CHAPTER 1. INTRODUCTION

"Here we found the first gold on the trip – gold in every gulch and sag"

-A.B. Henderson, July 2nd, 1870

from:

Narrative of a Prospecting Expedition to the East Fork & Clarks Fork of Yellowstone...1870

CHAPTER 1. INTRODUCTION

The New World Mining District, located in the Beartooth Mountains north and east of Cooke City, Montana, became the focus of fairly intensive historical research in 1989 when Crown Butte Mines proposed the development of the New World Project. GCM Services, Inc., Butte, (GCM) conducted historical documentation and evaluation of the historic mining remains in the area in conjunction with several baseline studies done by Hydrometrics, Inc., in association with the New World Project. By the time the Crown Butte Mines project was canceled in 1996, a basic history had been assembled for most of the mining sites in the area, and the New World Historic Mining District was defined. In 2001, the Gallatin National Forest contracted with GCM to prepare historic documentation of selected mines in the New World Historic District. This report presents the history of mining activities at the Gold Dust or "Adit" mine, the Homestake Mine, and the aerial tramway system that connected these mines to the Western Smelting and Power Smelter. The report summarizes the technological processes employed and provides interpretation of the visible physical remains that can still be found at each site. Historic activity in the area consisted of gold, silver, lead, zinc and copper mining.

The New World Mining District lies amid steep and rugged mountainous topography at an elevation of between 8600 and 10,200 ft above mean sea level. It is interspersed with alpine, sub-alpine and fir-lodgepole forest. Henderson Mountain, Crown Butte, Fisher (historically known as Red Mountain), Scotch Bonnet and Sheep Mountains dominate the topography. The area is at the headwaters of three major Yellowstone River tributaries: Stillwater River, Fisher Creek and Miller Creek. This area receives an annual average of 65.8 inches of precipitation, mostly in the form of snow, which reaches an average of 15 feet maximum accumulation (Noranda 1991).

Access

Figure 1-1 shows the general location of the New World Mining District on the USDA Gallatin National Forest Visitor's map, with an inset showing location of the Gold Dust Mine, Homestake Mine and Western Smelting and Power's Tramway System leading to its smelter, based upon the USGC 7.5-minute topographic quadrangle, *Cooke City Montana-Wyoming* (1986).

All of these sites are accessible for viewing by the interested public. They do present some hazards, such as marginal access roads and trails and unstable structures. The Homestake Mine is reached by walking or by ATV in the late summer. Snowdrifts generally cover the road until late July. The Gold Dust Mine and lower tram are accessible by a short walk from the Fisher Creek road. Following the tram cables (which are lying on the ground) up the Fisher Creek bottom will lead to all of the significant components of this site complex.

