

## **GREAT FALLS COAL FIELD: HISTORIC OVERVIEW**

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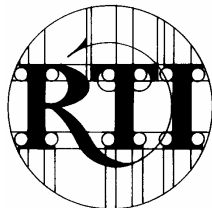
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## 1. INTRODUCTION

At one time, the Great Falls Coal Field was the state's premier field, with production outpacing all other fields combined from the 1880s past the turn of the twentieth century. Work there during that time was dominated by two large industrial concerns, the Great Northern Railway Company and the Anaconda Copper Mining Company. Smaller businesses mined and shipped coal as well, and numerous truck mines served the local trade. As reserves diminished and as industrial and residential dependence on coal waned, more and more of the field's mines closed. Belt, Sand Coulee, Stockett, and a handful of other communities that had begun as coal mining towns made the transition to small agricultural centers.

Decades later, the state of Montana was faced with environmental clean-up at the old coal mines. The Mine Waste Cleanup Bureau of the Montana Department of Environmental Quality (DEQ) has spent the last 25 years developing plans for and implementing coal mine cleanup in the Great Falls Coal Field. To date, coal fires in surface waste piles and underground mine workings have been abated, subsidence and collapse features have been filled, contaminated domestic water supplies have been replaced, and slack piles at numerous locations have been moved, reshaped, and covered with topsoil. The much more difficult task of finding a long-term solution to acid mine drainage has yet to be completed.

As part of its responsibilities to comply with the provisions of the National Historic Preservation Act, since 1982 DEQ has contracted for a series of cultural resource inventories at numerous reclamation sites from Belt to Sand Coulee and Stockett. Reports of those inventories identified what historic buildings, structures, and artifacts remain at historic coal mines, plus they have provided brief histories of individual mines.

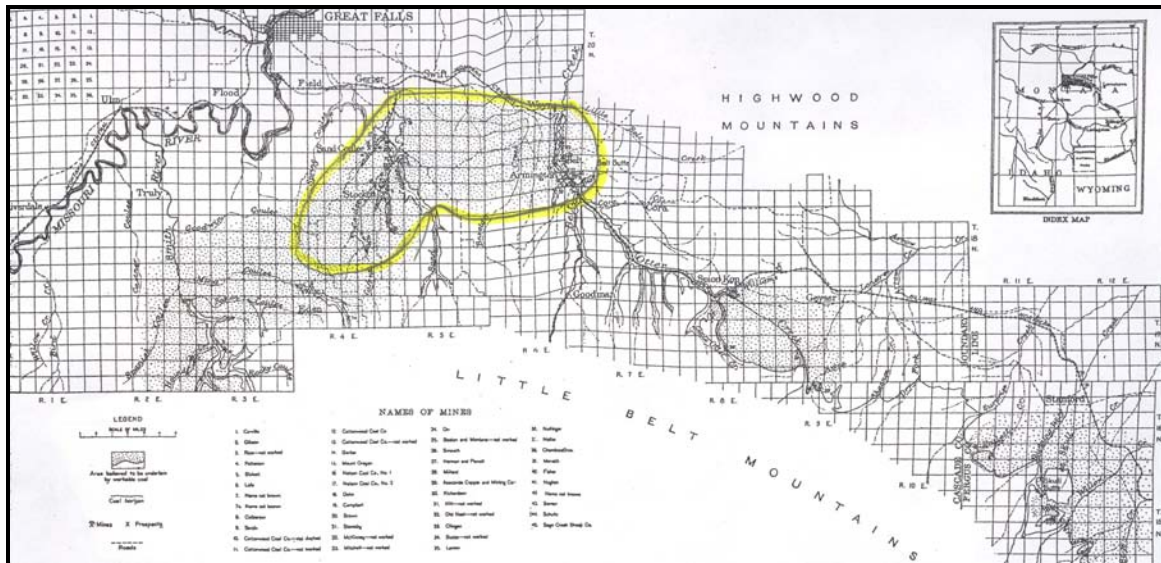
Those reports also included some broad contextual information about the history of the Great Falls Coal Field in general, but the data depended primarily on secondary sources. As part of DEQ's on-going efforts at coal mine reclamation in that area, the agency has elected to sponsor a more comprehensive coal field history which synthesizes a wide variety of primary and secondary materials. This document is that history.

For the purposes of this report, the Great Falls Coal Field name refers to what is elsewhere described as the Sand Coulee Basin of that coal field.<sup>1</sup> This sub-area centers on Belt and Armington along Belt Creek 18 miles southeast of Great Falls and Sand Coulee and Stockett in Sand Coulee and on Cottonwood Creek 11-13 miles south-southeast of Great Falls (Figure 1). It excludes the Smith River drainage to the west and the Geyser/Stanford/Windham area to the east. While these latter areas had coal mines of various sizes during the historic period, the strong centers of coal mining lay within the Sand Coulee Basin.

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<sup>1</sup> U.S. Geological Survey, "The Great Falls Coal Field Montana," by Cassius A. Fisher, in *Contributions to Economic Geology 1906*, Bulletin 316 (Washington, DC: Government Printing Office, 1907), 164-8.





**Figure 1. Map of Great Falls Coal Field and Sand Coulee Basin sub-area (latter marked in yellow; from U.S. Geological Survey, “Great Falls Coal Field,” by Fisher, Plate X).**

As noted above, two large and influential companies dominated coal production in the field---the Anaconda Copper Mining Company (ACM) and Great Northern Railway (Great Northern), the latter principally through its subsidiaries the Sand Coulee and Cottonwood Coal Mining Companies. This report focuses on the activities of their local coal departments, both because of their importance and because considerably more information is available about their operations than those of small coal companies. The report also includes, however, short histories of six other coal mines whose peak production ranged between as low as 5000 tons to as high as almost 200,000 tons per year.

Coal mining history can involve a wide range of topics such as geology, mining techniques, production, corporate involvement, labor activism, and community development. This report is limited to a small number of topics directly related to production, mine and surface plant improvements, and corporate mine ownership. Where appropriate, references to documents bearing on other topics are provided in footnotes.

This report begins with a section identifying sources of research materials used to compile the history. It is followed by a summary of coal mining across the state as a whole. The bulk of the report follows, it being the history of Great Northern coal mining at Sand Coulee, Stockett, and Giffen; ACM coal mining at Belt and Sand Coulee; and work at a handful of smaller coal mines in the coal field. The report concludes with a discussion of the legacy of coal mining in the area, both in terms of community and environment.

## 2. SOURCES CONSULTED

To compile this historic context, RTI examined materials at a wide range of in-state repositories. These included the Montana Historical Society (MHS), Great Falls Public Library,



[Cascade County] History Museum Archives, DEQ, and Library of Montana Tech of the University of Montana.

The MHS Research Center library and archives house a relatively broad collection of materials of interest. RTI reviewed the library's vertical file, generally concentrating on its Coal Mining folders, but also examining those folders for the communities of Belt, Sand Coulee, and Stockett and for select individuals. Staff also examined and copied other coal-related materials, such as pamphlets and an unpublished dissertation. Using indices to the *Belt Valley Times* (the Belt newspaper beginning in June 1894) compiled by Donna Wahlberg, RTI reviewed coal-mine-related articles printed for the years 1894 through 1907. This source provided some of the best information available for both small area mines and the start-up of the Belt Mine (later owned by ACM). The MHS Research Center archives were also particularly useful in providing documents pertaining to ACM mining operations, the structure and history of area coal mining corporations, and limited production and other records for a number of small operations. Manuscript Collection 169, ACM records, included several boxes on the company's coal departments at Belt and Sand Coulee, other sources of coal for smelting operations, the G.W. Merkle Coal Company (which took-over the Belt Mine), and ACM's undeveloped Spring Creek prospect. Unfortunately what is lacking, with rare exception, are maps pin-pointing lands owned by the company, underground workings, and surface plants. Manuscript Collection 239, records of the War Production Board in Montana; Manuscript Collection 135, Nelson Coal Company cash books and journals; Manuscript Collection 55, Thomas Charles Power papers; and a handful of Small Collections (76, 212, 1489, 1948, and 1963) contain information mostly about small or early coal companies and endeavors. Finally, corporation records of inactive companies, formerly housed with the Montana Secretary of State, offer information about coal mining companies and their founders.

The MHS Photograph Archives has a relatively small collection of images related to coal mining. Very few images are specific to the Great Falls Coal Field, and most of those can be found at other repositories or in published references.

The Great Falls Public Library has two important collections---its Montana Collection of published works and the Great Falls Genealogical Society Room. RTI found the Montana Collection to contain a comprehensive group of area histories covering Great Falls, Belt, Armington, Sand Coulee, Stockett, Eden, and other area communities. It also has bound special issues of the *Great Falls Leader*, a turn-of-the-twentieth-century newspaper, which covered news of area commerce. These special issues provided useful contemporary overviews of coal mining at Belt and Sand Coulee/Stockett just after the turn of the twentieth century. A fairly comprehensive collection of R.L. Polk & Company directories for Great Falls and Cascade County is housed in the Collection as well. The Genealogical Society Room includes area newspaper indices, other manuscript material (most pertaining to Great Falls rather than outlying portions of the county), and a vertical file once maintained by the Great Falls Public Library. The latter file has materials dating as early as the 1950s. RTI staff concentrated its research efforts in the vertical file on folders pertaining to coal mining and local communities.

The archives housed at the [Cascade County] History Museum have a limited number of documents related to mining in the Great Falls Coal Field. RTI staff consulted the archives' card



catalog, which directed it to a small but important group of contemporary *Great Falls Tribune* newspaper articles on field activities. The vertical file includes a small number of clippings, most pertaining to modern events at area communities. The photo archives include a small but good collection of coal mine images pertinent to the current study. Six of those images were digitally copied.

Documents housed at DEQ represent the most comprehensive group of items pertaining to coal mining by the Great Northern Railway and its subsidiaries known to exist in the state. These are items copied from the Great Northern Railway collection at the Minnesota Historical Society, which John Koerth of DEQ made available for RTI's use. Materials include documents on the corporate histories of the Sand Coulee and Cottonwood Coal Companies, some correspondence, and lists of expenditures. Other documents at DEQ, also compiled by John Koerth, are Bureau of Land Management coal lease records for the Giffen Mine at Stockett. Additionally, in about 1999 Meadowlark Search was contracted to conduct a title search for Belt, Sand Coulee, and Stockett coal lands, and the results of that search are housed at DEQ. This large endeavor, covering portions of Township 19 North, Ranges 4-6 East and Township 18 North, Ranges 4-5 East, resulted in partial chains of title. Also, lease agreements apparently were not researched as a part of that contract. Tom Root at DEQ made available copies of select items concerning ACM operations at the Great Falls Coal Field, obtained at the Anaconda Geological Document Collection, American Heritage Center, University of Wyoming, Laramie. Lastly, DEQ maintains a collection of maps of the Great Falls Coal Field. These include drawings of underground workings as well as recent reclamation projects. It is considered the most comprehensive collection of such Great Falls Coal Field maps in the state.

The Montana Tech Library houses a broad collection of publications about metals, fuels, and mining in Montana and elsewhere. There, RTI staff reviewed all pertinent reports published by the U.S. Geological Survey and U.S. Bureau of Mines. These include the annual printings of *Mineral Resources* and its successor *Minerals Yearbook*. RTI also examined the Montana news section of all issues of *Western Mining World* and its successor *Mining World* from 1899 through 1905. All available Inspector of Mines reports for Montana (1889-1912) and directories of mining enterprises (1919, 1935, 1940, 1949, and 1958-1970) were examined as well. A select number of articles published about Montana coal fields and the Great Falls smelter in *Engineering and Mining Journal* were suggested by others and found to be useful in research for the current project.

A few other relatively minor sources of information were used. For a single coal company which continues to maintain its corporate status in Montana, RTI solicited its records from the Montana Secretary of State. Staff searched on-line resources for data particular to individual mines or miners. In a small number of instances, digitized publications, family histories, and in one case a master's thesis were found which provided data not available at western Montana repositories.



### 3. GEOLOGY, GEOGRAPHY, AND HISTORY OF MONTANA COAL

#### A. Coal Resources in Montana

Montana is a state with a wide variety of minerals and other extractive resources, several of which exist in very significant concentrations. The history of mining in Montana is perhaps most commonly associated with the precious and base metals, particularly the copper mines in Butte and smaller gold and silver properties elsewhere in the Rocky Mountains.<sup>2</sup> Numerous other extractive resources also exist, however, some of which have been exploited since the earliest years of permanent Euro-American habitation in the region. Coal is perhaps the most abundant and economically significant of these assets.

According to U.S. Geological Survey estimates, Montana contains more mineable coal reserves than any other state in the U.S. – some 108 billion tons, more than twice that of neighboring Wyoming and more than 40 billion tons more than Illinois, the second-ranked state.<sup>3</sup> Other sources have suggested the state's total reserves are as high as 292 billion tons, though not all of the deposits are considered mineable.<sup>4</sup> In terms of total coal deposits, Montana may have approximately 13 percent of the nation's total reserves.<sup>5</sup>

Workable coal reserves are scattered across Montana, although the major deposits are in the eastern two-thirds of the state. The largest deposits contain softer-grade coal. Lignite coal, the softest grade, is found in the massive Fort Union deposit that extends from northeastern Montana across much of the western half of North Dakota. The state's largest coal deposits are located in north-central and southeastern Montana; they primarily contain sub-bituminous coal, a type which shares the properties of lignite and the somewhat-harder bituminous grade. In Montana, bituminous coal exists in smaller fields in the central and western regions, including locations near Great Falls, Bozeman, and Red Lodge. Anthracite, the hardest grade of commercial coal, is virtually absent in Montana.<sup>6</sup>

The variations in coal type and quality among Montana's coalfields are accompanied by other geographic and geologic differences that have impacted the use of the fields. The lignite and sub-bituminous reserves of eastern Montana often extend in unbroken seams for substantial

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<sup>2</sup> For broad background information on the mining history of Montana, see Michael P. Malone, Richard B. Roeder, and William L. Lang, *Montana: A History of Two Centuries*, revised edition (Seattle: University of Washington Press, 1991), especially Chapters 4, 8, 9, and 13.

<sup>3</sup> Malone, Roeder, and Lang, *Montana: A History of Two Centuries*, 337.

<sup>4</sup> Montana Bureau of Mines and Geology, "Coal Resources," by Mark Sholes, *Proceedings: Montana Coal Forum*, Special Publication 93 (Butte: 1985), 2.

<sup>5</sup> Montana Bureau of Mines and Geology, "Montana's Coal Resources," by Andrew F. Bateman, Jr., in *Proceedings of the First Montana Coal Resources Symposium*, Special Publication 36 (Butte: 1966), 8.

<sup>6</sup> Robert A. Chadwick, "Coal: Montana's Prosaic Treasure," *Montana: The Magazine of Western History* 23 (Fall 1973): 18-31. For more detailed information, see Montana Bureau of Mines and Geology, "Montana's Coal Resources," by Bateman, 8-85.



distances, relatively near the surface; this makes them highly appropriate for strip and open-pit mining techniques. In contrast, the state's bituminous reserves are often farther below the surface, and in formations with pronounced geologic fracturing. Because of this, Montana's bituminous coals have typically been accessed by underground mines, with their greater expense and technical complexity.<sup>7</sup>

## **B. Geography and Development of Montana's Coal Mines**

At some level, Montana's coal deposits have been exploited since the 1860s, though use has varied greatly over time and depending on geography. The region's earliest Euro-American settlements were primarily established in the mountainous western third of the state, where farmers and precious-metal miners founded small communities. When available, these settlers exploited western Montana's bituminous coal deposits, excavating and gathering small quantities for their family's use. Some of these so-called "wagon mines" developed into small but commercially-viable local mining enterprises.

Somewhat larger and more formal coal operations existed near some population centers, supplying small quantities of locally mined coal for use or resale in nearby communities. The market for domestic coal was also met by some of the state's larger mines, which sold to nearby residents even though their primary market was industrial. The domestic coal business in Montana remained important through the last half of the nineteenth and the first half of the twentieth centuries, until expanded electric and natural gas distribution systems virtually ended the domestic use of coal.<sup>8</sup>

Compared to domestic uses, the industrial use of coal in Montana evolved more slowly, and was less geographically dispersed. Coal saw small-scale use in western Montana's nascent metals mining industry during the nineteenth century. It was not, however, until the construction of the railroads that Montana's coal reserves were developed specifically for industrial purposes. Montana's first railroad, the Utah & Northern, entered the state in 1880, and the decade that followed saw tremendous railway development in the territory. The Northern Pacific completed an east-west line across Montana in 1883, and by 1889 a predecessor of the Great Northern had completed a line from North Dakota as far as Butte.<sup>9</sup> The arrival of the railways in Montana brought about a rapid and dramatic transformation in the local coal industry, impacting it in a variety of ways. The relative efficiency of rail transport made the large-scale shipment of Montana coal economically feasible for the first time, increasing the industry's potential market reach. Those same transportation efficiencies encouraged other forms of industrial development in the state, including several smelters across western Montana. Finally, the railroads themselves

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<sup>7</sup> Chadwick, "Coal: Montana's Prosaic Treasure," 21-22.

<sup>8</sup> Mary McCormick and others, *North Powder River Basin, Southeast Montana: Cultural Landscape-Scale Overview of the High Potential Coal Bed Natural Gas Development Area* (Butte: Renewable Technologies, Inc. and Billings: Headwaters Cultural Research, 2006), 65-67, submitted to Montana State Office, Bureau of Land Management, Billings.

<sup>9</sup> Malone, Roeder, and Lang, *Montana: A History of Two Centuries*, 172-181.



were among the nation's (and Montana's) largest consumers of coal, because most railway locomotives were fueled by it until after World War II.

### ***(1) Coal for Mining and Other Non-Railroad Industries***

As with earlier uses, the industrial exploitation of Montana's coal reserves initially focused on the higher-quality bituminous deposits in the central part of the state (Figure 2).

The Great Falls Coal Field was the earliest significant producer of coal for industrial non-transportation applications, and it remained the largest producer into the early twentieth century. Containing high volatile bituminous coal, the field is primarily located in east-central Cascade County, southeast of the city of Great Falls. In its entirety, however, it runs some 60 miles in an east-west direction, continuing into Judith Basin and Fergus Counties. The coal of the Great Falls field occurs in three non-contiguous basins. The Sand Coulee Basin, near the western end of the field and the subject of this document, is by far the largest of the three, and was the source of most of the commercial production in the field.<sup>10</sup>

The largest of the Great Falls field operations for non-railroad industrial consumption was ACM's Belt Mine which a predecessor company began aggressively developing in 1894. The mine supplied ACM's mining and beneficiation operations in Butte, Anaconda, and Great Falls with coal and coke from 1894 to 1913. The mine produced a total of about 7.5 million tons of coal over a 20-year period. After ACM closed its Belt property due to increasing poor mine economies, it transferred its local coal department to the Sand Coulee area. Its Sand Coulee coal mines produced another 2.3 million tons of coal over the following decade. ACM left in 1924 when its Great Falls Reduction Department transitioned to oil as its primary fuel. Particularly while at Sand Coulee, ACM also supplied other industrial, commercial, and railroad customers with excess mined coal not required for its own operations.<sup>11</sup>

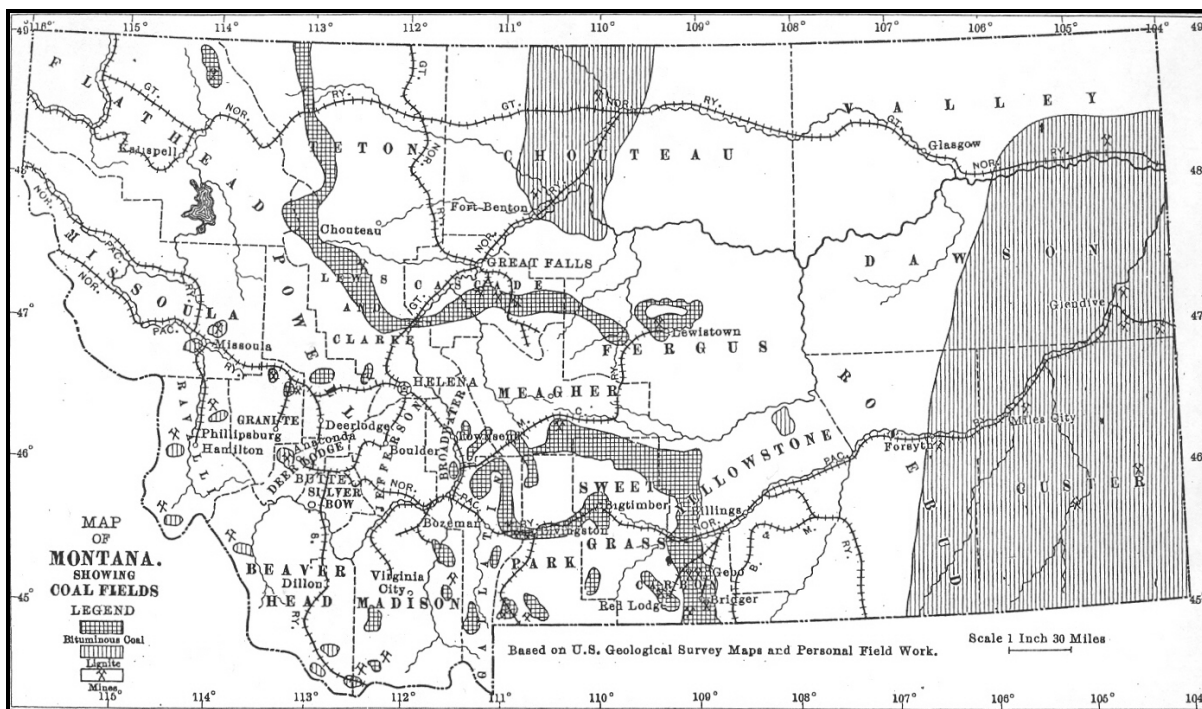
A handful of other, independent commercial coal mines at the Great Falls Coal Field supplied non-railroad industrial customers during the early twentieth century, although on a considerably smaller scale. The Gerber Mine at Sand Coulee, whose main period of operation was from 1901 to 1913, was perhaps the largest of local operations. Its industrial customers

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<sup>10</sup> U.S. Geological Survey, *Coal Resources of Montana*, by John X. Combo and others, Circular 53 (Washington, DC: Government Printing Office, 1949), 11.

<sup>11</sup> Ibid.; Montana Bureau of Mines and Geology, *Stratigraphy and Economic Geology of the Great Falls-Lewistown Coal Field, Central Montana*, by Arnold J. Silverman and William L. Harris, Bulletin 56 (Butte: 1967), 1; Chadwick, "Coal: Montana's Prosaic Treasure," 22-25; Eva Lesell Stober, *Belt Valley History* (Great Falls: Advanced Litho Printing, 1979), 28-30; W.J. Wilcox, "His Record of Anaconda Copper Mining," n.d., on file, Butte-Silver Bow Archives, Butte; Anaconda Copper Mining Company, "Report of the Anaconda Copper Mining Company for the Year Ending December 31<sup>st</sup>, 1916" [subsequent citations of annual reports are referenced by abbreviated title and year only]; "Annual Report," 1917, 1918, 1919, 1920.





**Figure 2. Map of recognized coal-mining areas in the state in 1909 (from Rowe, "The Coal-mining Industry of Montana," *Engineering and Mining Journal*, 1909).**

were mainly in Great Falls. Total production to 1913 was likely in the ½ million ton range, significantly less than ACM's Sand Coulee mines' 2.3 million.<sup>12</sup>

The Livingston and Electric Coal Fields in Gallatin and Park Counties were in some ways early competitors of the Great Falls field producers for industrial markets. Although the volume of coal produced never approached that of the Great Falls field, coke production surpassed that of anywhere else in the state.

The Livingston field is located between Bozeman and Livingston, stretches approximately 22 miles long, and consists of multiple beds of bituminous coal that average between 2 and 5 feet thick. The beds are in thick sandstone formations from the Cretaceous age. The Electric field, a relatively small reserve west of the Yellowstone River in Park County just north of the Wyoming state line, was a small but critical coke producer. It contains about 3 square miles of mineable coal, in three beds averaging between 3 and 5 feet thick. Most of the beds are broken and steeply angled, making them difficult to mine. The coal itself is a relatively high-grade bituminous, considered especially suitable for coking.<sup>13</sup>

<sup>12</sup> *Great Falls Leader*, reclamation edition, compiled by Harry Hume, 1907; Ruby Giannini, *A History of Sand Coulee, Montana: An Early Coal Mining Town* (self published, 1985), 38-9.

<sup>13</sup> U. S. Geological Survey, *Coal Resources of Montana*, by Combo and others, 14.



Near the eastern end of the Livingston field, mining began at Cokedale in about 1881. Increased development took place after the Northern Pacific built through the area in 1882, and continued through the 1890s, with mines providing coal and coke for industrial operations in Butte, Anaconda, East Helena, and even Great Falls.<sup>14</sup> Commercial production commenced in 1883. Forty coke ovens were erected at Cokedale some short time after 1884, making it the earliest major coke producer in the state. The mines and adjacent community prospered through the mid-1890s. Coke production, eventually involving 115 ovens, ended in 1896, while some coal continued to be mined until the last mine closed in 1910.<sup>15</sup>

A second attempt to produce coking coal in the Livingston field was considerably less successful. In 1902, the Washoe Coal Company, an ACM subsidiary, purchased and began operating a series of claims in the Meadow Creek area, constructing 100 coke ovens nearby. Both the mines and the ovens operated only intermittently over the following few years, ending production in 1907.<sup>16</sup>

Commercial coal mining in the Electric field was centered at the mining camp of Aldridge, which was developed in 1896 by the Montana Coal & Coke Company, an affiliate of ACM. An aerial tramway carried coal to a large coking facility at Electric, on the Yellowstone River. The coking operation at Electric was large, with 125 coke ovens. Almost all of the coal mined was coked, and almost all of that shipped to smelters in Butte and Anaconda. Coal and coke production ended in 1911.<sup>17</sup>

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<sup>14</sup> U. S. Geological Survey, *Geology and Coal Resources of the Livingston Coal Field, Gallatin and Park Counties, Montana*, by Albert E. Roberts, Professional Paper 526-A (Washington, DC: Government Printing Office, 1966), A30, 34; Mary McCormick and others, *2007 Trail Creek Coal Mine Reclamation Project: A Cultural Resource Inventory and Evaluation* (Butte: Renewable Technologies, Inc., 2007), 11-15, submitted to Mine Waste Cleanup Bureau, Montana Department of Environmental Quality, Helena; Mitzi Rossillon and Ken Dickerson, *Montana Smelter Reclamation, Cascade County, Montana: A Cultural Resource Inventory and Evaluation* (Butte: Renewable Technologies, Inc., 2003), 33, 49, submitted to Mine Waste Cleanup Bureau, Montana Department of Environmental Quality, Helena.

<sup>15</sup> U. S. Geological Survey, *Geology and Coal Resources of the Livingston Coal Field*, by Roberts, A30-A44; U.S. Geological Survey, *Mineral Resources of the United States Calendar Year 1906* (Washington DC: Government Printing Office, 1907), 787 [subsequent citations for *Mineral Resources* and its successor, *Minerals Yearbook*, will be by abbreviated title, year and page number(s) only].

<sup>16</sup> U. S. Geological Survey, *Geology and Coal Resources of the Livingston Coal Field*, by Roberts, A44; Phyllis Smith, *Bozeman and the Gallatin Valley: A History* (Guilford, Connecticut: The Globe Pequot Press, 1996), 186-91; McCormick and others, *2007 Trail Creek Coal Mine Reclamation Project*, 14.

<sup>17</sup> Montana Bureau of Mines and Geology, "Coal Resources," by Sholes, 21-22; Chadwick, "Coal: Montana's Prosaic Treasure," 25; U.S. Geological Survey, "The Electric Coal Field, Park County, Montana," by W.R. Calvert, *Contributions to Economic Geology 1910*, Bulletin 471 (Washington, DC: Government Printing Office, 1912), 419; U. S. Geological Survey, *Geology and Coal Resources of the Livingston Coal Field*, by Roberts, A30.



Electric coal field production, combined with that of the Livingston field for all customers whether industrial, railroad, or domestic, has been estimated at 1¾ million tons of coal. Coke production for the same field combined totaled 1,357,578 tons.<sup>18</sup>

The last of the major Montana coal fields to serve important non-railroad industrial consumers during the early twentieth century was the Red Lodge field. Located in south-central Carbon County, primarily east of its namesake community and at the northern end of the Beartooth Mountains, the field is within the Fort Union Formation. It features a coal zone totaling 50-100 feet thick. Eight bituminous coal beds have been identified in this zone, interspersed between layers of sandstone and shale. The beds are of varying thickness and character, and only three of the eight saw significant commercial mining.<sup>19</sup>

Small wagon mines began operating in the Red Lodge area in the early 1880s, and the local coal industry grew after the Rocky Fork Coal Company began to develop its mines later that decade. The mine's promoters soon constructed a short-line railway into the area to serve the mine, a route that soon came under the control of the Northern Pacific. Together, these developments ushered in a period of growth for both Red Lodge and the mining district around it.<sup>20</sup>

The Red Lodge field coal that was marketed to the Montana mining industry came principally from Bear Creek area east of Red Lodge. There, mining began in the 1890s, and activity increased after the completion of a short-line railroad into the area. The railway, eventually named the Montana, Wyoming & Southern, extended as far as Washoe, where in 1906 the Washoe Copper Company acquired its first of 1900 acres of coal land. Later a part of ACM coal operations, the Washoe Mine was accompanied by a small company town of the same name.<sup>21</sup>

The good fortunes of the Bear Creek area mines, including the Washoe, continued through World War I and beyond, but began to fade in the early 1920s. The Washoe did not close until the end of 1935, however. Total production at the Washoe far exceeded 1½ million tons. Its yearly production usually outpaced that of ACM's Sand Coulee department. Between

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<sup>18</sup> Montana Bureau of Mines and Geology, "Coal Resources," by Sholes, 21-22; U.S. Geological Survey, *Geology and Coal Resources of the Livingston Coal Field*, by Roberts, A30, 34.

<sup>19</sup> U. S. Geological Survey, *Coal Resources of Montana*, by Combo and others, 13; Edward P. Shea and Norman R. White, "Report on Anaconda Company Coal Lands in Montana" (Butte: The Anaconda Company Geological Department, 1960), 3, on file, Anaconda Geological Document Collection, American Heritage Center, University of Wyoming, Laramie [subsequent citations of documents housed in the Anaconda Geological Document Collection will exclude reference to the collection's location].

<sup>20</sup> Chadwick, "Coal: Montana's Prosaic Treasure," 25; Jon Axline, "Something of a Nuisance Value: The Montana, Wyoming & Southern Railroad, 1905-1953," *Montana: The Magazine of Western History* 49 (Winter 1999): 48-63.

<sup>21</sup> Chadwick, "Coal: Montana's Prosaic Treasure," 25; U.S. Geological Survey, "Coals of Carbon County Mont.," by N.H. Darton, in *Contributions to Economic Geology 1906*, Bulletin 316 (Washington, DC: Government Printing Office, 1907), 189; Axline, "Something of a Nuisance Value"; *The Copper Handbook*, vol. 10 (Houghton, Michigan: Horace J. Stevens, 1911), 335; Wilcox, "His Record of Anaconda Copper Mining."



50 and 75% of its coal went to ACM departments in Butte and Anaconda, with most of the remainder sold commercially.<sup>22</sup>

## ***(2) Coal for Railroads***

While production numbers in Montana for non-railroad industrial consumers were large, given the restrictions of underground mining, that production paled beside that for railroad operational needs. The late nineteenth century saw the first development of large-scale coal properties intended specifically to supply railroads. Railroads consumed a significantly greater proportion of the total state yield than other industries up to about the end of World War II.

The Northern Pacific Railway was the first railroad to be involved in Montana coal mining in any meaningful way. The company's interest spanned three major coal fields and almost 70 years. The Livingston field was the first that the Northern Pacific exploited. A Northern Pacific subsidiary, the Northern Pacific Coal Company, began development in the early 1880s, operating a series of mines in the area to supply locomotive fuel. The company's largest early mine was the Timberline, located near Bozeman Pass and opened in 1883. The Northern Pacific subsequently took over the Rocky Canyon and Mountainside Mines and extracted almost 1 million tons of coal from them between 1902 and 1910.<sup>23</sup>

The Northern Pacific was also responsible for the greatest boom in the Red Lodge field 90 miles distant. It began in 1898 when the Northwestern Improvement Company, another Northern Pacific subsidiary, acquired the Rocky Fork mines and began to expand production in the area. The coal was of high quality, and more easily mined than the Livingston/Trail Creek deposits; it therefore became one of the railroad's primary coal sources. By the 1920s, however, the Red Lodge field had become less attractive to the railroad. Increased mining costs and a 1922 labor dispute convinced the Northwestern Improvement Company to develop a surface mine at Colstrip, and the new operation soon became the railroad's primary source of locomotive fuel.<sup>24</sup>

The Forsyth Coal Field, where Colstrip is located, is a part of the expansive Fort Union Formation, a series of coal beds underlying much of eastern Montana, as well as portions of North Dakota and Wyoming. The formation is divided into two primary regions: a lignite area that includes northeastern Montana and western North Dakota, and a sub-bituminous area centered in southeastern Montana and northeastern Wyoming. In Montana, only the sub-bituminous fields have seen substantive commercial development.<sup>25</sup>

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<sup>22</sup> Axline, "Something of a Nuisance Value"; "Coal: Montana's Prosaic Treasure," 25-28; Wilcox, "His Record of Anaconda Copper Mining"; Anaconda Copper Mining Company, "Annual Reports," 1915-1925.

<sup>23</sup> Smith, *Bozeman and the Gallatin Valley*, 186-91; Montana Bureau of Mines and Geology, "Coal Resources," by Sholes, 21-22; U. S. Geological Survey, *Geology and Coal Resources of the Livingston Coal Field*, by Roberts, A32.; McCormick and others, *2007 Trail Creek Coal Mine Reclamation Project*, 14.

<sup>24</sup> Chadwick, "Coal: Montana's Prosaic Treasure," 25-28; Axline, "Something of a Nuisance Value."

<sup>25</sup> U. S. Geological Survey, *Coal Resources of Montana*, by Combo and others, 7-9.



The Forsyth field includes several thick and relatively unbroken beds of coal. Historical development was centered on the Rosebud bed, near the town of Colstrip. That bed averages some 28 feet thick and is relatively horizontal. Its position below the surface--approximately 50 feet--makes it easily mined using stripping techniques.<sup>26</sup>

The Northern Pacific, which had received substantial land grants in the area, sponsored geologic investigations of the region as early as 1913. These explorations indicated that the field contained a vast amount of coal, often not far below the surface. These reserves became more and more attractive to the railroad as the mining costs and coal availability at Red Lodge grew more problematic.<sup>27</sup>

By 1923, the Northern Pacific began implementing plans to develop its reserves south of Forsyth. A branch line was constructed into the Colstrip area, and the railroad's Northwestern Improvement Company subsidiary began work on a strip mine complex and the new company town of Colstrip. Mining began in 1924, and production expanded rapidly. The operation, among the earliest major strip mines in the country, utilized electric shovels to load coal directly into rail cars waiting on temporary tracks. This made Colstrip an extremely labor-efficient property, especially compared to the underground mining technologies still used elsewhere in Montana. Coal output per man-hour was five times that of the Red Lodge mines.<sup>28</sup>

As early as 1927, Colstrip was the second-largest coal-producing region in the state, its 730,000 tons of annual output exceeding all other areas except Roundup (see below). Output continued to increase into the 1940s, and during World War II Colstrip was by far the largest producer in Montana, yielding some 2.5 million tons annually. The Northern Pacific was by far the primary user of Colstrip coal, and the extremely low mining costs at Colstrip caused the railroad to delay the switch to diesel locomotives compared to its competitors. The railroad finally dieselized in the mid-1950s, signaling the end of its Colstrip operations; the mine closed in 1957.<sup>29</sup>

The Great Northern Railway's earliest interest in Montana coal followed closely on the heels of the Northern Pacific Coal Company's first coal mine development in the Livingston field. In 1887, the Montana Central Railway, a predecessor-subsidary of the Great Northern, completed a line through Great Falls from the northeast. The tracks were extended to Butte the following year, and by mid-1888 a branch line had reached the coal beds of the Sand Coulee area in the Great Falls field.<sup>30</sup>

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<sup>26</sup> Ibid., 9.

<sup>27</sup> Montana Legislative Council, "A Handbook of the Montana Coal Severance Tax" (Helena, Montana: the Council, 1988), accessed at [http://www.archive.org/stream/handbookofmontan00verd/handbookofmontan00verd\\_djvu.txt](http://www.archive.org/stream/handbookofmontan00verd/handbookofmontan00verd_djvu.txt); Chadwick, "Coal: Montana's Prosaic Treasure," 29-31.

<sup>28</sup> Ibid.

<sup>29</sup> Montana Legislative Council, "A Handbook of the Montana Coal Severance Tax."

<sup>30</sup> Ralph W. Hidy and others, *The Great Northern Railway: A History* (Cambridge: Harvard Business School Press, 1988), 319.



