THE MINES

Waterloo Mine

The Waterloo Mine is the oldest phosphate mine in the Idaho-Utah-Wyoming (western) phosphate field (Figure 4). The earliest known mining activity was reported by Charles Colcock Jones (1907, 1913). Mr. Jones learned that someone was mining for coal near Montpelier, Idaho in August of 1903. When he visited the site, he found that an inclined shaft had been put down 250 feet into phosphate rock by Thomas L. Glenn and others. Mr. Glenn and his associates apparently were exploring without any legal notification for there is no record of a mining claim being filed in the area in or before August, 1903.

The first mining claim of record for phosphate in what was to become the Waterloo Mine was an association placer claim called the Wellington Mining Claim. The Wellington claim was located September 29, 1903 by Charles Colcock Jones, Elizabeth Clayton Jones, Willard L. Coles, Augustus S. Haskell, Walter B. Raintree, Fredrick O. Hurt, John A. Balch, and Jesse A. Bell. The claim was duly recorded with Bear Lake County on October 2, 1903. The Wellington claim covered the SE¼NW¼, E½SW¼ of Section 6, and the NE¼NW¼ of Section 7, T. 13 S., R. 45 E., BM.

The above locators quit claim deeded the Wellington claim to the Iron Mountain Investment Company, Charles P. Eells, Pres., and Frances Shan, Sec., on January 26, 1904. The Iron Mountain Investment Company then quit claim deeded the Wellington claim to William S. Goodfellow, Hugh Goodfellow, Arthur W. Goodfellow, R. W. Hart, John Shepard Eells, H. L. Atkinson, Richard M. Lyman, and Joseph J. Taylor on July 5, 1904. The lands of the original Wellington placer claim were relocated and the name was changed to the Waterloo placer mining claim on July 8, 1904. These men were employed by the San Francisco Chemical Company (SFCC), which at that time was the operating subsidiary of the Mountain Copper Company, Ltd., a British firm (Jones, 1907). As an aside, the California office of the above locators was destroyed in the earthquake and fire in San Francisco on April 18, 1906. All of the record copies of the Waterloo claim were destroyed and new copies had to be made from the original records from the General Land Office.

Charles Colcock Jones, one of the original Wellington placer claim locators, was not happy about the deal struck in deeding the Wellington claim to the Iron Mountain Investment Co. and then the Goodfellow group. Jones top filed a series of lode claims for phosphate over the Waterloo claim on July 11, 1904. On September 15, 1904, Jones filed an adverse claim and contest suit to the Waterloo placer claim in State court. That suit was soon moved to the United States Circuit Court where the parties involved agreed that the only question involved was as to whether the phosphate deposits should be located as lode claims or as placer claims. Considerable testimony on both sides was submitted. Before judgement was rendered, a motion was filed that action be suspended until the U. S. Department of the Interior could order a hearing and pass upon the character of the land. The motion to suspend was allowed by the Circuit Court but before any action was taken by the Department of the

