with corrugated tin. The roof is hipped on the main house as well as on the east room, and is constructed of 2 x 6 lumber, and 1 by lumber covered by green asphalt sheet. Two stove safety fittings are in the roof. Windows are placed equidistant along walls (four on each wall, two per story) and measure ~ 3’ x 6’. There are several windows that have been altered to accommodate stove pipe safety fittings, or are boarded over. Exterior racks are attached on the upper east and west walls to hold 55 gallon drums.

Wall construction is 2 x 4 dimensional lumber; interior walls are Masonite type board over milled 3.5” x 0.5” beaded tongue and groove boards, with some evidence of paint/wallpapering. The lower level has a kitchen and two rooms, and a workbench in the room off the east side. The kitchen has linoleum on the east wall; a geometric pattern of yellow, white and black lines, circle and squares on a background of speckled reds. Flooring throughout is red or gray painted 1 x 4 tongue and groove lumber with 1 x 8 baseboards. The floor/ceiling structure on the second story is 2 x 8 lumber; the central staircase of 15 treads leads to the upper story. The upper level has three rooms, one of which has a partitioned area for a bathroom/stove.

The residence has considerable interior wall damage and some floor damage. However, the roof is 100% intact; leakage occurs through cracks in 1 by lumber where asphalt sheet is missing, and through window openings.

**BH-05-06 Powerhouse:** This structure is partially collapsed, and is located ~ 40’ southwest of the residence. The structure is 16’ x 18’ and contains a cable winch mechanism on I-beam skids; engine is missing. Roofing is corrugated tin. Construction is 1 by lumber sides with 4 x 4 and 2 x 4 framing.

**BH-05-07 Collapsed ore shaft building, shaft, and lift mechanisms:** The ore shaft building, originally of considerable height to accommodate ore hoists (see Goetze Collection and Clements Library historic photographs, Figures 49-52), is completely
collapsed. The scatter, at least 85’ x 35’ in size, lies ~100’ west of the residence and over 500’ south of the mill building. At approximately the midpoint of the scatter, and heading north (008 degrees) is the ore track and narrow gauge rail that leads to the stamp mill building. The wood and corrugated tin covering has collapsed, but some of the structure can be seen near the track. Parts of the ore shaft building near the uphill (east) end of the scatter are constructed of 2 x 12 lumber and corrugated tin. A wall/floor section can be identified which is 2 x 4 lumber covered with 1 x 12 lumber. In the central part of the scatter, a “GM Straight 6” engine is fastened to wood blocks, and a “Giant Crusher, Pat. Mar. 6, 1883 and Jan. 14, 1890” is under timbers, pipe, grating and other debris. Wiring and circuit boxes shows evidence of electrification.

The ore shaft itself, a 20’ diameter depression filled with ice at the time of this survey, is located along the south side of the collapsed building at the upper (east) end of a 25’ deep x 40’ wide ravine which trends northwest/southeast (heading 140 degrees). The building scatter lies along the northeast edge of the ravine. On the opposite (southwest) side of the ravine at the upper (east) end are several large machines associated with the system that hoisted the ore cars out of the shaft. Positioned 20’ south of the shaft are two large cable drums geared to be turned by the huge flywheel (12’ diameter x 1.5’ wide) and piston, 12’ beyond the drums (Figure 30). The piston is connected by 6’ pipe to a large, buried boiler with cast iron face plate “The Petroleum Iron Works Co., Washington, PA” that lies 20’ to the east. The boiler face, which faces northeast, is 8’ x 4’ and has a split, oval shaped door; a 4’ extension to the face plate with a small round door is on the west side of the boiler (Figure 31). The boiler itself, buried under gravels, rock and fire brick (standard size “T CARR” brick) is ~20’ long, has ball valves and vent/pipe flanges visible on its surface (overgrown with willows), and has red oxidized patches of soils where leakage has occurred (Figure 32). Beyond the willows, near the recent roadway to the east, is a small steam powered rail car with scoop on the front end (Figure 45).