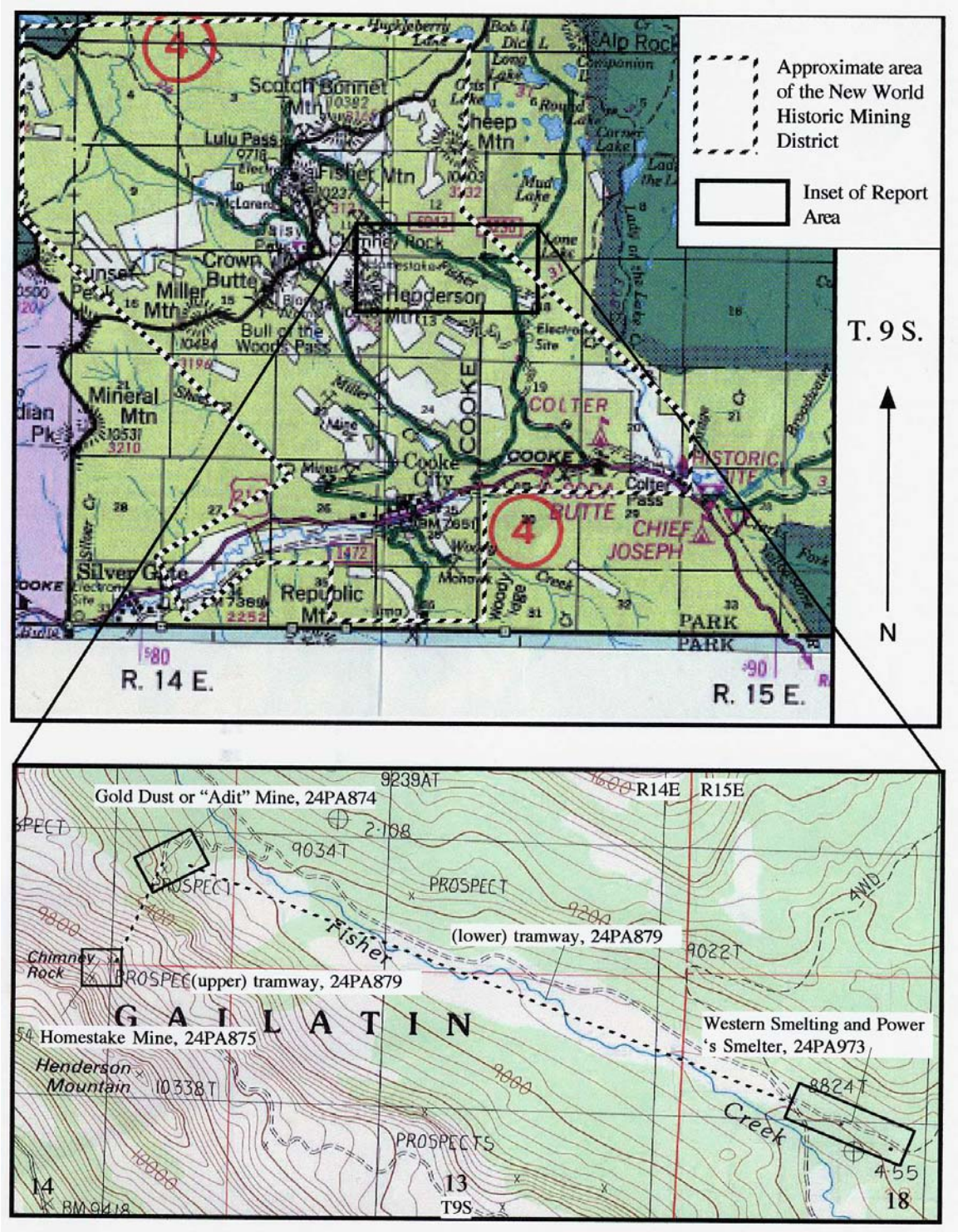

Figure 1-1. The general location of the New World Mining District on the USDA Gallatin National Forest Visitor's map, with inset showing location of the Gold Dust Mine, Homestake Mine and Western Smelting and Power's tramway system leading to its smelter, based upon the USGC 7.5-minute topographic quadrangle, *Cooke City*.

Historical Overview of the New World Mining District

The bulk of mining activity in the district occurred between 1887 and 1894 and from 1916 to 1930, with some open-cut mining on Fisher Mountain from 1934 to 1955. Between 1900 and 1955, the New World Mining District produced 65,000 ounces of gold, approximately 500,000 ounces of silver and about 4,100 short tons of copper, zinc and lead. In the 20th century, the years of highest productivity were 1920-1929 and 1933 to 1955. Although a remote and isolated region, the New World District was the third largest producer of precious metals in Montana in 1926. The New World mines were hampered by their isolation: poor transportation, high elevation and rugged terrain. In spite of this, the district proved to be a prolific producer of precious metals in Montana (Lovering 1929; USDA Final Environmental Impact Statement 1976).

Historic mining in the district can be classified under four distinct historic periods: Initial Discovery and Prospecting (1870-1881); Early Development (1882-1894); Industrial Development (1910-1929); and, Open Cut Development (1928-1942).