The first large-scale commercial development of coal property in the field was the work of the Sand Coulee Coal Company, an affiliate of the Great Northern. The opening of Sand Coulee Coal's mine in 1888 marked the beginning of a 60-year run of coal mining by Great Northern subsidiaries that extended from Sand Coulee south to Giffen. The largest of the mine groups, the Stockett on Cottonwood Coulee, yielded 5.4 million tons of coal during its lifetime. That coal was used primarily by the Great Northern for its railroad operations in Montana.<sup>31</sup>

Another Great Northern subsidiary, the Cottonwood Coal Company, for a short time turned to the far east end of the larger Great Falls Coal Field for some of its coal. Between 1914 and 1921 the company mined something in excess of ½ million tons of coal from its two Lehigh Mines in Fergus County. As those reserves dwindled, Cottonwood Coal was forced to return to the Sand Coulee and Stockett area.<sup>32</sup>

Other Sand Coulee area commercial coal operators benefited from the Great Northern's practically insatiable need for coal and the convenience of its Great Falls Coal Field branch lines. For example, the Nelson No. 1 Mine, opened in 1903 and operated into the late 1920s, the latter years under the ownership of Cottonwood Coal. Most Nelson coal apparently was sold to the Great Northern, although some product was shipped to Great Falls and even as far away as Seattle.<sup>33</sup>

The state's third major railroad, the Chicago, Milwaukee, & St. Paul (Milwaukee Road), obtained locomotive coal beginning in 1908 from mines in the Bull Mountain Coal Field, south of Roundup.<sup>34</sup> That field is a large reserve centered south of Roundup, and primarily located in Musselshell and Yellowstone Counties. The area contains some 26 coal beds, most of which have not seen commercial development. In the historic period, most of the coal extraction in the area came from the Roundup bed, located just south of its namesake city at the north end of the field. The coal in the Roundup bed is sub-bituminous, from the Fort Union Formation. The seam is visible in 4-6-foot outcroppings at its north end, and then continues underground for several miles to the south, gradually losing its thickness.<sup>35</sup>

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<sup>31</sup> Cascade County Historical Society, *The Cascade County Album: Our History in Images* (Great Falls: 1999), 115-29; Montana Bureau of Mines and Geology, *Stratigraphy and Economic Geology of the Lewistown Coal Lewistown Coal Field*, by Silverman and Harris, 1; William S. Bryans, "A History of Transcontinental Railroads and Coal Mining on the Northern Plains to 1920" (Ph. D. diss., University of Wyoming, 1987), 205.

<sup>32</sup> "Lehigh Montana Mines 1 and 2: History and Acquisition by the Great Northern Railway Company," post 1924, 1-2, Great Northern Railway Collection.

<sup>33</sup> J.P. Rowe, "The Montana Coal Fields: Their Commercial Value," *Mining Magazine* 11, no. 2 (February 1905): 243; University of Montana, *Montana Coal and Lignite Deposits*, by Jesse Perry Rowe, Geological Series 2, Bulletin 37 (Missoula: University of Montana, 1906), 38; Jesse Perry Rowe, "The Coal-mining Industry of Montana," *Engineering and Mining Journal* 87, no. 17 (24 April 1909): 847; O.C. Mortson, "Bounteous Nature Has Provided a Boundless Measure of Coal," *Great Falls Leader*, reclamation edition, by Hume; E.A. Jones, "Great Commercial Benefits," *Great Falls Leader*, development edition, 15 July 1913, 61.

<sup>34</sup> Montana Legislative Council, "A Handbook of the Montana Coal Severance Tax."

<sup>35</sup> U.S. Geological Survey, *Coal Resources of Montana*, by Combo and others, 10.



In common with many of Montana's other coal districts, small wagon mines began operating in the Roundup area in the 1880s. But more substantial development awaited the arrival of a railroad line, in this case the Milwaukee Road, which built its new transcontinental main line through the area in 1907. The railroad took an immediate interest in the Bull Mountain coal reserves, and in 1908 organized a subsidiary called the Republic Coal Company to operate mines in the area. A second Milwaukee Road subsidiary, the Roundup Coal Company, also began mining for commercial customers that year.<sup>36</sup>

Mining activity in the region grew rapidly. By 1911, the Bull Mountain field was producing 700,000 tons of coal annually, and that figure had increased to 1.2 million tons by 1918. In contrast to other mining districts in the state, production at Roundup remained relatively strong throughout the 1920s and 1930s, a testament in part to the quality of the coal. Although Roundup coal held a strong position in the home heating market, it continued to be heavily used by the Milwaukee Road. Both the domestic and railroad markets declined after World War II, however. The Milwaukee Road replaced the last of its steam locomotives with diesels in the 1950s, and other fuels replaced coal in the home heating market. Large-scale coal production near Roundup ended in 1963.<sup>37</sup>

The closure of the last of the railroad-sponsored mines in the state during the late 1950s and early 1960s marked the virtual end of industrial coal use in the state. The lull was brief, however, because at the same time plans were underway to use Colstrip coal for a new industry, electrical power generation.<sup>38</sup> This development, previously not a priority in a state with significant hydroelectric generating capacity, was the beginning of a rebirth of the state's coal industry that continued through the remainder of the 1900s and into the 2000s. Focused exclusively on the sub-bituminous fields of southeastern Montana, large strip mines developed in the region to supply coal to generating stations both in Montana and elsewhere. They mark the future of the coal industry in Montana.

#### **4. COAL MINING IN THE GREAT FALLS COAL FIELD**

The historic mining activities of the Great Falls Coal Field were diverse, but highly reflective of many of the broader characteristics of Montana coal mining. The area's mines produced coal for railroad, other industrial, and domestic uses; inspired the construction of new railway branch lines; and provided the foundation for the rise of mining camps. They also significantly changed the cultural landscape of the region, encouraging and supporting settlement and development. When the mines lost their economic reasons for being, much of this infrastructure disappeared.

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<sup>36</sup> Montana Legislative Council, "A Handbook of the Montana Coal Severance Tax."

<sup>37</sup> Ibid.; Chadwick, "Coal: Montana's Prosaic Treasure," 28-29.

<sup>38</sup> Montana Legislative Council, "A Handbook of the Montana Coal Severance Tax."



## A. Introduction

As noted above, the Great Falls Coal Field (Sand Coulee Basin) is primarily located in east-central Cascade County, southeast of the city of Great Falls. Its medium-grade bituminous coal lays at the top of the Morrison Formation of the Jurassic Period. The coal bed itself is relatively thin. In the Sand Coulee area, it averages 8½ feet thick, and in the Belt area just 4½ feet thick. The coal layer is buried quite deeply below the ground surface, in the Belt area at a depth roughly between 230 and 310 feet. Both at Sand Coulee and Belt, the coal is “interbedded with layers of bone [carbonaceous shale], shale, and clay,” those impurities dictating both the way coal was mined and how it was treated at surface plants during the historic period. At Anaconda Copper Mining Company’s Belt Mine, the 6-foot-thick coal bed (slightly thicker than the average for the area) occurred in three benches separated by bone. That company’s answer to separation of the impurities from the coal was selective mining and then washing at its surface plant. At the Great Northern Railway’s Stockett mines, coal was in a bed up to 10 feet thick, but in four benches separated by bone lenses averaging 3-4 inches thick. In the Sand Coulee/Stockett area, operators cleaned their mined coal by coal breaker or more often hand picking along a conveyor. Coal from both areas also included sulphur which occurred in the form of iron-pyrite nodules up to 4 inches in diameter. The sulphur accounted for about 3% of the coal mined, and often was among the impurities that had to be removed.<sup>39</sup>

Great Falls field coal had 10,000-11,000 BTUs, a caloric value suitable for locomotive fuel, but not quite as useful for smelting applications, especially as they became more sophisticated over the years. The high ash content, 18-21%, also proved to be a hindrance to some smelting operations, thus limiting the industrial market for the coal.<sup>40</sup>

Even with these limitations, the Great Falls Coal Field had two characteristics that greatly benefited its underground mining operations. These were the absence of poisonous gases and underground water. Only in the Giffen Mine, far up the Sand Coulee drainage basin, was excessive water a serious problem requiring continuous pumping and even abandonment of a portion of the mine.<sup>41</sup>

This section of the report begins with the mining in the Sand Coulee portion of the Great Falls Coal Field. Although not where coal was first discovered in the field, it was the first area to be developed on a large commercial scale. Its history is intimately tied to that of the Great Northern Railway and its need for locomotive fuel (Figure 3). Beginning near what would

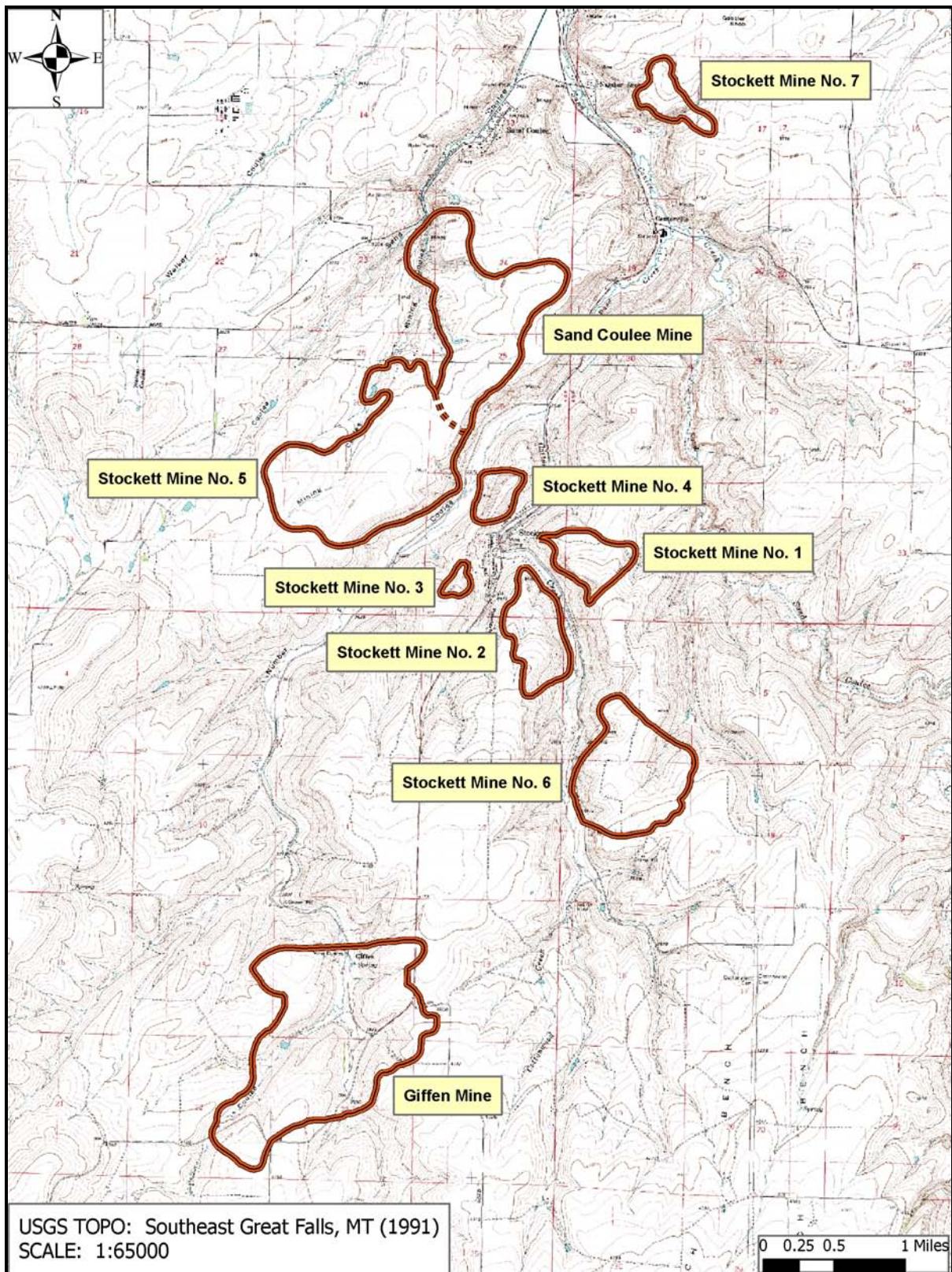
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<sup>39</sup> U.S. Geological Survey, *Geology of the Great Falls Coal Field Montana*, by Cassius A. Fisher, Bulletin 356 (Washington, DC: Government Printing Office, 1909), 55, 61, 78-81; Montana Bureau of Mines and Geology, “Montana’s Coal Resources,” by Bateman, 9; U.S. Bureau of Mines, *Analyses of Coals in the United States*, by N.W. Lord, Bulletin 22 (Washington, DC: Government Printing Office, 1913), 588-94.

<sup>40</sup> U.S. Geological Survey, *Geology of the Great Falls Coal Field*, by Fisher, 79; C.D. Demond, “Economy and Efficiency in Reverberatory Smelting,” *Transactions of the American Institute of Mining Engineers* 49 (New York: 1915): 741, 749.

<sup>41</sup> William Wilson, “Reminiscences of Stockett, Montana,” 1971, typed manuscript, p. 35, on file Small Collection 1489, Montana Historical Society Research Center, Helena.





**Figure 3. Map showing relative positions of coal mines in Sand Coulee basin owned and operated by Great Northern Railway and its subsidiaries (see Figure 22 for locations of No. 8 [Nelson No. 1] and No. 9 [Gerber] mines).**



become known as the community of Sand Coulee, the Great Northern's coal mining subsidiaries gradually moved upstream to Stockett and eventually Giffen in their quest for more coal as the older mines played out. The Great Northern was overwhelmingly the largest of the commercial operators in the Great Falls field, finally ending its almost 60-year run in 1945.

The next important operators to be discussed in this chapter are the Anaconda Copper Mining Company and its predecessors. The narrative begins as the company did---at Belt where coal was first found. ACM's coal mining history there, tied to copper ore smelting in Anaconda and later Great Falls, includes both coal mining as well as its coke business. The story continues onto Sand Coulee, specifically Tracy and Centerville, where ACM turned in 1914 after abandoning its Belt Mine.

The last portion of this chapter involves histories of six mines much smaller than the Great Northern and ACM operations. It includes both commercial mines, particularly in the Sand Coulee area, and a few small mines that can best be characterized as "wagon mines" with generally minimal production.

## **B. The Great Northern Railway and Its Mines in Sand Coulee, Stockett, and Giffen**

### ***(1) Sand Coulee***

For nearly 60 years between the late 1880s and late 1940s, the bituminous coals of the Sand Coulee field helped fuel one of the most important railroad operations in Montana and other northern tier states west of the Mississippi River, the trans-continental line and branches of the Great Northern Railway. In a business pattern typical of other railroad giants of the era, the Great Northern secured firm control over its coal supply at Sand Coulee by utilizing subsidiary companies to acquire and hold coal lands and develop and mine the deposits. Subsidiary coal companies worked to the railroad's benefit, selling all or most all of their product to the parent company at minimal profit.

The earliest known miners of Sand Coulee coal came from the ranks of the comparatively few but hardy homesteaders who located in the area prior to the Great Northern's arrival to Montana. Sam Dean reportedly discovered coal in 1882 and opened Sand Coulee's first mine in the following year (see Section 4.D.1).<sup>42</sup> A rugged south-southwest trending drainage no more than three miles long, the coulee had coal seams exposed in both walls. Hand picks and shovels were the tools of the trade for the coulee's early homesteaders turned miners, and most of these individuals extracted little more than enough coal to heat their homes and maybe those of a few neighbors over the winter. By 1884, if not sooner, mining activities had spread from Sand Coulee to other sections of the field. Abner McGiffin and Charles Culbertson, for example,

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<sup>42</sup> "Great Falls, Montana, Historic and Scenic," *The Tribune* (Great Falls), 1899, 69; Giannini, *Sand Coulee: An Early Coal Mining Town*, 8; George Irwin Erickson, "A History of Sand Coulee, Montana 1880 through 1900" (masters thesis, Montana State University, 2008), 7.



worked a deposit a few miles to the south. They reportedly walked two miles from their ranch to their coal mine and back again each day, “weather permitting.”<sup>43</sup>

While Sand Coulee remained the exclusive domain of homesteaders, a St. Paul industrialist turned Montana sheep rancher, Paris Gibson, began promoting its coal as a potential source of locomotive fuel for James J. Hill and his westward-building railroad empire. Gibson, who knew Hill from his days in St. Paul, had kept his old friend apprised of the natural resources of northern Montana since relocating to the area in the late 1870s. The Great Falls of the Missouri River, not coal, however, had captivated Gibson’s attention the most. Located only about 12 miles northwest of Sand Coulee, the Great Falls dropped the river more than 400 feet in elevation within less than 15 miles. Gibson envisioned this tremendous source of hydropower as forming the foundation for the rise of a major industrial metropolis on the Montana plains. As he well knew, direct railroad connections to outside markets were crucial to the Great Falls’ development. As of the early 1880s, however, what eventually became the main line of Hill’s Great Northern Railway still lay many hundreds of miles away from Montana, extending from St. Paul to Grand Forks, North Dakota only.<sup>44</sup>

In 1882, Gibson convinced Hill to join him in acquiring land at the Great Falls. Hill paid little attention to his Montana investment, however, until early summer of 1884 when he traveled to the territory to inspect its natural and industrial resources for himself. Hill initially met Gibson and Helena entrepreneur Charles A. Broadwater at Great Falls. The expedition investigated the falls as well as the Sand Coulee coal field extensively before heading southwest to visit the great gold mines in the vicinity of Helena and the burgeoning copper mining industry at Butte. Certainly, the potential for tremendous profit in transporting Butte copper impressed Hill the most. However, he additionally saw the great possibility for processing ore from Butte and other mining districts throughout Montana at reduction works powered by the Great Falls and/or Sand Coulee coal.<sup>45</sup>

In consultation with Broadwater, Hill began planning for construction of a railroad that would link the westward-building Great Northern to Butte and Helena, and possibly Great Falls. Providing a connection to Great Falls hinged in large part on the suitability of Sand Coulee coal for industrial consumption. In the words of one historian, Hill communicated to Gibson that

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<sup>43</sup> William David Junkin, “A Montana Chronicle,” 2 December 1930, typed manuscript, p. 1, 8, on file Small Collection 1948, Folder 1, Montana Historic Society Research Center, Helena; Eden Area Historical Committee, *A Century in the Foothills 1876 to 1976* (self-published, 1976), 44. The coal claim first opened by McGiffen and Culberson developed into what became known as the Giffen Mine (see Section 4.B.2).

<sup>44</sup> Bryans, “Transcontinental Railroads and Coal Mining,” 183-85; Malone, Roeder, and Lang, *Montana: A History of Two Centuries*, 158, 179; Elwen B. Robinson, *History of North Dakota* (Lincoln: University of Nebraska Press, 1966), 141-42. Bryan’s dissertation is of particular interest because it relies heavily on correspondence and other primary sources in the James J. Hill Collection at the Minnesota Historical Society.

<sup>45</sup> Bryans, “Transcontinental Railroads and Coal Mining,” 185-86; U.S. Treasury Department, *Report on the Internal Commerce of the United States for the Fiscal Year 1889: Part II of Commerce and Navigation*, by William F. Switzler (Washington, DC: Government Printing Office, 1889), 516.



“there was no reason to build a road to the falls unless the nearby coal deposits could complete the existing Bozeman fuel.”<sup>46</sup>

In the fall of 1884, Hill sent two specialists to Sand Coulee to examine the field and assess its coal each on their own or independent of each other. One of the specialists was the manager of Hill’s Iowa coal properties, Hamilton Browne, and the other John S. Newberry, a professor at Columbia University’s prestigious school of mines. The findings of the two men contrasted sharply. For his part, Browne dismissed Sand Coulee coal as a poor-quality lignite of no value other than for use as a domestic fuel in the immediate area. He punctuated his disdain for Sand Coulee coal to Hill, stating that, “I would not take it as a gift and be obligated to work it.” Newberry, on the other hand, endorsed Sand Coulee coal with enthusiasm, impressed by its regularity, accessibility for mining as well as its quality which had proven far better than he had expected. Newberry, in fact, claimed Sand Coulee coal was as good as that mined for railroad fuel in Iowa and Wyoming as well as the known coal deposits near Bozeman.<sup>47</sup>

Newberry’s favorable report seemingly impressed Hill more than Browne’s, but not enough for him to start investing in the field. Instead in the summer of 1885, Hill dispatched still another but far lesser known coal man, Charles Lockray, to Sand Coulee. Lockray and a work crew conducted a rudimentary program of core drilling designed to sample as well as determine the general extent of the deposit. It took several months to complete the job. In the end, though, Lockray’s tentative assessment concluded that Sand Coulee coal was sufficient in quality and quantity for commercial-scale production.<sup>48</sup>

Encouraged by another positive assessment, in late 1885 Hill requested Broadwater to acquire the coal lands in the field which Lockray had determined of most value.<sup>49</sup> A number of individuals with Helena, Minnesota, and/or railroad connections filed on coal claims at Sand Coulee at that time, presumably with the understanding Broadwater would buy up their claims

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<sup>46</sup> Bryans, “Transcontinental Railroads and Coal Mining,” 187-88.

<sup>47</sup> Ibid., 188-89. Bryans provides a very detailed account of the exploration activities conducted at Sand Coulee in advance of the Great Northern’s arrival. It is largely based on correspondence between Hill and others.

<sup>48</sup> Ibid., 193-94.

<sup>49</sup> Ibid., 194.



for the \$10 an acre filing fee and perhaps a small profit.<sup>50</sup> As of late February 1886, Broadwater held as many as 13,000 acres in the area for which he had reportedly paid \$18,000 total.<sup>51</sup>

Sand Coulee appeared on the verge of major development that spring when the Montana Central Railway started grading its line from Great Falls to Helena and Butte. Broadwater and Hill had organized the Montana Central under the laws of Montana early in 1886, and Broadwater became the new company's acting president. By the end of the summer, the grade was essentially complete and ready to receive tracks. At that time, Hill decided to delay further work on the Montana Central until after the Great Northern reached Great Falls.<sup>52</sup>

Construction of the Great Northern into Montana proved a massive effort. Work began at Minot, the railroad's temporary terminus in north-central North Dakota in April 1887. Over the next six months, a labor force of nearly 9,000 men hurriedly built the Great Northern from Minot west to Havre and from Havre southwest to Great Falls, a total of 550 miles. A month after the Great Northern steamed in, the Montana Central was completed northward from Helena and joined it at Great Falls. Regular train service to Butte started about a year later in November 1888.<sup>53</sup>

Meanwhile as the Great Northern pushed toward Montana, Broadwater grew increasingly concerned that the holdings at Sand Coulee lacked sufficient reserves to satisfy the fuel needs of the Montana Central and Great Northern both. He turned to Hill and requested that a Minneapolis-based firm known as the Sand Coulee Coal Company be approached about the 640 acres it owned in the field. This Sand Coulee Coal Company had incorporated under the laws of

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<sup>50</sup> Some of the early claimants were Sidney and Lucia Edgerton (Montana territorial governor and one of his daughters), George F. Piper (Minneapolis businessman in grain commissions, stocks, and bonds), John A. Willard (Minnesota railroad executive), William A. Chessman (wealthy Helena businessman), Shirley C. Ashby (president of Helena National Bank), and Martin Maginnis (Montana representative to U.S. House of Representatives): U.S. Bureau of Land Management, "Land Patent Details, General Land Office Records," for Sections 25, 26, 34, and 35, Township 19 North, Range 4 East, and Sections 7, 17, and 18, Township 19 North, Range 5 East, accessed on-line at <http://www.gloreCORDS.blm.gov/PatentSearch>; "The Edgerton Database," accessed on-line at <http://freepages.genealogy.rootsweb.ancestry.com/~edgerton/Sidney1818.htm>, 11 May 2009; Horace B. Hudson, editor, *A Half Century of Minneapolis* (Minneapolis: Hudson Publishing Company, 1908), 372; Minnesota Historical Society, "John A. Willard: An Inventory of his Letters at the Minnesota Historical Society," accessed on-line at <http://www.mnhs.org/library/findaids/P2294.html>, 11 May 2009; Susan R. Near, "Restoring History at the Original Governor's Mansion," *Montana: The Magazine of Western History* 58(1):68; Joaquim Miller, *History of Montana* (1894), accessed on-line at <http://files.usgwarchives.org/mt/lewisandclark/bios/ashby.text>, 11 May 2009; "Thinks it Will be Taft," *New York Times*, 23 June 1907. The federal government historically had two sets of filing fees for coal claims: \$10 an acre for claims 15 miles or more distant from a railroad, and \$20 an acre for those within the 15-mile limit, see: Arthur J. Hoskin, *The Business of Mining* (Philadelphia: J.B. Lippincott Company, 1912), 46.

<sup>51</sup> Giannini, *Sand Coulee, An Early Coal Mining Town*, 31; Bryans, "Transcontinental Railroads and Coal Mining," 194-95. Although not directly, Bryans' account suggests that Broadwater transferred the coal lands he acquired at Sand Coulee to the Montana Central Railway with little delay.

<sup>52</sup> Bryans, "Transcontinental Railroads and Coal Mining," 194-96, 199; Malone, Roeder and Lang, *Montana: A History of Two Centuries*, 179.

<sup>53</sup> Malone, Roeder and Lang, *Montana: A History of Two Centuries*, 158, 179; U.S. Treasury Department, *Report on the Internal Commerce in the United States, Fiscal Year 1889*, by Switzler, 516.



Minnesota very shortly after Hill first visited the Great Falls and the Sand Coulee coal field in the early summer of 1884. It apparently represented a group of speculators anticipating that Hill, if not another railroad operator, would soon build to the same area. In early June 1887, Hill's Great Falls associate, Paris Gibson, acquired an option on Sand Coulee Coal's 640 acres, most of which apparently were located toward the upper (southern) of the Sand Coulee drainage. Gibson's option was presumably satisfied within the next few months. In common with the coal lands previously acquired by Broadwater, the Montana Central became the owner of record.<sup>54</sup>

Development of the railroads' coal mine at Sand Coulee started not too long after the Great Northern reached Great Falls. By then, Hill and Broadwater had decided to exploit a promising coal deposit at the former Sand Coulee Coal Company holdings along the east side of the Sand Coulee Creek drainage. A small force of miners opened a tunnel in the side of the coulee and began drifting in the deposit in the early spring of 1888. Full-scale operations at the Sand Coulee Mine, as the property became known, however, waited the arrival of Montana Central's branch line from Great Falls to Sand Coulee. Track crews rolled into the coulee and completed the branch line its full 14.53 miles to its final terminus at the mine in July. The first trains to steam down the line probably hauled in coal cars ordered in the previous spring as well as construction materials and mining equipment.<sup>55</sup>

Within days of the Montana Central's arrival to Sand Coulee, some of Hill's associates at the Great Northern officially reorganized the Sand Coulee Coal Company to own and operate the mine. In common with the old Sand Coulee company, the new company's articles of incorporation were prepared and filed under the laws of Minnesota. Sand Coulee Coal's corporate makeup clearly reflected its strong ties to the Great Northern. Hill became Sand Coulee Coal's first president, the same office he held at the Great Northern. Other Sand Coulee Coal officials included the railroad's vice president Allen Manvel, secretary-treasurer Edward Sawyer, lawyer William P. Clough, and solicitor M. D. Grover. The Great Northern further

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<sup>54</sup> Bryans, "Transcontinental Railroads and Coal Mining," 194-95, 199-200; Minnesota Secretary of State, Corporations, Sand Coulee Coal Company, File 22207-AA, "Business Organizations Inquiry," accessed on-line at [http://da.sos.state.mn.us/corp\\_inquiry-entity.asp](http://da.sos.state.mn.us/corp_inquiry-entity.asp), 5 March 2009. The Minnesota Secretary of State's inquiry form for Sand Coulee Coal Company lists that the company filed its articles of incorporation on June 19, 1884. In 1899, a special edition of the Great Falls Tribune promoting Great Falls reported that a "Captain Farnsworth of St. Paul started mining coal at Sand Coulee ...in 1884, previous to the construction of the railroad." It is plausible that this individual was associated with the first Sand Coulee Coal Company, see "Great Falls, Montana, Historic and Scenic," *The Tribune* (Great Falls), 1899.

<sup>55</sup> Hidy and others, *Great Northern Railway*, 391; Giannini, *Sand Coulee, An Early Coal Mining Town*, 18, 32; Bryans, "Transcontinental Railroads and Coal Mining," 200; St. Paul, Minneapolis & Manitoba Railway Company, *Ninth Annual Report of the St. Paul, Minneapolis & Manitoba Railway Company, Fiscal Year Ending June 30<sup>th</sup>, 1888* (St. Paul: The Pioneer Press Company, 1888), 17.



ensured its control over operations at the Sand Coulee Mine through its acquisition of all of Sand Coulee Coal's capital stock, issued in payment for the property.<sup>56</sup>

The Sand Coulee Mine came into "commercial production" in September or October of 1888. Expectations of an abundant and steady supply of coal from the mine thereafter ran high, in no small part due to the fact it had been equipped with two coal cutting machines, the latest and one of the more important advancements of all time in coal mining technology. Although a significant upfront expense, miners could reportedly produce two-thirds again more coal with the machinery than they could by hand with picks, the traditional method for undercutting coal from a seam.<sup>57</sup>

The initial phase of mining at the Sand Coulee Mine, however, was far from successful. By the end of 1888, the main tunnel extended just 800 feet and coal shipments totaled about 800 tons only. Hill blamed the lack of progress on E. Anderson, the mine's manager who had been hand picked for the job by none other than Hill himself. Anderson apparently curtailed work after miners encountered a fault in the coal seam. Complaints from within the Great Northern and other customers that coal shipments from Sand Coulee contained excessive shale and other impurities additionally caused Hill to further question Anderson's competence to handle the operation. After just one year on the job, in August 1888 Anderson was fired.<sup>58</sup>

Hill replaced Anderson with Henry Burrell. A native of Scotland, Burrell immigrated to the United States while still a child in 1856. His family initially settled in Chicago, but following the death of his father shortly after their arrival, Burrell's mother relocated the family to Morris, Illinois. Henry and his brother Alexander apparently gained employment at coal mines in the area while still in their youth. They both worked underground for many years thereafter, and for a time ran a manufacturing business together in Chicago. Henry Burrell not only brought years of experience in the coal mining industry to Sand Coulee but also exceptional

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<sup>56</sup> Hidy and others, *Great Northern Railway*, 56, 73; St. Paul, Minneapolis & Manitoba Railway Company, *Ninth Annual Report, Fiscal Year Ending June 30<sup>th</sup>, 1888*, 17-18; *The Miscellaneous Documents of the House of Representatives for the First Session of the Fifty-First Congress, 1889-1890* (Washington, DC: Government Printing Office, 1891), 289-90; Montana Secretary of State, Corporations, Sand Coulee Coal Company, Folder F-000167, "Articles of Incorporation," 27 July 1888, on file, Montana Historical Society Research Center, Helena [subsequent citations for Montana Secretary of State documents for inactive corporations housed at the Montana Historical Society Research Center will not reference the repository].

<sup>57</sup> Erickson, "History of Sand Coulee," see text of footnote 245 on page 14; Bryans, "Transcontinental Railroads and Coal Mining," 201-02; Andrew Roy, "Coal Cutting Machinery in Ohio Mines," *The Ohio Mining Journal* 1, no. 3 (15 May 1883): 114-15.

<sup>58</sup> Bryans, "Transcontinental Railroads and Coal Mining," 201-02; *Western Mining World* 5, no. 110 (24 October 1896): 208.



skills in getting the most out of a labor force while earning and maintaining the respect of the men.<sup>59</sup>

Sand Coulee Coal's mining operations improved rapidly after Burrell took charge. By the end of 1889, the employment roster at the mine neared 300 and production levels hit between 1,000 to 1,200 tons of coal daily.<sup>60</sup> The year-end production total for the mine likely was well in excess of 166,000 tons, or virtually all of the 166,480 tons of coal reportedly mined in Cascade County in 1889.<sup>61</sup>

Most of the Sand Coulee Mine's coal production in 1889 went to the Great Northern. The fuel fired the locomotives for all of the railroad's traffic between Great Falls and Butte as well as 40% of that between Great Falls and Grand Forks.<sup>62</sup> Other important consumers of Sand Coulee coal in the year included ACM's huge copper smelter at Anaconda, the Parrott and other fuel-hungry reduction works at Butte, a new silver-lead smelter at Great Falls, and a number of smaller smelters elsewhere in Montana. The amount of coal hauled by the railroad to Butte and Anaconda alone had grown to a rate of 400 tons daily.<sup>63</sup>

The Great Northern's main rival in Montana, the Northern Pacific, also began to rely on Montana coal as a major source of locomotive fuel for the first time in 1889. The impact of the two railroads on Montana's coal industry proved significant, being almost completely responsible for a nine-fold plus increase in statewide production from a total of 41,467 tons in 1888 to 363,301 tons in 1889. As indicated above, 166,480 tons of the latter, or between one-third and one-half, came from Cascade County. The Northern Pacific's coal subsidiaries operated mines in Montana's next top coal-producing counties for the year, Park and Gallatin Counties. Annual production for those two counties combined equaled 191,138 tons.<sup>64</sup>

Mining and production at the Sand Coulee Mine continued steady and strong until the early spring 1890. At that time, the Operating Department at the Great Northern complained to Hill that it took twenty-five to thirty percent more Sand Coulee coal per mile to fuel a locomotive than it had in the previous year. The news alarmed Hill greatly, coming at the onset

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<sup>59</sup> Joaquin Miller, *An Illustrated History of the State of Montana* (Chicago: Lewis Publishing Company, 1894); William Wilson, "Some Comments on Early Sand Coulee, Montana," ca. 1978, 1-2, Small Collection 1489, Montana Historical Society Research Center, Helena. Several of his fellow country men traveled out west with Henry Burrell when he came to work at the Sand Coulee Mine in 1888, including his brother Alexander apparently. That same year, Alexander Burrell found employment as the supply agent at one of Montana's most prosperous gold properties, the Drumlummon Mine at Marysville. He became the superintendent of mining at the Drumlummon in 1893.

<sup>60</sup> Erickson, "History of Sand Coulee," 148; Bryans, "Transcontinental Railroads and Coal Mining," 202.

<sup>61</sup> *Mineral Resources, 1889 and 1890*, 228-29; G. C. Swallow, *Coal Mines of Sand Coulee* (Helena: William, Thurber & Co., 1889), 4, Pamphlet 4316, Montana Historical Society Research Center, Helena; *Western Mining World* 5, no. 110 (24 October 1896): 208.

<sup>62</sup> Bryans, "Transcontinental Railroads and Coal Mining," 205.

<sup>63</sup> Swallow, *Coal Mines of Sand Coulee*, 4.

<sup>64</sup> *Mineral Resources, 1889-1890*, 228-29.



of construction of the Great Northern westward from Havre to Everett and Seattle, Washington on the Puget Sound. Sand Coulee Coal apparently responded to Hill's concern by closing part of the mine and sending prospectors in search of cleaner coal elsewhere in the works. Ninety men received lay-off notices pending a return to full-scale mining.<sup>65</sup>

The lay-off triggered the first period of unrest between the company and its workforce. Almost immediately, 100 "non-miners" went on strike. Work underground did not cease completely but slowed even more, as did production. A second strike followed in mid-August, this time led by a group of contract miners demanding an increase in pay from \$1 to \$1.25 per ton. After the strikers formed a union, assisted by labor organizers from Butte, Sand Coulee Coal shut down the mine completely. The union requested that Burrell intercede and set up arbitration meetings with Hill. No meetings are unknown to have occurred, but by late September the strike had ended and the mine reopened.<sup>66</sup>

Operations at the Sand Coulee Mine recovered slowly. By mid-summer 1891, the company apparently was back in good coal. Production increased to what it had been prior to the strike, while the workforce at the mine reached an all-time high of 400.<sup>67</sup> Even at that, mining at Sand Coulee could not keep pace with the Great Northern's ever growing demand for coal as it pushed construction of its railroad hurriedly west. The mine's annual output in coal increased by no more than 40,000 tons between 1891 and 1892, while the Great Northern's transcontinental line had passed over the Cascade Mountains and was on its final construction leg to Puget Sound.<sup>68</sup>

Additionally in 1892, Sand Coulee Coal acquired another important customer for its product, the Boston and Montana Consolidated Copper and Silver Mining Company (Boston and Montana) and its new smelter at Great Falls. A leading producer of Butte copper, second only to ACM, the Boston and Montana had been encouraged to relocate its reduction works from pollution-ridden Butte to Great Falls by offers of free hydropower for five years, a rebate on freighting charges from the Great Northern and, apparently, pledges of an amply supply of Sand Coulee Mine coal. Boston and Montana required the coal for firing 24 gas producers at the new smelter's reverberatory furnaces.<sup>69</sup>

In order to facilitate a substantial increase in production, in 1893 Sand Coulee Coal retooled the mine with state-of-the-art Harrison-Pick coal cutting machines. The heavy investment in machinery proved well worth the expense. Daily yields in coal grew in excess of

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<sup>65</sup> Erickson, "History of Sand Coulee," 149; Bryans, "Transcontinental Railroads and Coal Mining," 205-06; Malone, Roeder and Lang, *Montana: A History of Two Centuries*, 181.

<sup>66</sup> Erickson, "History of Sand Coulee," 149-54.

<sup>67</sup> Ibid., 154.

<sup>68</sup> Malone, Roeder and Lang, *Montana: A History of Two Centuries*, 181; *Mineral Resources*, 1893, 322.