Directly north of the collapsed ore shaft building and 95’ south of the residence are a cache of salvaged rails (20’ lengths) and a cache of 55 gallon drums. To the southwest of these caches and in the continuation of the ravine mentioned above is a possible shaft that was abandoned or collapsed. Downhill to the west of the collapsed ore shaft scatter lies a boiler, 12’ in length and 4’ in diameter, similar to several others seen within the APE. This boiler was scavenged for metal; the exterior is 0.5” thick steel and flues are 3” in diameter.

**BH-05-08 Dozers:** Two dozers, both made by International Harvester Company, are situated at heading 012 degrees from the residence, approximately 95’ distant. One is missing the blade and tracks. Both are early hydraulic models, 1930 vintage. The dozers are easily visible in a relatively cleared area.
**BH-05-09 Driller:** “Gardner Denver, Quincy, Ill. Denver, Colo.” model is situated heading 130 degrees and ~175’ from the residence. The driller is nearly obscured by willow brush. It is 10’ in length with ~28” diameter, 8.25” wide spoked wheels. Several barrels are near the driller.

**BH-05-10 Collapsed Quonset, vehicles and generator:** Made of 2.25” x 3.75” formed metal channel. Very little wood siding is intact. The scatter is 12’ x 46’ and oriented north/south on a slight downslope facing east and on a heading due northeast from the residence at a distance of 180’. Buried under the collapsed structure is a double drum cable winch, a boiler, a Ford pickup, two 4’ diameter spoked flywheels, a 4” thick metal saddle (probably for shaft of flywheels), a “Continental Power Unit,” and two bucket/scrapers. Willow growth is beginning to obscure this feature.

**BH-05-11 Trucks:** Two stake bed trucks with dual rear wheels, make and model unknown. The trucks are parked in an open area ~ 250’ north of the residence. West and slightly uphill (~20’) from the trucks is a tilt table similar to the tables on level 2 of the stamp mill building.

**BH-05-12 Can/bottle/scrap metal dump:** The size of this artifact concentration is at least 42’ x 145’ and spreads along the contour of a downsloping hillside north/northeast of the residence and east of the stamp mill building. Within the dump are broken glass bottles, metal food cans (most very rusted), cut moose and caribou bone, ceramic plate and cup fragments, rectangular “Blazo” cans in mid-dump area, and at northern end of scatter, wood stove parts and several 4’ deep holes, ~ 6’ x 8’ in size. At the south end of the site is an area with scrap metal pushed by dozer blade downhill. Near the scrap metal is a mobile generator set, make unknown.

**BH-05-13 Settling pond gate or lock (?):** A 10’ x 17’ pit, built of nailed 3 x 6 lumber that frames a 5’ to 6’ deep pit. The north end is banked with gravel, and the south end is open; both sides are banked. Inner walls are covered with 1 x 10 lumber. Six braces cross over the short dimension of the hole. A broken cross-cut saw lies near the whole. This feature is close to what appears on photographs (see Goetze historic photograph, Figure 51.) to be a gate or lock for settling pond water control, west of the stamp mill building and just east of Little Hurrah Creek. However, the feature may have been adapted for either use as a truck loading dock or as a sawpit. Many narrow trenches, grown over with willows, are in this area. The trenches/mounds appear to be hand dug and may be the vestiges of the settling pond edges, though considerable erosion in this lower area occurs during spring melt. According to historic photographs, the entire base
of the hill to the north and around to the west on which the stamp mill is situated was settling ponds.

BH-05-14 Adit: Situated on the left (west) bank of Little Hurrah Creek about 900’ west of the stamp mill building, the tunnel entrance is very shallow (abandoned and incomplete), with a partially collapsed structure of 2 x 4 and 2 x 12 lumber, 3 x 6 and 6 x 8 lumber uprights at its entrance. Uphill and across a recently placed road, on disturbed ground, is a steam piston (10’ in length) similar to those used at the ore shaft building and stamp mill building.

BH-05-15 “B/Foot Tube Mill”: Stamped 0.635” lettering on a 5” x 3” cast metal lid of a large 16’ long flywheel, gear and drum setup. The unit has a toothed scoop at one end and is attached to a frame made of 10 x 10 beams. This may be a trammel type set up. Several barrels, fit together in a “T” shape, lumber and other pieces of metal are near this unit. All are situated north and downslope from the stamp mill building on the left (south) bank of Big Hurrah Creek. The Tube Mill may be the unit used in the stamp mill to further process ore, which would have rolled the ore with steel balls inside its drum. This mill may have been modified for later use as some other sort of processor.