Initial Discovery and Prospecting (1870-1881)

Initial prospecting of gold in this area probably occurred between 1866 and 1869, but the first reliable record of a discovery of gold was made by a small party of prospectors, including Adam "Horne" Miller, Ed Hibbard, J. H. Moore, James Gurley and A.B. Henderson in July of 1870. The next year, the group returned to establish a number of mining claims on Republic Mountain. Additional claims were staked on Henderson and Miller Mountains, which flanked Miller Creek, north of Republic Mountain. Small-scale placer and lode development ensued, and New World Mining District was formed on July 19th 1872. In 1875, a small Mexican-style roasting furnace was built to treat lead-silver ore near the small settlement that had been established to supply the miners in the area. Development was minimal because the district was within the Crow Indian Reservation and prospecting and mining were not allowed within the boundaries. Consequently, although there was prospecting and some lode development, it was speculative and marginal since there was no legal basis for roads, railroads, or ownership of claims. The creation of Yellowstone National Park in 1872 further isolated the already remote mining district. (Lovering 1929; Wolle 1963, Fredlund, et al. 1990).

The Early Development Period (1882-1894)

In April of 1882, the Crow Reservation was essentially halved, opening up the mountains for the gold seekers. The Early Development Period (1882-1894) saw mining activity in the region increase once the mineral rich territory became available for exploitation. Jack Allen pushed a wagon road through the mountains to connect the area to Gardiner in April of 1882. The lower shipping rates and larger wagon loads made small-scale industrial development of the area possible. Large-scale exploitation of the area's mineral resources was still hampered by the lack of a reliable transportation system, the rugged topography and the short mining season at these elevations. Also the Yellowstone Park Timber Land Reserve Act of 1892 limited development options. Development was

primarily on the Republic Creek and Miller Creek Valleys (Lovering 1929; Wolle 1963). Beginning in 1884, many small mining companies began operations on Henderson and Fisher Mountains. The Homestake, Daisy and Alice E. mines provided the bulk of mineral production in the New World District in the late 19th century.

The Industrial Development Period (1910-1929)

The Industrial Development Period (1910-1929) occurred primarily in the Fisher Creek Drainage. This period saw the first organized capitalization in the district. By 1912, over 300 mineral claims had been filed on Henderson, Scotch Bonnet, Sheep, Crown Butte, Fisher (formerly Red Mountain) and Republic Mountain, but only about 28 were patented by 1930. This period saw major construction and activity, but little actual production. The stock market crash of 1929 curtailed any investing and this effectively ended mining development in the district. The Tredennick and Glengarry Mines, and particularly the elaborate developments of the Western Smelting and Power Company illustrate the activities of this period. By 1920, the Western Smelting and Power Company had purchased the Daisy, Alice E. and Homestake claims (Walsh 1910, 1912; Lovering 1929; Reed 1950; Wolle 1963).

Open Cut Development (1928-1942)

The period of Open Cut Development (1928-1942) began with the development of open pit operations on Fisher and Henderson Mountains. Only three major mines, the McLaren, Glengarry and Alice E., were worked during this period. Between 1933 and 1953, 40,000 tons of crude ore were mined and milled annually at the McLaren properties, producing 60,000 ounces of gold, 17,000 ounces of silver and four million pounds of copper (Lovering 1929; Reed 1950; Anderson 1985). The Parkmont Company did a small amount of open pit work at the Homestake Mine in the late 1940s. Although the last of these mines closed in 1960, the period of historic significance (based upon production and impact on the local economy) ended around 1942, when gold mining was postponed as a nonessential wartime activity, and the labor force turned to the war effort (Reed 1950, Fredlund, et al. 1990).

The Western Smelting and Power Company Properties

Western Smelting and Power (and its predecessors) operated the Daisy, Homestake and Gold Dust Mines from the late 1880's to the early 1920's. The three mines were driven into Henderson Mountain to explore, develop and mine copper-gold-silver mineralization in the vicinity of what was later to be identified as the Homestake Breccia Pipe. In the 1910s WS&P began to develop the entire mining area along Fisher Creek as part of an ambitious development plan. This plan included a flume and 250-kilowatt hydroelectric generating plant located on the Clark's Fork River, a transmission line, saw mills, and a copper/ gold smelter (White Smelter) on the patented Chicago mill-site near the junction of the Fisher Creek Road with Fisher Creek. The WS&P smelter was connected to the Gold Dust and Homestake mines by a 2,500-foot long aerial tram system designed to move ore from the mines to the smelter (Kirk 2002, Fredlund, et al. 1990).