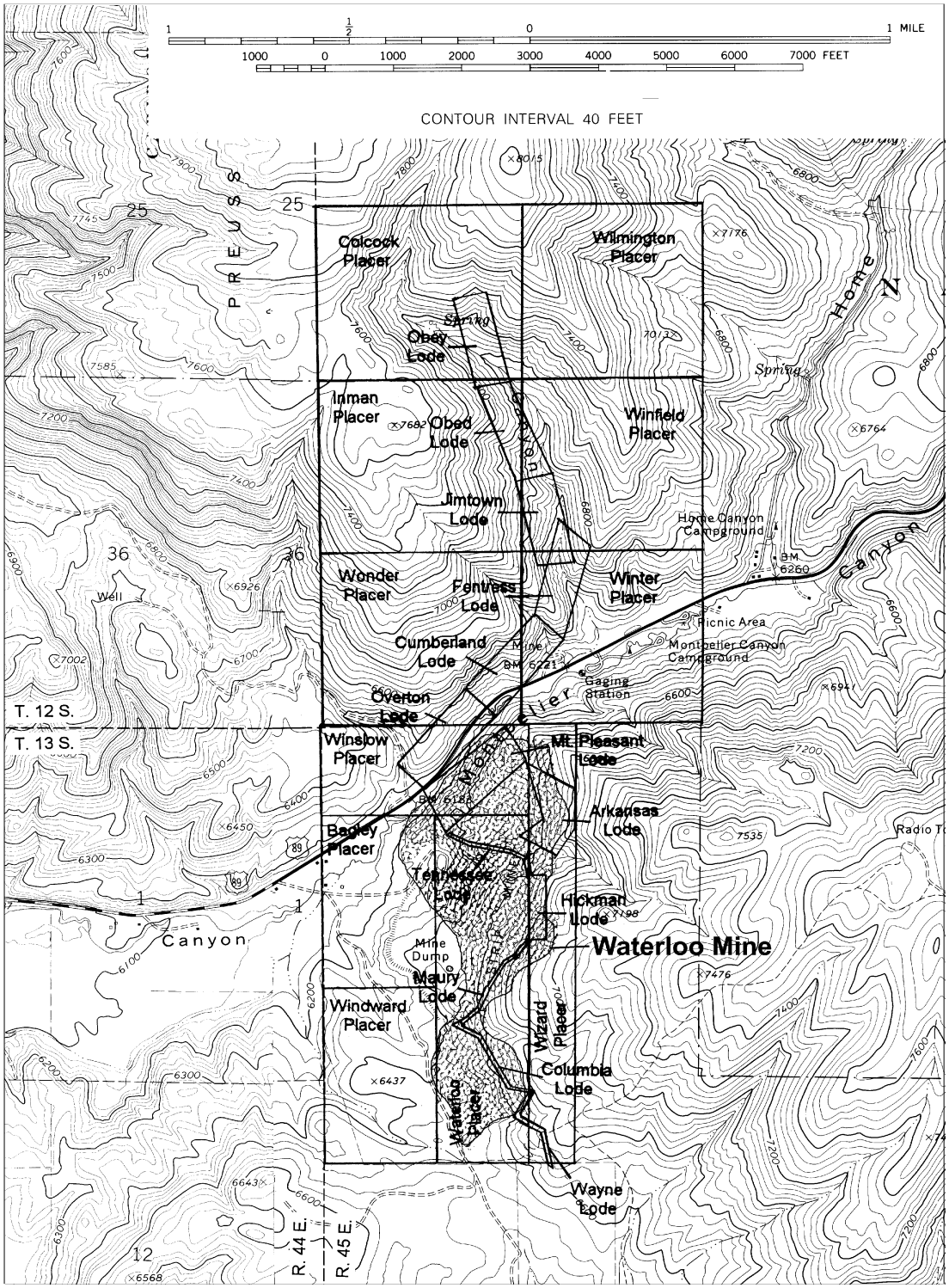

Figure 4. Map showing the location of the Waterloo Mine and associated mining claims and mineral patents, Bear Lake County, Idaho.

Interior, Jones withdrew his protest and adverse claim (October 18, 1905). If it had proceeded, this case might have been the first legal determination of the proper method of locating phosphate.

Charles Colcock Jones was an interesting and principal character in the earliest phosphate mining. In 1902, Jones, a consulting mining engineer and metallurgist working for Mountain Copper Company, Ltd., grappled with the problem of the enormous waste of sulphur in copper processing, and suggested to the company that excess sulphuric acid could be used in the production of phosphate fertilizer for use on California farms. At that time, Mountain Copper was having trouble with local farmers because of smelter fumes (Bell, 1913). To solve that problem, the company installed a sulphuric acid plant to reduce the fumes, but the new production caused a glut on the acid market. The company was interested in Jones' idea of fertilizer production and sent him out to track down rumors and reports of a western source of phosphate. Working from an advertisement in the January, 1903 issue of the *Mining and Scientific Press*, Jones was led to Rich County, Utah. There he examined the phosphate rock that had been found by Pidcock and Richter (see page 4, this report). Throughout the period of 1903 to June, 1904, Jones visited and reported on many phosphate locations throughout Idaho, Wyoming, and Utah, all the while representing the Mountain Copper Company, Ltd. In June, 1904, he left Mountain Copper Company because of "irreconcilable differences", and became a private consultant. He soon acquired phosphate interests and properties throughout the western phosphate field for himself. About 1906-1907, Jones sold his phosphate interests and holdings to the United States Phosphate Company of San Francisco, California, a bitter rival of the San Francisco Chemical Company. Jones, in a letter to President Theodore Roosevelt, October 16, 1906 (Jones, 1913), suggested that the phosphate resource of the west that he was so familiar with, be preserved by withdrawing the resource from entry, similar to what had been done for coal. As noted earlier in this report, phosphate was eventually withdrawn, in no small part because of Jones' suggestion.