BH-05-16 Pipe: This site is north/northwest across Big Hurrah Creek, ~500’ from stamp mill building. Several lengths of 12” diameter pipe are cut lengthwise, probably for routing water.

BH-05-17 Barrels and timbers: This site, also across the creek from the stamp mill building is ~ 150’ west of BH-05-16. It is a banded barrel with screen, 10 x 12 timbers with metal parts attached (some buried in willows), 3 barrels, 1” cable, and 12” pipe cut lengthwise.

BH-05-18 Collapsed structure upstream of confluence on Little Hurrah Creek: This structure lies near the possible settling pond gate, close to Little Hurrah Creek. The scatter, ~ 8’ x 20’ in size, is comprised of dimensional lumber, tongue and groove lumber, barrels, metal pipe, and stove safety.

BH-05-19 Modified/altered structures along rail: Midway between the existing mill building and the collapsed ore shaft building are several recently constructed or modified buildings, now used as storage, workshops, and offices for present day mining activities. These buildings appear to be modified from wooden structures once located at this point along the ore rail (see Goetze historic photograph, Figures 49-51). At some point, several large metal cargo containers, stacked on top of one another, were incorporated into a
workshop building. This area extends several hundred feet in length, lies on both sides of the rail track, and is directly adjacent to the temporary tent camp (see Figure 46).

4.2 Discussion

A 100% pedestrian survey was completed for the entire APE (Figures 2 and 3). Much of the APE is located within previously disturbed areas along creek beds, or on steep sloping terrain that is of low potential for the occurrence of prehistoric cultural resources. Subsurface testing was conducted along several terrace edges along the western hillside that overlooks Little Hurrah Creek and extends west along the southern side of Big Hurrah Creek. Higher points above these terraces, as well as on slopes on the eastern side of Little Hurrah Creek were also tested for prehistoric sites. None were found. Large portions of the APE have been disturbed in the past by mining activities and exploratory drilling, including demobilization or alteration of old structures. These recent disturbances, however, have left intact the main feature within the APE, the stamp mill building. Significant damage has occurred within the building from deterioration of the roof, but large portions of the building appear to be structurally sound. Many of the machines, including the four stamp sets, remain in place. The other main feature, the residence, also appears to be structurally sound but damaged inside from removal of wall materials, etc. Throughout the APE are scattered features associated with mining efforts of the past 100 years. Some appear to be directly associated with the stamp mill building during its early phase of operation from 1903 to 1908, while other features are associated with later mining efforts during the 1940 and 50s. It is possible that the short-lived panic in world stock markets in 1907 played a part in the closing of the Hurrah Quartz Mine operations in 1908, and that difficulty in obtaining coal for firing steam boilers was also a factor. This information may be obtainable with further research.

In reviewing literature pertinent to historic mines such as the Hurrah Quartz Mine, it is apparent that the mine is an excellent example of a lode mine, not only in an architectural sense, but also as an example of early industrial revolution engineering or planning, the results of which could be accomplished in this distant locality only after considerable effort. From a cultural resource viewpoint, mines such as this one have been conceptualized as “islands” which have been “populated” by miners, and are linked to the rest of the world by systems, “material interaction spheres” or transportation and commodities flow, and “information spheres” or communication and idea exchanges that are critical to the operation of the mine (Hardesty 1988:1-4). This information is noted here because it is clear that Hurrah Quartz Mine as a cultural resource is significant when viewed from such a perspective, and may add valuable insights to the existing knowledge of lode mine operations and mining in general in Alaska.
Collectively, many of the features and artifacts within the APE noted in this report are historically significant, and meet criteria for eligibility to the National Register of Historic Places (see 36 CFR 800). Due to the importance of the Hurrah Quartz Mine as one of the first productive lode gold mines on the Seward Peninsula, to the connection with the Lane family who were very active in the mining community of the Seward Peninsula, and to the fact that the main feature, the stamp mill building, maintains considerable structural integrity and houses many original objects, NLUR believes the mine and several associated features meet eligibility requirements as a historic district. The district, as provisionally defined, contains at least 16 contributing elements, and 3 non-contributing elements. The district is eligible under all four National Register Criteria: Criteria A (association with historic events), B (association with important people), C (engineering features), and D (information potential); (see Guidelines for Identifying, Evaluating, and Registering Historic Mining Properties, National Register Bulletin 42. U.S. Department of the Interior 1992). A Determination of Eligibility (DOE) is appended to this report.