<sup>69</sup> *Engineering & Mining Journal* 53 (13 February 1892): 213; Michael Malone, *The Battle for Butte: Mining and Politics on the Northern Frontier, 1864-1906* (Seattle: University of Washington Press, 1981), 49; Fredric L. Quivik, "The Great Falls Smelter: Some Reflections on Its Significance," paper presented at the Montana History Conference, Great Falls, Montana, 1982, 3-6.



2,000 tons during the year, while the company's cost of mining dropped \$0.24 cents per ton. In its annual report on Montana's mineral industry, the U.S. Geological Survey credited improvements at the Sand Coulee Mine with more than doubling Cascade County's annual coal production from 242,120 tons in 1892 to 516,560 tons in 1893. The tremendous increase placed Cascade County ahead of Park County once again as the top coal producer in all of Montana.<sup>70</sup> Operations at the Sand Coulee Mine contributed the vast bulk of the Cascade County's ever growing output of coal again in 1894 and 1895.<sup>71</sup> Virtually all of the railroad traffic on the Great Northern's western division between St. Paul and the Cascade Range now ran on Sand Coulee coal.<sup>72</sup>

Sources consulted provided some details about the state of underground development and surface improvements at the Sand Coulee Mine as of the early to mid-1890s. The mine featured a double-entry system, or two main haulage tunnels separated by a 50-foot wall of coal. Smaller side tunnels broke off from a main tunnel and accessed rooms, the primary coal producing area of the mine. When mined out, rooms averaged about 35 feet wide each and were separated by about 15-foot-thick pillars of coal.<sup>73</sup> By early 1893, both of the main tunnels were about 1¼ miles long and many, many rooms deep. The linear workings all told, including the main and side tunnels, reportedly aggregated 7,600 feet in length as of late 1895. Huge fans circulated fresh air through the two sides of the mine (one each), supplying 200 cubic feet of air per minute for each man and 950 cubic feet per minute for each mule underground. The main tunnels served as the outcasts for the fans. Explosive gases were unknown, thus far.<sup>74</sup>

Initially, Sand Coulee Coal relied on mules and horses to pull coal cars from a room all the way to the surface. In late 1890 or early 1891, it replaced the use of animal power in the two main tunnels with tail-rope haulages. These were powerful systems, each able to pull a trip of 50 to 70 coal cars out of the mine at speeds of 20-30 miles per hour. Their installation at the Sand Coulee Mine was among the first, if not the first, in the nation.<sup>75</sup>

Coal cars brought to the surface unloaded into a tippie at the mouth of the main tunnels (one tippie per tunnel). Sand Coulee Coal employed steam-powered scatters to disperse coal

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<sup>70</sup> *Mineral Resources*, 1893, 321-22.

<sup>71</sup> *Mineral Resources*, 1894, 147; U.S. Secretary of Interior, *Report of the Secretary of Interior Being Part of the Message and Documents Communicated to the Two Houses of Congress at the Beginning of the Second Session of the Fifty-Fourth Congress*, vol. 3, pt. 3 (Washington DC: Government Printing Office, 1896), 454 [citations for subsequent Secretary of Interior reports to Congress will be listed only by abbreviated title, year and page number(s) only.]

<sup>72</sup> *Anaconda Standard*, 19 January 1894.

<sup>73</sup> Erickson, "History of Sand Coulee," 162-63.

<sup>74</sup> *Anaconda Standard*, 19 January 1894; Montana Inspector of Mines, *Seventh Annual Report of the Inspector of Mines of the State of Montana, December 1, 1895* (Helena: State Publishing Company, 1896), 42 [subsequent citations for Montana Inspector of Mines reports will be by author, abbreviated title, year and page number(s) only.]

<sup>75</sup> Giannini, *Sand Coulee, An Early Coal Mining Town*, 32; Erickson, "History of Sand Coulee," 164; *Anaconda Standard*, 19 January 1894.



discharged from the chute of a tipple into railroad cars for shipment. Tracks of the railroad's Sand Coulee branch line ran directly below the tipples on the coulee floor (Figures 4 and 5). Other known surface improvements at the mine included an office building, two stone buildings and a stable, all constructed prior to early 1890. Additionally, Sand Coulee Coal developed over the years a huge complex of houses for its employees. Miners and labors paid rent to the company to live in one of its houses.<sup>76</sup>

Sand Coulee Coal enjoyed another banner year of production in 1896. That December, the daily output of coal at the mine reached an all time high of 2,700 tons.<sup>77</sup> Even as operations peaked, however, signs that not all was well at Sand Coulee and a slow down in operations was imminent had appeared. The first and perhaps most telling of those came in September or October 1896 when longtime manager Henry Burrell resigned. It seems plausible that he did so, in part, to avoid the pain and hardship of the substantial layoffs of his men destined to come. Not too long thereafter, Sand Coulee Coal began investigating other coal properties in the field but outside the Sand Coulee area. Initial efforts were focused at Armington near Belt where ACM was sponsoring a major new coal and coke operation to supply the Anaconda Smelter (see Section 4.C.1). Before the end of the year, Sand Coulee Coal ordered Burrell's replacement, Louis Stockett, to head another prospect project at coal loads much closer at hand in Cottonwood Coulee, a tributary of the first major drainage east of Sand Coulee Creek.<sup>78</sup>

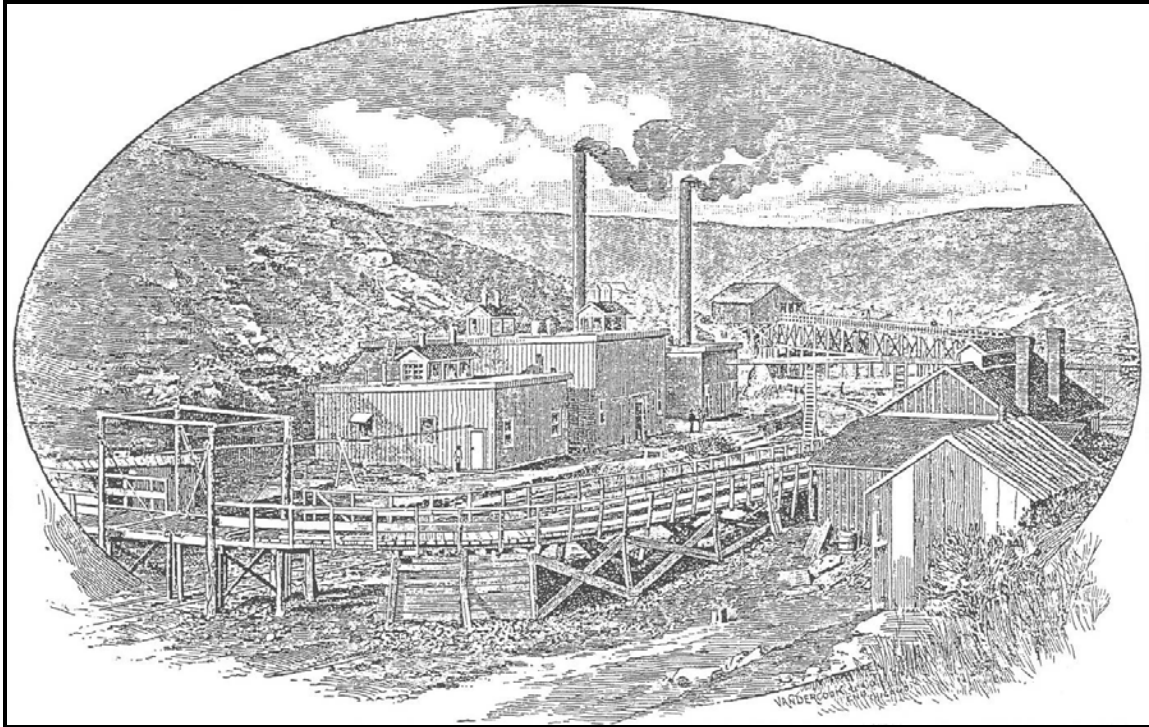
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<sup>76</sup> Giannini, *Sand Coulee, An Early Coal Mining Town*, 1-2; Erickson, "History of Sand Coulee," 163-64; Montana Secretary of State, Corporations, Sand Coulee Coal Company, Folder F-000167, [statement for certification to conduct business in Montana], 7 February 1890.

<sup>77</sup> Erickson, "History of Sand Coulee," 190.

<sup>78</sup> *Western Mining World* 5, no. 103 (5 September 1896): 182; 5, no. 108 (10 October 1896): 182; 5, no. 113 (14 November 1896): 253; 6, no. 121 (9 January 1897): 39; *Belt Valley Times*, 14 January 1897.





**Figure 4. Artist's sketch of Sand Coulee Coal surface works in about 1889  
(from *Great Falls Leader Annual* [1890], 25).**



**Figure 5. Undated photograph of Sand Coulee Coal Mine, probably taken in mid- to late 1890s  
(courtesy of The History Museum, Great Falls).**



By mid-spring 1897, Stockett's prospecting team had discovered a seemingly large body of marketable coal at Cottonwood Coulee. Sand Coulee Coal sent more men and machinery to the site and started work on a tunneling project soon thereafter.<sup>79</sup> This preliminary development effort marked the beginning of what ultimately became a wholesale shift in operations from Sand Coulee to Cottonwood Coulee, or Stockett as the new mine soon became known (see Section 4.B.2).

Less than two months later, on May 1, 1897, Sand Coulee Coal discharged all of the single miners at the Sand Coulee Mine. According to the *Belt Valley Times*, the company claimed the workforce reduction necessary as they had "more men than work." With little apparent remorse, the company justified the preference given to married men because they and families "contributed more towards the mercantile department" or, in other words, purchased more goods at the company's store than bachelors did. They also occupied the majority of its housing stock. The dismissal of men sent shockwaves throughout Sand Coulee and set off rumors that the company planned to close down the mine completely.<sup>80</sup>

The Sand Coulee Mine continued, however, to see a comparatively high-level of mining and production, for awhile at least. The Montana Inspector of Mines' clearly indicated this in his year-end report for 1897, noting that:

The Sand Coulee Mine, owned and operated by the Sand Coulee Coal Mining Co. ... employs 500 miners and 100 others in the surface department.... There are thirty-two mining and ten drilling machines in use. Eleven engineers find employment in and around the mine, while 65 mules are required to haul the product from the workings to the haulage rope... The average product is 1800 tons per day most of which is consumed by the Great Northern Railway Co.<sup>81</sup>

Sand Coulee Coal's payroll for January 1898 turned out to be its largest ever, totaling \$50,000. Not too long after that, though, the company stopped new mining and started crews reverse mining or extracting the coal pillars from the depths of the mine forward.<sup>82</sup>

Early in the following June, the Great Northern's new coal subsidiary at Stockett, the Cottonwood Coal Mining Company, shipped the first few cars of coal from the property. At that time, the *Western Mining World* reported that the Stockett Mine would "not be put into significant production until the Sand Coulee mine was worked out."<sup>83</sup> Operations at Sand Coulee had slowed even more so by then and, as the Sand Coulee Coal further cut back on its

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<sup>79</sup> *Western Mining World* 6, no. 131 (20 March 1897): 182.

<sup>80</sup> *Belt Valley Times*, 6 May 1897; *Western Mining World* 6, no. 139 (15 May 1897): 278.

<sup>81</sup> Montana Inspector of Mines, *Report of the Inspector of Mines, 1897*, 38.

<sup>82</sup> *Belt Valley Times*, 17 February 1898; Montana Inspector of Mines, *Report of the Inspector of Mines, 1900*, 53.

<sup>83</sup> *Western Mining World* 8, no. 196 (18 June 1898): 296.



workforce, many of the unemployed found work with Cottonwood Coal. By late 1900, only 130 miners and 21 surface men worked at the Sand Coulee Mine.<sup>84</sup>

Sand Coulee Coal apparently ceased mining at Sand Coulee altogether and for good in 1901 or early 1902. A decrease in Cascade County's annual coal production by a substantial 333,988 tons in the former year spoke to the loss of its most prominent coal property.<sup>85</sup> There are no known accounts that the Sand Coulee Mine ever reopened.

The historic record generally attributed the decision to cease work at the Sand Coulee Mine: excessive operating expenses due to the 2 miles or more of haul to bring coal from the depth of the mine to the surface.<sup>86</sup> In recent years, historian George Erickson speculated on a variety of additional factors spurring the mine's closure. Most prominent of those was the highly corrosive nature of Sand Coulee water on the mine's steam boiler system. As indicated by Erickson, acid water drainage from the Sand Coulee Mine polluted the coulee's creek to the point that its water was unfit for industrial use, let alone human consumption.<sup>87</sup>

A complete record of production for the Sand Coulee Mine from its initial opening in 1888 to the 1901-02 shutdown by Sand Coulee Coal is unknown. During its most active period, 1889-1898, however, the mine probably was responsible for one half if not considerably more of the nearly 7 million tons of coal mined in Cascade County. At the same time, Cascade County yielded over fifty five percent of Montana's coal output.<sup>88</sup>

Not too long after the Sand Coulee Mine closed, in 1904 Sand Coulee Coal sold to John "Henry" Adams a large portion, but not all, of the land at the mine site. Adams used the property for growing wheat. The Great Northern's old coal subsidiary remained the owner of record for most, if not all, of the remaining Sand Coulee Mine lands until April 1915. At that time, title to the property was transferred by deed from the Sand Coulee Coal Mining Company (a Minnesota corporation) to the Cottonwood Coal Mining Company (a Minnesota corporation; see Section 4.B.2).<sup>89</sup>

## **(2) Stockett**

Great Northern president James J. Hill commissioned the first known investigation of the coal beds at Cottonwood Coulee around mid-summer of 1886, or about 1½ years before he and

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<sup>84</sup> Ibid.; Montana Inspector of Mines, *Report of the Inspector of Mines, 1900*, 53.

<sup>85</sup> *Mineral Resources, 1901*, 401-02; *1902*, 396-97.

<sup>86</sup> Giannini, *Sand Coulee, An Early Coal Mining Town*, 46; Wilson, "Early Sand Coulee," 2.

<sup>87</sup> Erickson, "History of Sand Coulee," 201; *Western Mining World* 8, no. 196 (18 June 1898): 296.

<sup>88</sup> *Mineral Resources, 1889-1890*, 228-29; *1891*, 269-70; *1893*, 321-22; *Report of the Secretary of Interior to Congress, [1894-1895]*, 455-57; *1896-97*, 551-53; *1898-99*, 440-43. A *Great Falls Tribune* publication placed "the Sand Coulee mines" total coal production as of 1899 at 3.5 million tons, see "Great Falls, Montana, Historic and Scenic," *The Tribune* (Great Falls), 1899, 69.

<sup>89</sup> Wilson, "Reminiscences of Stockett," 1; Cascade County Clerk and Recorder, Deed Book 36, p. 558; Deed Book 80, p. 634.



his associates started developing the Sand Coulee Mine (see Section 4.B.1). An “obscure coal prospector,” Colin Napier conducted the Cottonwood Coulee investigation. He dug 12 small tunnels up and down the drainage and drilled several deep borings before concluding the area lacked much in the way of high quality coal.<sup>90</sup> No additional work occurred at Cottonwood Coulee for several years, while the Sand Coulee Mine adequately met the Great Northern’s needs for locomotive fuel on its western division.

Interest in Cottonwood Coulee coal renewed a decade later as the underground works at the Sand Coulee Mine grew too deep for cost-effective operations and its accessible coal reserves neared depletion, although still far from completely. At that time, in late 1896 the Great Northern’s operating subsidiary at Sand Coulee, the Sand Coulee Coal Mining Company, began prospecting the Cottonwood Coulee coal beds again. The company’s new mine manager, Lewis Stockett, headed the effort. Initial explorations apparently showed good promise or enough so that a small camp of houses for the coal prospectors appeared in the coulee in early January 1897. More men and equipment soon followed.<sup>91</sup> Exploration activities apparently came to fruition that spring when a “splendid body” of high quality coal was discovered.<sup>92</sup> The site of the discovery lay in the vicinity of the confluence of Cottonwood Coulee and one of its western side tributaries, Ladd Coulee.

Plans for major mining at Cottonwood Coulee started to solidify in the summer of 1897. Securing control of the coal lands was the first task at hand. In late July, Sand Coulee Coal advanced monies to Lewis Stockett and others for acquiring property which together comprised a total of 747.51 acres in the vicinity of the Cottonwood Coulee-Ladd Coulee juncture. Some were coal land claims and others were parcels purchased from the state of Montana. Stockett held a 160-acre claim in the group, while the other owners included Sand Coulee Coal’s Montana agent and attorney Arthur J. Shores (160-acre and 147.51 acre-claims), William C. Toomey (160-acre claim) and Frank Park (160-acre claim).<sup>93</sup> Although unverified, Toomey and Park may have been part of Stockett’s prospecting team.

Just days after that, Stockett and Shores of Sand Coulee Coal and Andrew Ricker, a resident of Great Falls, incorporated the Cottonwood Coal Company in Montana. Each of the three incorporators took a seat on the company’s initial five-man board of directors. Parties more directly associated with the Great Northern, however, dominated Cottonwood Coal’s top management. They included: President James Hill’s son-in-law, Samuel Hill (president and director); general superintendent of the railroad’s operations at Havre, Frank Ward (secretary and

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<sup>90</sup> Bryans, “Transcontinental Railroads and Coal Mining,” 197-98.

<sup>91</sup> Erickson, “History of Sand Coulee,” 190-91; *Western Mining World* 5, no. 108 (10 October 1896): 182; 6, no. 121 (9 January 1897): 39; *Belt Valley Times*, 14 January 1897.

<sup>92</sup> *Western Mining World* 6, no. 130 (13 March 1897): 170.

<sup>93</sup> W.S. Montgomery, “History of Cottonwood Coal Company of Montana,” [post 1927], 2, Great Northern Railway Collection; Anonymous, “Cottonwood Coal Company – A Time Line,” n.d., Mine Waste Cleanup Bureau, Montana Department of Environmental Quality, Helena; U.S. Bureau of Land Management, “Land Patent Details, General Land Office Records,” for portions of Section 31, T19N, R5E, accessed on-line at <http://www.glorerecords.blm.gov/PatentSearch>.



director); and Great Northern secretary, Edward Sawyer (treasurer). Shortly after incorporation, Shores, Stockett, Ricker, Hill and Ward received one share each of Cottonwood Coal's capital stock, leaving 4995 shares unsubscribed.<sup>94</sup>

In the following fall, Cottonwood Coal became invested with over \$180,000 in operating capital as well as the coal lands at Stockett, as its mining project and camp at Cottonwood Coulee soon became known. The infusion of money came directly out of the coffers of Sand Coulee Coal. It was earmarked for underground development activities, mining equipment and construction of a surface plant. Transfer of the coal lands to the company involved a somewhat complicated series of transactions. It essentially concluded with Frank Ward of the Great Northern gaining control of all of the company's remaining 4995 shares of stock, establishing him as the major stockholder by a wide-margin. In addition to the 747.51 acres originally acquired by Stockett and his associates, the company's new holdings included another 55.44 acres just east of Stockett.<sup>95</sup>

Work at Stockett progressed slowly over the next several months while Cottonwood Coal and manager Louis Stockett awaited the arrival of railroad service to the camp. During the project's prospecting phase of the previous winter and spring, thought apparently was given to running a tunnel between Cottonwood Coulee and Sand Coulee. That way, Stockett coal could be brought to the surface in Sand Coulee and loaded for shipment on the Great Northern's Sand Coulee branch line.<sup>96</sup> The idea quickly faded, presumably in no small part due to the fact that 1½ or more miles of tunnel and haulage would be required. Alternatively, in late October 1897, the Great Northern started crews grading a railroad bed from Lewis Junction on the Sand Coulee branch south up Cottonwood Coulee to Stockett, a total distance of just over 5.2 miles. The tracks of the Cottonwood branch, as the line became known, reached Stockett on January 4, 1898. The first train steamed into the camp that very same day, loaded with "materials for the erection of the mine."<sup>97</sup>

By then, three tunnels were open at Stockett, and Cottonwood Coal had started preliminary work on a single tipple to serve them all (Figures 6 and 7). The tipple stood over the railroad tracks on the bottomlands at the Cottonwood Coulee-Ladd Coulee juncture (Figure 8).

Stockett's No. 1 Mine lay to the east of the tipple, the No. 2 Mine was to the south, and the No. 3 Mine to the west. By early February 1898, the company had carpenters at work erecting trestles between the mines (one each) and tipple. Construction of other components of the mines' surface plant at the tipple site was underway or neared completion including a huge

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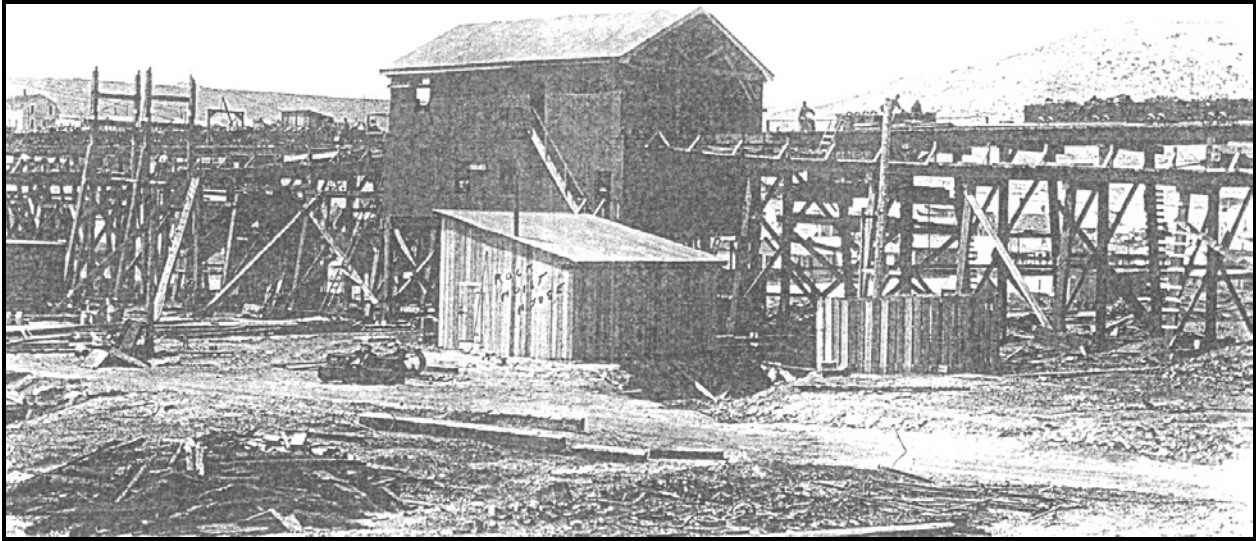
<sup>94</sup> Hidy and others, *Great Northern Railway*, 73; Montgomery, "A History of Cottonwood Coal Company of Montana," 2, 4; Anonymous "Cottonwood Coal Company – A Time Line," Montana Secretary of State, Corporations, Cottonwood Coal Company, Folder D-002779, "Articles of Incorporation," 4 August 1897.

<sup>95</sup> Montgomery, "A History of Cottonwood Coal Company of Montana," 2-5.

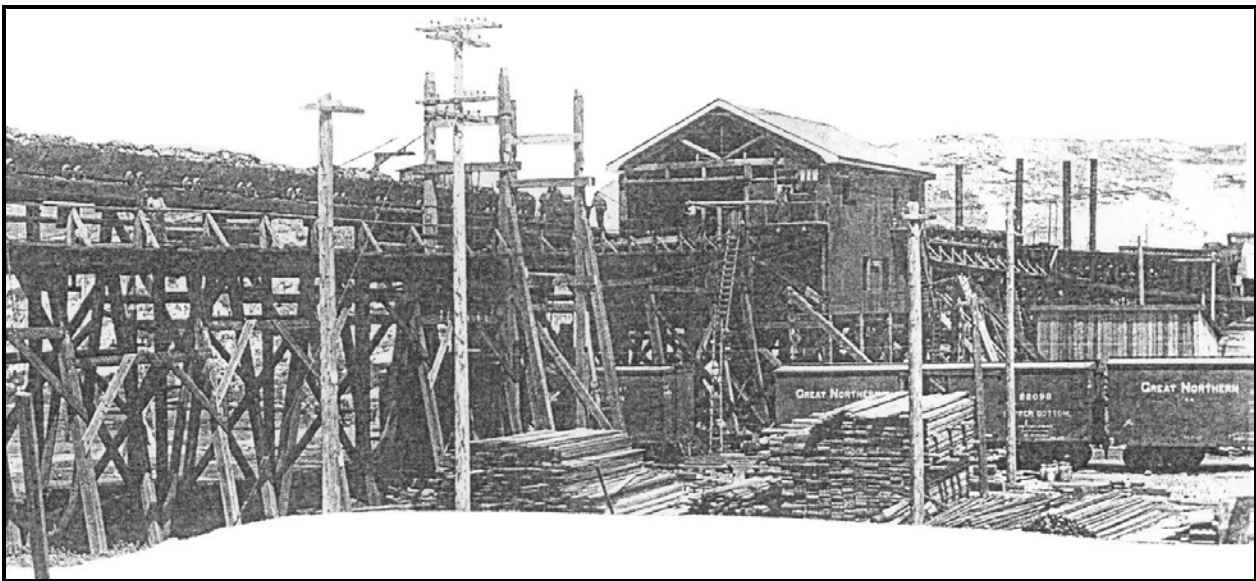
<sup>96</sup> *Western Mining World* 6, no. 130 (13 March 1897): 170.

<sup>97</sup> Hidy and others, *Great Northern Railway*, 320; Erickson, "History of Sand Coulee," 194; "Great Falls, Montana, Historic and Scenic," *The Tribune* (Great Falls), 1899, 69; Wilson, "Reminiscences of Stockett," 1.





**Figure 6. Undated photograph of Stockett tipple, taken between 1898 and 1903 (photocopy from Great Northern Railway Collection).**



**Figure 7. Another view of first tipple at Stockett, dating to turn of twentieth century (photocopy from Great Northern Railway Collection).**

boiler house and a compressed air plant among other facilities. About two months later, Cottonwood Coal fired up the boilers and blew the mines' steam whistle for the first time.<sup>98</sup>

One of the last, but by no means the least, of the construction projects undertaken was the engine house for the mines' rope haulage system. Crews fully excavated the foundation for the

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<sup>98</sup> U.S. Geological Survey, *Geology of the Great Falls Coal Field*, by Fisher, 61; *Belt Valley Times*, 16 December 1897; 3 February 1898; 14 April 1898.



building by early March, but putting up its masonry walls pended installation of the haulage engine itself. Manufactured by the Litchfield Car and Machine Company of Litchfield, Illinois, the machine was the largest haulage engine ordered for a project west of the Mississippi to date. It had a huge job to handle, pulling trips of loaded coal cars from a mine up to the tippie at a 20% grade. The haulage engine arrived at Stockett in early April 1898, accompanied by a Litchfield Company representative sent to oversee its installment. Other components of the rope haulage system, however, took much longer in coming than expected. The system finally became operational on June first or second.<sup>99</sup>

On June 4, 1898, the first, although few, railroad cars left Stockett loaded with coal.<sup>100</sup> By late June of the following year, the total coal output from the mines amounted to about 188,300 tons. The number of men and coal cutting machines employed at Stockett probably increased substantially in the ensuing months as operations at the Sand Coulee Mine declined ever more. By early 1900, Cottonwood Coal had opened another mine, the No. 4, north of the tippie. Additionally, a small electric plant began generating current to light the camp. As of late May 1900, the mines had yielded another 365,000 tons of coal, nearly double the production of the previous year.<sup>101</sup>

The Cottonwood Coal Company of Montana's tenure at Stockett proved short-lived. On or just a few days after June 1, 1900, it was superseded as the owner-operator of the mines by a new Great Northern subsidiary, the Cottonwood Coal Company of Minnesota. Although speculation only, it seems plausible that James J. Hill had decided to form the Minnesota version of Cottonwood Coal after favorable production indicated the Stockett Mines worthy of further investment. One of his sons and a Great Northern vice president, James N. Hill, and other railway executives filed the company's articles of incorporation with the Minnesota Secretary of State in early April 1900, or two months prior to taking full control of the Stockett Mines. James N. Hill assumed the office of president with the new company while Edward Sawyer became secretary-treasurer.<sup>102</sup>

The Montana Inspector of Mines, or a representative thereof, investigated the Stockett Mines not too long after the change in corporate control. By then, the No. 3 Mine had been abandoned but the other three mines all remained in operation. The tunnel at the No. 2 was the

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<sup>99</sup> "Great Falls, Montana, Historic and Scenic," *The Tribune* (Great Falls), 69; *Belt Valley Times*, 10 March 1898; 14 April 1898; 2 June 1898; *Western Mining World* 8, no. 196 (18 June 1898): 296.

<sup>100</sup> "Great Falls, Montana, Historic and Scenic," *The Tribune* (Great Falls), 69; *Western Mining World* 8, no. 196 (18 June 1898): 296.

<sup>101</sup> Montgomery, "A History of Cottonwood Coulee Company of Montana," 18, and accounting ledger for "Statements of Income Accounts;" ca. June 1900; *Mineral Resources*, 1899, 469; 1900, 406-07; *Belt Valley Times* 1 December 1898, 9 November 1899. RTI derived the estimates presented herein for Cottonwood Coal's total coal production from early June 1898 through late June 1899 and from late June 1899 through late May 1900 by dividing the gross income in coals sales reported in the company's "Statement of Income Accounts" by the average price of coal per ton in Cascade County in 1898, 1899 and 1900, as reported by *Mineral Resources*.

<sup>102</sup> Montgomery, "A History of Cottonwood Coulee Company of Montana," 7; "Cottonwood Coal Company of Minnesota," [post 1927], Great Northern Railway Collection; Montana Secretary of State, Corporations, Cottonwood Coal Company," F-000482, "Articles of Incorporation," 2 April 1900.



longest, measuring about 3,500 feet, followed by the No. 1 tunnel at about 2,600 feet and the No. 4 tunnel at 1,300 feet. Fifteen-foot fans ventilated the tunnels (one fan per mine). Louis Stockett still held the position of manager while John Pearson served as the mines' superintendent. The company employed 280 men underground and another 113 men on the surface.<sup>103</sup>

By around 1901, the No. 1 and No. 4 Mines had all but played out and Cottonwood Coal was seriously eyeing coal lands further west of Stockett for development. This heretofore largely unexploited deposit actually represented the southern end of the bed that the old Sand Coulee Mine had worked. The company presumably purchased the lands by or in early 1902. Engineering a haulage route to bring coals from what became the No. 5 Mine to Stockett for shipment presented some difficulties due an intervening hill and another branch of Cottonwood Coulee, a deep drainage over ¼ mile wide. Cottonwood Coal, however, was able to take advantage of the underground works at its north or No. 4 Mine as the access route through the hill (Figure 8). More precisely, it bore a tunnel from the No. 4's main tunnel west to the coulee and opened the new No. 5 tunnel directly across from it in the coulee's west wall. Carpenters then erected a tall timber trestle between the two mines at a hefty cost of \$17,800. The trestle along with the coulee that it spanned became known by the No. 5 name.<sup>104</sup>

Cars loaded with coal came out of the No. 5 Mine for the first time in late 1902.<sup>105</sup> A rope haul pulled the trip east across the trestle and through the No. 4 side tunnel, and then south through the main tunnel of the No. 4. As the trip left the No. 4, a man jumped on the front car and detached it from the rope haul, allowing the whole line of cars to continue by their own momentum to the tipple. As one early Stockett resident later recalled, the job of jumping the trip and detaching the rope was a "dangerous one," and even more so at times when the first few cars derailed as they hit a sharp curve just below tunnel.<sup>106</sup>

Shortly after the No. 5 Mine opened, Cottonwood Coal turned its attention to another major construction project, a \$43,000 breaker plant which utilized mechanical processes without the introduction of water for cleaning coal of impurities prior to shipment (Figure 9). Coal seams at Stockett were plagued by a comparatively high content of bone and shale as well as a very liberal scattering of pyrite nodules, commonly known as sulphur balls. The area lacked sufficient water resources, however, for washing much coal clean prior to shipment. A small jib plant operated by the company to wash nut coal only often stood idle due to the scarcity of water. At the same time, attempts at picking out impurities by hand had provided far less than satisfactory results.<sup>107</sup>

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<sup>103</sup> Montana Inspector of Mines, *Report of the Inspector of Mines, 1900*, 53

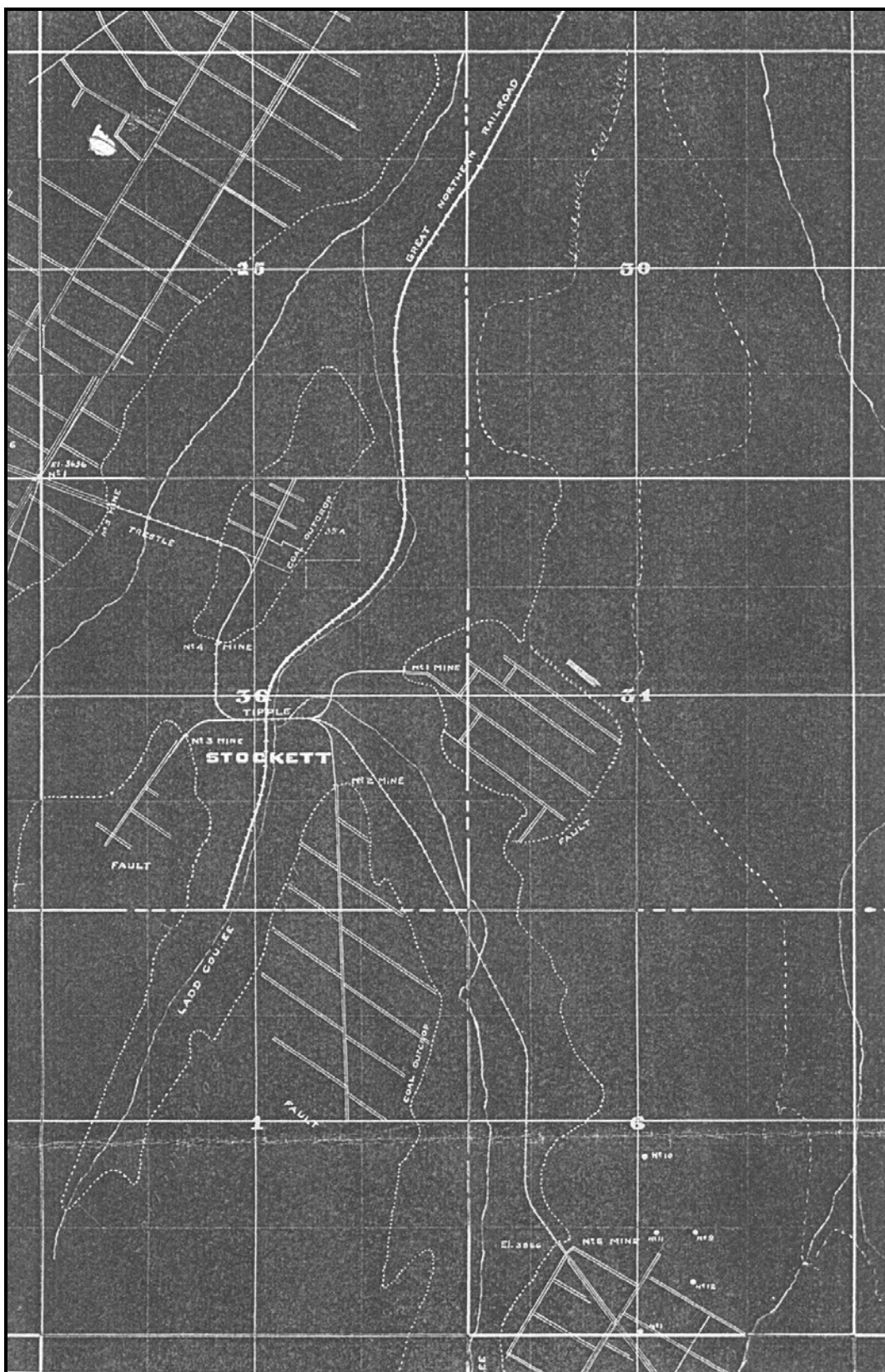
<sup>104</sup> Wilson, "Reminiscences of Stockett," 3; *Belt Valley Times*, 1 January 1903; F. E. Draper, memorandum to J.G. Drew, 4 June 1911, Great Northern Railway Collection.

<sup>105</sup> *Belt Valley Times*, 1 January 1903.

<sup>106</sup> Map of Stockett, ca. mid-1920, Great Northern Railway Collection; Wilson, "Reminiscences of Stockett," 5.