The filing of the Waterloo mining claim lead to the filing of other association placers. San Francisco Chemical Company located the Windward placer claim and nine others in the immediate vicinity of the Waterloo in 1904-1906 (see Table 2). The Waterloo placer mining claim was patented on January 24, 1906 and the Windward placer mining claim on November 9, 1911. Both were patented under the Mining Law of 1872. None of the remaining nine claims were ever patented. Starting in November of 1907, Lewis A. Jeffs and Morse S. Duffield, prospectors working for the United States Phosphate Company top filed lode claims over the existing placer location (see Table 2 and Figure 4). They did this because of the uncertainty in how to properly locate phosphate (as discussed earlier in this report) and the desire to wrest control of the resource in this area from the San Francisco Chemical Company. However, the lode locations over the Waterloo claim were filed after the placer patent had been issued and the claim became private property. Those lode claims were invalidated, but, eight of the top-filed lode locations eventually went to patent (Table 2).

Actual underground mining of phosphate rock started in 1907 from a spot near the center of the Waterloo claim, with the first reported shipment of 735 tons to San Francisco in 1909 (Service, 1967). Prior to 1907, limited amounts of phosphate rock had been produced from hand-dug pits (Figures 5

and 6) where high-grade ore was found at the surface (Service, 1966). The first mining operation was an open-cut about 200 feet square with two tunnels and two shafts developed later beneath the cut (Mansfield, 1927; Gale and Richards, 1910). These early operations were all done by hand. Buildings at the Waterloo mine included an office, blacksmith shop, carpenter shop, and a stable. About 21 men were employed at the mine and daily wages were about average for the industry with muckers earning $3.25 per 8-hour shift and miners $3.50 per shift (Gidel, 1919b). The superintendent of operations for

Table 2. Mining claims and mineral patents at the Waterloo Mine.

Claim Name	Date of Claim Location	Claimant or Patentee	Mineral Certificate/ Survey No.	General Land Office Serial Number (Blackfoot)	Patent Number	Date of Patent
Waterloo Placer	July 8, 1904	Goodfellow, et al (Patentee)	MC-8	N/A	43829	Jan. 24, 1906
Windward Placer	Unknown	San Francisco Chemical Co.	N/A	BL 08620	233347	Nov. 9, 1911
Obey, Obed, Jimtown, Fentress, Cumberland, Overton, Mt.Pleasant, Arkansas Lodes	Nov. 14-15, 1907	L. A. Jeffs for United States Phosphate Co.	MS 2538	BL 015582	456436	Feb. 3, 1915
Bagley, Winslow, Wizard, Wonder, Winter, Inman, Winfield, Colcock, Wilmington Placers	June 11, 1904	C. C. Jones for San Francisco Chemical Co.	N/A	N/A	Never patented	N/A
Wayne, Columbia, Maury, Hickman, Tennessee Lodes	Nov. 15-16, 1907	M. S. Duffield for United States Phosphate Co.	MS 2537	N/A	Never Patented	N/A

the San Francisco Chemical Company was Joseph J. Taylor, one of the Waterloo claim locators. Taylor described the early mining as open quarry work followed by the driving of three cross-cut

Figure 5. Black phosphate bed opened by surface stripping at Waterloo Mine. Photo by V. R. D. Kirkham, courtesy of the Idaho Geological Survey.

Figure 6. Prospect at south end of the Waterloo Claim, T. 13 S., R. 45 E., Section 6, showing local displacement in phosphate shales. Photo by R. W. Richards, #262a, USGS Photographic Library.

tunnels into the hill and more tunnels (drifts) being driven on the deposit (Mansfield, 1927) (Figures 7 and 8). Raises and stopes were excavated, in fact almost all the mine production was by stoping. The phosphate ore proved to be sufficiently soft to be mined by pick and shovel. Underground openings were advanced with a breast auger drill (Figure 9).

Figure 7. The Waterloo phosphate mine 4 miles east of Montpelier, Idaho, 1909. Photo by H. S. Gale, #462, USGS Photographic Library.

Mining had also started on the adjacent patented Windward placer claim. In 1910, the mine was developed by a 65-foot deep, 6 x 8-foot shaft and a 6-inch bore hole 148 feet deep (unpublished USGS data). The Waterloo and Windward claims (plus other adjacent lands) were joined to form the Waterloo Mine proper.