This report presents the results of our field investigation and literature review, which completes the Inventory and Evaluation Phases (“Phases 1 and 2”) under the process mandated by Section 106 of the National Historic Preservation Act (16 USC § 470), as amended (1992), and implementing regulations in 36 CFR 800 (revised December 2000). No indications of burials or other human remains were observed within the surveyed area; therefore, barring an unforeseen discovery during the undertaking, there are no further considerations expected under the Native American Graves Protection and Repatriation Act (25 U.S.C.§ 3001 et seq.). To initiate and further the Section 106 process, the results of NLUR’s findings should be forwarded to the Alaska State Historic Preservation Officer (SHPO) with a request for concurrence of “Historic Properties Affected”.

Once this project moves to its permitting phase, the Section 106 process will need to move into the Treatment Phase (“Phase 3”). Recommendations for mitigation of potentially adverse effects will need to be developed in consultation with SHPO. In general, NLUR recommends that some of the key structures within the district be documented according to HABS/HAER (Historic American Building Survey / Historic American Engineering Record) standards (see HABS/HAER Standards, U.S. Department of the Interior 1990), which will obviate the need for in situ preservation. In addition to HABS/HAER photography and documentation, at least one area of historic artifact
concentrations should undergo limited test excavations to sample information recovery potential, especially commodity flow information (e.g., Bowers and Gannon 1998; Adams, Bowers and Mills 2001).

5.1 Limitations

Because archaeological materials, features, and other potentially significant cultural remains are commonly buried, they may not be identifiable from the surface or revealed in limited subsurface sampling. Should indications of potentially significant cultural resources be encountered during ground-disturbing activities, all work in that area should cease until the discovery can be fully evaluated by a qualified archaeologist, and the Alaska SHPO notified. In the event that human remains or other indications of burials are found on federal or tribal lands during ground-disturbing activities, the protocol established under the Native American Graves Protection and Repatriation Act (NAGPRA) must be followed. Immediate steps should be taken to secure and protect the human remains and cultural items, including stabilization or covering, as appropriate. The Project Manager should immediately notify both the SHPO and the local Native American organizations likely to be culturally affiliated with the discovered remains. The name and address of the SHPO is:

Judith Bittner
State Historic Preservation Officer
Alaska Department of Natural Resources
Office of History and Archaeology
550 West 7th Ave., Suite 1310
Anchorage, Alaska 99501-3565
Ph: (907) 269-8715 or 269-8720

The names and addresses of the appropriate Native organizations are:

Bering Straits Native Corporation
PO Box 1008
Nome, Alaska 99762
Ph: (907) 443-5252

Sitnasuak Native Corporation
PO Box 905
Nome, Alaska 99762
Ph: (907) 443-2632
This project was carried out, and this report prepared, in accordance with generally accepted professional practices for the nature and conditions of the work completed in the same or similar localities, at the time the work was performed. It is intended for the exclusive use by BEESC and the Alaska Gold Company for specific application to the referenced project. This report is not meant to represent a legal opinion. We do not warrant that we have identified all potentially significant cultural resources present at the referenced properties, as these may be hidden in such a way that only extensive excavations, use of remote sensing equipment (e.g., ground penetrating radar, magnetometer), or other technologies/methods not included in our scope of work will reveal them. No other warranty, express or implied, is made. Any questions regarding our work and this report, the presentation of the information, and the interpretation of the data should be referred to NLUR Principal Archaeologist Peter Bowers.
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West, F.H. (ed.)

Williams, C.M., and J.D. Reuther

Williss, G.F.

Woodbury, A. C.
APPENDIX A: FIGURES
Figure 1. Overview of the Big Hurrah Mine and 2005 survey area (USGS Solomon C-5).
Figure 2. Map of Big Hurrah Mine area (SOL-136), showing cultural resources discussed in text (C. Gelvin-Reymiller, NLUR, 2005).
Figure 3. Subsurface testing, overlooking Big Hurrah Creek, view to northeast (NLUR photo).