Professor Gottwerth L. "Doc" Tanzer formed the Western Smelting and Power Company in 1904. Originally called the Precious Metals Company and, later, the New World Mining, Milling & Producing Company, Tanzer's organization began purchasing mining claims in the vicinity of Henderson, Scotch Bonnet and Sheep Mountains by 1910. After consolidating his holdings, Tanzer began raising capital for a large-scale mining venture from financial sources throughout the United States and Europe. In 1916, the renamed Western Smelting and Power Company completed construction on a 250-kilowatt hydroelectric plant three miles east of Cooke City on the Clark's Fork River and began building a 350-ton smelter on Fisher Creek, two miles southeast of the Homestake mine. The hydroelectric plant provided power to the compressor at the mine and the machinery at the smelter (a method of powering the smelter by natural gas was proposed in 1926, but was never implemented). The plant also provided electricity to illuminate the mine tunnels and the buildings constructed by WS&P between 1916 and 1925. By 1918, the company reopened the Homestake Mine but placed emphasis on copper ore rather than gold (although gold and lead continued to be mined at the Homestake). Tanzer believed, perhaps prematurely, that the ore body at the Homestake could be tapped more efficiently by a mine located lower on the mountain. Thus began the New World District's most active era (Livingston Enterprise, 1926a, 1926b; Lovering 1929; Wolle 1963; Fredlund, et al. 1990; Fredlund 1992).

With the possible exception of the Homestake Mine, none of the WS&P mines ever produced any significant amounts of ore. Speculation existed that this entire mining venture was a scam to bilk investors out of money, because legitimate mining companies rarely built power plants, smelters and aerial trams prior to having identified recoverable mineral reserves. However, WS&P may have been well-intentioned and must have been confident of discovering ore because most mining scams do not actually build the facilities that they promoted, but rather disappeared before spending any of the money on actual mine facilities (Fredlund, et al. 1990; Livingston Enterprise 1923a, 1923b, 1923c, 1924, 1925d, 1926b, 1926c).

Subsequent drilling by Crown Butte Mines in the early 1990's identified ore grade mineralization in the Homestake Breccia Pipe (Figure 1-2). This indicated that the developers of Western Smelting and Power were indeed exploring in the right area, but lacked sufficient information. The WS&P Daisy Adit penetrates Henderson Mountain from the south, about 60 feet above the elevation of ore body. Meanwhile, WS&P's Gold Dust Adit, coming from the north, followed an intercept tangent with the ore body but stopped about 250 feet short. Noranda's (1991) feasibility study estimates the ore body at around 2.6 millon tons at 0.187 ounces per ton, or roughly 486,200 ounces of gold.

The Western Smelting and Power Company Smelter

The Western Smelting and Power Company's smelter (24PA973) was constructed at the end of the tramway (24PA879). The facility was built to process the copper and gold ores of the Homestake and Gold Dust Mines. The smelter complex included a supervisor's house, dinning hall, tramway terminal, and smaller buildings associated with the smelting facility (Figures 1-3 to 1-9). While all of the structures have been destroyed by fire,