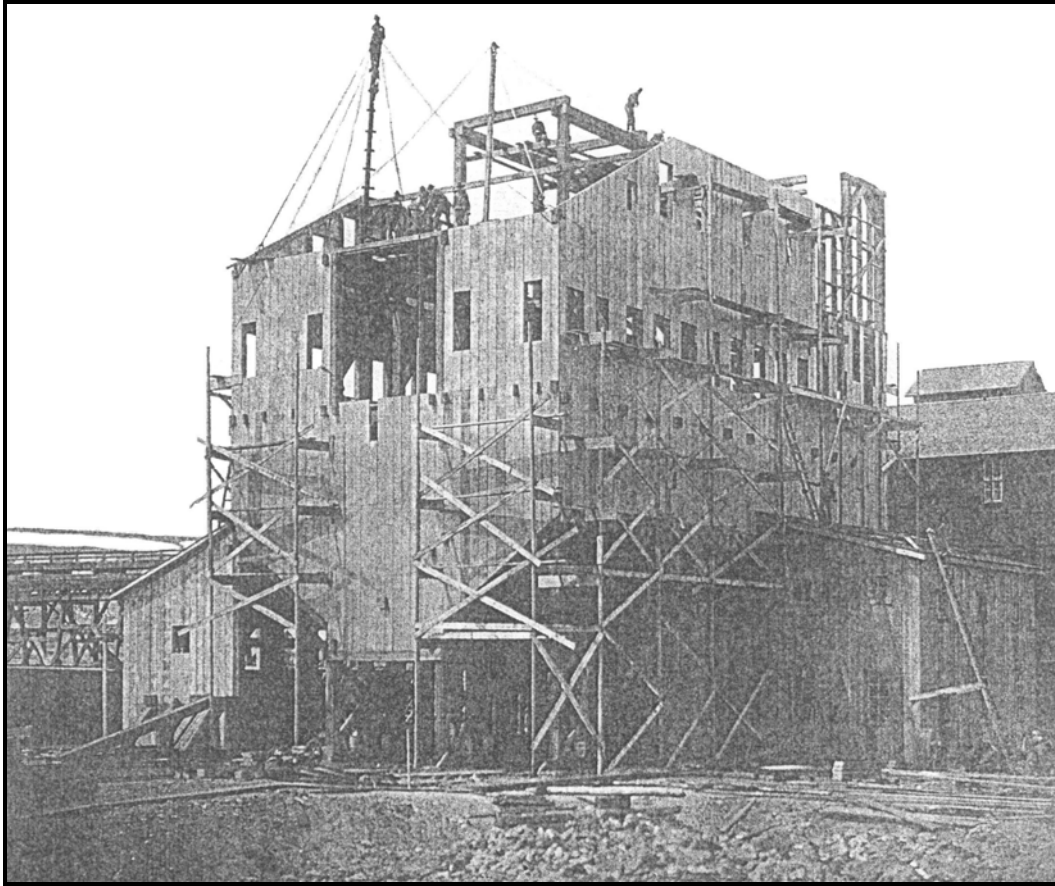
<sup>107</sup> Lewis Stockett, "A Bituminous-Coal Breaker," *Transactions of the American Institute of Mining Engineers* vol. 35 (1905): 32.





**Figure 8. Plan of Cottonwood Coal's mines at Stockett, showing tracks connecting all mines with centrally-located tippie (Great Northern Railway Collection).**





**Figure 9. Cottonwood Coal's coal breaker under construction (photocopy from Great Northern Railway Collection).**

Cottonwood Coal elected to construct the new coal breaker next to the old tippie. That way, the transfer of operations from the old to the new could be accomplished without interrupting the loading of coal into railroad cars for shipment. Workers broke ground for the coal breaker on March 16, 1903 and, just five months later almost to the day, the facility began processing coal. An all-wood structure, the coal breaker overshadowed the old tippie in both size and complexity, standing 81 feet tall and housing two operating levels between a ventilator on top of the structure and the coal chutes at the base (Figure 10).<sup>108</sup> Not too long after its completion, Lewis Stockett published a descriptive account of the operation, a consolidated version of which follows:

The coal, carried from the mine in pit cars of a capacity averaging about 1.5 tons to the car, is weighed on an automatic scale and thence dumped by the cross-over tippie ... over the bar screen ... which screens out that portion already small enough ... It [the coal] then falls on the shaking-screen ... which removes the slack from the coal. The slack is loaded directly into the railroad cars or taken to the boiler-room by means of a wire-rope conveyor ... [The]

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<sup>108</sup> Ibid., 32, 34-37. See pages 34-37 for section drawings of the coal breaker showing the arrangement of equipment.





**Figure 10. 1908 photograph of coal breaker at Stockett**  
(courtesy of The History Museum, Great Falls).

coal that goes over the shaking screen slides into a hopper ... from which it feeds into an elevator ... [which] elevates the material to the top of the building.

The coal ... passes over [another] screen [and] falls upon a traveling belt ... and from this belt any large pieces of slate or other impurities, machine-picks, car-couplings, sprags, etc. are removed by men ... . [The] coal [then] drops into the rollers ... which reduce the coal to a size not exceeding a 4-in. cube.

From the rollers the coal is elevated by a continuous elevator ... [and] is evenly divided over the shaking-screens ... [which] separate the coal into slack, pea-, stove-, egg- and broken sizes.

The slack resulting from the breakage of the coal is found to be clean, and, not needing any further preparation, it descends through the hopper ... to ... the conveyor ... and [is] taken directly to the mixed-coal bin .... The other sizes are fed by the means of the hoppers ... into spiral separators ... which separate the greater part of the impurities from the coal. ... This refuse is finally loaded into railroad-cars and used by the railroad for widening banks, etc.

From the spirals ... the coal drops on to two picking bands ... which convey it to the mixed-coal bin ... and [given] an opportunity to pick out by hand any impurities not removed in the spirals; from one set of spirals, inclined chutes ... pass the coal into bins ... for loading.

From the bins ... the coal is loaded into railroad-cars, a box-car loader being placed opposite the chute ... to load box cars.<sup>109</sup>

The coal breaker operated with great success, removing about 200 tons of impurities per every 2,000 tons of mine feed. The refuse from the breaker generally contained no more than 1% coal.<sup>110</sup>

<sup>109</sup> Ibid., 33-38.

<sup>110</sup> U.S. Geological Survey, *Geology of the Great Falls Coal Field*, by Fisher, 63.



For the next several years, Cottonwood Coal enjoyed the status as the leading producer of coal in Cascade County and the second, if not first, in the state. Available information indicated that the output of clean coal at Stockett ranged between 430,000 and 450,000 tons annually from 1904 to 1908, except when it peaked in excess of 570,000 tons in 1907 (Figures 11 and 12). Operations during that time were confined to the Stockett No. 2 and No. 5 Mines. The employment roster at the mines averaged about 450 men, and the company's complement of mining equipment included 36 Harrison cutting machines, 12 Ingersoll-Sargent punchers and 12 Rand air drills. The daily output of clean coal at the breaker (on active days) averaged 1,800 tons. By then, the Great Northern relied on Stockett coal to fuel traffic on its main line and branch line system in Montana only.<sup>111</sup>

In 1909, Cottonwood Coal acquired even more coal property at Stockett and opened yet another mine there.<sup>112</sup> The new Stockett No. 6 Mine was nearly 1½ miles up (south) Cottonwood Coulee from the coal breaker (Figures 3 and 8). Due to the fact the coulee descended down from the mine, however, a rope haul saw practical use for bringing loaded coal cars to the tipple. The No. 6 Mine presumably replaced the exhausted No. 2 Mine. Its addition to the company's operations contributed to a nearly half-million tons per year of production at Stockett in 1909.<sup>113</sup>

Stockett's output of coal remained fairly significant in the early to mid-1910s despite two serious set backs. The first of these occurred in the spring of 1911 when exceedingly high winds brought the No. 5 trestle down. The roar of the collapsing structure collapse reportedly was loud enough to be heard a half mile away in town. Cottonwood Coal rebuilt the trestle at great expense. Less than two years later, the coal breaker caught fire and burned to the ground. It appears to have been replaced by a smaller plant equipped with screens, crushers and a picking table.<sup>114</sup>

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<sup>111</sup> Ibid., 61; *Mineral Resources, 1904*, 513; 1906, 695; 1907, 151; University of Montana, *Montana Coal and Lignite Deposits*, by Rowe, 36; U.S. Bureau of Mines, *Analysis of Coals in the United States*, by Lord, 594; Morton, "Bounteous Nature"; Jesse Perry Rowe, "The Coal and Lignite Deposits of Montana – II," *Mining World* 28, no. 2 (2 May 1908): 718;

<sup>112</sup> Cascade County Clerk and Recorder, Deed Book 170, p. 331. This 1942 deed between the Cottonwood Coal Company and the Great Northern references the March 1909 deeds (Book 53, p. 599, p. 601) whereby Cottonwood Coal purchased the coal lands at the Stockett No. 6 mine (parts of Sections 6 and 7, Township 18 North, Range 5 East).

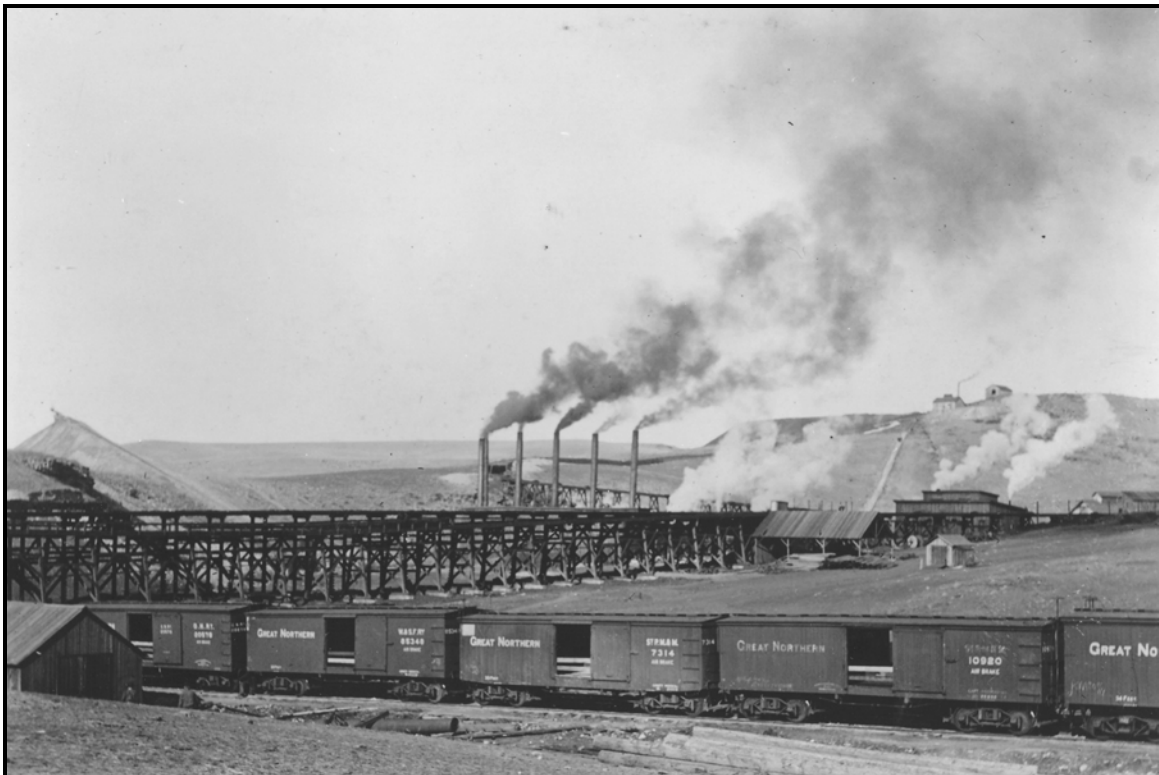
<sup>113</sup> Rowe, "The Coal-mining Industry of Montana," 847; Cottonwood Coal Co., "Map of NE¼, SW¼ Section 6 Twp. 18 North Range 5 East of Mont. Prin. Mer," April 1920, attached to correspondence from R.H. Wilson to G. R. Martin, 10 May 1902, Great Northern Railway Collection.

<sup>114</sup> Wilson, "Reminiscences of Stockett," 36; Correspondence from Draper to Drew, 4 June 1911, Great Northern Railway Collection; *The Mineral Industry, Its Statistics, Technology and Trade During 1913*, vol. 22, edited by G.A. Roush (New York: McGraw-Hill Book Company, Inc., 1914), 105; Sanborn Map Company, *Sanborn Map of Stockett, MONT, August 1916*. The 1916 Sanborn marks the height of tipple at 20 feet, or far shorter in height than the 80-foot coal breaker it replaced.





**Figure 11. Ca. 1905 photograph of Cottonwood Coal's surface plant, with community of Stockett in background (courtesy of Montana Historical Society Photographic Archives, Helena).**



**Figure 12. Another 1905 photograph of part of Cottonwood Coal's surface plant at Stockett (courtesy of Montana Historical Society Photographic Archives, Helena).**



Presumably in the early 1910s, Cottonwood Coal placed another mine in Cottonwood Coulee into production, the Stockett No. 7. While in the same drainage, the new mine was nearly three miles below (north of) Stockett and only about one mile east-south of Sand Coulee (Figure 3).<sup>115</sup> The No. 7 never came close to rivaling the No. 5 or No. 6 Mines in production.

About the time that the Stockett No. 7 Mine opened, rumors began airing in the press that Cottonwood Coal planned to relocate from Stockett to coal property it owned at Lehigh in Fergus County. The rumors came closer to truth in May 1913 when the company's new local manager, John Pearson, visited Lehigh and reported to residents that 60 men would be employed there soon. Mining at Lehigh began in 1914, and slightly less than 35,000 tons of coal were extracted before the year's end.<sup>116</sup>

Mining at Lehigh, however, fell far short of expectations, yielding an inferior coal product. As a result, Cottonwood Coal kept the Stockett No. 5 and No. 6 Mines active much longer than intended. In late 1919, the *Great Falls Tribune* reported that the 200 men employed at the mines averaged an output of 1,100 tons coal daily, while working 25 days a month.<sup>117</sup> Operations at Stockett continued at "near capacity" into the early 1920s.<sup>118</sup> Meanwhile, in 1921 Cottonwood Coal closed shop at Lehigh.<sup>119</sup>

Presumably the Stockett No. 5 and No. 6 Mines were all but exhausted when the Cottonwood Coal began working its new No. 8 Mine at Sand Coulee around 1923 (see Section 4.D.1). Three years later, on October 17, 1926, the company announced that the Stockett Mines would close on January 1, 1927. The No. 5 trestle was dismantled not too long after that.<sup>120</sup>

Cottonwood Coal remained an active mining concern in the Sand Coulee area another two decades after it abandoned Stockett. See the histories for the Giffen Mine (below) and the No. 8 and No. 9 mines at Sand Coulee (see Section 4.D.1 and 2).

### (3) *Giffen*

In the 1920s, Cottonwood Coal's long-time coal producers were heavily into their reserves. The Lehigh mines closed in 1921 and the Stockett mines in 1927, as the company tried

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<sup>115</sup> Marvene Raunig and others, *The Gulch Area History* (Great Falls: Advanced Litho Printing, 1990), 80.

<sup>116</sup> Anonymous, "Cottonwood Coal Company – A Time Line," *Fergus County Democrat*, 11 February 1913; 16 May 1913; "Lehigh Montana Mines 1 and 2," 1-2.

<sup>117</sup> "Strike of the Coal Miners Completely Paralyzes the Greatest Single Industry of Cascade County," *Great Falls Daily Tribune*, 9 November 1919

<sup>118</sup> Raunig and others, *Gulch Area History*, 37.

<sup>119</sup> "Lehigh Montana Mines History and Acquisition by the Great Northern Railway," 2.

<sup>120</sup> Paul Anderson, *Cultural Resource Inventory and Evaluation for Giffen, Antelope Creek, Upper Cottonwood (A), Upper Cottonwood (B), Upper Cottonwood (C), Tracy N.E., Stockett – Western, Cottonwood Coal Company No. 3, 4 and 5, Tracy, Tesinsky, Brown Rear Tunnel, Dahn, Nelson No. 1, Mount Oregon, Frantzich and Nelson No. 2 Mines in the Sand Coulee District, Montana* (Butte: GCM Services, Inc., 1983), 39, submitted to Montana Department of State Lands, Helena.



to resurrect a few old Sand Coulee mines (Nelson No. 1 and Gerber) to keep the coal supply flowing. Simultaneously, it was acquiring additional property up Number 5 Coulee, southwest of Stockett. That property came to be known as the Giffen Mine. It was the last of the Great Falls Coal Field mines that served the Great Northern.

Cottonwood Coal reportedly began its acquisitions with the coal lands of the Ed Gerber estate. These covered the old McGiffen and Culbertson mine which homesteaders had opened in the 1880s. Later apparently worked by others on a limited scale, it came to be held by members of the Gerber family who were also owners of the Gerber/Carbon Coal and Coke Mine just above the town of Sand Coulee. Perhaps as part of the same negotiations that landed the Gerber Mine in the hands of Cottonwood Coal, the land at what would become the Giffen Mine was also transferred to the company. Cottonwood Coal also acquired the coal rights to an additional 360 acres in the vicinity. Finally, there was a lease of 40 acres of federal lands, acreage rarely actively mined but used mostly to gain access to other property among Cottonwood Coal's holdings.<sup>121</sup>

It seems that Cottonwood Coal did not begin developing its Giffen Mine immediately. One source reported that the company had temporarily suspended all its area coal mining operations in about 1928. The decision to do so may have been based on ongoing efforts to convert its locomotives from coal- to oil-burning, and perhaps equally on a reluctance to go to the expense of opening a brand new mine. Whatever its reasons, Cottonwood Coal certainly returned to the coal business with vigor in 1930. By early summer, its crews were aggressively prospecting in upper No. 5 Coulee.<sup>122</sup>

The Giffen No. 1 Mine was put into production some unknown time between the fall of 1930 and late 1932. Late in 1931, Cottonwood Coal excavated a second mine opening, a new shaft to access its No. 2 Mine. This lay up the coulee from the No. 1.<sup>123</sup>

Harry F. Tilton served as the mine's general manager, heading crews that numbered between 225 and 275 men just prior to World War II. Underground, the mine operations came to represent a transition between the old and the new. When the mines opened, horses were used for some haulage, but during the life of the mine were replaced with mechanical equipment. Miners used eight machine cutters, and also six duckbill and 24 (shaker) conveyor loaders (self-

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<sup>121</sup> Eden Area Historical Committee, *A Century in the Foothills*, 45; Great Northern Railway, "Authority for Expenditure," Giffen, Stockett, Sand Coulee and Lehigh Mines, Montana, 14 August 1941, Great Northern Railway Collection; U.S. Department of the Interior, "Mining Lease of Coal Lands under Act of February 25, 1920," Serial No. 075578, 11 September 1933, and R.H. Allport, U.S. Geological Survey, Billings, correspondence to H.I. Smith, U.S. Geological Survey, Washington, DC, 8 January 1938, both from Bureau of Land Management Coal Lease Reports for Cottonwood Coal Company, copy on file, Mine Waste Cleanup Bureau, Montana Department of Environmental Quality, Helena. [Subsequent citations of all correspondence to Smith, on file at the Mine Waste Cleanup Bureau, will simply identify the correspondents' names and date of transmission.]

<sup>122</sup> R.H. Allport correspondence to H.I. Smith, 10 September 1930; Hidy and others, *Great Northern Railway*, 165.

<sup>123</sup> Eden Area Historical Committee, *A Century in the Foothills*, 45; R.H. Allport correspondence to H.I. Smith, 22 November 1932.



loading conveyors). Beginning in 1937, Cottonwood Coal replaced the latter with several Joy (mobile) loaders which speeded loading significantly. The loading rate increased by 20%, bringing down the price for getting out coal by 28 cents. Coal was delivered to the tippie via a belt conveyor. At the surface works, each of the mine openings had a tippie with three shaker screens and a picking belt (Figure 13).<sup>124</sup>

While the Giffen Mine proved to be a huge producer for Cottonwood Coal, it had a problem that the company's earlier mines rarely did---water in its underground workings. The Giffen No. 1 Mine flooded as the result of cloudbursts in September 1936 and July 1937. Pumping ensued, but crews were never able to entirely dewater the mine. Cottonwood Coal was forced to permanently close a portion of the No. 1 Mine in 1937. The No. 2 Mine was not free of water, though. For example, in April of 1942, snowmelt entered the mine at such a rate that 40 pumps were required to keep the water out.<sup>125</sup>

Regular production figures for the Giffen Nos. 1 and 2 Mines are not available in the sources consulted. When first opened, the No. 1 Mine was said to have a daily capacity of 1000 tons, and the No. 2 Mine 1500 tons. In the early 1940s, daily production reached over 2100 tons on at least one occasion. It was during World War II that coal mining at the Giffen reached its peak, however. Records suggest that in the spring of 1942 as many as 475 men were employed at the mine. Annual production in 1942-1944 was 399,424, 445,375, and 456,624 tons, respectively. Estimates for production during the first half of 1945 were expected to drop off to 175,000 (about a 25% decrease).<sup>126</sup>

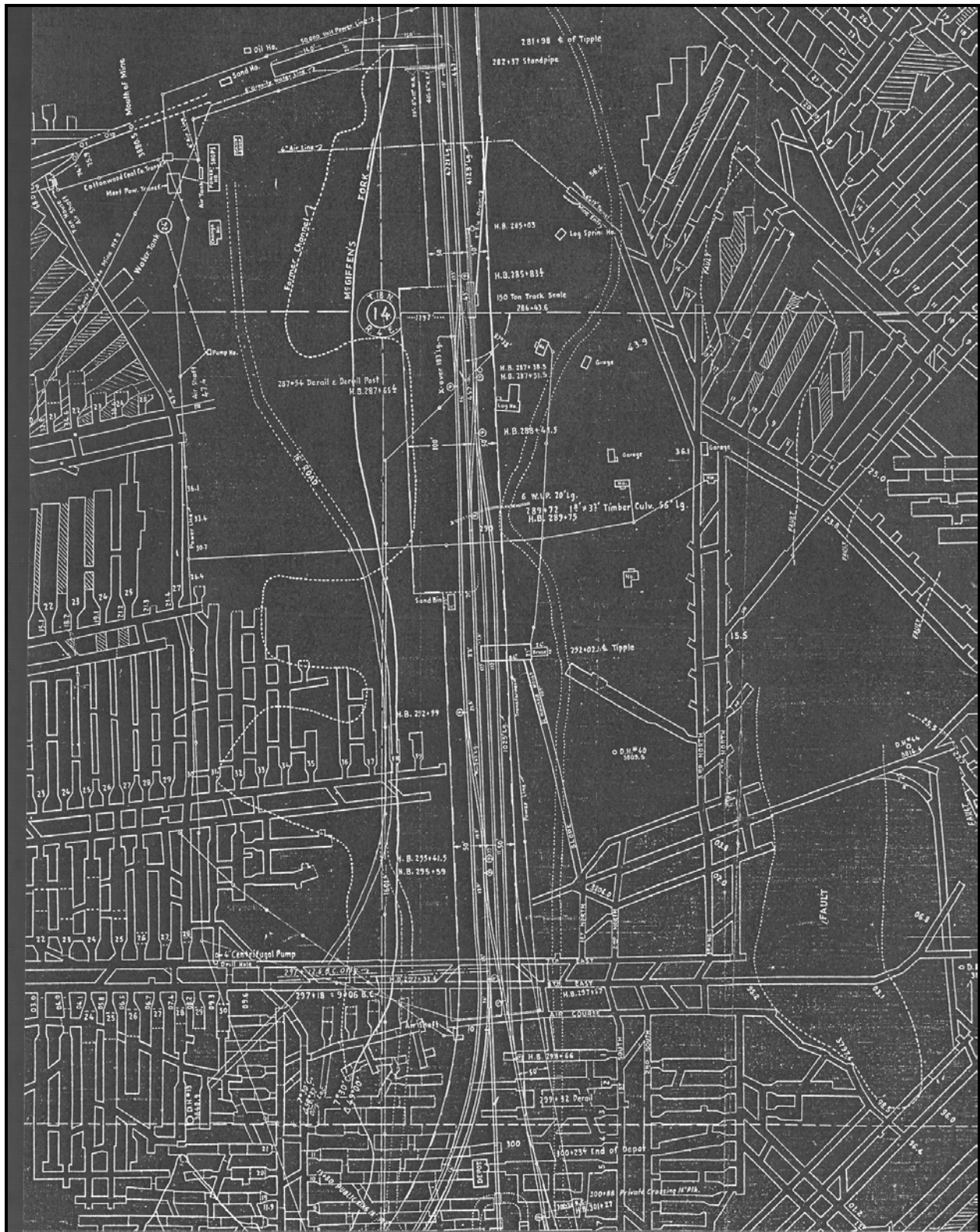
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<sup>124</sup> Eden Area Historical Committee, *A Century in the Foothills*, 45, 47; Montana Bureau of Mines and Geology, *Directory of Montana Mining Properties*, compiled by Works Project Administration (WPA), Memoir 20 (Butte: Montana School of Mines, 1940), 16 [subsequent citations for Montana Bureau of Mines and Geology's annual lists of and directories for Montana mines and operators will be by agency name, title, periodical name and number, and page(s) number(s) only]; Montana Bureau of Mines and Geology, *Directory of Montana Mining Properties*, 1940, Supplement to Memoir 20, 5; R.H. Allport correspondence to H.I. Smith, 10 September 1930, 9 March 1937, 11 October 1938. About mechanical loaders, see U.S. Bureau of Mines, *Mechanization, Employment, and Output per Man in Bituminous-Coal Mining*, by Willard E. Hotchkiss and others, Report E-9 (Philadelphia, 1939), 114-42; Paul Anderson, *Historic American Engineering Record MT-30, Giffen Mine*, 1986, 8-9, accessed at <http://mrmmoru.loc.gov>.

<sup>125</sup> Correspondence from R.H. Allport to H.I. Smith, 9 March 1937, 8 January 1938, Correspondence from J.R. Lerwill, to H.I. Smith, 2 June 1942; Inspection Report from Ray M. Bottomley, to H.I. Smith, 11 May 1945.

<sup>126</sup> Correspondence from R.H. Allport to H.I. Smith, 22 November 1932; Montana Bureau of Mines and Geology, *1940 Directory of Montana Mining Properties*, 16; George H. Hess, Great Northern Railway Company – Giffen Coal Mines, "Report of Operations Week of May 10 to May 16, 1942," "Coal Mines: Application for Quarterly Quotas for Maintenance, Repair, and Operating Supplies," Great Northern Railway Company (Giffen Coal Mines), 4 March 1943, "Mine and Smelter Production Reports," Great Northern Railway Company (Giffen Coal Mines), 15 June 1944, and "Mine and Smelter Production Reports," Great Northern Railway Company (Giffen Coal Mines), 6 January 1945, all in Manuscript Collection 239, Box 10, Folder 20, Montana Historical Society Research Center, Helena [subsequent citations for materials in that collection at the Montana Historical Society Research Center are abbreviated as "MC 239," with appropriate box and folder designations.].







Not long before the ramp up in production associated with World War II, in May 1941, the stockholders of Cottonwood Coal voted to exit the coal business. All of the company's stock, which was held by the Great Northern, was surrendered to the railroad, and all real property was deeded to Great Northern. Four and one-half years later (December 1945), Cottonwood Coal as a corporation officially dissolved.<sup>127</sup>

Immediately after World War II ended, the Giffen Mine apparently cut its daily production to about 900 tons. Within about a year, the number of employees had fallen to 80. The Great Northern's 40-acre federal lands lease was finally dropped as well. Then in December 1946, the railroad sold its real estate, coal rights, and all equipment to another party and left the Great Falls Coal Field for good.<sup>128</sup>

The mine purchaser was Harry Tilton. He, his wife Morfydd, and Ben P. McNair, Jr. immediately formed the Giffen Coal Mines Company, and later deeded the property to the new company. Tilton, who had been Cottonwood Coal and Great Northern's general manager at the Giffen Mine, also managed the new company. But within a short time, it became apparent that the high costs of mining and the lack of demand for Giffen coal doomed a return to profitable mining. By November 1948, the operation had shifted to salvage. Two months earlier, the Great Northern had petitioned to abandon its branch line into Giffen. The line was closed in 1950 and the track pulled back to about Sand Coulee in 1953 or 1954. It was not until 1965 that Giffen Coal dissolved and sold the old Giffen Mine. Russell B. Pace, Jr. became the new owner in March, but there is no known evidence that he attempted to reopen the Giffen.<sup>129</sup>

## **C. The Anaconda Copper Mining Company and Its Mines in Belt and Sand Coulee**

### ***(1) Belt***

John K. Castner's 1870 tour of lands southeast of the falls of the Missouri River marks the first known historic period discovery of Belt coal. Castner, a freighter based in Fort Benton who hauled supplies to Last Chance Gulch (Helena), may have then recognized its potential for commercial development. It was not, however, until seven years later that he finally moved to the coal area and opened the first mine there.<sup>130</sup>

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<sup>127</sup> Cascade County Clerk and Recorder, Deed Book 170, p. 331, 30 June 1941; Montana Secretary of State, Corporations, Cottonwood Coal Company, Folder F-000482, "Annual Statement," 20 May 1942, and "Certificate of Trustee in the Voluntary Dissolution of Cottonwood Coal Company," 28 November 1945.

<sup>128</sup> Eden Area Historical Committee, *A Century in the Foothills*, 48; Inspection Report from Ray M. Bottomley, to H.I. Smith, 11 May 1945 and 29 November 1948; Cascade County Clerk and Recorder, Deed Book 200, p. 529, 18 December 1946.

<sup>129</sup> Eden Area Historical Committee, *A Century in the Foothills*, 48; Inspection Report from Ray M. Bottomley, to H.I. Smith, 29 November 1948. Another reported partner in the Giffen Coal Mines venture was Bob Klasner, who owned the grocery store and bulk gas and oil plant in Giffen: Eden Area Historical Committee, *A Century in the Foothills*, 48; Cascade County Clerk and Recorder, Deed Book 202, p. 172, and Reel 60, document 6075; Montana Secretary of State, Corporations, Giffen Coal Mines Company, Folder D-020372, "Articles of Incorporation," 16 December 1946 and "Statement of Dissolution," 7 September 1965.

<sup>130</sup> Stober, *Belt Valley History*, 20.



Castner's initial market for Belt coal included Missouri River steamboats that met the end of the line at Fort Benton. Fort Benton residents also bought the coal. Castner and a freighting associate, Duncan MacLeod, hauled the product to the town, selling it for \$12 per ton. Perhaps to serve expanding trade, in 1879, Castner persuaded Henry W. Millard to open another mine in the immediate area.<sup>131</sup>

These early operations, although commercial, were quite small. Production records are unavailable, but estimates of yearly production at 600 tons seem reasonable.<sup>132</sup> Nevertheless, the two earliest Belt coal operations, Castner's and Millard's, would grow to become the largest and most long-lived, respectively.

At some unknown but early date, Castner and Millard became interested in testing the coking abilities of Belt coal. They did so in a pit, and Millard was pleased enough with the results that he built two beehive coke ovens.<sup>133</sup> The ovens' success and period of use are undocumented, but the primitive work, like the early mine developments themselves, served to build interest in Belt coal in general.

By 1889, Castner's mine had reportedly closed due to high freight rates. Such rates were certainly a factor as Belt coal had to be hauled by wagon almost 10 miles to the nearest point on the Montana Central Railway's Sand Coulee Branch. But in fact, the real reason for closure almost certainly was the heavy competition with Sand Coulee mines which were first served by that branch line in 1888. Between 1888 and 1889, annual coal production in Cascade County rose from 4,600 to 166,480 tons. Virtually all of the increase was attributable to Sand Coulee mining.<sup>134</sup>

Nevertheless, Helena entrepreneurs Thomas C. Power, Charles W. Cannon, Robert C. Wallace, Edward W. Knight, and Theodore H. Kleinschmidt had seen enough of Belt coal to realize that a larger, better organized mine than Castner's could be profitable. They also probably expected or at least hoped that the Montana Central Railway would extend a branch line to Belt within a short period. Power had already begun to acquire coal land under his own name at least by January 1888. No doubt, when the Helena men and John Castner incorporated the Castner Coal and Coke Company in December 1889, hard on the heels of the opening of

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<sup>131</sup> Ibid., 20-21. At some unknown date, Castner acquired a partner in the mining business, Mike Worley. Worley subsequently sold his share of the mine to T.C. Power: Jackie Petty John Matthews, "Belt," 1952, Belt folder, vertical file, Montana Historical Society Research Center, Helena.

<sup>132</sup> *Western Mining World* 5, no. 110 (24 October 1896): 208. Another reputable source reported that all Belt and Sand Coulee mines combined produced 1900 tons of coal in 1885 and 1400 tons in 1886, with Sand Coulee yielding the most in the latter year: U.S. Geological Survey, "Great Falls Coal Field," by Fisher, 167.

<sup>133</sup> Stober, *Belt Valley History*, 22.

<sup>134</sup> U.S. Treasury Department, *Report of the Internal Commerce of the United States for the Fiscal Year 1889*, by Switzler, 517; U.S. Geological Survey, "Great Falls Coal Field," by Fisher, 167; Ridgley and Greeley, *Cascade County Directory and Gazetteer 1896-97* (Great Falls: 1896), 200.



Great Northern's coal mine at Sand Coulee (see Section 4.B.1), the move was principally speculative, gambling on the railroad.<sup>135</sup>

The Sand Coulee mines, supplying a good percentage of their coal to the Great Northern, enjoyed significantly greater production than Belt coal until the mid-1890s.<sup>136</sup> Even after the Montana Central Railway extended a branch to Neihart in 1891 (reaching Neihart on November 15), Belt coal production apparently was negligible. The closest station was in Armington, 2 miles distant, until 1894.<sup>137</sup>

In its initial form, Castner Coal was if anything less productive than John Castner operating under his own name. Work was described by one reporter as "prospecting," and apparently served mainly "the local trade."<sup>138</sup> One source lists production in 1890 (and possibly 1891) as only 200 tons of coal.<sup>139</sup> The lack of any real development and production continued to be attributed to "high freight rates [that] prevented their competing with Sand Coulee coal."<sup>140</sup> More importantly, Belt coal mines hadn't connected with a major industrial consumer.

This situation began to change in 1892, although only slowly at first. Late in the previous year, superintendent of the Anaconda Mining Company Marcus Daly hired P.J. Shields to prospect widely across western Montana for all types of minerals. During his travels, Shields visited the community of Belt and its handful of small coal mines, reporting back to Daly that the mines were worthy of acquisition and development. It was not until late winter (early 1892) that Shields returned to the area, at which time he "picked up some trusty men and located them on some coal land."<sup>141</sup> On these claims, Shields began his coal mining operations, apparently under Daly's direction. The work was short-lived, however, as Daly pulled him from the project,

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<sup>135</sup> Montana Secretary of State, Corporations, Castner Coal and Coke Company, Folder D-001084, "Articles of Incorporation," 12 November 1889; U.S. Bureau of Land Management, "Land Patent Details, General Land Office Records," for E½ W½ Section 26, T19N, R6E, accessed on-line at <http://www.glorerecords.blm.gov/PatentSearch>.

<sup>136</sup> *Mineral Resources, 1889-1890*, 229; 1893, 322; Montana Inspector of Mines, *Report of the Inspector of Mines, 1892*, 23.

<sup>137</sup> U.S. Geological Survey, "Geology of the Little Belt Mountains, Montana," by Walter Harvey Weed, *Annual Reports of the Department of the Interior for the Fiscal Year Ended June 30, 1899*, Part III (Twentieth Annual Report of the United States Geological Survey) (Washington, DC: Government Printing Office, 1900), 404; Stober, *Belt Valley History*, 90.

<sup>138</sup> Montana Inspector of Mines, *Report of the Inspector of Mines, 1892*, 23.

<sup>139</sup> "United States Geological Survey, Montana Coal List for 1890 and 1891," 28, in Small Collection 1963, Montana Historical Society Research Center, Helena.

<sup>140</sup> *Western Mining World*, souvenir edition, 4 no. 68 (4 January 1896): 51.

<sup>141</sup> P.J. Shields, "Memoirs of the Past," 3, 6, 8, in Small Collection 212, Montana Historical Society Research Center, Helena. This method of claiming coal land, having others make the claims and then paying the required \$20 per acre for them with the understanding that the property would be immediately deeded to a "sponsor," was common. At least one of the Belt coal claimants, Dennis Fee, can be positively tied to Anaconda Mining. Fee worked for Marcus Daly in Anaconda and later became the foreman at the Old Works smelter: Thomas Edward Devine "History of the Devine Family," 1998, Appendix 13, 74, accessed on-line at [family.devinetimes.co.nz/documents/FullFamilyHistory.doc](http://family.devinetimes.co.nz/documents/FullFamilyHistory.doc).



saying that he had signed a five-year contract for coal from the “Rocksprings Coal Company” of Wyoming and had no need for Belt coal.<sup>142</sup>

After another short prospecting trip for Daly, Shields returned to Belt later in 1892 to continue mining for himself, although with Daly’s financial backing. Calling himself the Belt Coke and Coal Company, Shields took a three-year lease and option on Castner Coal’s mine in mid-September 1892.<sup>143</sup>

Even with Daly’s backing, Shields’ Belt Coke and Coal operation was small. An inventory of tools on-hand in October 1892 listed relatively few items, including although not limited to 50 picks, 10 drills, three 8-pound sledges, 10 coal shovels, and a small collection of blacksmith tools. The only above-ground improvements were a tool house, blacksmith shop, and 16-foot-high stack on the air shaft. The mine had a single horse and set of harness. About one year later, Belt Coke and Coal employed 20 men and had driven in the mine 850 feet (Figure 14).<sup>144</sup>

In about late 1892 or possibly early 1893, Daly agreed to try Belt coal at the Upper Works Smelter in Anaconda. After an initial erroneous Belt coal test, the coal proved to be both suitable and affordable, and was thereafter supplied to Anaconda Mining’s reduction works in Anaconda. Castner Coal was then connected with the industrial market it had sought.<sup>145</sup>

Beginning at least as early as October 1893, Shields was in talks with the Castner Coal partners about acquiring an interest. One month later, T.C. Power and James Shields signed an agreement whereby Shields was to purchase all of Castner Coal’s capital stock. Shields apparently then passed Castner Coal shares to Daly and/or Anaconda Mining. The new company executives included J.B. Hogan as president, Daly as vice-president, John Lindsey [sic] as secretary, and John Daugherty and others as trustees. James Shields was general manager and P.J. Shields mine superintendent (Figure 15).<sup>146</sup>

The new version of Castner Coal, then completely owned by Anaconda Mining, wasted no time building its mine into a major producer. In 1894, almost 200 miners got out over 700

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<sup>142</sup> Shields, “Memoirs of the Past,” 8.