Figure 4. Typical soil profile (NLUR photo).
Figure 5. Short ditch at high elevation west of APE, view to west southwest (NLUR photo).

Figure 6. Collapsed building and vehicle near confluence of Big and Little Hurrah Creeks (NLUR photo).
Figure 7. One of parallel ditches in east APE, view to west (NLUR photo).

Figure 8. Stamp mill building ore car track entrance, view to north (NLUR photo).
Figure 9. Stamp mill building, view to east, with “H Q M” letters at gable (NLUR photo).

Figure 10. Stamp mill building north side, view to south southeast (NLUR photo).
Figure 11. Stamp mill building east side, view to west (NLUR photo).

Figure 12. Interior of stamp mill building, level 1, view to west (NLUR photo).
Figure 13. Interior of stamp mill building, level 1, 16’ diameter tank floor, (NLUR photo).

Figure 14. Interior stamp mill building, level 2, west wall pushing inward, view to south (NLUR photo).
Figure 15. Interior stamp mill building, level 3, floor north of stamps (note tank floor near east wall), view to east (NLUR photo).

Figure 16. Interior stamp mill building, level 3, stamps 1 and 2, view to south (NLUR photo).
Figure 17. Interior stamp mill building, level 3, stamps 3 and 4, view to south (NLUR photo).

Figure 18. Interior stamp mill building, level 3, large posts and beams with knee bracing, view to east (NLUR photo).
Figure 19. Interior stamp mill building, level 4, supports/upper stamp parts, view to east (NLUR photo).
Figure 20. Interior stamp building, peak beams above stamps, view to east (NLUR photo).

Figure 21. Interior stamp mill building, level 4, space between upper stamp parts and chutes/ore bunkers, view to east (NLUR photo).
Figure 22. Interior stamp mill building, level 5, ore car tracks over ore bunkers, view to northeast (NLUR photo).

Figure 23. Two ore tracks merging, exiting level 5, stamp mill building, view to south southeast (NLUR photo).
Figure 24. Residence, west wall, view to east (NLUR photo).

Figure 25. Interior of residence, ground floor, kitchen (note linoleum on wall), view to east (NLUR photo).
Figure 26. Interior of residence, second story, view to east (NLUR photo).

Figure 27. Interior of residence, hipped roof structure (NLUR photo).
Figure 28. Collapsed powerhouse, view to west (NLUR photo).

Figure 29. Collapsed ore shaft building with shaft at right (snow patch), view to northeast (NLUR photo).
Figure 30. Flywheel (12’ diameter)/drum/gear/piston mechanism for hoisting ore from shaft, just south of collapsed shaft building, view to south (NLUR photo).

Figure 31. Face of buried boiler near shaft hoist, view to southwest (NLUR photo).
Figure 32. Boiler near shaft hoist, buried under earth, rock, and brick, view to northeast (NLUR photo).

Figure 33. International Harvester dozer, view to northeast (NLUR photo).
Figure 34. Gardner Denver drill rig, view to west (NLUR photo).

Figure 35. Collapsed Quonset and associated materials, view to east (NLUR photo).
Figure 36. Two stake bed trucks, view to northwest (NLUR photo).

Figure 37. South end of can/bottle dump with large amount of scrap metal, view to east (NLUR photo).
Figure 38. Stove parts at north limit of can/bottle dump (NLUR photo).

Figure 39. Possible settling pond gate, view to south (NLUR photo).
Figure 40. Adit, view to west (NLUR photo).

Figure 41. B/Foot Tube Mill, view to north (NLUR photo).
Figure 42. Modified/cut 12” pipe, view to northeast (NLUR photo).

Figure 43. Banded barrels with punch plate/screen interior, view to west (NLUR photo)
Figure 44. Collapsed structure upstream from confluence on Little Hurrah Creek (NLUR photo).
Figure 45. Three types rail cars left to right; hydraulic scoop car, hand pushed ore car, rail car with Jeep engine (NLUR photo).