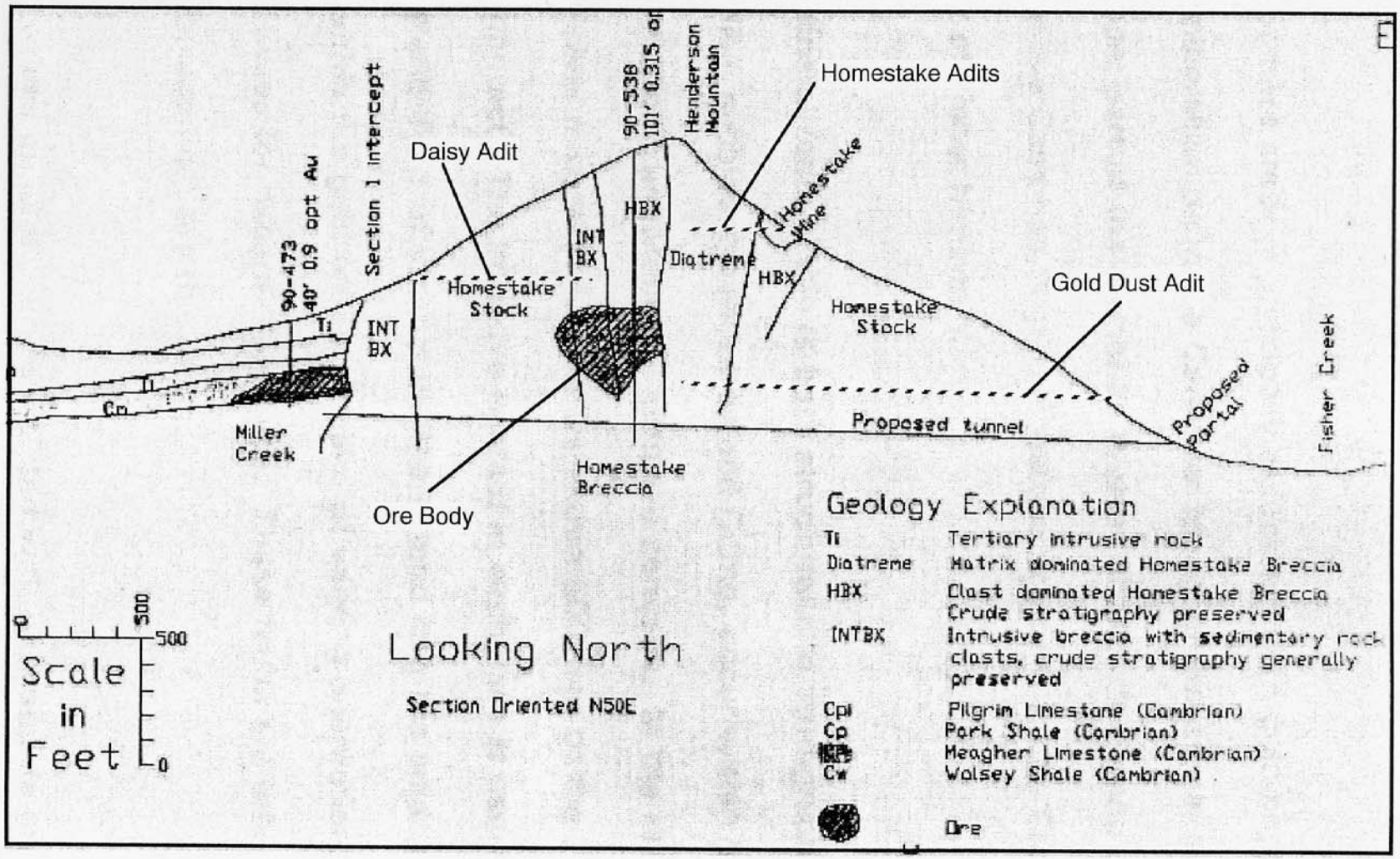

Figure 1-2. Geologic sketch of the Henderson Mountain geology, with approximations of historic mining superimposed (from Noranda Minerals Corporation 1991).

much of the equipment, foundations and metallic relics remain on the site. The supervisor's cabin was destroyed by fire in the spring of 1987. The smelter, dinning hall, terminal and associated smaller structures were destroyed by the 1988 Yellowstone-Hellroaring forest fire. The site continues to be a contributing element to the historic district, but only foundations of the structures and burned remains of various artifacts remain. A brief description of this property is included here, because it is an integral part of the WS&P infrastructure.

Figure 1-3. WS&P Smelter Buildings on Fisher Creek, Ca. 1920. (USFS file photo).