<sup>143</sup> Ibid., 11; Agreement between Castner Coal and Coke Company and P.J. Shields, 17 September 1892, Manuscript Collection 55, Box 418, Folder 14, Montana Historical Society Research Center, Helena. [Subsequent citations for materials in that collection at the Montana Historical Society Research Center are abbreviated as “MC 55,” with appropriate box and folder designations.]

<sup>144</sup> Montana Inspector of Mines, *Report of the Inspector of Mines, 1893*, 34; James Shields, “Inventory Belt Creek, Mont. Oct. 1<sup>st</sup> 92,” Manuscript Collection 169, Box 372, Folder 1, Montana Historical Society Research Center, Helena [subsequent citations for materials in that collection at the Montana Historical Society Research Center are abbreviated as “MC 169,” with appropriate box and folder designations].

<sup>145</sup> Shields, “Memoirs,” 11; Dominic Spogen, “History of Marcus Daly Starting the Reduction Works at Anaconda, Montana,” n.d., 14-15, Small Collection 76, Montana Historical Society Research Center, Helena.

<sup>146</sup> Shields, “Memoirs,” 11-12; *Western Mining World*, souvenir edition, 4, no. 28 (4 January 1896): 51-52.



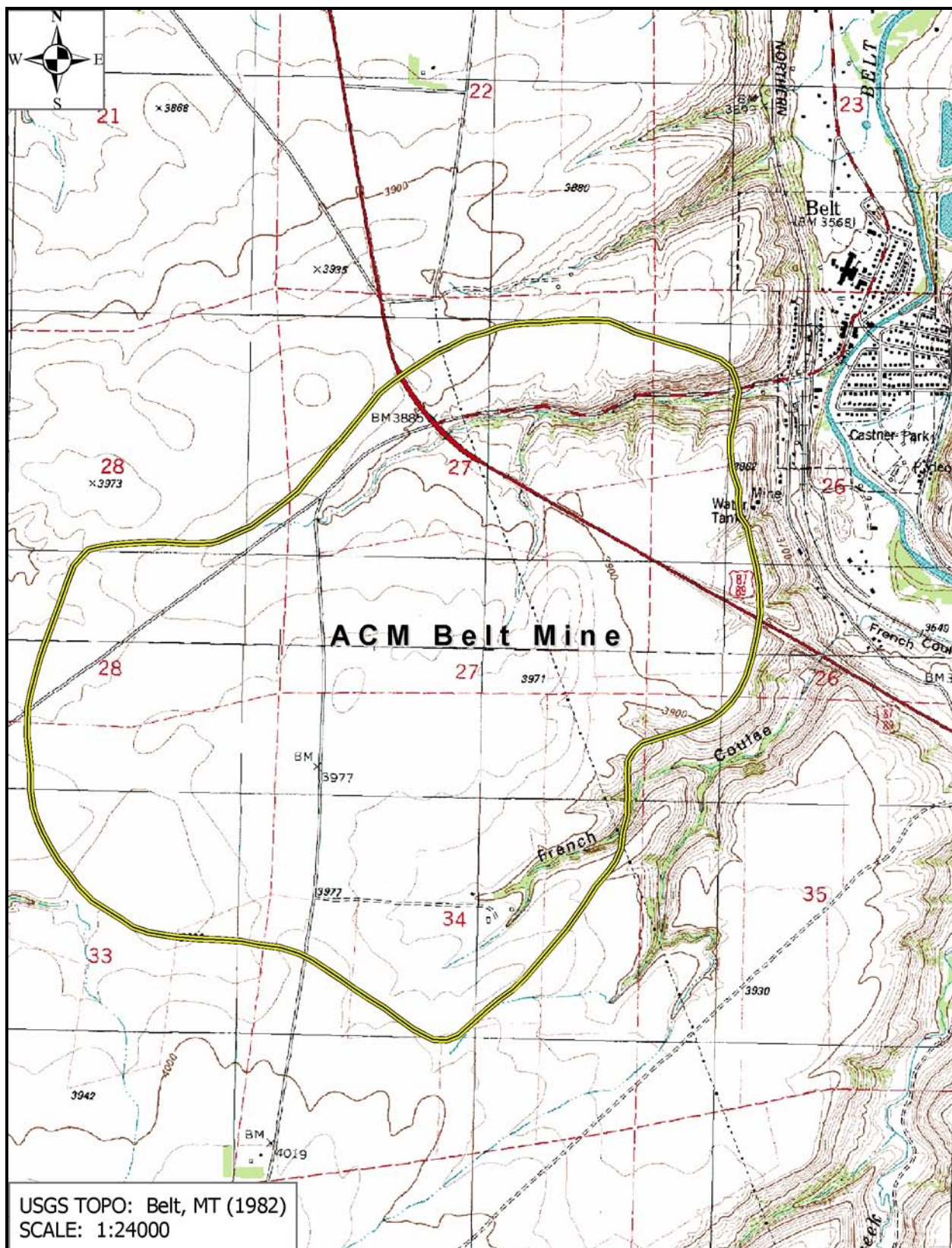


Figure 14. Map showing maximum extent of underground workings at Belt Mine.





**Figure 15. Photograph of Castner's mine, probably immediately before Shields began its development (courtesy of The History Museum, Great Falls).**

tons of coal per day at its two Belt mines.<sup>147</sup> At the same time, Shields reported that with a construction force of 1500 men he “located more land, built one hundred coke ovens, built a sixty-thousand dollar coal washer; built new headhouses and engaged hundreds of mine cars and put in a steam plant to control the heavy water.”<sup>148</sup> The 122,500-ton increase in coal product shipped from Cascade County between 1893 and 1894 was probably almost entirely from

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<sup>147</sup> As Castner Coal/Anaconda Mining first began developing its Belt mine in 1894, a contemporary source referred to the Belt No. 1 and No. 4 as separate mines. These number designations may have been a hold-over from Castner's names for his workings. Later citations referred to the Belt No. 1 and No. 2 Mines or more simply the (plural) Belt mines to at least 1900. The No. 2 designation might simply be a substitution for the former No. 4. As the Belt mines expanded, the plural designation seems to have dropped, suggesting that the former Belt No. 1 and No. 2 were connected, and all subsequent hauling to the tippie was through one adit: Montana Inspector of Mines, *Report of the Inspector of Mines, 1894*, 30; *Report of the Inspector of Mine, 1895*, 42; *Report of the Inspector of Mines, 1900*, 53; “At the Mines,” 7 March 1895, 1, and “Around the Mines,” 23 January 1896, 8, both in *Belt Valley Times*; *Western Mining World* 6, no. 137 (1 May 1897), 256; “Notice” regarding wages, 16 May 1899, MC 169, Box 372, Folder 8; “The Castner Coal & Coke Company Production Report [for] 6 Months Ending June 30<sup>th</sup>, 1895,” MC 169, Box 372, Folder 3; Correspondence from F.W.C. Whyte, ACM Coal Department, Belt, to M. Donahoe, ACM, Anaconda, 12 April 1898, MC 169, Box 4, Folder 10.

<sup>148</sup> Shields, “Memoirs of the Past,” 12. Shields wrote that these improvements dated to 1893, but the local newspaper documents work in 1894 rather than 1893: “Good Times Ahead,” *Belt Valley Times*, 6 September 1894, 1, 4.



the Belt mines. Production increased substantially in 1895, with that for just the first six months totaling 119,250 tons of various grades of coal.<sup>149</sup> The beehive coke ovens, with a total capacity of 100 tons per day, were an important part of the Belt operation between 1895 and the early 1900s (Figure 16). The product seems to have been consumed exclusively by Anaconda's smelters.<sup>150</sup> The first group of the ovens were fired in late January 1895. About one-tenth of the coal mined in the first half of that year was sent to the ovens, yielding 3990 tons of coke during that period.<sup>151</sup>

Just as the coal operation was being perfected, it closed down during the first two months of the summer of 1895. The closure coincided with negotiations during reincorporation of the Anaconda Mining Company as the Anaconda Copper Mining Company (ACM) and associated stock transfers.<sup>152</sup> The Castner mines reopened in mid-August with a workforce of 600 men. Forty of the 100 coke ovens were in operation and improvements to the power plant, main haulage, and loading facility were underway. Later in the fall, planned additional improvements included a new 600-ton washer. As full production was reached then, daily shipments were in the 2000- to 2500-ton range.<sup>153</sup>

In October of 1896 alone, Castner Coal shipped 52,000 tons of lump coal, 10,000 tons of nut and slack coal, and 13,000 tons of coke---three to four times as much product as for a single month in the first half of 1895. Eight months later, the company boasted a workforce of 1200 employees and daily coal and coke production of about 3000 tons.

The large workforce and the advent of strong labor organization (unionization) was occasionally at odds with Castner Coal and Anaconda Mining/ACM. In mid-July 1894, Belt miners organized a branch of the Western Federation of Miners, signing on 150 men initially.<sup>154</sup> Less than one month later, the miners called their first strike, on the complaint that new coal cars (at Castner Coal's mines and at least one other smaller Belt mine) were larger than old cars, but the price paid to fill each car remained the same as it had been previously. The four-week strike was settled through arbitration, with miners receiving a 5 cent raise per car and the promise of

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<sup>149</sup> Montana Inspector of Mines, *Report of the Inspector of Mines, 1894*, 30; *Mineral Resources, 1894*: 146-47; Castner Coal and Coke Company, "Production Report [for] 6 Months Ending June 30<sup>th</sup>, 1895."

<sup>150</sup> P.C. Kittle, Castner Coal and Coke Company, Belt, correspondence to M. Donahoe, ACM, Anaconda, 16 December 1895, MC 169, Box 6, Folder 14; "Local Briefs," 3 March 1904, 5, and 20 October 1904, 5, both in *Belt Valley Times*.

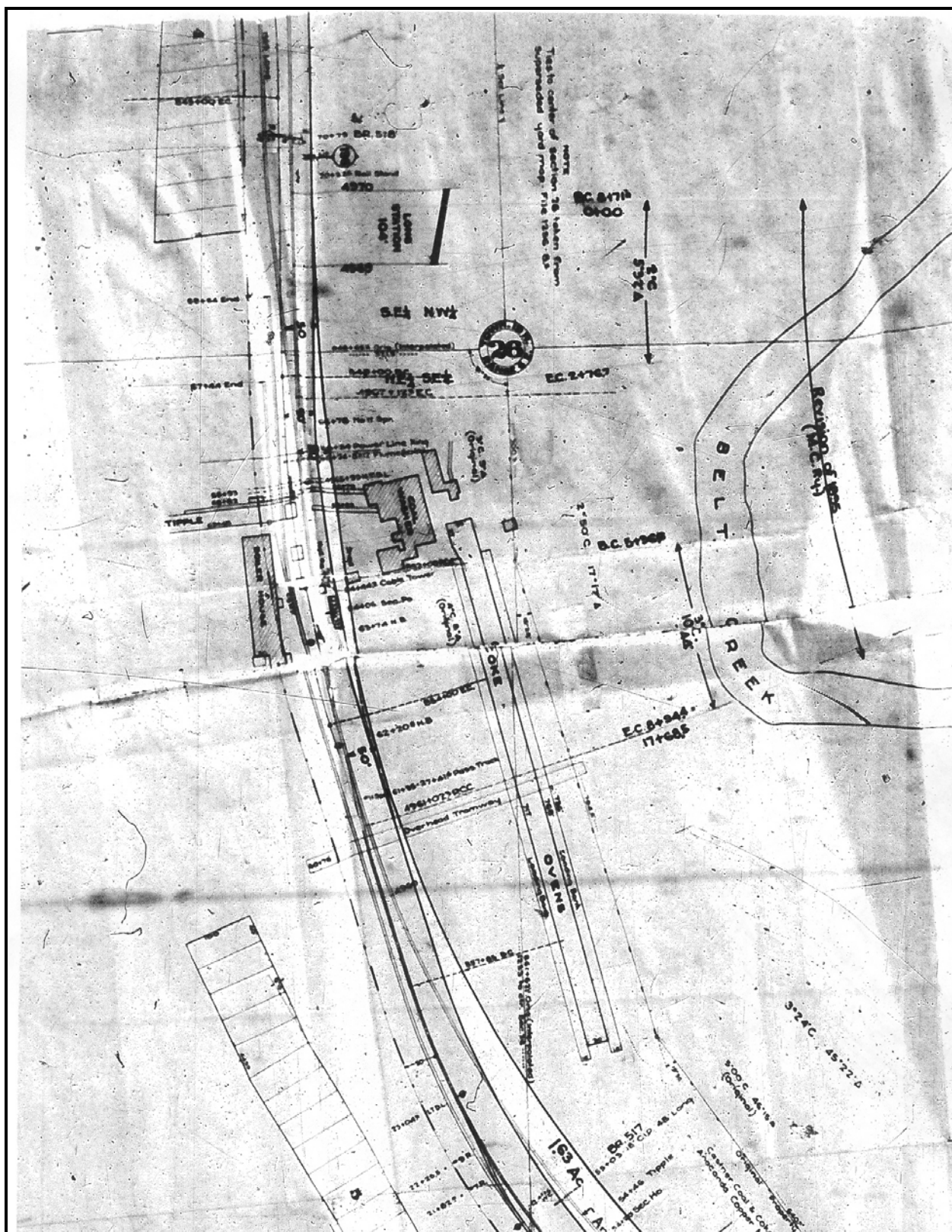
<sup>151</sup> "The Coke Ovens," *Belt Valley Times*, 31 January 1895, 1; Castner Coal and Coke Company, "Production Report [for] 6 Months Ending June 30<sup>th</sup>, 1895."

<sup>152</sup> *Western Mining World* 3, no. 43 (13 July 1895): 21-22; "Wheels in Motion," *Belt Valley Times*, 8 August 1895, 1; Malone, *The Battle for Butte*, 46.

<sup>153</sup> *Western Mining World* 3, no. 52 (14 September 1895): 127; 3, no. 56 (12 October 1895): 175; "More Improvements," *Belt Valley Times*, 3 October 1895, 1.

<sup>154</sup> "The Miners Organize," *Belt Valley Times*, 19 July 1894, 4. This article apparently erroneously identified the union as the Western Federation of Labor. The union, Belt Creek Miner's Union No. 24 of the Western Federation of Miners, incorporated three years later: "Miners' Union Incorporates," *Belt Valley Times*, 22 July 1897, 4. The union grew to 700 members in 1898: "An Excellent Record," *Belt Valley Times*, 17 March 1898, 4.





**Figure 16. Plan showing ACM improvements in and near Montana Central Railway's right-of-way in Belt, with coke ovens in bank at right (map attached to Cascade County Clerk and Recorder, Deed Book 83, p. 525, 23 November 1915).**



scales for weighing coal, and themselves agreeing to give 60-days notice before demanding any change to the arbitrated agreement.<sup>155</sup> ACM negotiated previously un-offered doctor and hospital benefits for its coal workers and their families with providers in Great Falls and locally in late 1895. A proposal to require work on Sundays was strongly discouraged by local management before it could be required of (and no doubt rejected by) the workers.<sup>156</sup>

After the first strike, there seems to have been little complaint between Castner Coal/ACM and the miners' union for almost five years. In fact, in the spring of 1897, ACM posted a notice that encouraged its miners to affiliate with the union.<sup>157</sup> At least in the short run, it was to the company's benefit because the union had sickness, burial, and death benefits---all deducted by the company from the miners' wages and then paid to the union. A similar arrangement was made for union-furnished check weighmen and tool keepers, whereby workers' wages were taxed, with the monies then forwarded to the union.<sup>158</sup>

By the summer of 1896, ACM abandoned all pretext of a separate Castner Coal and Coke Company, remarking Castner letterhead with "Anaconda Copper Mining Co., Coal Department."<sup>159</sup> The company and its predecessor Anaconda Mining invested heavily in its Belt operation during the 1890s. Not long after its initial construction phase ended, it added 24 mining machines, 250 new coal cars, and a new powerhouse and boilers. In early 1896, the tail-rope hauling system was operational, and the new 600-ton washer for slack coal was installed at about that time. Later in that same year, a new tippie was erected and plans were made for more coke ovens (although they were never built). A storage hopper between the tippie and washer was added in 1897. In the winter of 1898-99, the company opened its new washing plant, a facility that replaced an older one destroyed by fire the previous April. It also built a large trestle for waste coal disposal. Finally, in early 1899, ACM replaced the old coking coal washer.<sup>160</sup>

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<sup>155</sup> "Miners Strike," 9 August 1894, 1; "Hurrah!," 30 August 1894, 1; "Good Times Ahead," 6 September 1894, 4, all in *Belt Valley Times*.

<sup>156</sup> Unsigned agreement between Sisters of Charity of Montana and Castner Coal and Coke Company, 1895, MC 169, Box 6, Folder 14; P.C. Kittle, manager, ACM Coal Department, Belt, correspondence to M. Donahoe, ACM, Anaconda, 11 September 1896, MC 169, Box 4, Folder 9.

<sup>157</sup> "Notice," ACM, etc. to All Employees, 23 April 1897, MC 169, Box 4, Folder 9.

<sup>158</sup> *Western Mining World* 6, no. 129 (6 March 1897): 158; F.W.C. Whyte, ACM Coal Department, Belt, correspondence to M. Donahoe, ACM, Anaconda, 15 May 1897, MC 169, Box 4, Folder 9.

<sup>159</sup> P.C. Kittle, manager, ACM Coal Department, Belt, correspondence to M. Donahoe, ACM, Anaconda, 31 July 1896, MC 169, Box 4, Folder 9.

<sup>160</sup> P.C. Kittle, Castner Coal and Coke Company, correspondence to M. Donahoe, ACM, 29 November 1895, and 16 December 1895, both in MC 169, Box 6, Folder 14; F.W.C. Whyte, ACM Coal Department, Belt, correspondence to M. Donahoe, ACM, Anaconda, 21 May 1897, MC 169, Box 4, Folder 9; [F.W.C. Whyte], ACM Coal Department, Belt, correspondence to M. Donahoe, ACM, Anaconda, 19 April 1898, F.W.C. Whyte, ACM Coal Department, Belt, correspondence to M. Donahoe, 28 June 1898, R.D. Cole, ACM Coal Department correspondence to M. Donahoe, ACM, Anaconda 18 Feb 1899, and 3 March 1899, all four in MC 169, Box 4, Folder 10; and "The Washer," 22 September 1898, 4, *Western Mining World*, Souvenir Edition 4, no. 28 (4 January 1896): 52; *Western Mining World* 5, no. 106 (26 September 1896): 155; "Current Notes," 6 October 1898, 5, "Current Notes," 5 January 1899, 5, "Current Notes," 2 February 1899, 5, all in *Belt Valley Times*.



When the *Engineering and Mining Journal* published a description of the Belt Mine and surface plant 10 years later, the facility probably looked much as it did at the end of the 1890s (Figures 17 and 18). The description is partially reproduced here to demonstrate the large size of ACM's coal operation in Belt at its peak.<sup>161</sup>

The Main West entry, which is the main haulage-way was driven in 3300 ft. when an area of low coal . . . was developed by the north entries; the Main West entries were then turned paralleling the line of the fault, and are now in 7600 ft. in this direction making the total distance from the mine mouth a trifle over two miles. . . . [The main] haulage-way, including a short outside haul, is 7000 ft. long and 48 car trips of 2¼ tons to the car, are pulled by the tail-rope system.

The track is laid with 30-lb. rails, both main and tail ropes are 1 in. in diameter, and the trip attains a speed of a little over 8 miles per hour. The maximum grade is 3 per cent, and is against the loads; 3500 tons of coal have been pulled in 10 hours on this haulage-way, before it was extended to its present length, and the rock had been included it would probably have been close to 4000 tons. . . .

The washery has two major divisions, one handling the coking coal and the other non-coking. The greater part of the equipment was made at the company's foundry and machine shops in Anaconda.

The non-coking coal on being dumped at the tippie passes down through two 24x30-in. crushers, one reducing to 4-in. and the other to a 2-in. size. The crushed coal passes into a Dodge conveyor which carries it to storage bins in the washer. . . .

From the storage bin, which holds 700 tons, the coal is elevated and distributed to three Jeffrey-Robinson washers each having a theoretical capacity of 400 tons and an actual working capacity of about 350 tons. The clean coal from the washers is elevated into the washed coal drainage bins having a capacity of 800 tons, whence it is loaded into railroad cars and shipped for steam coal. The refuse is again elevated and fed by means of a screw conveyer and sluice box into two jigs each having a capacity of 20 tons in eight hours; these two jigs recover about 20 tons of sulphur nodules which are shipped to Great Falls and used at the smelters. The coking coal, on being dumped at the tippie, feeds into a conveyer similar to the non-coking coal, but with only 600 tons capacity, whence it is delivered to the coking-coal division of the washer. . . .

One hundred coke ovens of the usual beehive type, 12 ft. in diameter, extend out from the washed coking-coal drainage bin, the coal being delivered to the ovens by means of a six-ton larry pulled by a horse.

The late 1890s was the peak of activity at ACM's Belt Mine. In the end of the fiscal year ending June 30, 1898, the ACM Coal Department at Belt had total earnings of over \$1 million (equivalent to over \$23 million in today's money) and a net profit of just over \$91,000.<sup>162</sup> In addition to that sizable profit, the value of relatively inexpensive coal and coke for ACM's copper smelting and mining operations was considerable.

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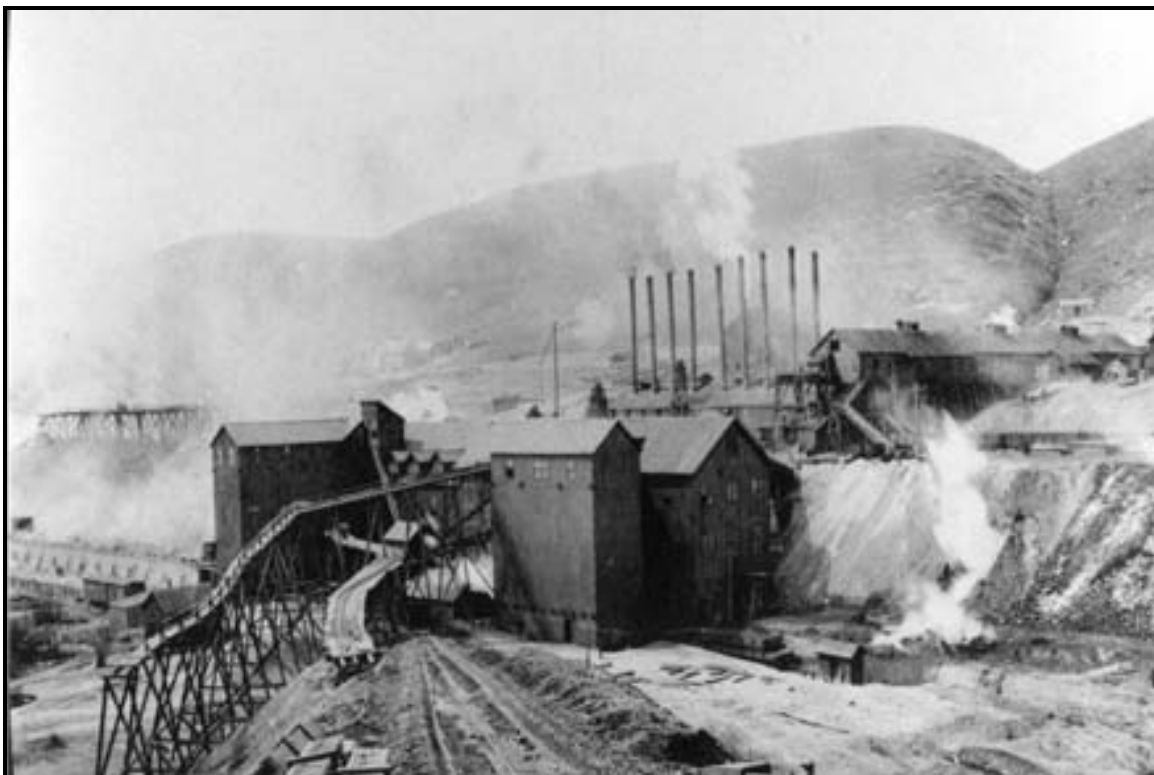
<sup>161</sup> A.T. Shurick, "The Great Falls Coalfield in Montana," *Engineering and Mining Journal* 87, no. 12 (20 March 1909): 588-90.

<sup>162</sup> "Anaconda Copper Mining Company, Coal Department, Belt, Montana, General Trial Balance, Year Ending June 30<sup>th</sup>, 1898," MC 169, Vol. 16. Today's money value was calculated using GDP deflator: accessed on-line at <http://www.measuringworth.com/calculators/uscompare>, 3 February 2009.





**Figure 17. View of surface works at ACM's Belt Mine in about 1895  
(courtesy of The History Museum, Great Falls).**



**Figure 18. Another view of surface works at Belt Mine in about 1898  
(courtesy of The History Museum, Great Falls).**



Despite the major improvements and high earnings to 1899, though, that year marked the beginning of a long, slow decline at the mine. Starting in early 1899, ACM's demand for Belt coal was irregular and considerably diminished from earlier demand, throwing the Belt operation into turmoil. First, the "machine men" or "machine runners" called a local strike in late March 1899 over wages. After a shutdown of 52 days during the strike, ACM's Belt mines reopened with a smaller workforce, about two-thirds of its size in 1900 compared to 1899.<sup>163</sup> After the strike, the Belt Mine operated on an irregular work schedule into late spring 1900. The result was the loss of many good miners; the newer miners had a difficult time making regular shipments.<sup>164</sup>

Two factors contributing to the reduced work at about this time were increasing costs of production due to the long haul within the mine (7000 feet) and the decline in the use of Belt coal due to its high ash content (25-30%). In December 1899, comparisons of Belt and Diamondville (Wyoming) coal used for calcining and smelting at ACM's works in Anaconda demonstrated the inferior quality of Belt coal for those applications. At about that time, Belt coal began to be used exclusively for steam (boilers) rather than smelting.<sup>165</sup> Yet it even competed with Diamondville coal for steam. For example, in the first half of 1903, ACM's Belt mines shipped almost 27,000 tons of run-of-mine coal to six ACM copper mines in Butte, although Diamondville shipped almost 2½ times that much run-of-mine coal to those places.<sup>166</sup>

The consulted sources provide almost no specific information about other markets for Belt Mine coal in the early years of the twentieth century. There are a few possibilities, though. First, it seems likely that the mine's local trade expanded in 1901-02 when the Sand Coulee coal mines "were practically abandoned."<sup>167</sup> During that period, ACM's Belt Mine probably acquired some wholesale vendors in Great Falls, even if the Great Northern Railway business went elsewhere. By 1905 and through 1910, ACM sold greater and greater percentages of its mined Belt coal to outside (mostly commercial) parties. In 1910, the percentage sold hit an all-time high of 77%, or 122,943 of 160,153 tons. For at least part of that time (1907), one of the most important commercial customers was the Boston and Montana reduction works at Black Eagle

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<sup>163</sup> *Mineral Resources 1899-1900*, 468; Montana Inspector of Mines, *Report of the Inspector of Mines, 1900*, 53; "Notice" regarding wages, 16 May 1899; "A Local Strike," *Great Falls Tribune*, 12[?] April 1899; "Mines Resume," *Belt Valley Times*, 18 May 1899, 1. One possible side effect of the broken strike was the dissolution of the Belt Miners' Union: "Current Notes," *Belt Valley Times*, 22 June 1899, 5. A new union formed in the spring of 1903. It was an affiliate of the United Mine Workers of America, rather than the Western Federation of Miners: "Miners Organize," *Belt Valley Times*, 30 April 1903, 8.

<sup>164</sup> F.W.C. Whyte, ACM Coal Department, Belt, correspondence to M. Donahoe, ACM, Anaconda, 25 May 1900, MC 169, Box 4, Folder 10.

<sup>165</sup> Stober, *Belt Valley History*, 29-30; Demond, "Economy and Efficiency in Reverberatory Smelting," 736-38, 744, 746, 749; Dennis L. Veleber, "A Brief History of the Early Mining Days in Belt, Montana" 1972, 16, on file, Montana Department of Environmental Quality, Mine Waste Cleanup Bureau, Helena; *Engineering and Mining Journal* 87, no. 12 (20 March 1909): 588; H.H. Nell, ACM, Anaconda, correspondence to M. Donahoe, ACM, Anaconda, 26 December 1899, MC 169, Box 52, Folder 6.

<sup>166</sup> "Statement of Coal Received during Six Months Ending June 30<sup>th</sup> 1903," MC 169, Box 54, Folder 36.

<sup>167</sup> *Mineral Resources, 1901*, 401; *1902*, 396.



just north of Great Falls where Belt coal was used to fire the gas-producers at reverberatory furnaces.<sup>168</sup>

Occasional periods of slow work persisted after 1900. For example, in early 1901, the coke ovens had been closed down for an unspecified period of time, with about 30 men being out of work as a result. Also, in the summer of 1903, the local newspaper reported that the mine ran only half-time that season. Then in October 1903 there was a 20-day shutdown when the Amalgamated Copper Company, sole owner of ACM stock, ordered its various mining, smelting, and support works closed. Between 300 and 400 employed at Belt were affected by Amalgamated's order.<sup>169</sup>

Belt's coking operation faltered just after the turn of the twentieth century for a few reasons. Coal suitable for coking had always been limited at the Belt Mine and difficult to separate from the non-coking coal. Also, other coal operations vied aggressively to supply coke to western Montana smelters, particularly ACM's Washoe Smelter in Anaconda (brought on-line in 1902).<sup>170</sup> These two factors, coupled with "an improved method for smelting copper . . . [which] required much less coke . . ." beginning in the early 1900s, weighed heavily against continued Belt coking operations.<sup>171</sup>

After the system-wide Amalgamated shutdown in the fall of 1903, ACM's coke ovens at Belt were not immediately re-fired. Burning again in March of the following year, they ran about eight months before closing down. Consulted sources are ambiguous about whether they were fired again between 1905 and late 1908. It seems possible that they were used at least intermittently during those years as other sources of coke were tried and rejected.<sup>172</sup>

With changing fuel requirements that could not be met with Belt coal, ACM officials searched widely for more and better product.<sup>173</sup> Coal in Gallatin and Park Counties was among the most attractive due to the relatively short haul to Butte and Anaconda. An ACM subsidiary, the Washoe Coal Company, opened four coal mines in the Meadow Creek mining district of the

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<sup>168</sup> Mortson, "Bounteous Nature"; Anaconda Copper Mining Company, "Annual Report," 1907, 1908, 1910; *Copper Handbook*, vol. 10, 336.

<sup>169</sup> "Belt Coke Ovens to be Fired," *Belt Valley Times*, 18 February 1901, 4; "Amalgamated Shut-Down," *New York Times*, 24 October 1903; *Mining World* 19, no. 13 (26 September 1903): 31; "A Bad Outlook," *Belt Valley Times*, 29 October 1903, 4; Patrick F. Morris, *Anaconda Montana* (Bethesda, Maryland: Swann Publishing, 1997), 175-77.

<sup>170</sup> Chadwick, "Coal: Montana's Prosaic Treasure," 22-23; Morris, *Anaconda Montana*, 180; "Belt Coke Ovens to be Fired," *Belt Valley Times*, 18 February 1904, 4; U.S. Geological Survey, *Geology and Coal Resources of the Livingston Coal Field*, by Roberts, 25.

<sup>171</sup> U.S. Geological Survey, *Geology and Coal Resources of the Livingston Coal Field*, by Roberts, 25.

<sup>172</sup> *Mining World* 19, no. 23 (5 December 1903): 30; "Looks Different Now," 19 November 1903, 5, "Local Briefs," 3 March 1904, 5, and 20 October 1904, 5, all in *Belt Valley Times*. One source, published in 1909 and based on data collected in 1906, stated that the coke ovens were no longer used: U.S. Geological Survey, *Geology of the Great Falls Coal Field*, by Fisher, 56. Another reported that Belt stopped making coke for good in about late 1908: *Engineering and Mining Journal* 87, no. 17 (24 April 1909): 847-8.

<sup>173</sup> "A Copper Trust Move," *New York Times*, 13 July 1902.



Livingston Coal Field by 1904. It also built 100 coke ovens at that location (Storrs), presumably for the purpose of replacing Belt coke. Unfortunately, the Storrs coal did not coke as expected and the ovens were operated only a short time (most not at all).<sup>174</sup> ACM also investigated operations at Cokedale in mid-1903, and Cokedale coke may have been sent to Anaconda from 1903 into 1906.<sup>175</sup> ACM also used coke produced by Montana Coal and Coke at Electric at times between late 1903 and 1911.<sup>176</sup>

In addition to looking elsewhere for the coal and coke it needed to fuel its industrial operations, ACM also considered selling its Belt property outright at one point. In spring 1907, the local press reported that Cottonwood Coal Company representatives (the Great Northern subsidiary at Stockett) had examined ACM's Belt Mine as well as a number of small Belt coal mines for possible purchase. The railroad was reportedly in negotiations with ACM, but the deal supposedly fell through when a mutually-acceptable price could not be named.<sup>177</sup>

Despite the drop in and eventual termination of coke production, the mine continued to be a good producer of steam and other coal into about 1908. In 1906, ACM reported that its Belt property yielded 291,851 tons, and thereafter its numbers sagged, hitting 204,056 tons in 1908. The 1908 workforce of almost 300 men (working for 11 of 12 months) was just 75% of that reported in 1905. The drop in output from 1908 to 1913 was practically precipitous. In 1912, the tonnage mined was just 40% (82,654 tons) of that produced four years previous.<sup>178</sup>

In addition to those alluded to above, one other factor must have weighed particularly heavily in the decision to finally close the Belt Mine. When the Rainbow hydroelectric plant on the Missouri River just downstream from Great Falls was brought on-line in August 1910, it supplied electrical power to ACM's Butte mines for compressed air, pumps, haulage cars, and to a lesser extent direct hoisting. As the Butte mining machinery and hoists were converted to

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<sup>174</sup> Stober, *Belt Valley History*, 35; U.S. Geological Survey, *Geology and Coal Resources of the Livingston Coal Field*, by Roberts, 44; also see Walter Renton Ingalls, editor, *The Mineral Industry, Its Statistics, Technology and Trade During 1908* (New York: McGraw-Hill Book Company, 1909), 141; McCormick and others, *2007 Trail Creek Coal Mine Reclamation Project*, 14.

<sup>175</sup> *Mining World* 19, no. 6 (8 August 1903): 28-29; U.S. Geological Survey, *Geology and Coal Resources of the Livingston Coal Field*, by Roberts, 30.

<sup>176</sup> *Mining World* 19, no. 19 (7 November 1903): 28; U.S. Geological Survey, "The Electric Coal Field," by Calvert, 419.

<sup>177</sup> "Rumors of Big Deal," 16 May 1907, 4, and "Local Briefs," 23 May 1904, 4-5, both in *Belt Valley Times*.

<sup>178</sup> "29 Per Cent. Profit by Anaconda Copper," *New York Times*, 16 May 1907; Rowe, "The Coal and Lignite Deposits of Montana.—II," 718; "Local Briefs," *Belt Valley Times*, 16 March 1905, 5; *Copper Handbook*, vol. 10, 336; Form sent by ACM Coal Department to J.B. McDermott, State Coal Mine Inspector, 31 October 1906, MC 169, Box 372, Folder 12; Anaconda Copper Mining Company, "Annual Report," 1905, 1907, 1908, 1910, 1911, 1912.



compressed air or entirely electricity at an increasingly rapid rate, an important market for Belt's steam coal evaporated.<sup>179</sup>

Reports of the last years of ACM's operations at the Belt Mine are rare in the sources consulted. As noted above, production had dropped to 82,654 tons in 1912 and just 17,055 tons for the first three months of 1913. Just prior to closure, the mine reportedly was operating just three or fewer days per week. Once selling up to 77% of its output to others, in 1912 that percentage dropped to only 0.1%. On March 31, 1913, ACM closed its Belt Mine, and in the following nine months salvaged what machinery it could use elsewhere. During the preceding 20 years, the mine had produced about 7.5 millions of coal.<sup>180</sup>

ACM had no use for its Belt Mine after 1913, but the facility held some value for a smaller operator. Late in that year or early 1914, former ACM cashier George W. Merkle signed a lease agreement with ACM for the Belt Mine. Merkle and later his G.W. Merkle Coal Company, which he and others incorporated in February 1918, worked the mine for 10 years.<sup>181</sup>

Merkle was able to operate the Belt Mine because the mid- to late 1910s coincided with a comparatively high price for coal (immediately prior to and during World War I). Among Merkle's best customers during that period was the Great Northern. At its peak, Merkle's mine was said to have produced 750 tons of coal per day, with a crew of 100 men.<sup>182</sup> The operation suffered a setback in 1917 when the surface plant was destroyed by fire, but high coal demand probably encouraged speedy replacement of key equipment.<sup>183</sup> Yet just two years later, with the end of the war in 1919 and the subsequent drop in the prices of almost all commodities, the mine was doomed to fail. For six months in 1919, only about 3030 tons of coal were mined from ACM coal land. Merkle's mine may have rebounded in 1922 when reportedly there were 160

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<sup>179</sup> W.A. Scott, "Montana Power Company's System," *Electrical Review* 71, no. 2 (14 July 1917): 50; Renewable Technologies, Inc., *Missouri-Madison Hydroelectric Project FERC Project No. 2188 Cultural Resource Management, Plant Operating Facilities and a Private Recreation Camp, Evaluation of Eligibility for Listing in the National Register of Historic Places* (Butte: 1991), E2-3, submitted to The Montana Power Company, Butte.