Figure 46. Hurrah Quartz Mine and associated features (SOL-136) in 2005, with tent camp and modified structures in center, tent camp, and residence at far right; view to east (NLUR photo).
Figure 47. Plan view of Hurrah Quartz Mine (C. Gelvin-Reymiller, NLUR, 2005).
Figure 48. Elevation view of Hurrah Quartz Mine (C. Gelvin-Reymiller, NLUR, 2005).
Figure 49. Hurrah Quartz Mine, Solomon, Alaska from O.D. Goetze Collection, 1896-1913. Identifier: AMHA-b01-41-123 (Anchorage Museum of History and Art).
Figure 50. Hurrah Quartz Mine, Solomon, Alaska from O.D. Goetze Collection, 1896-1913. Identifier: AMHA-b01-41-446 (Anchorage Museum of History and Art).
Figure 52. Three historic photographs, 1931-32, Clements Library, Ann Arbor, Michigan. Note middle photograph is a view to the west, and shows the upper part of the large ore shaft building. No photographer given. These photos included with historic documents in the library’s collection (University of Michigan).
Figure 53. Geologic map of part of the Solomon district, with Big Hurrah Mine noted in red (Smith 1910:180-182; see also Collier et al. 1908:232).
APPENDIX B: SOL-136 DETERMINATION OF ELIGIBILITY
DETERMINATION OF ELIGIBILITY FORM

Northern Land Use Research, Inc.
P.O. Box 83990
Fairbanks, Alaska 99708

1. NAME OF PROPERTY

   Historic name: Hurrah Quartz Mine Historic District
   Other name: Big Hurrah Mine
   AHRS number: SOL-136

2. LOCATION

   Map sheet: Solomon C-5
   Aliquot:
   UTM: easting 0536479  northing 7169729
   Acreage: ~235
   Street and number: near mile 42 on Nome-Council Highway
   City or town: 8 miles northeast of Solomon, and approximately 35 miles east of Nome

3. DESCRIPTION

   Ownership of property: Alaska Gold Company, subsidiary of Nova Gold
   Category of property: historic mining buildings, features and objects
   Number of resources: 19 buildings/objects/features

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3 Form adopted from Historic Preservation Series Number 7 (draft dated December 1993) prepared by the Office of History and Archaeology, Alaska Department of Natural Resources, P.O. Box 107001, Anchorage, Alaska 99510-7001. This form is intended to provide minimum information necessary to make a determination of eligibility to the National Register of Historic Places, as defined in 36 CFR 60. For further information, consult National Register Bulletin, numbers 15, 16A, 16B, and 39.
Table B1. Summary and location of cultural resources observed during the 2005 survey.

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<td>“B/Foot Tube Mill”</td>
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<td>Collapsed structure on Little Hurrah Creek</td>
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**Property's historic function:** lode gold mine  
**Property’s current function:** active mine  
**Architectural classification:** post and beam construction  
**Materials:** gravel/rock foundation, lumber walls, corrugated metal roofing  
**Integrity:** (consider location, design, setting, materials, workmanship, feeling, and association) The stamp mill building, residence, and collapsed structures are at their original locations. Additionally, equipment brought to the mine, especially during reworking of tailings with a cyanide process, such as dozers, trucks, and generators are older than 50 years, located to the district between the 1930s and 1950s. The design of the mine has integrity based on the remaining structures and parts of remaining features visible in the district, including the stamp mill building with minor alterations beyond
electrification, the collapsed ore shaft building, and the partially intact rail that connected the two buildings. The setting has been altered by recent mining activity, but the majority of this new activity is to the west of the intact buildings, and has not altered the landscape on which the historic buildings are located. Integrity of materials has been maintained; no inappropriate uses of materials in alterations were noted and no restorations have been attempted. Alterations that may have occurred in the two-story residence appear to have been done in the 1940s. The workmanship is of high quality in both standing structures. Elements of the collapsed ore shaft building also show skilled craftsman originally built the structure. Though the recent mining activity and tent camp detracts temporarily from the feeling of the mining district, the stamp mill is a strikingly large building on the landscape, and clearly reflects its past importance as a significant operation, now abandoned. Likewise, the two-story residence conveys the feeling of a once important operation through its isolated and unlikely appearance within this landscape. Key elements of the mining property also clearly show association within the mining system at the site.