In the period of 1910 to 1917, the Waterloo was the only large phosphate producer in Idaho (Maughan and Raymond, 1980). Initially, ore was trammed from the portal to the truck loading facility (Figure 10), then loaded onto trucks (Figure 11), and transported to the rail facilities at Montpelier where rail cars to California were loaded (Figures 12 and 13). Bell (1911) reports that the Waterloo mine, since opening, shipped about 5,000 tons of phosphate rock annually to the San Francisco Chemical Company's chemical works at Martinez, California. Bell goes on to describe the workings of the mine as a cross-cut tunnel 1,000 feet in length and 500 feet below the outcrop with connecting raises to a shallower adit level and an open quarry. In 1916, Bell (1916) says workings had progressed to a depth of 800 feet on the dip of the ore, and reported that the company shipped an

Figure 8. The Waterloo phosphate mine 4 miles east of Montpelier, Idaho, 1909.
Photo by H. S. Gale, #463, USGS Photographic Library.

average of 100 tons per day to the acid works in California. In 1918, Bell notes that the San Francisco Chemical Company's acid works was overstocked and that operation at the mine was suspended. By

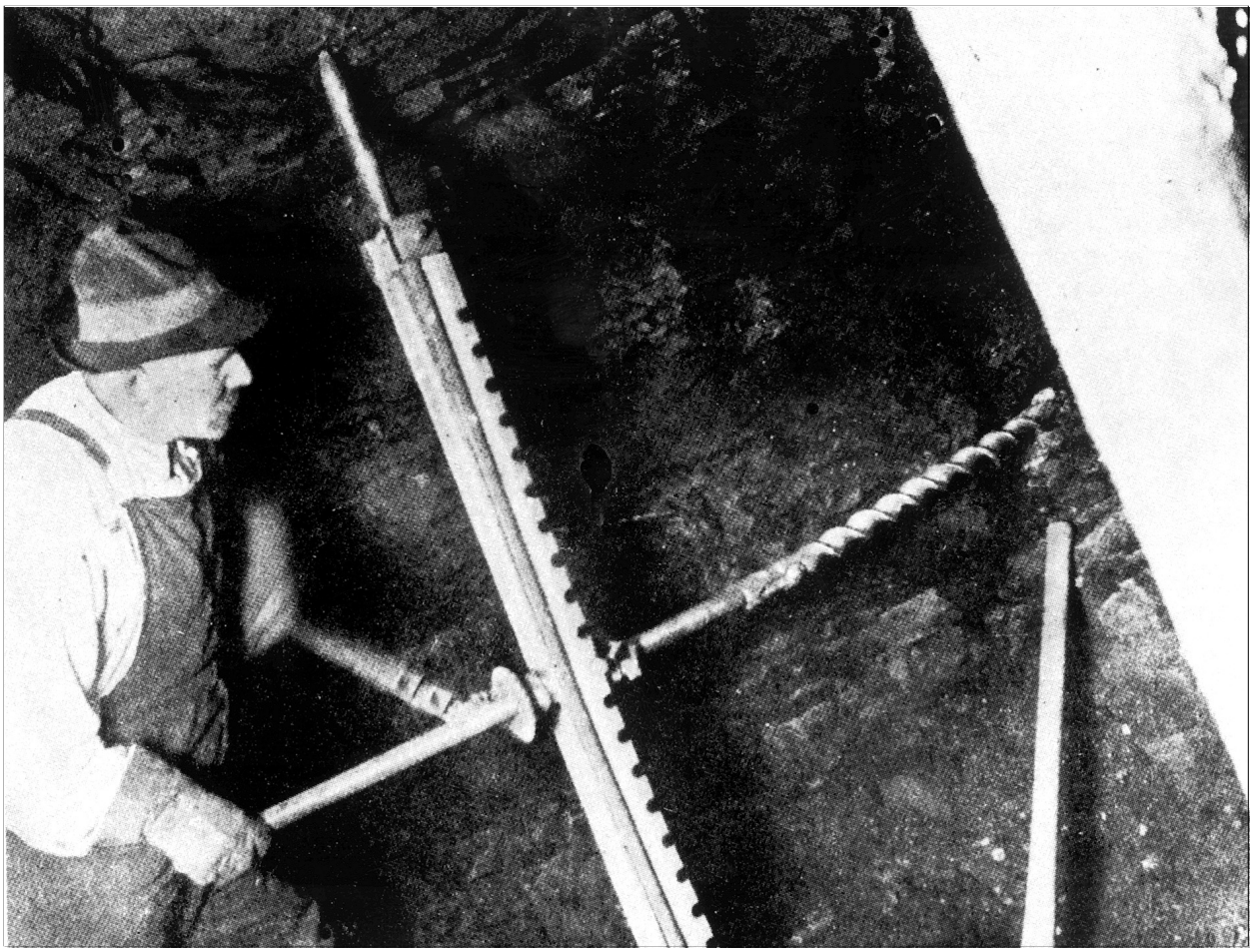

Figure 9. Hand auger drilling in a stope in the Waterloo Mine, about 1915. Photo from Service, 1966, p. 22.

the next year the mine was back in production and the underground workings had been extended to total 1,500 feet of short cross-cuts, drift and raise connections to the surface (Figure 14) (Bell, 1919). In late 1920, operations were suspended again and the mine idled (Kirkham, 1925). At that time underground development was 3,000 feet of tunnels and drifts accessed by three adits. The mine remained idle until 1929, when it was permanently closed as an underground operation.