<sup>180</sup> "Anaconda Copper Mining Company, Coal Department - Belt, Montana, Income Tax - 1918," MC 169, Box 372, Folder 7; Anaconda Copper Mining Company, "Annual Report," 1911, 9; Montana Bureau of Mines and Geology, *Stratigraphy and Economic Geology of the Great Falls-Lewistown Coal Field*, by Silverman and Harris, 1. As late as June 22, 1912, ACM was thinking it would have to keep the Belt Mine open because of some problem with Lochray: A.E. Wheeler, Great Falls, memorandum, 22 June 1912, MC 169, Box 251, Folder 8. One source erroneously indicated that the mine closed on June 30, 1912: Stober, *Belt Valley History*, 29-30.

<sup>181</sup> Stober, *Belt Valley History*, 30; Montana Secretary of State, Corporations, G.W. Merkle Coal Company, Folder D-011561, "Articles of Incorporation," 21 February 1918. Merkle had 70-75% interest in the company: unknown party correspondence to C.F. Kelley, vice-president, ACM, New York, 20 May 1918, MC 169, Box 126, Folder 29. Merkle had been associated with ACM's Belt coal operation beginning at least as early as 1899: "Current Notes," *Belt Valley Times*, 25 May 1899, 3.

<sup>182</sup> G.W. Merkle correspondence to ACM General Office, 17 February 1920, MC 169, Box 126, Folder 26; Montana Bureau of Mines and Geology, "History of Coal Mining in Montana," by Thomas Morgan, *Proceedings of the First Montana Coal Resources Symposium*, Special Publication 26 (Butte: 1966), 4.

<sup>183</sup> Stober, *Belt Valley History*, 30; *Great Falls Tribune*, 10 December 1970.



employees. But when the Great Northern canceled its coal order in late spring 1924, Merkle closed the mine, and apparently never reopened it.<sup>184</sup>

At some unknown date prior to 1960, ACM disposed of its coal reservations and any surface rights it held to the bulk of its Belt Mine. It retained its interest in coal reservations on 1120 acres in the vicinity, though, including the O'Grady and Merritt Mine property (also known as Boston and Montana), and other acreage at the far west and south edges of its old Belt Mine. ACM, then a division of the Atlantic Richfield Company, transferred those last parcels to Dennis R. Washington in May 1986.<sup>185</sup>

## ***(2) Tracy and Centerville***

While the shipment of Belt-area coal to Butte for steam operations mostly if not completely ended with the closure of the Belt Mine, ACM had a need for coal at its Great Falls Reduction Department. The Great Falls copper smelter had become aligned with ACM in 1901 when its former owner, the Boston and Montana Consolidated Copper and Silver Mining Company (Boston and Montana), was brought under the Amalgamated Copper Company umbrella. That plant used coal as well as electricity in its industrial operations. Between 1892 and about 1914, coal fired gas-producers at the smelter's reverberatory furnaces. Later, pulverized coal replaced produced gas as a fuel for the smelter (to 1918).<sup>186</sup>

For its coal, the Boston and Montana smelter depended on several Great Falls Coal Field mines over the years. The Great Northern, through its Sand Coulee Coal Company subsidiary, and the Humphrey Mine owners (both of Sand Coulee) apparently were among the first suppliers. Within a short time, the smelter turned to the Lewis, Millard, and Merritt Mines in Belt and the Richardson Mine in Armington. By 1907, the Boston and Montana smelter received its coal from ACM's Belt Mine and the Gerber Mine in Sand Coulee. Finally, in the early 1910s,

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<sup>184</sup> G. W. Merkle, G. W. Merkle Coal Company, Belt, correspondence to ACM General Office, Butte, 5 December 1919; Geo. H. Stanton, Stanton Trust and Savings Bank, Great Falls, correspondence to ACM, Butte, 31 May 1924; G.W. Merkle, G. W. Merkle Coal Company, Belt, correspondence to ACM General Office, 24 September 1924, all in MC 169, Box 126, Folder 26; Stober, *Belt Valley History*, 29-30. Note that Stober places the mine closure in 1925, but consulted sources made no mention of activity after the spring of 1924.

<sup>185</sup> Shea and White, "Anaconda Company Coal Lands in Montana," 7-8, 10; Cascade County Clerk and Recorder, Reel 185, document 1252, 12 May 1986. The only other deed concerning ACM disposal of Belt Mine land that was provided by Meadowlark Search, Inc. involves the surface rights to 141 acres mostly northwest of the Belt Mine that was deeded to the Box Elder Live Stock Company in 1912: Cascade County Clerk and Recorder, Deed Book 7, p. 417, 18 December 1912.

<sup>186</sup> Quivik, "The Great Falls Smelter: Some Reflections on Its Significance," 7-8. At least initially a slack coal with a high ash content was used in the gas producers, and actually found to be preferable to that with a lower ash content---exactly opposite of early copper smelting requirements: Raymond Foss Bacon and William Allen Hamor, *American Fuels*, vol. 1 (New York: McGraw-Hill Book Company, Inc., 1922), 542.



the then ACM Great Falls Reduction Department relied quite heavily on coal from the Lochray Coal Company at Tracy.<sup>187</sup>

To maintain absolute control over its coal supply for the Great Falls Reduction Department, by the end of 1913 ACM was negotiating a lease and option on Lochray's coal property. The purchase price was set at \$125,000, and the option was satisfied in 1915.<sup>188</sup> The coal property offered a handful of advantages over the old Belt Mine. It was about 13 miles closer to the Great Falls Reduction Department works (by rail), the haul within the mine was short, and the coal reserves considerable.

Charles Lochray, Daniel Tracy, Florence R. Van De Putte, and E.H. Lang had incorporated the Lochray Coal Company just three years before in late November 1910.<sup>189</sup> Lochray Coal was probably one of the larger small coal companies in the Great Falls Coal Field. Its largest stockholder, Charles Lochray had been involved in the Sand Coulee-area coal business as prospector, manager, or owner apparently since 1884.<sup>190</sup> The newly-formed company had title to roughly 870 acres in the vicinity of Tracy and Brown, as well as the important Kostelak lease (Figure 19).<sup>191</sup> The volume of coal extracted by Lochray Coal between 1910 and late 1913 cannot be gauged by data contained in the sources consulted, but those sources do indicate both local trade and supply to industrial consumers. The company had agreements to supply coal to wholesalers Tod & Kelly, the Johnson Grain Company, and unnamed other suppliers that might have been secured via a Great Falls salesman who operated on commission. Also, Lochray Coal

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<sup>187</sup> Swallow, *Coal Mines of Sand Coulee*, 7; Erickson, "A History of Sand Coulee," 147; *Engineering and Mining Journal* 54, no. 13 (24 September 1892): 291; 58, no. 13 (29 September 1894): 301; "Around the Mines," 5 December 1895, 1, and "Current Notes," 20 April 1899, 3, both in *Belt Valley Times*; *Western Mining World* 3, no. 65 (14 December 1895): 283, 6, no. 124 (30 January 1897): 86; Mortson, "Bounteous Nature"; "The Gerber Coal Mines at Sand Coulee," *Great Falls Leader*, reclamation edition, by Hume; J.M. Gruber, general manager, Spokane Division, Great Northern Railway Company, correspondence to James O'Grady, president, Lochray Coal Company, 27 February 1912, MC 169, Box 251, Folder 8; Memorandum from A.E. Wheeler, 22 June 1912.

<sup>188</sup> Ransom Cooper, Florence R. Van De Putte, Daniel Tracy, and A.E. Wheeler, Lochray Coal Company, correspondence to C.W. Goodale and F.W.C. Whyte, ACM, 26 December 1913, MC 169, Box 127, Folder 11; Cascade County Clerk and Recorder, Deed Book 83, p. 325, 27 July 1915.

<sup>189</sup> Montana Secretary of State, Corporations, Lochray Coal Company, Folder D-007061, "Articles of Incorporation," 29 November 1910.

<sup>190</sup> Bryans, "Transcontinental Railroads and Coal Mining," 187-94; Stober, *Belt Valley History*, 178-79; "Local News," *Belt Valley Times*, 16 December 1897, 8; *Ninth Report of the Bureau of Agriculture, Labor and Industry of the State of Montana, for the Year Ending November 30, 1904* (Helena: Independent Publishing Company, 1904), 155.

<sup>191</sup> Memorandum from A.E. Wheeler, Great Falls, 22 June 1912; Cascade County Clerk and Recorder, Deed Book 83, p. 325, Deed Book 91, p. 263.



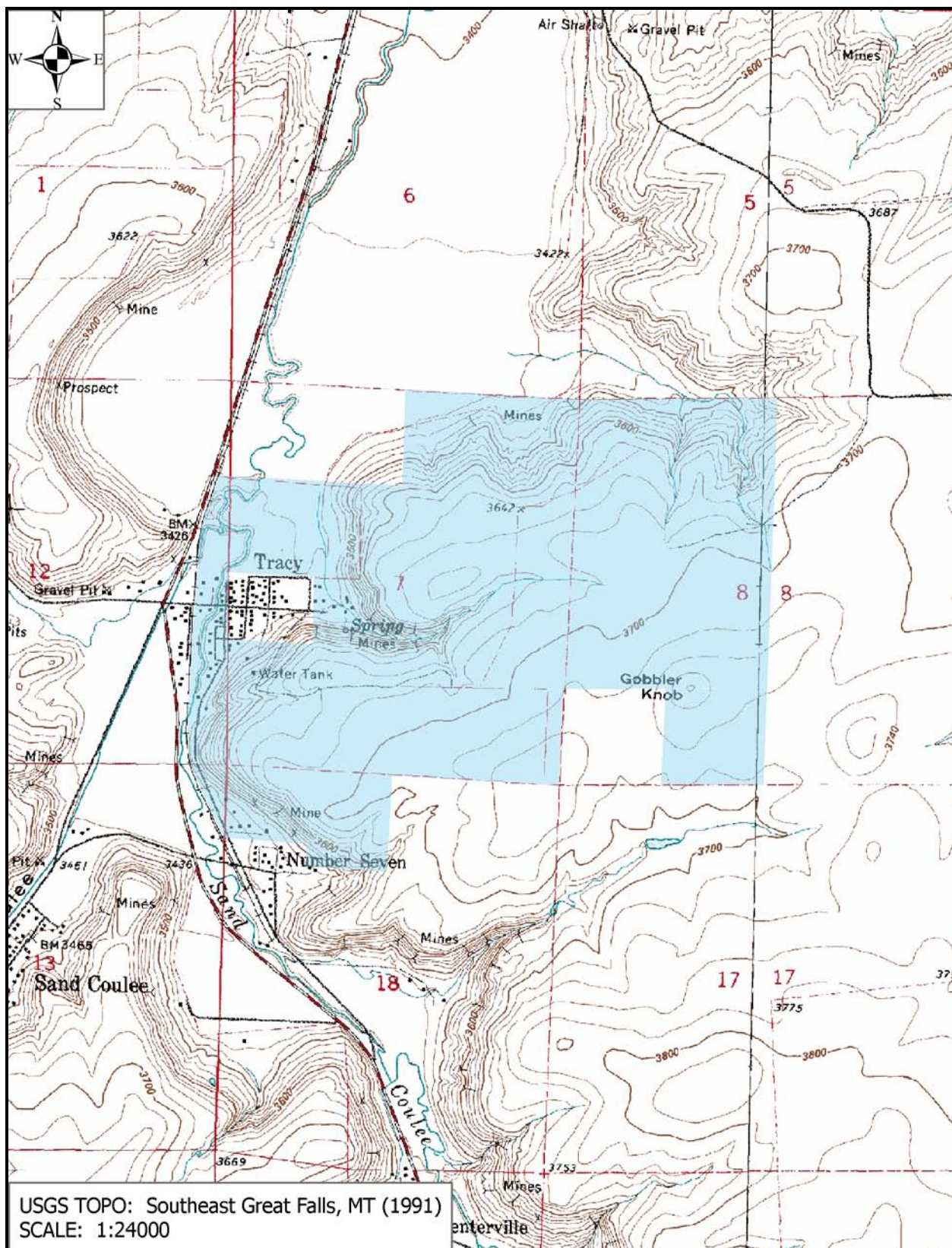


Figure 19. Portion of Southeast Great Falls topographic map, showing land in vicinity of Tracy that Lochray Coal deeded to ACM.



supplied coal to the Great Falls Power Company and of course the Great Falls Reduction Department (see above).<sup>192</sup>

When ACM began operating Lochray's property at Tracy, it worked two mines known as the Nos. 1 and 2. These were located primarily if not completely on the John Kostelak lease parcel.<sup>193</sup> Improvements at ACM's Nos. 1 and 2 mines are rarely mentioned in the sources consulted. When ACM acquired the property from Lochray Coal, buildings and structures included a frame blacksmith shop, brick substation, frame tippie, stone warehouse, frame wash house, frame office building, frame barn, frame harness room and buggy shed, frame vehicle shed, log house, and dugout powder house. Equipment included two fans, office fixtures, two wagons, a buggy, three sets of harness, a mine locomotive, two coal puncher machines, about 24 mine cars, 2 pumps, and 11 mine horses and mules. ACM improvements included a "screenage plant" added in 1916, but apparently never a washer.<sup>194</sup>

Production numbers at the Nos. 1 and 2 Mines never reached those at the peak of ACM's Belt Mine, but were respectable nevertheless. In 1914, the first year of full-time work, the mines produced just under 90,000 tons, the following year almost 108,000 tons, and in 1916 almost 160,000 tons. Sales to others constituted between 13 and 35% of the total yearly output.<sup>195</sup>

At some unknown date but certainly by 1917, ACM opened a third tunnel, naming it No. 3. Other than a map marking its location, none of the sources consulted referenced the mine, indicating little if any development and production.<sup>196</sup>

In early 1917, ACM began to develop its No. 4 Mine at Centerville about 1½ miles to the south of the Nos. 1 and 2 Mines (Figure 20), and apparently focused its operations there for the

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<sup>192</sup> S.B. Chase, Lochray Coal Company, correspondence to C.A. Sederholm, manager, ACM Coal Department, Sand Coulee, 3 February 1914, MC 169, Box 127, Folder 13.

<sup>193</sup> C.A. Sederholm, ACM Coal Department, Sand Coulee, correspondence to C.G. Lux, ACM Boston & Montana Reduction Department, 17 August 1915, MC 169, Box 251, Folder 8; C.H. Boyer, cashier, ACM Coal Department, Sand Coulee, correspondence to ACM General Office, Butte, 20 April 1915, MC 169, Box 127, Folder 16.

<sup>194</sup> "Inventory of Plant and Equipment, Lochray Coal Company, Sand Coulee, Mont.," attached to correspondence from C.H. Boyer, cashier, ACM Coal Department, Sand Coulee, to ACM General Office, Butte, 4 February 1914; O.C. Spect, cashier, ACM Coal Department, Sand Coulee, correspondence to R.D. Cole, assistant secretary, ACM General Office, Butte, 25 November 1916, both in MC 169, Box 127, Folder 12.

<sup>195</sup> Anaconda Copper Mining Company, "Annual Report," 1914, 1915, 1916.

<sup>196</sup> Anaconda Copper Mining Company, "Surface Map Mines No. 1, 2 & 3 Anaconda Copper Mining Co.—Coal Dept—." n.d., on file, Anaconda Geological Document Collection.



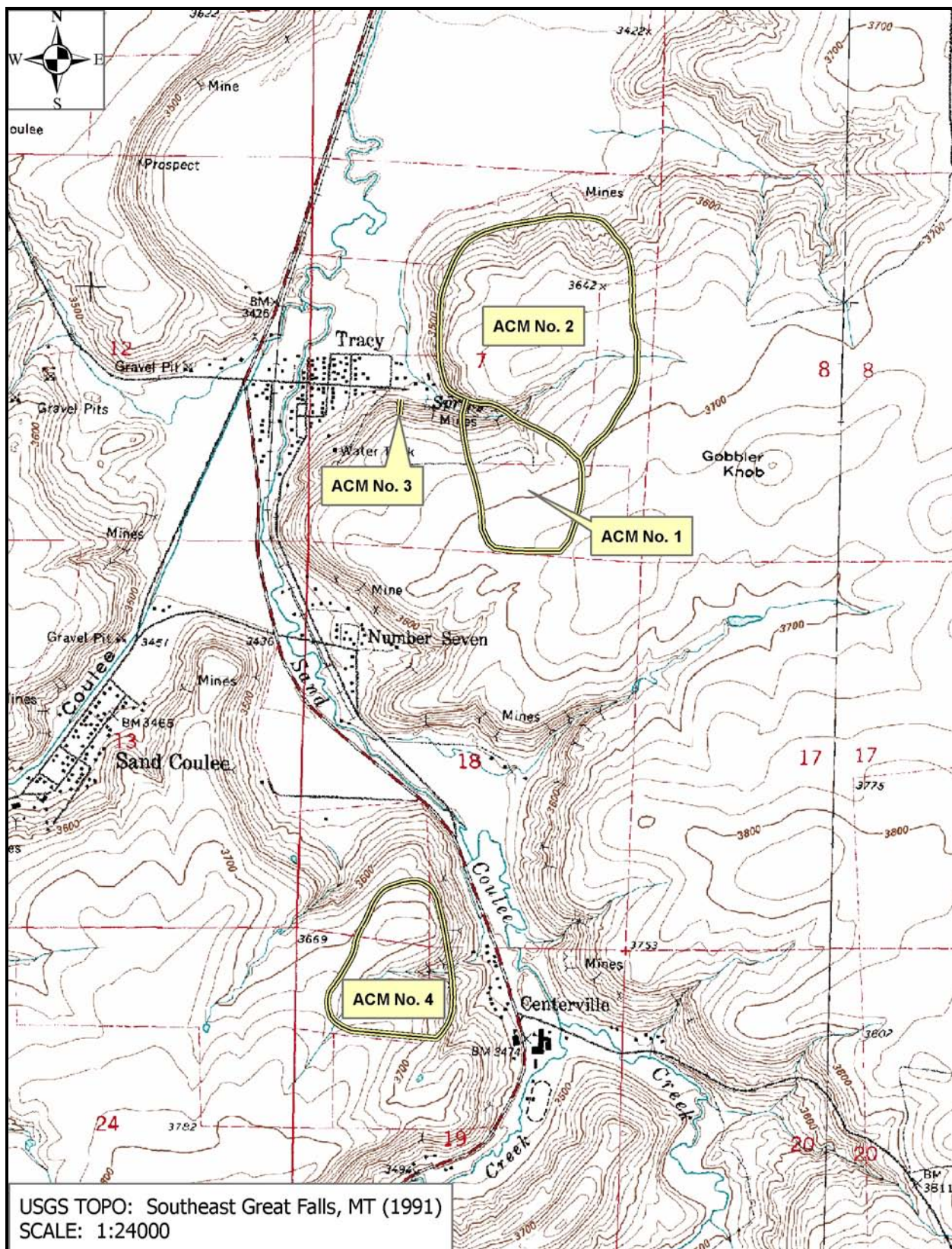


Figure 20. Map showing approximate locations of ACM's mines at Tracy and Centerville.



following seven years. However, it kept the Nos. 1 and 2 Mines working at least minimally through 1921.<sup>197</sup>

The No. 4 Mine was essentially a new development at the old Humphrey Mine. That abandoned mine, on the east side of the landform between Sand Coulee Creek and Straight Creek, reportedly opened as early as 1882 on a 135-acre parcel of coal land later patented by Mary D. Gibson.<sup>198</sup> When started, the mine served the local trade. Work was suspended within a short time, but the mine re-opened by 1888. At that time, its coal was “used for domestic and manufacturing purposes in the neighboring towns, for fuel on the Montana Central and Manitoba railroads from Butte to Grand Forks, Minnesota, and at the Great Falls Reduction Works.”<sup>199</sup> An estimate of reserves placed it at almost 2 million tons. To the advantage of its owner (unidentified in the sources consulted), the mine was self-draining. Improvements apparently included screens and chutes that dumped coal from the end of a trestle into wagons. Wagons carried the coal the  $\frac{3}{4}$  mile to the nearest place on the Sand Coulee Branch of the Montana Central Railway.<sup>200</sup> The Humphrey was abandoned by 1906, if not several years earlier.<sup>201</sup> There are no known early reports of production.

Driving a new tunnel several hundred feet from the old Humphrey portal, ACM installed new industrial and domestic surface improvements at the No. 4 Mine. These included a tipple and screening plant, blacksmith shop, mine mule stable, domestic water well and tank, dry, boarding house, and two private residences.<sup>202</sup>

The addition of the No. 4 Mine to ACM’s holdings resulted in a spike in its Sand Coulee Coal Department’s total production, which in 1917 reached over 250,000 tons. The following three years were as impressive, with reported tonnage at 292,367, 183,674, and 192,783 tons, respectively.<sup>203</sup> Production at the No. 4 ran about 40% of the total (in 1919).<sup>204</sup>

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<sup>197</sup> O.C. Spect, cashier, ACM Coal Department, Sand Coulee, correspondence to R.D. Cole, assistant secretary, ACM General Office, Butte, 10 February 1917, MC 169, Box 127, Folder 12; B.B. Thayer, vice-president, correspondence to R.D. Cole, ACM, 19 March 1917, with attached appropriation blank for ACM Coal Department – Sand Coulee, dated 24 February 1917, MC 169, Box 127, Folder 18; [R.C. Cole], assistant secretary ACM General Office, Butte, correspondence to F.W.C. Whyte, manager, ACM Coal Departments, Anaconda, 23 December 1921, MC 169, Box 127, Folder 16; “Pioneer Coal Mine of Sand Coulee Field Will Soon Be One of Biggest Producers,” *Great Falls Tribune*, 28 April 1918, Part 2, 1.

<sup>198</sup> “Pioneer Coal Mine of Sand Coulee Field,” *Great Falls Tribune*, 28 April 1918; Swallow, *Coal Mines of Sand Coulee*, 7; U.S. Bureau of Land Management, “Land Patent Details, General Land Office Records,” for SE $\frac{1}{4}$  SW $\frac{1}{4}$  and Lot 4 of Section 18, Township 19 North, Range 5 East, and NE $\frac{1}{4}$  NW $\frac{1}{4}$  and Lot 1 of Section 19, Township 19 North, Range 5 East, accessed on-line at <http://www.glorecords.blm.gov/PatentSearch>. Mary D. Gibson was Great Falls founder Paris Gibson’s daughter-in-law: Tom Stout, editor, *Montana, Its Story and Biography* (Chicago and New York: The American Historical Society, 1921), 657.

<sup>199</sup> Swallow, *Coal Mines of Sand Coulee*, 7.

<sup>200</sup> *Ibid.*, 8-9.

<sup>201</sup> U.S. Geological Survey, *Geology of the Great Falls Coal Field*, by Fisher, 64-66.

<sup>202</sup> “Pioneer Coal Mine of Sand Coulee Field,” *Great Falls Tribune*, 28 April 1918.

<sup>203</sup> Anaconda Copper Mining Company, “Annual Report,” 1917, 1918, 1919, 1920.

<sup>204</sup> “Strike of the Coal Miners,” *Great Falls Tribune*, 9 November 1919.



In addition to Lochray Coal's former clients, some other local trade, and the Great Falls Reduction Department, ACM's Sand Coulee mines shipped coal to three other industries over the years. These were ACM's Washoe smelter (during World War I, if not longer), the Montana Power Company at Holter during plant construction in 1917-18, and the Great Northern for most of the life of the No. 4 Mine. Between 1917 and 1920, tonnage shipped to clients outside of ACM accounted for between 44 and 57% of total extraction.<sup>205</sup>

One secondary source placed total production for ACM's Sand Coulee mines at 2.3 million tons.<sup>206</sup> The only known exact production figure, however, was for the year ending October 31, 1916, which recorded that 12 months worth of output at over 150,000 tons. This was accomplished with a workforce of 129 men and eight mining machines working 219 days. By 1919, operating the Nos. 2 and 4 Mines, production must have been greater. Then, ACM had crews totaling about 200 men, producing about 1100 tons of coal per day.

In early 1921, ACM estimated that just 500,000 tons of coal remained in its No. 4 Mine at Centerville.<sup>207</sup> That spring it closed for some unknown period, due to a general "business depression."<sup>208</sup> After re-opening, production flagged to the end of ACM's operations. One source placed production in early 1923 at 2000-2400 tons per week, equivalent to about 110,000 tons per year.<sup>209</sup> If extraction continued somewhere between the 1916 and 1921 paces, then the coal deposit at the No. 4 Mine was all but exhausted when ACM closed down in 1924.<sup>210</sup>

As early as September 1923, the Great Falls Reduction Department was replacing coal with oil as a fuel for its industrial applications.<sup>211</sup> In that climate, the ACM's abandonment of operations at Sand Coulee was inevitable. For the few months in 1924 prior to closure, the

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<sup>205</sup> Ibid.; O.C. Spect, cashier, ACM Coal Department, Sand Coulee, correspondence to R.D. Cole, assistant secretary, ACM General Office, Butte, 25 November 1916, MC 169, Box 127, Folder 12; F.W.C. Whyte, ACM Coal Department, Anaconda, correspondence to James O'Grady, Great Falls, 13 September 1917, MC 169, Box 251, Folder 8; "Coal Shipments" ACM Coal Department, Sand Coulee, MC 169, Vol. 517; "Strike of the Coal Miners Completely Paralyzes the Greatest Single Industry of Cascade County," *Great Falls Tribune*, 9 November 1919, Part 2, 4.

<sup>206</sup> Montana Bureau of Mines and Geology, *Stratigraphy and Economic Geology of the Great Falls-Lewistown Coal Field*, by Silverman and Harris, 1.

<sup>207</sup> [?] Thesselt, cashier, ACM Coal Department, Sand Coulee, correspondence to R.D. Cole, assistant secretary, ACM General Office, Butte, 5 February 1921, MC 169, Box 127, Folder 17.

<sup>208</sup> Wilcox, "His Record of Anaconda Copper Mining." The closure was probably brief; Wilcox noted that the zinc plant at the Great Falls Reduction Works was only closed for 2½ months.

<sup>209</sup> "Outline of Operations for Coal Department, Sand Coulee," 1 February 1923, MC 169, Box 251, Folder 8.

<sup>210</sup> In fact, in 1920 ACM calculated that its Sand Coulee operation would be finished in about three years: V.R. Traer, assistant engineer, [Great Northern], Great Falls correspondence to T.G. Hastie, district engineer, [Great Northern], Great Falls, 28 January 1920, Great Northern Railway Collection.

<sup>211</sup> J.J. O'Leary, ACM Coal Department, Sand Coulee, correspondence to R.D. Cole, assistant secretary, ACM General Office, 27 September 1923, MC 169, Box 127, Folder 11; K.B. Frager [?], chief clerk, ACM Great Falls Reduction Department, correspondence to R.D. Cole, assistant secretary, ACM, Butte, 8 January 1924, MC 169, Box 127, Folder 13.



average number of employees was just over 25, or down by over 100 from its count in 1916. On March 31, 1924, ACM closed its Coal Department at Sand Coulee. Its mines there had produced 2.3 million tons of coal during the company's 11-year run at Sand Coulee.<sup>212</sup>

As it had done with its Belt Mine, ACM leased some of its Sand Coulee coal property to other miners at the end of its own run there. At some unknown date prior to May 1924, ACM dropped its Kostelak lease that covered part of the Nos. 1 and 2 Mines, although left some of its equipment on-site. Subsequently, a group of five men leased the old property and paid a small royalty to ACM for use of equipment left at the mine. Those men---A.L. Gillin, Swan Brackett, George Cooley, H.F. Thoma, and G.G. Gregoire---almost certainly produced enough coal to be used for local trade only, although no records of their production are known. Neither is the length of their lease.<sup>213</sup>

Ed Gerber, Jr. also reportedly leased and mined the ACM No. 4 "for a short period."<sup>214</sup> He apparently turned it over to a company bearing his name, Gerber Coal Company, shortly after he, Christina Gerber, and R.M. Armour incorporated the Gerber Coal Company on August 1, 1931. When the company filed its annual report with the Montana Secretary of State for the year 1934, apparently Mr. Gerber Jr. was deceased. William Navin, the former mine superintendent for the Carbon Coal and Coke Company (see below), had assumed the positions of president and general manager.<sup>215</sup>

In the early 1940s, Gerber Coal had a workforce of up to 30 men during the winter months and less than 10 during the summers. All work was accomplished by hand, with the aid of horses. In 1942, the ACM No. 4 produced just over 95,000 tons of coal. Records of production for the remainder of World War II are not available, but estimates for the first half of 1943 suggest smaller actual production figures for 1943 and 1944.<sup>216</sup>

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<sup>212</sup> R.D. Cole, assistant secretary, ACM, Butte, correspondence to ACM Coal Department, Sand Coulee, 5 May 1925, MC 169, Box 377, Folder 8; ACM Coal Department, (Tracy) Sand Coulee, "Annual Report of the Operators of Coal Mines for the Year Ending October 31<sup>st</sup> 1916 to the State Coal Mine Inspector of Montana"; R.E. Reed, ACM Coal Department, Sand Coulee, correspondence to R.D. Cole, assistant secretary, ACM, Butte, 7 May 1924, MC 169, Box 127, Folder 16; "ACM Coal Department-Sand Coulee, Montana, General Expenses, January 1925," MC 169, Box 376, Folder 1; Wilcox, "His Record of Anaconda Copper Mining"; Montana Bureau of Mines and Geology, *Stratigraphy and Economic Geology of the Great Falls-Lewistown Coal Field*, by Silverman and Harris, 1.

<sup>213</sup> R.E. Reed correspondence to R.D. Cole, ACM General Office, Butte, 7 May 1924; F.W.C. Whyte correspondence to ACM General Office, 9 May 1924, MC 169, Box 127, Folder 16.

<sup>214</sup> Giannini, *Sand Coulee, An Early Coal Mining Town*, 41.

<sup>215</sup> Montana Secretary of State, Corporations, Gerber Coal Company, Folder D-017415, "Articles of Incorporation," 1 August 1931; "Annual Report Montana Corporations," for 1934; "Annual Report Montana Corporations," for 1944.

<sup>216</sup> Gerber Coal Company, responses to questionnaire from Emergency Co-ordinator of Mines for Montana, n.d., attached to correspondence by Tom D. Caverly, 9 October 1941, "For Montana Mines Working Under Preference Order P-56," n.d., "Coal Mines: Application for Quarterly Quotas for Maintenance, Repair, and Operating Supplies," 27 February 1943, all in Manuscript Collection 239, Box 10, Folder 14, Montana Historical Society Research Center, Helena.



In late March 1945, Gerber Coal ceased doing business. The following month, ACM sold its Tracy and Centerville property to Ernest Downing, a Gerber Coal director and former officer of the Brown Coal Company (another Sand Coulee area operator; see Section 4.D.3). In the following year, Downing deeded the old mine property to George F. Heal, Gerber Coal's mine manager at the ACM No. 4 beginning in 1938. None of the sources consulted identified Downing or Heal as operators after 1945.<sup>217</sup>

### (3) *Spring Creek*

ACM had an interest in one other area of the Great Falls Coal Field---Spring Creek. Spring Creek is located about halfway between Belt and Sand Coulee. In late 1919, ACM acquired considerable acreage there, including 1177 acres of coal rights, 200 acres of coal and surface rights, and 200 acres of surface rights only at a purchase price of \$157,655.00 (Figure 21).<sup>218</sup>

ACM conducted considerable exploration at the Spring Creek (No. 5 Mine) site, and seems to have been fairly close to actually opening the mine. Coal reserves were estimated at 14 million tons. In early 1920, ACM was in discussions with the Great Northern about building a branch line to the No. 5 Mine site. Work was delayed, apparently, but as late as 1922 ACM must still have been considering developing the property.<sup>219</sup> One list of area coal mines prepared in 1927 noted that ACM held the Spring Creek property "as a reserve coal supply for their smelter at Great Falls."<sup>220</sup> There are no known reports that the Spring Creek Mine ever opened, however. It seems possible that the drop in the price of commodities after World War I and the Great Falls Reduction Department's conversion from coal to oil weighed heavily in ACM's decision to forego development.

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<sup>217</sup> Raunig and others, *Gulch Area History*, 197; Montana Bureau of Mines and Geology, *Directory of Montana Mining Properties, 1940*, Memoir 20, 16; Cascade County Clerk and Recorder, Deed Book 182, p. 84; Deed Book 190, p. 150; Montana Secretary of State, Corporations, Gerber Coal Company, "Statement Dissolving Gerber Coal Co.," 26 December 1945.

<sup>218</sup> [R.D. Cole], assistant secretary, ACM Butte, correspondence to F.W.C. Whyte, manager, ACM Coal Departments, Anaconda, 2 June 1921, MC 169, Box 127, Folder 13; Wilcox, "His Record of Anaconda Copper Mining"; "Detailed Description of the Lands Purchased by the Anaconda Copper Mining Company at Spring Creek," attached to correspondence from R.D. Cole, ACM General Office, Butte, to M.T. Messelt, cashier, ACM Coal Department, Sand Coulee, 31 December 1919, MC 169, Box 127, Folder 12; [R.D. Cole], assistant secretary, ACM General Office, Butte, correspondence to M.T. Messelt, cashier, ACM Coal Department, Sand Coulee, 29 September 1919, MC 169, Box 127, Folder 12; M.H. Gidel and C.H. Steele, "Report on the Spring Creek Coal Field near Sand Coulee, Mont." (Butte: Anaconda Copper Mining Company Geological Department, 1919), 4, on file, Anaconda Geological Document Collection.

<sup>219</sup> V.R. Traer, correspondence, 28 January 1920; J.E. Peters, G.W. Merkle Coal Company, Belt, correspondence to R.D. Cole, assistant secretary, ACM, Butte, 18 January 1922, MC 169, Box 127, Folder 20.

<sup>220</sup> I. Milton, Stockett, correspondence to F.A. Schack, Great Northern Railway Company, purchasing department, 12 March 1927, Great Northern Railway Collection.



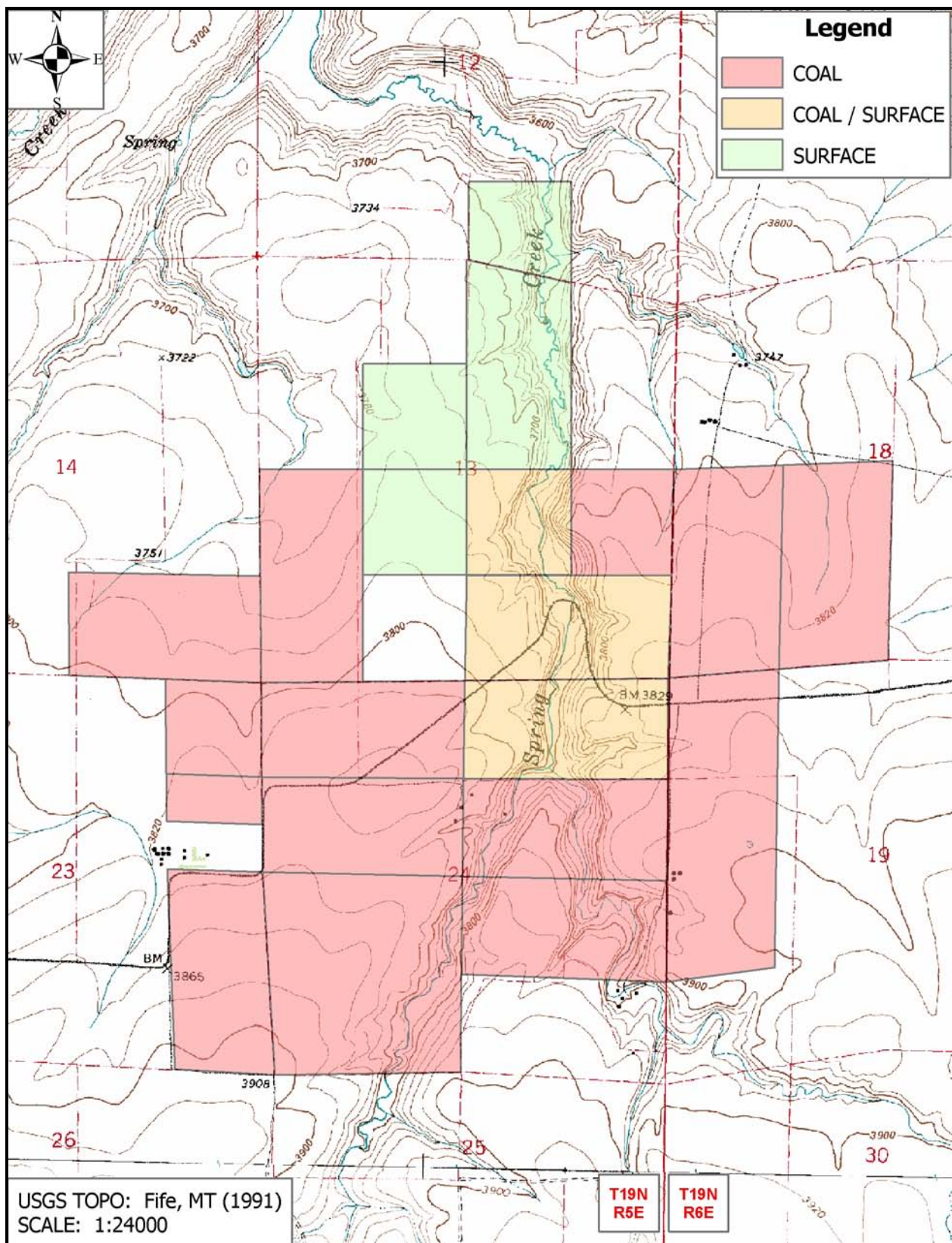


Figure 21. Portion of Fife topographic map showing lands held by ACM at its Spring Creek prospect.