The Western Smelting and Power Company Hydroelectric Plant

The remains of the power plant (Figures 1-10 to 1-13) are located on the Clark's Fork River near Highway 212, about 2.5 miles east of Cooke City. It provided power for WS&P's mining projects on Fisher Creek. Visible remains of the site include a low concrete dam, diversion gate, flume support piers, ditch cuts and the ruins of the powerhouse. In 1916, WS&P completed construction on the 250-kilowatt hydroelectric plant on the Clark's Fork River. The flume built by WS&P (Figure 1-14) created a 50 ft drop into the turbine of the power house. The hydroelectric plant provided power to the smelter, the Gold Dust Mine, aerial tram system, portable sawmill camps and various other buildings constructed by WS&P between 1916 and 1925. A method of powering the smelter by natural gas was proposed in 1926, but never implemented (Livingston Enterprise 1925a, 1926a; Fredlund, et al. 1990).

Figure 1-4. Photo of the WS&P mill and smelter [viewing northwest with Sheep Mountain in the background], ca. 1920. (USFS file photo).

Figure 1-5. WS&P Smelter Complex and power line, ca. 1920 (USFS file photo).

Figure 1-6. The WS&P Smelter remains, *ca* 1960s (Glidden Collection, Glidden 1976). Note the smelter blower in the lower right.

Figure 1-7. WS&P Smelter remains, *ca* 1960s (Glidden Collection, Glidden 1976). Compare above photos to the 1990 set, below (Figures 1-8 and 1-9). Forest fires, decay and snow loading have taken their toll on these historic structures.

Figure 1-8. WS&P Smelter remains (1990 GCM file photo).

Figure 1-9. WS&P smelter remains – blower for smelter (1990 GCM file photo).

Figure 1-10. The WS&P hydroelectric plant in about 1920 (Joan Humiston collection).

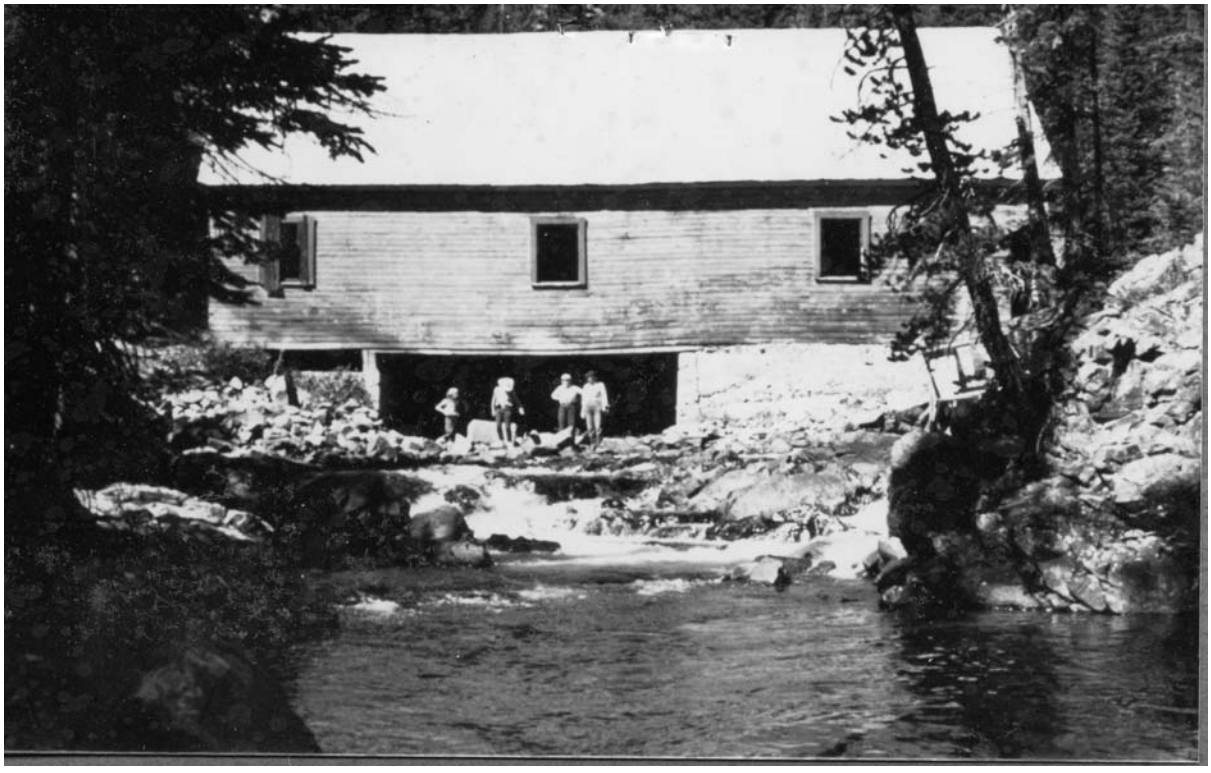

Figure 1-11. WS&P hydroelectric plant, ca. 1920 (Joan Humiston collection).