**Narrative description:**
The Hurrah Quartz Mine was constructed beginning in 1901. It was operational by 1903 with ten stamps in the mill, and by 1904 had added ten more stamps. The completely intact knee bracing which supports the two sets of stamps illustrates the refitting that was required to add the second set of stamps. Much of the equipment required to run the stamps, including large flywheels (6’ in diameter) and steam pistons up to 12’ in length, is still in place, or has been moved outside the building in the immediate vicinity. On the stamp mill building, the largest building within the district, the roof is approximately 75% intact. Some downslope movement is noticeable between the second and third levels of this building, consisting of 6 x 6 (and larger) posts shifting from original placements, and collapse of floor structures. Some equipment and artifacts have been removed from the interior and placed outside the building, noticeably in the downhill direction, north of the building, but also in other areas. However, the majority of the building remains intact at its original location and setting, with minor changes in original design. Initial workmanship is of high quality, and original components such as the 20 stamps and large post and beam and knee-brace supports remain in place. The building is remarkable for its size, given the considerable distance from sources of supplies, equipment and manpower required to build the structure.

The other intact building within the district, the two-story residence, is structurally sound, but has had much of the interior wall covering removed. The building, pictured in a photograph taken between 1904 and 1913, is a two-story hipped roof structure of conventional frame construction. A back porch/room was added sometime following that time period. There is no furniture in the residence except a large
galvanized sink in the kitchen, all windows are no longer glazed, and green asphalt roof sheeting has deteriorated. The workmanship is of high quality, with noticeable exterior architectural elements such as cornice molding and wooden shakes. The residence is in its original setting, has minimal changes in original design, and is also remarkable for its placement far flung from sources of materials and furnishings. It served as residence and office for the Lane family, owners and managers of the mine.

Several collapsed structures are within the district and one retains much of the large equipment that it originally housed: the ore shaft building. Historic photos indicate this building was of considerable size with a tall portion that housed the headframe for hoisting ore from the shaft, though it is difficult to detect the placement of the limits of the building today because of later disturbances and lumber scavenging. The ore shaft, which can be seen near the collapsed structure, eventually reached close to 300’ in depth, and ran laterally for hundreds of feet underground along gold-bearing quartz veins. The large hoist mechanisms are within and around the collapsed structure. A narrow gauge rail running over 500’ in length which connected the stamp mill building to the ore shaft building is still partially in place. Several rail cars are on the premises. The cable mechanism to hoist the ore up the shaft, a boiler driven steam piston, 12’ diameter flywheel, and a large double drum, are still in place. Lumber has been apparently scavenged from the ore shaft building, which is understandable since wood is a valuable commodity at this locale.

Two of the four additional collapsed structures, the powerhouse, and a Quonset relate to the later period during which the mine was worked (1940s-50s). The two other collapsed structures, one with an early vintage vehicle on Big Hurrah Creek, and one on Little Hurrah Creek, have less material within the structures to indicate period and function.

Three landscape features are within or extend outside the district acreage: a small ditch at higher elevation to the southwest, two parallel ditches east of the mill building, and a lumber lined pit, which may relate to the settling ponds used for draining ore waste from the mill. All are associated with gathering or directing water for mining purposes. An adit is also located west of the mill building; apparently numerous attempts were made to access underground quartz veins, but, as this adit illustrates, few were successful.

The can, bottle, and scrap metal dump in the east part of the district appears to have been used throughout the occupation of the site. Some digging for bottles has occurred, but much of the dump is overgrown with willows, mosses and grasses which shield the dump from view.

The two dozers, two flatbed trucks, and driller are of 1930s to 1940s vintage, and were undoubtedly brought to the mine when activity resumed in the 1940s and 50s. These are parked neatly, and retain many of their small parts.
One piece of equipment, with nearly illegible cast lettering ("B/Foot Tube Mill"), may be the tube mill that was used in the mill to further process ore, but this is uncertain. This large artifact is on the bank of the Big Hurrah Creek, has been previously moved by high water, and may move again. Two other features, one that contains several horizontally cut pipes with mechanisms attached to control water flow, and one that contains several banded barrels fit together with screens, etc. appear to be parts of placer mining operations. Both features lie on the north bank of Big Hurrah Creek and are subject to relocation by high water.