ACM retained its interest in its coal reservations at Spring Creek until 1986 when it deeded them to Dennis R. Washington. I had disposed of its surface rights at some unknown date prior to 1960.<sup>221</sup>

#### **D. Selection of Smaller Great Falls Coal Field Mines**

The previous sections of this narrative have concentrated on histories of the Sand Coulee and Stockett mines of the Great Northern and its coal subsidiaries, the ACM Coal Departments at Belt and Sand Coulee, and small enterprises preceding and succeeding those large operations at the same locations. In this section, the histories of six properties are used to illustrate coal mining on a smaller scale. Including commercial mines yielding up to 1000 tons of coal per day to much smaller truck mines, these brief histories note operations generally spanning the first half of the twentieth century.

These smaller operations are not so well documented in primary and secondary source materials as are the large Great Northern and ACM mines. Their stories rely more heavily on anecdotal information gleaned from local and family histories. However, in their own way, they dramatize the decline in the coal mining business in the Great Falls Coal Field to the point after World War II when only a handful of mostly family-owned enterprises remained.

On the Sand Coulee side of the field, histories of the Nelson Coal, Gerber, and Brown Coal mines are those of three of the more productive “small” properties (Figure 22). Each opened at or after the turn of the twentieth century, those mines together were responsible for producing in excess of 1 million tons of coal. The three had distinct histories, ending operations by World War II. The sole exception was a family-run business (William Surmi & Son) adjacent to the former Brown Coal Mine which ran into the 1960s.

At Belt, two long-lived coal mines are used as examples of small coal mining operations in that area. The Millard Mine opened in 1879 and, although operated intermittently and usually with a small number of workers, was not permanently closed until World War II. Throughout most of the mine’s life, it was owned and operated by members of the Henry Millard family. The East Belt Coal Mine just north of Belt began in the early 1900s as the Orr Brothers’ mine. Under the management of only a few owners and operators during its 60-year life, the mine ran with some regularity, particularly after taken over by lessees in the late 1920s.

The last mine history provided in this section is for the Richardson Mine at Armington. Opened in 1902 just a few years before the Orr Brothers started their mine in Belt, the Richardson seems to have been the least productive of the five discussed here. The most active period was during the first decade of the twentieth century. In the 1920s and 1930s, if operated at all, the mine was worked by lessees who may have used its coal for little more than their personal needs.

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<sup>221</sup> Shea and White, “Anaconda Company Coal Lands in Montana,” 8; Cascade County Clerk and Recorder, Reel 185, document 1252.



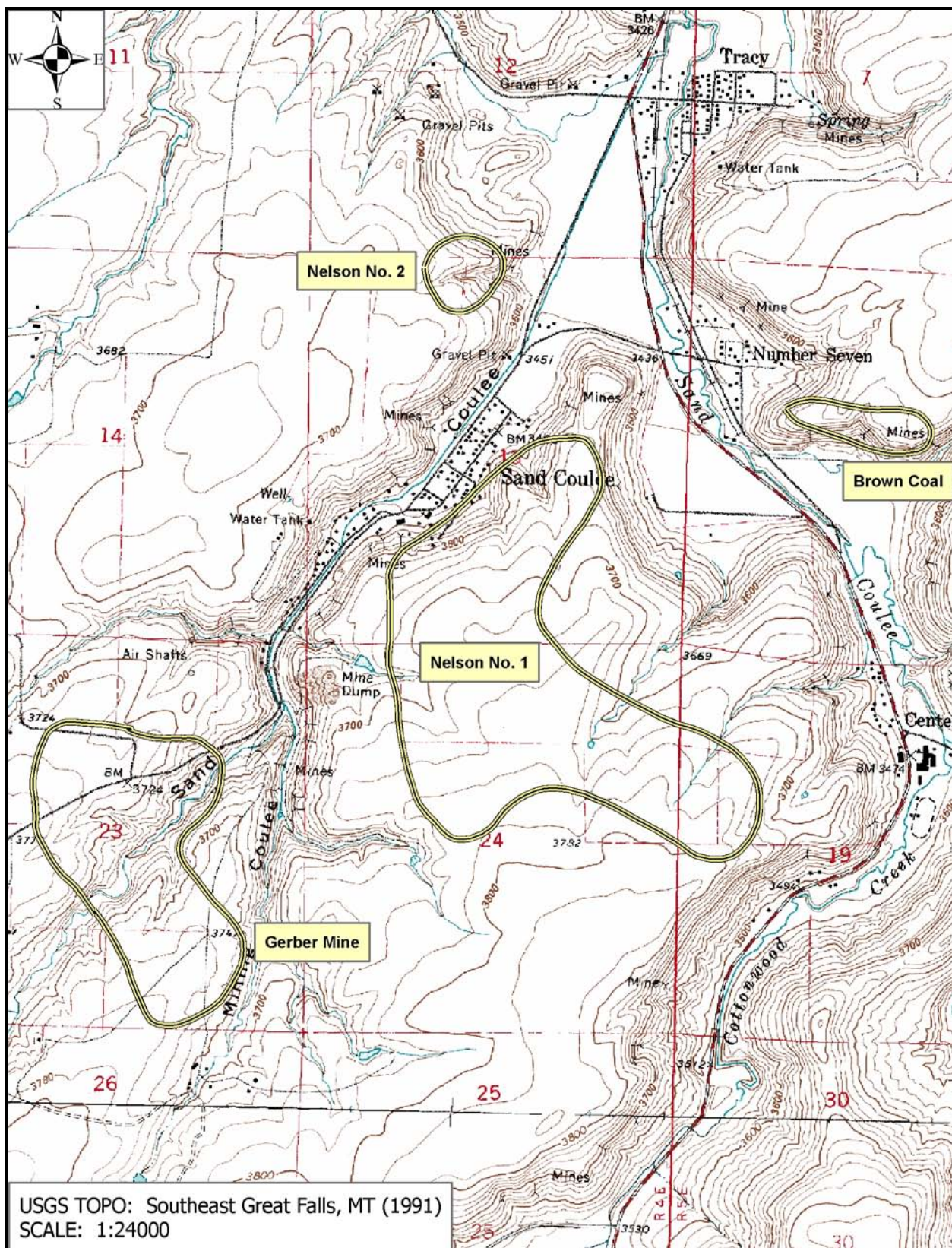


Figure 22. Map showing approximate locations of Nelson, Gerber, and Brown Coal Mines in Sand Coulee area.



### ***(1) Dean/Culberson and McKean/Nelson Coal/Cottonwood Coal No. 8 Mine***

The Dean/Culberson and McKean/Nelson Coal/Cottonwood Coal No. 8 succession of mine names involves more or less a single locality on the hill between Sand Coulee/Cottonwood Creek and Straight Creek. Begun as separate mines in the 1880s, the Dean and the Culberson and McKean were two small mines that approached the same coal bed from opposite drainages. In 1902, the two were joined in the hands of a single owner, the Nelson Coal Company, which made a large producer of the old properties. About 20 years later, the Cottonwood Coal Company acquired the mine, apparently working it only briefly. In all, the mine was an important property in the history of Sand Coulee for over 40 years.

Samuel Dean has been credited with the discovery of coal in the Sand Coulee area in 1882. He likely made a (preemptive) claim and started to work the mine within a short time. The Dean Mine was described as small and irregularly worked in the late 1880s, at about the time he patented his 160-acre parcel of coal land overlooking the young town of Sand Coulee (May 1888). Nevertheless, it was well-positioned from a topographic standpoint, being between  $\frac{1}{4}$  and  $\frac{1}{2}$  mile of the Montana Central Railway's Sand Coulee branch line.<sup>222</sup>

Lacking the financial backing necessary to make the Dean Mine a large producer, the owner was content to deliver coal to the railroad via wagons, it appears. The mine's product was sent to Great Falls, where it was apparently consumed on the domestic market. With the single exception of a report of production for 1890, the mining press made no mention of the Dean Mine during the 1890s. It was so obviously and overwhelmingly overshadowed by the Sand Coulee Coal Company operations. Nevertheless, estimated reserves of 1 million tons of coal made the Dean Mine an attractive package for a well-backed coal company.<sup>223</sup>

One mile southeast of the portal of the Dean Mine was that of the Culberson and McKean. Just one month after Dean's 1888 patent, Davala Culberson patented 135 acres of coal land above Sand Coulee (the drainage) and Grant McKean 160 acres roughly between the two men's claims. Like the Dean Mine, the Culberson and McKean Mine was worked by hand, with coal loaded onto wagons and then freighted less than  $\frac{1}{2}$  mile to the Montana Central Railway. No production figures are available for the property during its early years of operation, but one estimate placed the coal reserves at 4 million tons.<sup>224</sup>

It was not until after the turn of the twentieth century that a well-financed coal company took an interest in the old Dean Mine and Culberson and McKean Mine. In late October 1902,

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<sup>222</sup> Giannini, *Sand Coulee, An Early Coal Mining Town*, 8; Swallow, *Coal Mines of Sand Coulee*, 11-13; U.S. Bureau of Land Management, "Land Patent Details, General Land Office Records," for W $\frac{1}{2}$  SE $\frac{1}{4}$ , SE $\frac{1}{4}$  SW $\frac{1}{4}$ , and SE $\frac{1}{4}$  SE $\frac{1}{4}$  of Section 13, Township 19 North, Range 4 East, accessed on-line at <http://www.glorerecords.blm.gov/PatentSearch>.

<sup>223</sup> Swallow, *Coal Mines of Sand Coulee*, 11-13; *Mineral Resources, 1889-1900*, 229.

<sup>224</sup> U.S. Bureau of Land Management, "Land Patent Details, General Land Office Records," for SE $\frac{1}{4}$  NW $\frac{1}{4}$  and Lots 2 and 3 of Section 19, Township 19 North, Range 5 East, and SE $\frac{1}{4}$  NE $\frac{1}{4}$  of Section 24, Township 19 North, Range 4 East, and N $\frac{1}{2}$  NE $\frac{1}{4}$  and E $\frac{1}{2}$  NW $\frac{1}{4}$  of Section 24, Township 19 North, Range 4 East, accessed on-line at <http://www.glorerecords.blm.gov/PatentSearch>.



the Nelson Coal Company incorporated and obtained title to about 450 acres covering the two mines (Figure 23). Eventually it was said to have amassed the rights to over 3000 acres, apparently primarily through lease agreements, but it seems that most of the company's active mining was restricted to the old Dean and Culberson/McKean properties.<sup>225</sup>

Nelson Coal incorporators John G. and A. Oscar Nelson and Samuel McClure, all residents of Stillwater, Minnesota, were very involved in the mine's operation. Additionally, early Sand Coulee area coal prospector Charles Lockray served as the new mine's first superintendent.

The new mine, operated out of the old Dean (west) side of the property, was named the Nelson No. 1 Mine. Work began with construction of a trestle between the mine and railroad. During the first year of mining (1903), the mine yielded just 53,000 tons, but quickly grew to be a high producer. In 1905-06, between 130 and 200 men were employed and they produced at least 500 tons of coal per day.<sup>226</sup>

While Nelson Coal was building its operation at the Nelson No. 1, another mine across the coulee started. In 1905, Charles Lochray had opened the mine that later came to be called the Nelson No. 2. Apparently having left Nelson Coal by then, he worked it only briefly. "The Nelsons," presumably John G. and Oscar of the Nelson Coal Company, acquired that mine shortly thereafter, but did not work it immediately.<sup>227</sup>

In late 1906, the Nelson-Jenks Coal Company, a Montana concern, took over the Nelson No. 1 under the terms of a five-year lease. Formed by Oscar Nelson, C.O. Jenks, and Sam Stephenson, the coal mining corporation appears to have been a small but productive outfit. All shares of company stock were held by the incorporators, with Nelson and Jenks holding the bulk of those shares.<sup>228</sup>

Production at the Nelson No. 1 was significant under the Nelson-Jenks lease. It may also have been during that period that the Nelson No. 2 was brought into production. In 1907, the Nelson-Jenks Mines were the largest producers in Sand Coulee, yielding almost 164,000 tons of coal with a workforce of more than 180 men. In 1908, Nelson-Jenks reportedly produced 113,612 tons of coal. In 1909, the operation was identified as one of the top three by

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<sup>225</sup> Jones, "Great Commercial Benefits," 61. One source stated that the Cottonwood Coal Company worked what would become the Nelson No. 1 Mine "extensively" prior to moving its operation to Stockett, but no other consulted sources substantiated that contention: U.S. Geological Survey, *Geology of the Great Falls Coal Field*, by Fisher, 63; Cascade County Clerk and Recorder, Deed Book 38, p. 12, 29; Montana Secretary of State, Corporations, Nelson Coal Company, Folder D-003851, "Articles of Incorporation," 27 October 1902.

<sup>226</sup> "Sand Coulee," *Belt Valley Times*, 22 January 1903, 8; J.P. Rowe, "The Montana Coal Fields: Their Commercial Value," 243; University of Montana, *Montana Coal and Lignite Deposits*, by Rowe, 38.

<sup>227</sup> U.S. Geological Survey, *Geology of the Great Falls Coal Field*, by Fisher, 63.

<sup>228</sup> "Strike of the Coal Miners," *Great Falls Tribune*, 9 November 1919; Montana Secretary of State, Corporations, Nelson-Jenks Coal Company, Folder D-005182, "Articles of Incorporation," 14 December 1906.



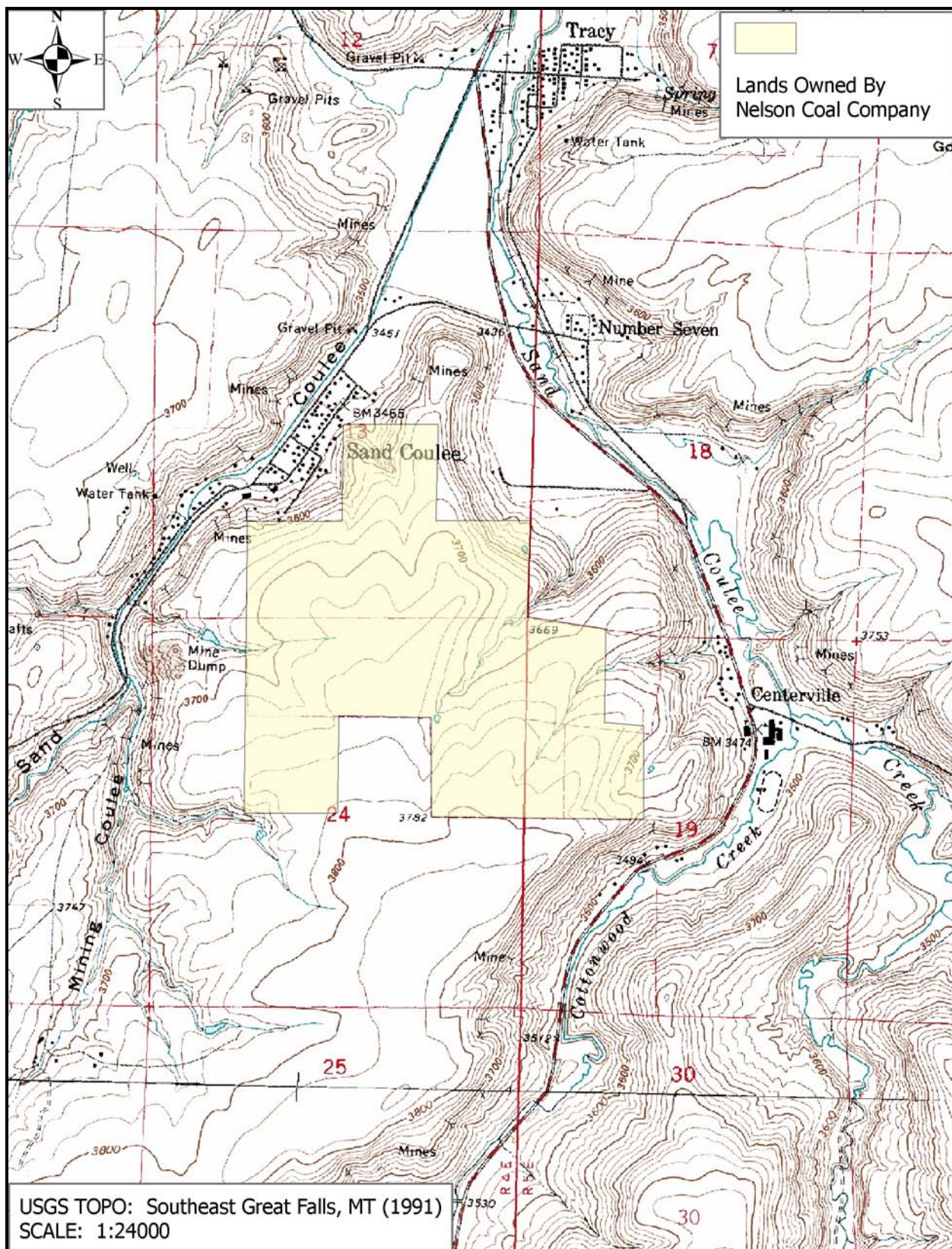


Figure 23. Portion of Southeast Great Falls topographic map showing lands owned by Nelson Coal at Nelson No. 1 Mine.



volume in the Sand Coulee/Stockett area, and at about that time employed 175 men. In that and the following year, the company produced between 172,000 and 183,000 tons of coal.<sup>229</sup>

Improvements and equipment in the mine and at the surface works were fairly minimal but serviceable (Figure 24). They included ventilation via a 12-foot fan, three water pumps, mining machines, a hand-picking table, and a shaking screen, all operated by steam. Haulage was accomplished with mules only. Machine mining replaced pick work in 1904.<sup>230</sup>

One of the reasons Nelson-Jenks was able to so successfully operate its mines was supposedly because of a relationship between incorporator Jenks and the Great Northern. Jenks had worked for the railroad in some unknown capacity prior to forming Nelson-Jenks. When Great Northern president James J. Hill wanted to re-hire Jenks (who later went on to become the vice-president of operations), he refused saying “he had this coal mine to take care of.” Hill reportedly relieved Jenks of any worries he might have had about the mine’s success when he agreed to purchase all of its production at a premium price.<sup>231</sup>

In 1912, immediately after Nelson-Jenk’s five-year lease had expired, the original Nelson Coal Company resumed mine management, under the direction of Oscar Nelson and then corporate vice-president Frank McClure. Two years later, John McClure assumed management of the mine, while also serving as Nelson Coal’s president.<sup>232</sup> According to one report, neither operation appears to have matched the success of the Nelson-Jenks work. Between about 1912 and 1914, Nelson Coal suffered the loss of its important contracts, with its coal purchasers complaining about product quality. In response to those complaints, Nelson Coal brought a new general manager to Montana. James P. Danson instituted \$40,000 worth of improvements to the Nelson No. 1 Mine, calling it for at least a time the Economy No. 1. The improvements made in 1915 included an electrical water pumping system and railway track repair. What was described as “the smaller mine,” presumably the No. 2, was also re-opened after a closure of unknown duration. To address the coal quality issue, Danson instructed miners to cut the coal such that impurities were left in the mine. Also, as had been done earlier, coal that was pulled from the mine was screened, but the nut coal then carefully hand-picked to reduce the chance of the inclusion of impurities. Finally, there were plans to erect a re-screening plant and a washing plant for “the smaller coal.”<sup>233</sup>

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<sup>229</sup> Mortson, “Bounteous Nature”; Rowe, “Coal and Lignite Deposits of Montana,” 718; Rowe, “The Coal-mining Industry of Montana,” 847; Shurick, “The Great Falls Coalfield,” 587; U.S. Geological Survey, *Geology of the Great Falls Coal Field*, by Fisher, 64.

<sup>230</sup> U.S. Geological Survey, *Geology of the Great Falls Coal Field*, by Fisher, 64; University of Montana, *Montana Coal and Lignite Deposits*, by Rowe, 38; Mortson, “Bounteous Nature.”

<sup>231</sup> Chuck Hatler, posting regarding Great Northern Railway’s Great Falls operations, 10 October 2000, accessed at [www.gngoat.org/great\\_falls.htm](http://www.gngoat.org/great_falls.htm), 3 March 2009.

<sup>232</sup> “Strike of Coal Miners,” *Great Falls Tribune*, 9 November 1919; Jones, “Great Commercial Benefits,” 61.

<sup>233</sup> “Nelson Coal Company is Making Big Improvements in Mines at Sand Coulee,” *Great Falls Tribune*, 24 October 1915, Part 2, 1, 8. Electricity had been employed for drilling, lighting, ventilation, screening, and loading since 1913: *The Mineral Industry, its Statistics, Technology and Trade during 1913*, edited by G.A. Roush (New York: McGraw-Hill Book Company, 1914), 106; Jones, “Great Commercial Benefits,” 61.





**Figure 24. Undated photograph (ca. 1905-1910) reportedly of Nelson-Jenks Coal's operation at Sand Coulee (courtesy of The History Museum, Great Falls).**

Production numbers from 1915 (when most improvements were completed) to the end of World War I were rarely reported in the sources consulted. In 1915, however, it was hoped that the No. 1 Mine would produce 1000 tons per day and the No. 2 another 200 tons. Certainly, the number of workers employed during World War I supported those figures, running as high as almost 260. In 1918 alone, using electrical power to operate its mine and surface plant, the Nelson No. 1 produced 161,348 tons of coal, rivaling the production numbers from the 1906-1911 lease.<sup>234</sup>

As noted above, the Great Northern purchased most of Nelson Coal product, at least during its early years of operation. Some coal was shipped to Great Falls as well. One report in 1907 noted contracts with military posts in western Montana and shipments to markets as far away as Seattle. Nelson Coal sold locally, the amounts perhaps depending on Sand Coulee demand and pressure from outside industrial markets.<sup>235</sup>

<sup>234</sup> "Nelson Coal Company is Making Big Improvements," *Great Falls Tribune*, 24 October 1915; Cash Books (including numbers of employees on payroll), Volumes 1 and 2, in Manuscript Collection 135, Montana Historical Society Research Center, Helena; Montana State Bureau of Mines and Metallurgy, *Directory Montana Metal and Coal Mines*, University of Montana Bulletin Bureau of Mines and Metallurgy Series 2 (Butte: State School of Mines, 1919), 28.

<sup>235</sup> Rowe, "Montana Coal Fields: Their Commercial Value," 243; University of Montana, *Montana Coal and Lignite Deposits*, by Rowe, 38; Rowe, "The Coal-mining Industry of Montana," 847; Morton, "Bounteous Nature"; Jones, "Great Commercial Benefits," 61.



After World War I, production fell off considerably, but as late as 1921, Nelson Coal still had 76 workers on the payroll. In the following year, the corporation extended its 20-year term of existence another 20 years, signaling the intention to continue work at the mine for some time.<sup>236</sup>

During the 1920s, the operations of the Nos. 1 and 2 Mines diverged, with small-time miners assuming work at the No. 2 and the Cottonwood Coal Company work at the No. 1. For some unknown period but at least in 1927, the Erbetta Coal Company leased the No. 2 Mine. That operation yielded 350 tons of coal per week, indicating a small though clearly commercial enterprise. Another source noted that Pete Emperur re-opened the No. 2 Mine in the 1930s, and closed it, apparently for good, in about 1937.<sup>237</sup>

The Cottonwood Coal Company may have purchased the old Nelson No. 1 Mine as early as 1923, and apparently operated it until about January 1926. After being closed for about 1½ years, in the fall of 1927, the company began “cleaning caves, timbering, repairing tracks and pipelines” in anticipation of re-opening what it called its No. 8 Mine (Figure 25).<sup>238</sup> To minimize costs, it planned to mine the property by having its own personnel cutting, drilling, and breaking the coal, while paying contractors solely for loading. This and other decisions that minimized costs were all in acknowledgement of the small reserves at the mine but also the Great Northern’s continuing need for less-expensive coal after the closure of its Lehigh and Stockett Mines (see Section 4.B.2). It appears that the company deemed it worthwhile to get out what coal that it could, but had no commitment to long-term operation of the No. 8 Mine.<sup>239</sup>

The mine opened in mid-December 1927, and, in the following month, production averaged just under 225 tons of coal per day. That number was increased to 237 tons in February. While the underground workings had been repaired, the surface works, including the tipple, conveyor tables, and screens, were “all in bad shape,” and there were no plans for their repair (Figure 26 and 27).<sup>240</sup> Mined coal was to be used exclusively for Great Northern operations, for engines, stations, or its Havre power house.<sup>241</sup>

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<sup>236</sup> “Strike of the Coal Miners,” *Great Falls Tribune*, 9 November 1919; Cash Book, Volume 2 in MC 135.

<sup>237</sup> Anderson, *Giffen, Antelope Creek ... Mines in the Sand Coulee District*.

<sup>238</sup> Carbon Coal and Coke Company [?], correspondence to James T. Maher, president, Cottonwood Coal Company, 24 November 1927, Great Northern Railway Collection.

<sup>239</sup> Ibid.; I. Milton, local accountant, Stockett, correspondence to James T. Maher, president, Cottonwood Coal Company, St. Paul, 14 October 1927 and 11 February 1928, Great Northern Railway Collection.

<sup>240</sup> I. Milton, local accountant, Stockett, correspondence to James T. Maher, president, Cottonwood Coal Company, St. Paul, 14 December 1927, 26 December 1927, and 11 February 1928, Great Northern Railway Collection.

<sup>241</sup> James T. Maher, president, Cottonwood Coal Company, correspondence to C.O. Jenks, vice-president, George H. Hess, Jr., comptroller, and F.I. Plechner, purchasing agent, all of Great Northern Railway, 30 December 1927, Great Northern Railway Collection.



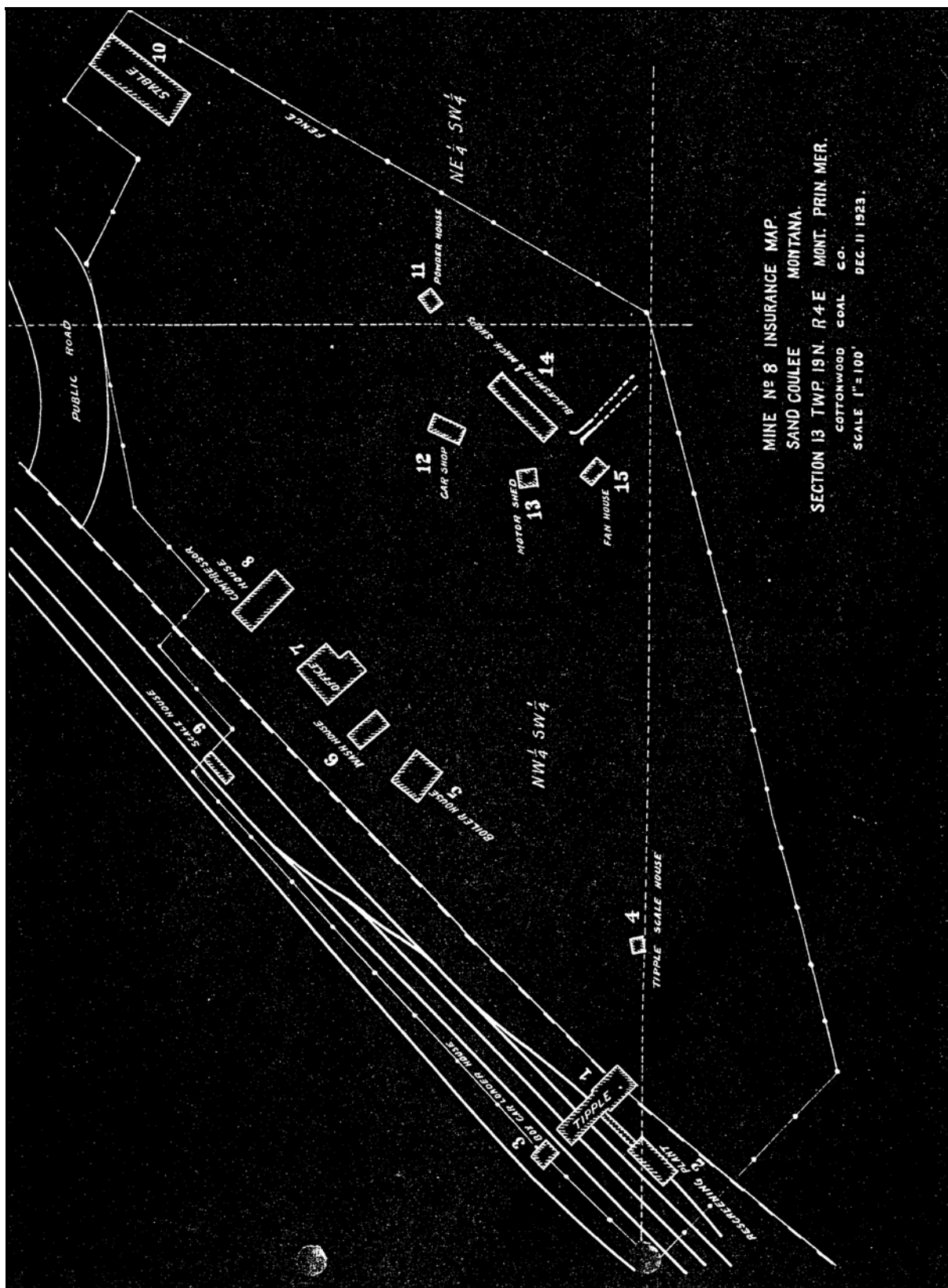
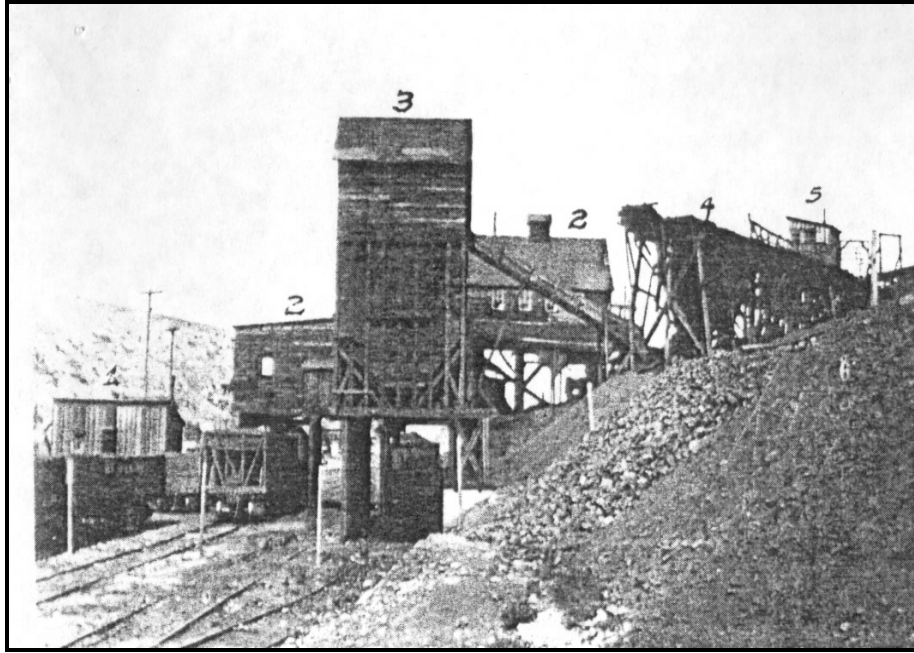
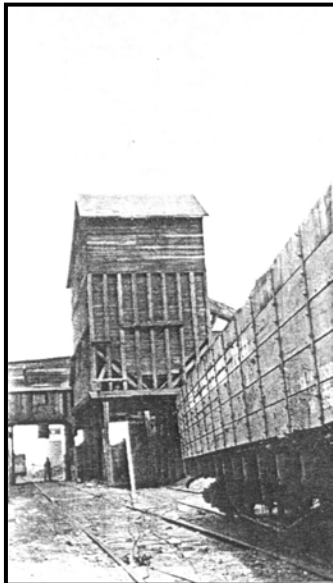


Figure 25. Plan of surface works at Nelson No. 1 / Cottonwood Coal's No. 8 Mine in 1923  
(Great Northern Railway Collection).





**Figure 26. Photograph of tippie, rescreening plant, and other structures at No. 8 Mine in 1923 (Great Northern Railway Collection).**



**Figure 27. Another view of rescreening plant at No. 8 (Great Northern Railway Collection).**

Shortly before re-opening the mine, Cottonwood Coal expected to have a crew of 43 men working at its No. 8 Mine. Unfortunately, reports of operations after early 1928 are unavailable in the sources consulted. Given that very little coal was left in the mine, even at its acquisition, it seems likely that the No. 8 Mine was abandoned within a short time, possibly within the year.<sup>242</sup> At its closure, Cottonwood Coal may have turned to its No. 9 Mine (the former Gerber Mine) for its engine and stoker coal needs (see Section 4.D.2).

Although the old Nelson No. 2 Mine had not been opened for several years (apparently still in the hands of Nelson Coal), in 1943 company directors elected to extend the life of the corporation again for another 20 years. Also, Nelson Coal, with J.W. McClure and later George E. McClure serving as superintendent, continued to be listed in the Cascade County directory through 1953. None of the available directories of mining enterprise listed Nelson Coal as

<sup>242</sup> I. Milton, local accountant, Stockett, correspondence to James T. Maher, president, Cottonwood Coal Company, St. Paul, 6 December 1927, Great Northern Railway Collection. One secondary source stated that the mine was open to the late 1930s, but this date cannot be confirmed: Anderson, *Giffen, Antelope Creek ... Mines in the Sand Coulee District*, 64.



an active operation during or after World War II, however. In 1954, the corporation self-terminated.<sup>243</sup>

## ***(2) Gerber Coal/Carbon Coal and Coke/Cottonwood Coal No. 9 Mine***

The Gerber Mine, located ½ mile south of Sand Coulee on the west side of Straight Creek, was operated by Ed Gerber by at least 1901 until 1912-1913. During that period, the mine was a strong producer equipped with state-of-the-art improvements. Then, the Carbon Coal and Coke Company assumed work there, continuing until the mid-1920s. In 1926, the Cottonwood Coal Company purchased the property, renaming the mine its No. 9 Mine. Cottonwood Coal only operated it for a brief unknown period prior to the late 1930s, during which time production went largely unnoted.

Reports of the earliest operations at the Gerber Mine are unavailable. One normally credible report that the mine opened in 1890 is unsubstantiated by a U.S. Geological Survey list of Montana coal mines in 1890 and 1891. Another source stated that it opened in 1901. Whatever its early history, the mine reportedly ran continuously after opening and grew to the point that just shortly after the turn of the twentieth century it was considered one the largest producers at Sand Coulee.<sup>244</sup>

Apparently from the beginning, Ed Gerber was the owner and mine manager, working under an unincorporated entity known as the Rock Springs Coal Company. In 1906, the mine was said to employ between 150 and 170 men. By 1907, Gerber was using the name Gerber Coal Company (also unincorporated). The workforce had dropped somewhere between 75 and 95 men, perhaps because at about that time the mine switched from hand-picking to machines for cutting. The plant's annual capacity was said to be 100,000 tons, but in 1907 just over 60,000 tons were mined. In 1908 production fell even more, with the mine worked only 171 days with a workforce of 47 men, producing just under 30,000 tons of coal. In the following year, with just 31 workers, production increased to 49,250 tons.<sup>245</sup>

The plant at the Gerber Mine included a full complement of early twentieth century equipment. As noted above, the coal was machine-mined, and the product hauled to the tippie by horses and a small donkey engine. At some unknown date, the horses were replaced with a tail-rope haulage system. Ventilation was accomplished with a 12-foot fan, operated by steam.

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<sup>243</sup> R.L. Polk, *Cascade County Directory*, 1929-30, 628, 1944, 579, 1953, 922; Montana Secretary of State, Corporations, Nelson Coal Company, "Certificate of Extension of Term of Corporate Existence of Nelson Coal Company," 20 April 1943, "Verified Statement of Directors in the Matter of the Dissolution of Nelson Coal Company, a Corporation," 7 May 1954.

<sup>244</sup> U.S. Geological Survey, *Geology of the Great Falls Coal Field*, by Fisher, 64; "United States Geological Survey, Montana Coal List for 1890 and 1891"; "Strike of the Coal Miners," *Great Falls Tribune*, 9 November 1919; Shurick, "The Great Falls Coalfield," 587.

<sup>245</sup> *Ninth Report of the Bureau of Agriculture, Labor and Industry of the State of Montana, 1904*; University of Montana, *Montana Coal and Lignite Deposits*, by Rowe; "The Gerber Coal Mines," in *Great Falls Leader*, reclamation edition; Rowe, "Coal and Lignite Deposits of Montana," 718; Shurick, "The Great Falls Coalfield," 587; Giannini, *Sand Coulee, An Early Coal Mining Town*, 38.