Figure 1-12. WS&P hydroelectric plant remains in 1990 (GCM file photo).

Figure 1-13. WS&P diversion dam remains in 1990 (GCM file photo).

Figure 1-14. Flume leading to WS&P hydroelectric plant on the Clark's Fork of the Yellowstone, ca. 1920. (USFS file photo).

Other identifiable components of the WS&P operation include a transmission line (Figure 1-15) from the hydroelectric plant to the smelter complex, sawmills and the Gold Dust and Homestake Mines. WS&P's portable sawmill (Figures 1-16 and 1-17) cut timbers for the mines and tram towers. Lumber for the smelter complex was milled there as well. The sawmill was portable and was set up near the associated construction site. Two of WS&P's sawmill camps have been identified (Fredlund, et al. 1990). Site 24PA903 and 24PA904 are found about 1/3 mile apart along the west side of Fisher Creek, above the smelter complex, and about 160 feet from counterweight towers associated with the lower tramway. Physical remains found at the sites consist of stacks of waste slabs from sawmill operations. Based upon their location, these sawmill sites probably provided dimension lumber for the tram towers. Artifacts found at the sites include the remains of a dray or sledge, metal pins for holding heavy machinery and a fragment of a ceramic insulator suggesting an electric motor was in use. The WS&P portable sawmill was reported to have cut 15,000 board feet of lumber by 1926 with power supplied by the company's 250 kilowatt hydroelectric plant on the Clark's Fork River. (Livingston Enterprise 1916; 1926b; Lovering 1929; WPA 1940; Fredlund, et al. 1990, Fredlund 1992).

Figures 1-18 to 1-20 are photographs of Cooke City during the historic mining periods of the 1890s, 1900s, and 1920s. These photos are courtesy of Joan Humiston and Ralph Glidden of Cooke City.

Figure 1-15. Transmission lines leading from WS&P Hydroelectric Plant on the Clarks Fork of the Yellowstone to the smelter complex ca. 1920. (USFS file photo).

Figure 1-16. A WS&P sawmill camp, ca. 1920 (USFS file photo).

Figure 1-17. A WS&P sawmill camp, ca. 1920s (USFS file photo). Note the electrical wires to the saws, and in the background, the lines to the Gold Dust Mine.

Figure 1-18. A draft horse team hauls supplies or firewood on the main street of Cooke City, ca. 1900. (Joan Humiston Collection). Note the telegraph wires on the left.