Because of the mine’s known lode deposits, it was worked intermittently after closing in 1908, but not until 1937 at the resolution of litigation were plans put in place to return the mill to full operation, during which time the buildings were modernized with generators, and a cyanide leaching system was put in place. The mill building ceased regular operation in 1954. Beginning in the 1980s, mining exploration began again on the property and continues today.

4. STATEMENT OF SIGNIFICANCE

The stamp mill building and associated features represent the first productive lode-gold mine on the Seward Peninsula, and one of the earlier mines of this kind in Alaska. The mine is an integral part of the history of the Nome area Gold Rush. It employed up to 55 people at its peak, was one of the largest employers in the region, and was developed and managed by members of the prominent mining family and owners of the Wild Goose Company, Charles and Anna Lane and sons Louis, Ted and Paul. The mining system initially appears to have been engineer designed, and the buildings were clearly built by skilled craftsman. For its day, the stamp mill building housed the latest milling technology: two ten-stamp mills, copper plates for mercury amalgamation, and tiltable concentration tables. The mine not only contains two of the original structures from the first decade of the century (1901-1908), the mill building and the two-story residence, but also many objects, including the original stamps in situ in the mill, and the steam boilers, pistons, and flywheels that ran the stamps, as well as a number of associated features from the later time period of significance when a cyanide leaching plant was put in place (1937-1954). The mill building itself, begun in 1901, has excellent examples of large post and beam construction.

All materials for the mine, except sources of meat for feeding crews, were shipped via west coast ports such as Seattle or San Francisco, through the Bering Sea to Norton Sound, and then freighted by sledge, wagon or over the historic Council City and Solomon River rail to the mine. Workers at the mine were local area Inupiat Eskimo and others, many of whom would have filtered into the area in search of gold prospects for themselves. It is possible that the short-lived panic in world stock markets in 1907 played a part in the closing of the Hurrah Quartz Mine operations in 1908, and that
difficulty in obtaining coal for firing steam boilers was also a factor, given that most sources believed the ore deposits were not a factor in its closing. Due to this potential, a relative of the original Lane family, T.D. Lane, re-opened the mine in the 1940s. Additions and alterations in buildings and equipment which occurred up to the mine’s closing in 1954 are mainly evident in the extensive electrification of the mill itself, 1930s to 40s vintage dozers, trucks, generators and cyanide leaching system, another step in ore beneficiation technology, and in the limited scavenging of lumber, rails and tracks. In addition to the intact buildings, a large trash dump that covers the entire period of occupation has potential for revealing information for researchers interested in posing questions regarding historic mining systems. The mine is an excellent example of early industrial revolution engineering, and could reveal significant information regarding commodities flow, information systems, and the populace involved with early Alaskan mining.

**Applicable National Register Criteria**

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<thead>
<tr>
<th>Criteria A: X</th>
<th>Criteria Considerations</th>
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<td>Reconstructed</td>
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<td>Commemorative</td>
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**Areas of significance:** Historic mining property

**Significant date(s)/period of significance:** 1901-1913 and 1937-1954

**Significant person:** Charles Lane and family

**Cultural affiliation:** Euroamerican

**Architect/engineer/builder:** Unknown

**Statement of significance:**

**Historic information:**

5. MAJOR BIBLIOGRAPHIC REFERENCES

Gelvin-Reymiller, C. and L. Hanson
Smith, P.S.

Smith, P.S., Moffit, F.H., and J.B. Mertie, Jr.

Nome Nugget newspaper, Nome, Alaska (various years)

Territory of Alaska Department of Mines Report of the Commissioner of Mines. Juneau, Alaska (various years)

See other sources in Gelvin-Reymiller and Hanson (2005)

6. FORM PREPARED BY
   Carol Gelvin-Reymiller
   Northern Land Use Research, Inc.
   P.O. Box 83990
   Fairbanks, Alaska   99708

7. ADDITIONAL MATERIAL

   Maps: See Gelvin-Reymiller and Hanson (2005)
   Photographs: “ “ “ “ “
   Date of preparation: August 2005