Water in the mine was pumped out to the surface where it was either directed to a reservoir or to a water tank that supplied the boilers. The tippie stood just 600 feet from the mine portal.<sup>246</sup>

Gerber Coal's customers included the Boston and Montana smelter and other unnamed industrial concerns in Great Falls. The mine also served the domestic trade both locally and at Great Falls.<sup>247</sup>

The sources consulted made no mention of the Gerber Mine after 1910, although the mine presumably continued in operation for a few years.<sup>248</sup> In late 1912, however, a new company formed and apparently took over the Gerber Mine. The Carbon Coal and Coke Company, incorporated in November, acquired interest in the adjacent Lakeside Coal Mine and five years later the Gerber Mine. Control was via lease agreements, mainly with the Gerber estate, Ed Gerber having died in February 1915. Gerber's children inherited the estate and apparently held the mines until the mid-1920s.<sup>249</sup>

Carbon Coal was controlled by George Wilson, Fred Sturm, H.M. Yaw, and H.E. Dawson. Sturm and Yaw's interest in the Gerber Mine was as a supply of domestic coal for its numerous retail customers in Great Falls and surrounding communities. William Navin served as mine superintendent.<sup>250</sup>

Production records for Carbon Coal and Coke are largely unavailable for the current study. The exception is for 1918 when slightly over 102,000 tons of coal were extracted with a workforce of 80 men. Late in the following year, the Great Falls press reported that 115 men were at work, averaging 450 tons of coal per day. The company must have been a substantial producer into the mid-1920s. For example, in 1924, one source noted that 100 men were employed. By then, the outfit had converted its compressor and haulage system to electrical power, although still used steam for its screening, ventilation, and water pump operations.<sup>251</sup>

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<sup>246</sup> U.S. Geological Survey, *Geology of the Great Falls Coal Field*, by Fisher, 64.

<sup>247</sup> "The Gerber Coal Mines," in *Great Falls Leader*, reclamation edition.

<sup>248</sup> In the fall of 1908, Ed Gerber leased to Robert M. Sproat and his assignee the Lakeside Coal Company about 80 acres, apparently just north of the Gerber Mine. All indications are that this was a separate mine, located near the old Sand Coulee Mine. Lakeside Coal, managed by Ralph W. Wilson, employed between 13 and 18 men, making the operation fairly small. Wilson and his three sons were intimately involved in mining operations, it seems. In 1909-1910, the mine produced just over 21,000 tons of coal total. Subsequent production is unknown, but continued to 1913: Giannini, *Sand Coulee, An Early Coal Mining Town*, 35; Cascade County Clerk and Recorder, Deed Book 127, p. 163.

<sup>249</sup> Cascade County Clerk and Recorder, Order and Decree Book 5, p. 207; Deed Book 125, p. 487; Deed Book 127, p. 163; Montana Secretary of State, Corporations, Carbon Coal and Coke Company, Folder D-007919, "Business Entity Search," accessed online at <http://app.mt.gov/bes>.

<sup>250</sup> "Strike of the Coal Miners," *Great Falls Tribune*, 9 November 1919.

<sup>251</sup> Ibid.; Giannini, *Sand Coulee, An Early Coal Mining Town*, 39; Alexander R. Dunbar, *American Mining and Metallurgical Manual* 1924-25 edition (Westminster, Colorado: The Mining Manual Company, 1924), 209-10.



Despite the long operation of the old Gerber Mine, the property still had significant reserves by the mid-1920s---an estimated 1.5 million tons. It was those reserves that presumably induced the Cottonwood Coal Company to acquire the mine. Through both deeds and lease assignments from Carbon Coke and Coal and heirs of Ed Gerber, Sr., Cottonwood Coal got the coal property, renaming it the Sand Coulee No. 9 Mine. The No. 9 also included coal rights to about 760 acres which Cottonwood Coal purchased from Ernest Downing, perhaps at about the same time as the Carbon Coal and Coke Company and Gerber estate purchases.<sup>252</sup>

Cottonwood Coal may not have started work on its No. 9 Mine until the fall of 1927 or even later. Beginning at the end of May and through at least the end of July, it was pumping water from the mine, but had not yet begun mining. The boiler and compressor plant, which had been on-site since before the turn of the twentieth century, was in poor condition and deemed barely workable. Plans were being made to replace all with used electrical equipment from Stockett and Lehigh. Just when the old mine was re-opened, though, is uncertain.<sup>253</sup>

By the end of November 1940, however, records indicate that Cottonwood Coal had mined almost 850,000 tons of coal from its No. 9 Mine. By then, the mine was again abandoned, and this time apparently forever.<sup>254</sup>

### **(3) *Brown Coal Mine/Surmi Mine***

One mile almost directly east of the town of Sand Coulee (Section 18, Township 19 North, Range 4 East) lay the Brown Coal Company Mine. It was opened in 1911 as one of the smaller but productive commercial operations in the area. Exhausted by the late 1920s, the Brown Coal Mine closed at about the time a much smaller, family-run mine opened nearby. The Surmi Mine, accessed through a separate tunnel, was operated as a truck mine more or less until the mid-1960s.

Perhaps capitalizing on Cottonwood Coal's discovery of a coal body at that approximate location in about 1910, the Brown Coal Company incorporated in February 1911 and opened the Brown Coal Mine within the year.<sup>255</sup> Incorporators Hugh and Mary L. Brown, Ernest Downing,

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<sup>252</sup> Milton, correspondence, 12 March 1927, 2; Great Northern Railway, "Authority for Expenditure," Giffen, Stockett, Sand Coulee and Lehigh Mines, Montana, 14 August 1941, Great Northern Railway Collection; Cascade County Clerk and Recorder, Deed Book 125, p. 487; Deed Book 127, p. 163.

<sup>253</sup> I. Milton, local accountant, Stockett, correspondence to James T. Maher, president, Cottonwood Coal Company, St. Paul, 25 June 1927, 3 July 1927, and 30 December 1927.

<sup>254</sup> Great Northern Railway, "Authority for Expenditure," 14 August 1941.

<sup>255</sup> "Strike of the Coal Miners," *Great Falls Tribune*, 9 November 1919; Montana Secretary of State, Corporations, Brown Coal Company, Folder D-007160, "Articles of Incorporation," 13 February 1911. Coal mine ownership was not determined as part of the current project, but one source indicates that the company leased land owned by C.J. Anthony: Milton, correspondence, 12 March 1927, 2. One secondary source tells a different story about the mine's origins. In that account, Raleigh [or Rolla] and Snuffer Brown purchased the land on which the mine lays in 1905, and they were the ones who started the mine: Anderson, *Giffen, Antelope Creek ... Mines in the Sand Coulee District*, 49.



and James W. Freeman (of Sand Coulee and Great Falls) all had been involved in some way with the Sand Coulee-area coal business up to that time. During World War I, at the height of production, incorporator Downing served as mine manager, John Latham as mine superintendent, and Carl Schmidt as “outside foreman.”<sup>256</sup>

Reports about the Brown Coal Mine are rare in the sources consulted. The only reference to improvements noted a shaker screen at the surface plant and electrical power. Yet, Brown Coal was identified as one of the larger of the small producers in the Sand Coulee area for a time, yielding 525 tons per day with a workforce of about 100 men in 1918. In that year alone, the mine produced 109,295 tons of coal.<sup>257</sup>

The Brown Coal mine continued operations after World War I, but gradually on a much smaller scale than it had previously. By November 1919, the crew was down slightly to 85 miners with production at about 400 tons per day.<sup>258</sup> At that time, most coal was provided to the Great Northern. The mine was still open in 1927, but its immediate prospects were poor due to the fact that the “coal [was] about mined out and only a few pillars of cropping coal [were] left.”<sup>259</sup> By that time, Brown Coal had apparently acquired a lease on the Latham Mine a few miles to the south, which also produced 450 tons of coal per week, although with minimal reserves.<sup>260</sup> The Cascade County Directory still listed the Brown Coal Company in its 1929-30 issue, but which mine(s) it was operating (if any) is unknown.<sup>261</sup>

In the same “hill” as the Brown Coal Mine, but apparently through a different mine opening, long-time area coal miner William Surmi, Sr. started his own mine in 1932. Joined by Mike Surmi, they built a tippie at the new mine. They subsequently partnered with Ignas Surmi, Andy Balko, and George Hornick. A small enterprise, the Sumri Mine employed a crew of local residents, later including William Surmi’s two sons George and Bill (Jr.). Production figures or rates are unavailable through this period, but are suspected to be limited. In 1937, the Surmis and Hornyck incorporated Surmi Mines, Inc., but reportedly then took that name to a coal mine on Hound Creek (a tributary of the Smith River). William Surmi and his sons stayed behind, however, still working the Surmi Mine at Sand Coulee.

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<sup>256</sup> Montana State Bureau of Mines and Metallurgy, *Directory Montana Metal and Coal Mines*, 26; Montana Secretary of State, Corporations, Brown Coal Company, Folder D-007160, “Articles of Incorporation,” 13 February 1911. Downing and Latham were involved with other area coal mining operations over the years. Downing was mine manager at Brown Coal from at least 1915 through 1927, if not longer; he later came to be associated with the Gerber Mine. Latham was once a partner in the Stainsy-Latham Mine south of the Brown Coal Mine: Giannini, *Sand Coulee, An Early Coal Mining Town*, 36-37; R.L. Polk, *Cascade County Directory*, 1915, 616; Montana Secretary of State, Corporations, Gerber Coal Company, “Annual Report Montana Corporations,” for 1944.

<sup>257</sup> Giannini, *Sand Coulee, An Early Coal Mining Town*, 37-38; Montana State Bureau of Mines and Metallurgy, *Directory Montana Metal and Coal Mines*, 26.

<sup>258</sup> “Strike of Coal Miners,” *Great Falls Tribune*, 9 November 1919.

<sup>259</sup> Milton, correspondence, 12 March 1927, 2.

<sup>260</sup> Ibid, 3.

<sup>261</sup> R.L. Polk, *Cascade County Directory*, 1929-30, 628.



Surmi closed the mine briefly during World War II, but perhaps as early as 1944 worked there again “a little bit,” alternately under the names of Surmi Coal Company (unincorporated) or William Surmi & Son. His son Bill rejoined him at the mine late in 1945. After William Surmi’s death in 1951, Bill Surmi continued working there, apparently mostly during the winter months. Beginning in 1958 if not earlier, Surmi used the name William Surmi & Son Coal Company (unincorporated). One year later, he worked with a different company, Canyon Coal Company (also unincorporated). With a workforce of just three men in 1960-1961, that company produced 1400 tons of coal and in the following year just 550 tons. By the 1962-1963 state fiscal year, two employees working just 40 days of the year got out 216 tons of coal. During the following fiscal year, a mine known as Canyon Mine, operated by Albert Korin, yielded just 80 tons of coal. The similarity in the mine and company names strongly suggests a relationship, but no specifics are available. In 1965, there was no listing for either the Surmi or Canyon Mine.<sup>262</sup>

#### **(4) Millard Mine**

The Millard Mine was one of the longest-lived coal mines at Belt. Opened in 1879 as only the second mine in the area, it operated intermittently until the early 1940s. It was always a small operation, with its maximum employment apparently at just over 30 men. Over the years the Millard served both the Belt domestic market as well as a handful of industrial sites in western Montana (Figure 28).

Henry W. Millard moved to the area and opened the mine bearing his name in 1879, at the invitation of John Castner, the father of Belt. Castner had been shipping coal to Fort Benton from his small mine since 1877. He interested Millard in joining him, perhaps because Castner could not keep up with the demand for coal. Whatever the case, Millard worked the mine, also presumably freighting his coal to Fort Benton. It seems likely that he worked by himself developing the property. Several years later, again with encouragement from Castner, Millard built two coke ovens to test the coking quality of his coal. While the test was touted as successful, Millard did not turn that discovery into a profitable side business. In fact, there is no evidence to suggest that coal from the Millard Mine was ever coked commercially after that experiment.<sup>263</sup>

In January 1887, Henry Millard patented as a coal entry 40 acres at and surrounding his coal mine. The following year, one reputable document stated that the Millard was making a “very good [showing].” Just a few years later in 1890 and 1891, however, the mine was closed,

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<sup>262</sup> “Coal Mines in Montana – Truck Mines,” 1943, MC 239, Box 7, Folder 21; R.L. Polk, *Cascade County Directory*, 1944, 579, 1953, 922; *Minerals Yearbook*, 1954, 641, 1956, 695; Montana Bureau of Mines and Geology, *Directory of Known Mining Enterprises*, 1958, Bulletin 10, 79; *Directory of Known Mining Enterprises*, 1959, Bulletin 14, 43; *Directory of Known Mining Enterprises*, 1960, Bulletin 20, 49; *Directory of Known Mining Enterprises*, 1961, Bulletin 25, 50; *Directory of Known Mining Enterprises*, 1962, Bulletin 33, 60; *Directory of Known Mining Enterprise for 1963*, Bulletin 38, 51; *Directory of Known Mining Enterprise for 1964*, Bulletin 46, 53; *Directory of Known Mining Enterprise for 1965*, Bulletin 49, 58.

<sup>263</sup> Stober, *Belt Valley History*, 21-22.





Figure 28. Map showing locations of Millard, Orr, Boston & Montana, and Richardson Mines in Belt vicinity; all locations are approximate.



probably due to competition from the Sand Coulee mines which were served by a railroad while the Belt mines were not.<sup>264</sup>

Beginning in the mid-1890s, the Millard became an important, if small, shipper of Belt coal for a dozen or so years. At least initially, Edward J. Lowery ran the mine, under a lease agreement with Millard. In 1894, he had 16 miners and 16 top men on the job, producing an estimated 60 tons of coal per day. By that time, the Neihart branch of the Montana Central Railway had been built, allowing Lowery to haul his coal to Armington on that line and the freight it by rail to outside markets. In that year, Millard coal was shipped to the Boston and Montana smelter in Great Falls.<sup>265</sup> Two years later, William Buzzo, whether for Lowery or Millard, managed the mine with a workforce of 20 men. They supplied coal to the local market and “ship[ped] several carloads to Great Falls each week.”<sup>266</sup>

To the end of the nineteenth century, the Millard Mine had a reported capacity of 100 tons per day. Its coal was shipped to industrial customers. The Boston and Montana smelter purchased Millard coal off and on at least to the end of the century. The mine also provided coal to the Butte smelter owned by Montana Ore Purchasing for a time.<sup>267</sup>

In the early 1900s, the Millard continued to operate, but on a smaller scale than during the 1890s. Henry Millard had taken over operations by the fall of 1897 and apparently continued to work the mine for himself thereafter.<sup>268</sup> In 1907, with just two employees, the output was somewhere between 800 and 2000 tons, with the product sold in Belt and “outside towns.”<sup>269</sup> By that time, the tunnel had been driven in 700 feet on a 6-foot-thick bed of coal with a small number of partings. At least as early as 1911, Millard’s sons had joined him in the enterprise, and in later years son Bill assumed control. It was perhaps about when the sons began helping with the coal business that Millard updated by adding a mining machine, compressor, and electric motors.<sup>270</sup>

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<sup>264</sup> *The Miscellaneous Documents of the House of Representatives 1889-1890*, 290; “United States Geological Survey, Montana Coal List for 1890 and 1891,” 28; U.S. Bureau of Land Management, “Land Patent Details, General Land Office Records,” for SE¼ NE¼ Section 26, T19N, R6E, accessed on-line at <http://www.glorerecords.blm.gov/PatentSearch>.

<sup>265</sup> Montana Inspector of Mines, *Report of the Inspector of Mines, 1894*, 30; “Belt 50 Years Ago Described by Editor in Jubilee Issue,” *Great Falls Tribune*, 16 July 1944.

<sup>266</sup> *Western Mining World* 4, no. 72 (1 February 1896): 124.

<sup>267</sup> “Belt 50 Years Ago,” *Great Falls Tribune*, 16 July 1944; *Western Mining World* 6, no. 127 (20 February 1897): 127; “The Millard Mine,” 9 September 1897, 2, “Current Notes,” 20 April 1899, 3, “Current Notes,” 18 May 1899, 3, “Current Notes,” 6 July 1899, 5, all in *Belt Valley Times*.

<sup>268</sup> “The Millard Mine,” 9 September 1897, 2, and “Current Notes,” 27 April 1899, 3, both in *Belt Valley Times*.

<sup>269</sup> Mortson, “Bounteous Nature”; Rowe, “Coal and Lignite Deposits of Montana,” 718. Another source noted that production was “very small,” with most coal sold in Belt: U.S. Geological Survey, *Geology of the Great Falls Coal Field*, by Fisher, 57.

<sup>270</sup> *Ibid.*; “Current Notes,” *Belt Valley Times*, 27 April 1899, 3; Veleber, “Early Mining Days in Belt,” 17; Milton, correspondence, 12 March 1927, 1; Joe Morris, “A Tale of Belt,” *Geraldine Review*, 22 January 1959; Stober, *Belt Valley History*, 383.



As the demand for coal increased during World War I, the Millard Mine appears to have ramped up production as did other Belt coal mines. In 1918, it yielded 3292 tons, and presumably did a similar business during the first half of 1919. In the latter year, Millard employed seven men who took out 40-50 tons of coal per day.<sup>271</sup>

In the sources consulted, detailed reports of work at the Millard Mine after World War I are almost non-existent. One source did mention, however, that Bill Millard shipped coal to the Block P Mining Company in Hughesville (near Neihart) in 1927. Using only hand labor, he and his crew shipped about 200 tons of coal per week. He continued work at the mine at least into 1933. At some unknown date, but possibly in the mid-1930s, Bill Millard closed the mine after a fire destroyed his small surface plant. By 1940, he sold the property to Jens P. Meistad who worked it to 1942 or 1943 but probably no later than the end of World War II.<sup>272</sup> With the exception of the Block P contract, it seems likely that most production during the first four decades of the twentieth century went to the local trade.

### **(5) Orr Brothers/East Belt Coal Mine**

Just as ACM's Belt Mine was beginning to wane in the early 1900s, another small mine in Belt opened and began producing. The Orr Brothers' mine may have been well-known locally during the first two decades of the twentieth century, but actually was more productive from 1940 to 1963 when it was named the East Belt Mine. It was one of the last Belt coal producers to survive.

Thomas, William, and Samuel Orr opened a mine about 1 mile north of Belt on the east side of Belt Creek by January 1904 (Figure 28). They immediately began making coal shipments (probably domestic coal) to Helena and also served the local market. This distribution pattern continued at least through 1907, when their reported annual output was almost 4500 tons of coal. In that year, the mine employed 14 men. The Orr Brothers were still operating in 1911, if not later, but specific production numbers, numbers of workers, equipment used, and markets were not identified in consulted sources for the 1910s. Production is likely to have continued into World War I.<sup>273</sup>

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<sup>271</sup> Montana State Bureau of Mines and Metallurgy, *Directory Montana Metal and Coal Mines*, 28.

<sup>272</sup> Milton, correspondence, 12 March 1927, 1; Morris, "A Tale of Belt," *Geraldine Review*, 22 January 1959; "Freighter Discovered Coal Near Great Falls," *Great Falls Tribune*, 11 November 1959, 12; "Coal Mines in Montana – Truck Mines," 2; Paul Anderson, *Cultural Resource Inventory and Evaluation, The Millard Mine* (Butte: Mineral Research Center, 1982): 8, submitted to Montana Department of State Lands, Helena; R.L. Polk, *Cascade County Directory*, 1940, 536, 1942, 607.

<sup>273</sup> "Belt Coal on the Helena Market," *Belt Valley Times*, 21 January 1904, 5; "A Tale of Belt," *Geraldine Review*, 22 January 1959; "Coal Operators Busy," *Belt Valley Times*, 17 January 1907, 4; Mortson, "Bounteous Nature"; Rowe, "Coal and Lignite Deposits of Montana," 718; Veleber, "Early Mining Days in Belt," 17. There is some reason to suspect that the Orr Mine might have been opened as early as 1897. Early in that year, *Western Mining World* reported that "Frank Olgivie of Belt is shipping a carload of coal from his mine at Orr to Butte each day" [emphasis added]: 6, no. 125 (6 February 1897): 99. None of the other sources consulted mentioned that earlier mine, however, and is certainly possible that the Olgivie property was in Orr Coulee but adjacent to what would later become the Orr Mine. A September 1915 issue of the *Great Falls Tribune* listed a small number of mines operating in Belt at that time, including that of "Orr & O'Neill."



In March 1918, Arthur and Mary Stephens, James M. Burlingame, Charles Lochray, and Dominic Spogen incorporated a new company, the East Belt Coal Company, that came to be associated with the Orr Mine. At least two of the incorporators were men well-connected in the area coal business. Lochray, one of the surveyors who had prospected for coal for the Great Northern in the mid-1880s, later went on to open the Black Diamond, Lochray Coal, and possibly other properties at Sand Coulee. Spogen had begun his career in the business at the Anaconda smelter, designed the first coal washer at Castner Coal's Belt mine, reportedly served as superintendent at the Belt Mine beginning in 1905, and later came to be involved in one or more other mines in western Montana. Both Lochray and Spogen had retired from mine management years previous to the incorporation of East Belt Coal, but continued to be drawn to the business. All incorporators, with the possible exception of Mary Stephens, appear to have remained associated with the local company until their deaths.<sup>274</sup>

Within the year, the company began acquiring via warranty deeds the Orr Brothers' coal property and adjacent land.<sup>275</sup> East Belt Coal continued to be associated with the old mining property into the modern era.

With rare exception, none of the consulted sources mentioned mining at East Belt during the 1920s. In late 1921, B.F. Hoyt took an option on East Belt Coal property, which had grown to involve 1240 acres, plus a lease agreement on 160 acres of ACM land just northeast of Belt (Figure 29). Hoyt defaulted within about six months, however. One source mentioned that Spogen reopened the old Boston & Montana Mine in 1925. Because that mine was on lands leased by Spogen and later East Belt Coal from ACM, it seems possible that East Belt Coal (with Spogen as mine manager) was in fact the operator. On a short list of active mines printed in March 1927, the Orr and Boston & Montana Mines were conspicuously absent.<sup>276</sup>

Within the year, however, Sam Williamson re-opened the property. A long-time Belt and Sand Coulee coal miner, Williamson may have operated the mine under a lease agreement. Beginning in either 1929 or 1931, he partnered with Joe Krenselok, Sr. at the mine. Williamson, Krenselok, and (after his death in 1942) Williamson's sons ran the mine continuously, it seems, for about 20 years. By 1940, and possibly much earlier, the men had acquired a single coal cutting machine. During World War II, with a workforce of seven or eight men, they took out between 4000 and 5500 tons of coal annually. After the war, production continued to at least

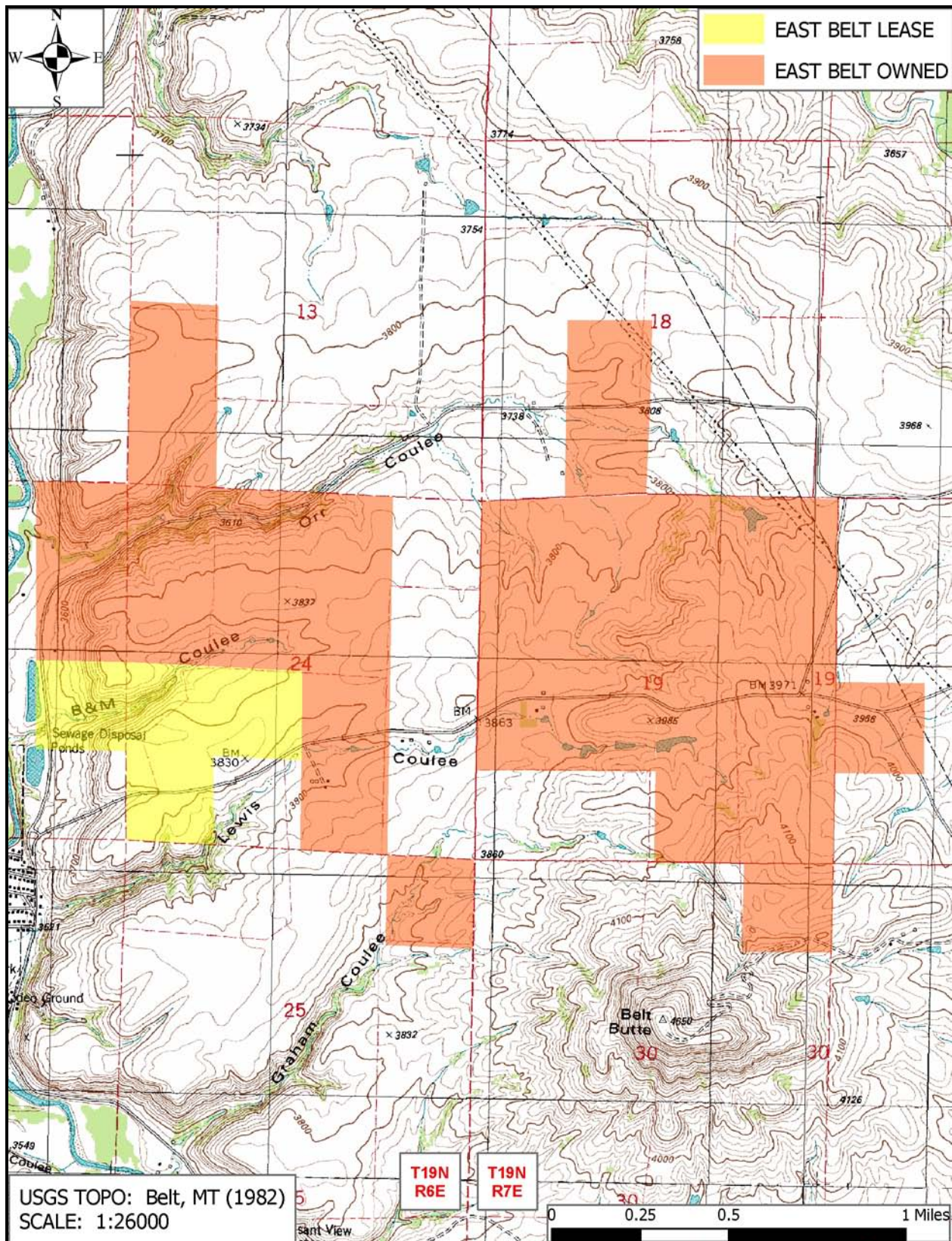
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<sup>274</sup> Stober, *Belt Valley History*, 178-9; Spogen, "History of Marcus Daly Starting the Reduction Works at Anaconda," 21-27; *Copper Handbook*, vol. 10, 1169; Tom Stout, *Montana: Its Story and Biography* (Chicago: American Historical Society, 1921): 712; Montana Secretary of State, Corporations, East Belt Coal Company, Folder D-011613, "Articles of Incorporation," 18 March 1918; "Annual Statement," 28 January 1928; "Annual Statement of Corporations," 3 January 1935; "Annual Statement of Corporations," 21 February 1946.

<sup>275</sup> Cascade County Clerk and Recorder, Deed Book 97, p. 343; Deed Book 102, p. 51; Deed Book 101, p. 77; Deed Book 104, p. 313. Bill and Sam Orr apparently continued mining in the Belt area after East Belt Coal took over, working at "various mines": Morris, "A Tale of Belt," *Geraldine Review*, 22 January 1959.

<sup>276</sup> Stober, *Belt Valley History*, 30-31; Milton, correspondence, 12 March 1927; Cascade County Clerk and Recorder, Order and Decree Book 4, p. 485.







1949 with a comparable-sized workforce producing about 50 tons of coal per day, but operating only during the winter months.<sup>277</sup>

In the succeeding years, production slowed considerably. Apparently, the Williamsons were no longer associated with the East Belt Mine. By the early 1960s, just two men worked at the property, producing between about 1300 and 1600 tons of coal each year. The mine closed in 1963. The event was attributed to the lack of a market, decreasing coal reserves, and increasing water migration into the mine. Interestingly enough, the East Belt Coal Company survives to the present day. It continues to own about 200 acres at Orr Coulee. None of the sources consulted identify any active mining after 1963, however.<sup>278</sup>

### **(6) Richardson Mine**

This small mine at Armington was one of only a few ever worked there for any length of time. It was just south of the Armington Mine, which was owned by J.T. Armington and James J. Hill and opened just slightly earlier than the Richardson. Neither was considered a good producer.

The Richardson Mine opened in about 1902. In mid-October of that year, James Brodie announced to the local press that he had leased the mine and was supplying coal locally for domestic use.<sup>279</sup> A little over a year later, Brodie gave up his lease on the property. He had operated the mine “successfully,” but actual production figures were not identified in the sources consulted.<sup>280</sup> The mine’s owner, Matthew Richardson, had taken over its operation by 1906. In that year, he worked the 4½-foot-thick seam during the winter months only. He sold his product in Armington and also to ranchers in the Belt Creek Valley. While a steady producer, Richardson employed just a small workforce. Contemporary reporters had faint praise for the mine, stating graciously that it held some promise.<sup>281</sup>

The year 1907 is the last for which the sources consulted mentioned any work at the Richardson Mine. That year, the owner held a good contract with the Great Northern in support

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<sup>277</sup> Stober, *Belt Valley History*, 30, 186-87; East Belt Coal Mine, responses to questionnaire from Emergency Co-ordinator of Mines for Montana, 15 November 1941, attached to correspondence by Tom D. Caverly, 9 October 1941, “Coal Mines: Application for Quarterly Quotas for Maintenance, Repair, and Operating Supplies,” 26 February 1943, “Mine and Smelter Production Report,” 5 June 1944, “Mine and Smelter Production Report,” 11 January 1945, all in MC 239, Box 10, Folder 1; Montana Bureau of Mines and Geology, *Directory of Montana Mining Properties*, [1940], 16; *Directory of Montana Mining Properties*, 1949, Memoir 31, 17.

<sup>278</sup> Montana Bureau of Mines and Geology, *Directory of Known Mining Enterprises*, 1958, Bulletin 10, 79; *Directory of Known Mining Enterprises*, 1959, Bulletin 14, 43; *Directory of Known Mining Enterprises*, 1960, Bulletin 20, 49; *Directory of Known Mining Enterprises*, 1961, Bulletin 25, 50; *Directory of Known Mining Enterprises*, 1962, Bulletin 33, 60; *Directory of Known Mining Enterprise for 1963*, Bulletin 38, 51; *Directory of Known Mining Enterprises for 1964*, Bulletin 46, 53; Stober, *Belt Valley History*, 30;

<sup>279</sup> Stober, *Belt Valley History*, 424; “Current Notes,” *Belt Valley Times*, 16 October 1902, 1.

<sup>280</sup> *Western Mining World* 19, no. 26 (26 December 1903): 30.

<sup>281</sup> U.S. Geological Survey, *Geology of the Great Falls Coal Field*, Fisher, 57; “Coal Operators Busy,” *Belt Valley Times*, 17 January 1907, 4; Mortonson, “Bounteous Nature.”



of its construction on the Billings and Northern branch line between Billings and Belt. Even so, reported production was just over 1000 tons with just four employees working.<sup>282</sup> The 1910 issue of the Cascade County Directory still listed “coal mines” as one of Matthew Richardson’s “occupations.” Otherwise, there was no mention of actual work at the mine after 1907.<sup>283</sup>

Although the mine was closed perhaps for several years, there is some indication that it re-opened and was worked on a limited basis beginning in about 1923. In that year, and through 1937, the Cascade County Directory lists a Richardson-Pilgeram Mine. A family member recalls that this was the name Richardson’s daughter Hazel used after she married William Pilgeram. Mrs. Pilgeram leased the mine to others, even following her father’s death in 1939. The last lease was probably in the 1940s.<sup>284</sup>

## 5. COAL MINING LEGACY

The years of large-scale commercial mining in the Great Falls Coal Field resulted in significant changes to the area’s cultural and physical landscapes. The mines attracted new residents to the area and caused the creation of new communities, with their accompanying infrastructure. Simultaneously, the mines themselves substantially altered their immediate physical geography, through the creation of mine openings and waste piles, and the erection of industrial buildings and structures. Some of these actions brought with them environmental consequences, both short and long term.

Establishment of the Great Falls coal mines resulted in the creation or significant expansion of nearby townsites, communities intended wholly or in part to house the miners and their families. The most prominent of these was Belt, adjacent to the large ACM mine. While a small number of farmers, ranchers, and others lived in the area prior to the coal era, the formal establishment of Belt was a product of the mine development. As a coal town, Belt grew rapidly, with a population that may have peaked at 4,000 during the boom years of the 1890s. By 1910, the United States census still showed Belt with 1,158 residents.<sup>285</sup>

The closure of most of the Belt mines impacted the community and changed its character. By 1930, the town’s population had dropped by nearly a third to 810. The population decline, however, was perhaps surprisingly small given the loss of the town’s industrial base and major employers. In part, this stemmed from a diversification in Belt’s economic base during the first

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<sup>282</sup> Mortson, “Bounteous Nature”; Rowe, “Coal and Lignite Deposits of Montana,” 718. The Belt to Great Falls section of the Billings to Great Falls railroad line was not built until 1910: Stober, *Belt Valley History*, 93.

<sup>283</sup> R.L. Polk, *Cascade County Directory*, 1910, 416. The Richardson Mine must have been closed by 1919 when a comprehensive list of Montana coal mines failed to include it: Montana State Bureau of Mines and Metallurgy, *Directory Montana Metal and Coal Mines*, 28.

<sup>284</sup> R.L. Polk, *Cascade County Directory* 1923, 285, 1929-30, 589, 1937, 563; Stober, *Belt Valley History*, 412, 424; Rayne Pilgeram, telephone conversation with Mitzi Rossillon, 4 March 2009.

<sup>285</sup> Cascade County Historical Society, *The Cascade County Album*, 102-103; “Population of Incorporated Places (Cities/Towns) in Montana, 1890 to 2000,” accessed at <http://ceic.mt.gov/Demog/historic/Censusplace18902000.pdf>.



years of the twentieth century. Agriculture grew significantly in local importance during those years, mirroring the patterns of much of rural Montana. The Belt Valley became a productive wheat-growing region; other crops were also cultivated, and ranching remained important. All in all, the valley made a relatively smooth transition from a mining to an agricultural economy, and that community base survives today.<sup>286</sup>

The Stockett and Sand Coulee areas also saw ranching activity prior to the arrival of the mines, although the towns themselves were very strongly tied to the coal industry. The effects of mine closures in these towns were felt far more strongly than at Belt, due to the lack of significant agricultural or other non-mining economic opportunities in the area. Historic population figures for the unincorporated Sand Coulee-area towns are estimates, but it is likely that the population of the area dropped by more than half during the 1930s. Reported “dust bowl” conditions exacerbated the situation, causing some of the coulee’s handful of farmers to leave.<sup>287</sup>

The locations of Stockett, Sand Coulee, Tracy, and Centerville remain as identifiable communities today, though with far smaller populations than during the coal mining era. Many buildings have been destroyed by fire and the business districts have largely vanished, but a limited amount of ranching and agricultural activity continues. The towns also survive as bedroom communities for the larger city of Great Falls.<sup>288</sup>

The abandoned mine sites in the Belt and Sand Coulee areas have posed a variety of concerns over time, including both environmental and life-safety issues. One hazard unique to underground coal mining is fire, and at least one Sand Coulee-area mine burned for decades prior to being extinguished by DEQ (then Montana Department of State Lands) in 1989.<sup>289</sup> Groundwater contamination is perhaps a more significant issue. Most of the region’s underground mine workings are now at least partially flooded, and small quantities of water from them drain to the surface at numerous locations. This water is often strongly acidic, posing an environmental hazard. Several attempts have been made to treat this water using passive methods, including wetland creation, limestone channels, and other methods, but the efforts have been largely unsuccessful (Figure 30).<sup>290</sup>

The abandoned surface remnants of these mines also presented a number of safety and environmental issues. Slack coal was often present, and decaying buildings and accessible adits were potential life-safety dangers. To address these concerns, the Montana Department of State Lands carried out extensive mine reclamation efforts in the 1980s. Decaying structures were

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<sup>286</sup> Cascade County Historical Society, *The Cascade County Album*, 102-103; “Population of Incorporated Places in Montana”; Stober, *Belt Valley History*, 146-48.

<sup>287</sup> Cascade County Historical Society, *The Cascade County Album*, 115-30.

<sup>288</sup> Ibid.

<sup>289</sup> “Foaming Mix may be Fire’s Match,” *Great Falls Tribune*, 26 November 1989, page E-1.

<sup>290</sup> Christopher H. Gammons, Terence E. Duaime, and William S. Botsford, “Geochemistry and Stable Isotopes of Acid Mine Drainage in the Belt-Stockett Area, Montana,” accessed at <http://www.deq.state.mt.us/abandonedmines/NAAMLPA/AML>.





**Figure 30. 1970 photograph of acid mine drainage at Giffen Mine (courtesy of Mine Waste Cleanup Bureau, Montana Department of Environmental Quality, Helena).**

removed, mine entrances sealed, and waste piles were recontoured. These actions removed most visible evidence of the mines that were once the lifeblood of the Belt and Sand Coulee areas.<sup>291</sup>

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<sup>291</sup> Numerous cultural resource inventories were conducted prior to this reclamation work, providing information on what remained at the mine sites prior to reclamation. See, for example, Paul Anderson, *Cultural Resource Evaluation: North Belt Mine* (Butte: Mineral Research Center, 1982, submitted to Montana Department of State Lands, Helena).



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