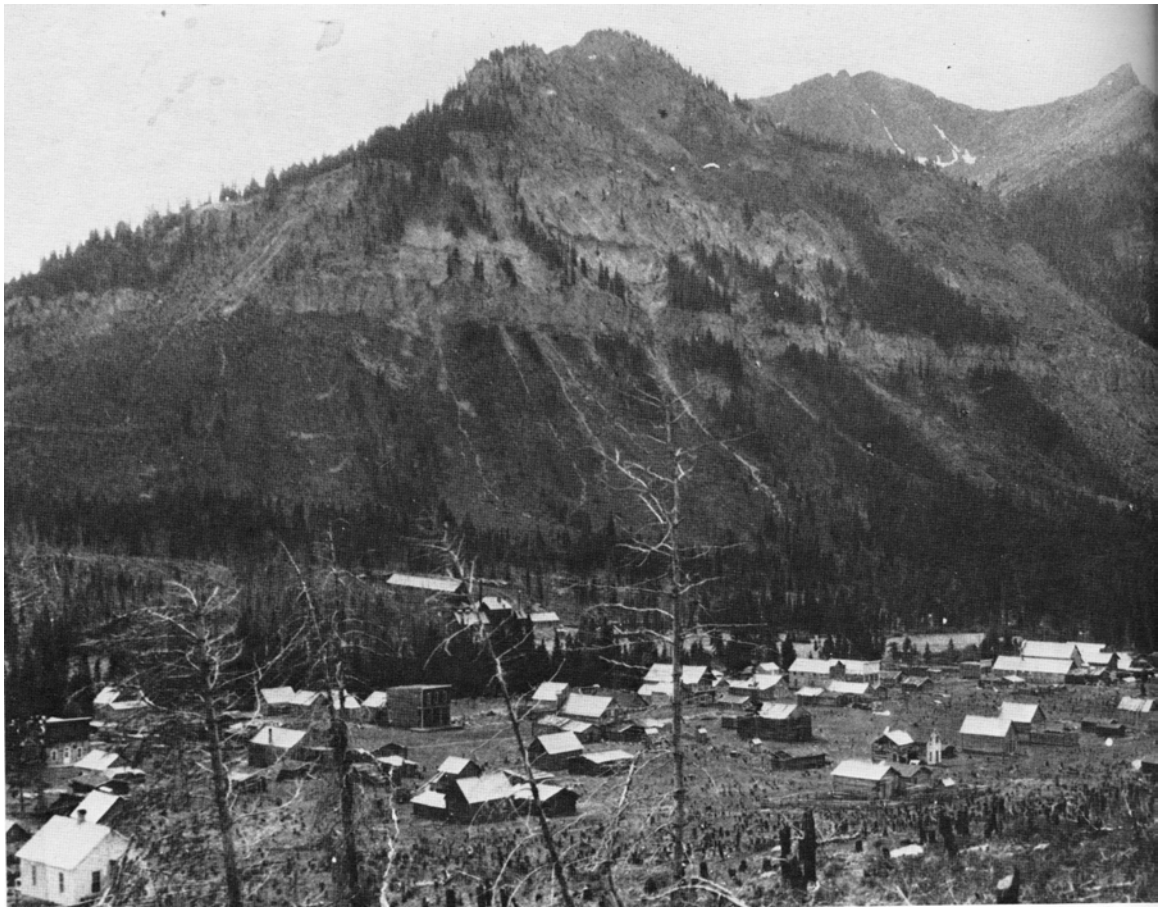

Figure 1-19. Cooke City, the main supply camp for the New World Mines, ca. 1890 (Glidden 1976). Note the lack of a main street.

Figure 1-20. A Bucyrus Erie shovel on the main street of Cooke City, ca. 1920 (Joan Humiston Collection). Note automobile behind bucket, and advertisement for Saturday night dance!

Methods

This report was prepared using a wide range of sources. Previous inventory and assessment work, along with prelimary historical research was conducted by GCM Services, Inc., (Fredlund, et al. 1990; Fredlund 1991, 1992). These reports were used as the basis for the historical background. Draft National Register Nomination Documents prepared by the author in 1996 were also used. The original historical references for these reports were re-examined. Additional research was conducted at the Montana Bureau of Mines and Geology, Montana Tech Special Collections, Montana Tech Library, the Park County Courthouse, and the Park County Museum in Livingston. Researchers for this report include David Ferguson, Carol Ferguson and Dagny Krigbaum.

Local informants provided the most interesting and helpful information. Larry Hoffman and Allen Kirk, both mining engineers, helped with interpretation of the mining technologies and physical remains. Mr. Hoffman, of Blue Range Engineering, specializes in small mine technologies. Mr. Kirk, of Maxim Technologies, was formerly associated with Crown Butte Mines, and is now involved in mine waste remediation work at these sites.

Dr. Robert Trennert, professor of western history at Arizona State University, provided expertise concerning mining tram systems.

Joan Humiston and Ralph Glidden of Cooke City, and Doris Whithorn of Livingston graciously contributed photographs which were otherwise unavailable. Other sources of photographs included the Gallatin National Forest, National Park Service, and the Montana Historical Society.