The Waterloo remained closed until 1945, when it was reopened as a surface operation by the San Francisco Chemical Company. The mine was worked intermittently between 1945 and 1960 (USGS, 1977). Beginning in June of 1945, the company shipped approximately 675,000 tons of phosphate rock before suspending operations in September, 1947 (Butner, 1949). Reserves were depleted and the mine was closed in 1958, briefly reopened in early 1960, and then permanently closed later that year, never to reopen (Figure 15). The mine workings disturbed about 212 acres and produced approximately 1¼ million tons of ore over its life. On February 16, 1971, the 400 acres of patented

Figure 10. Waterloo Mine tramway, about 1925. Photo by V. R. D. Kirkham, courtesy of the Idaho Geological Survey.

mining claims at the Waterloo Mine were donated to the Idaho Fish and Game Department (IF&G) by the Stauffer Chemical Company, the successor of the San Francisco Chemical Company. The IF&G had plans to use the site as deer winter range, but that use never developed. Part of the donation was an option for the city of Montpelier to use part of the site as a landfill, which is being done. The IF&G

Figure 11. Trucking phosphate rock from mine bins to railroad, Waterloo Mine. Photo by V. R. D. Kirkham, 1925, courtesy of the Idaho Geological Survey.

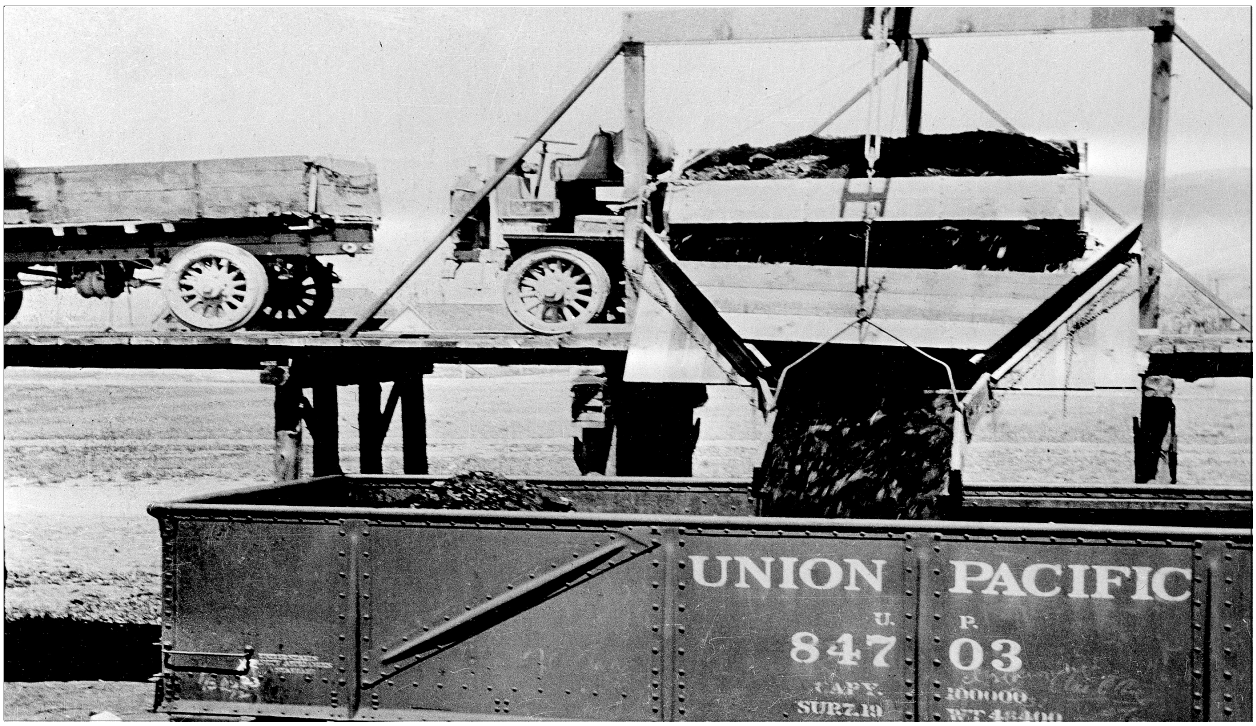

Figure 12. Unloading phosphate rock from truck to car, side view, Montpelier, Idaho, 1925. Photo by V. R. D. Kirkham, courtesy of the Idaho Geological Survey.

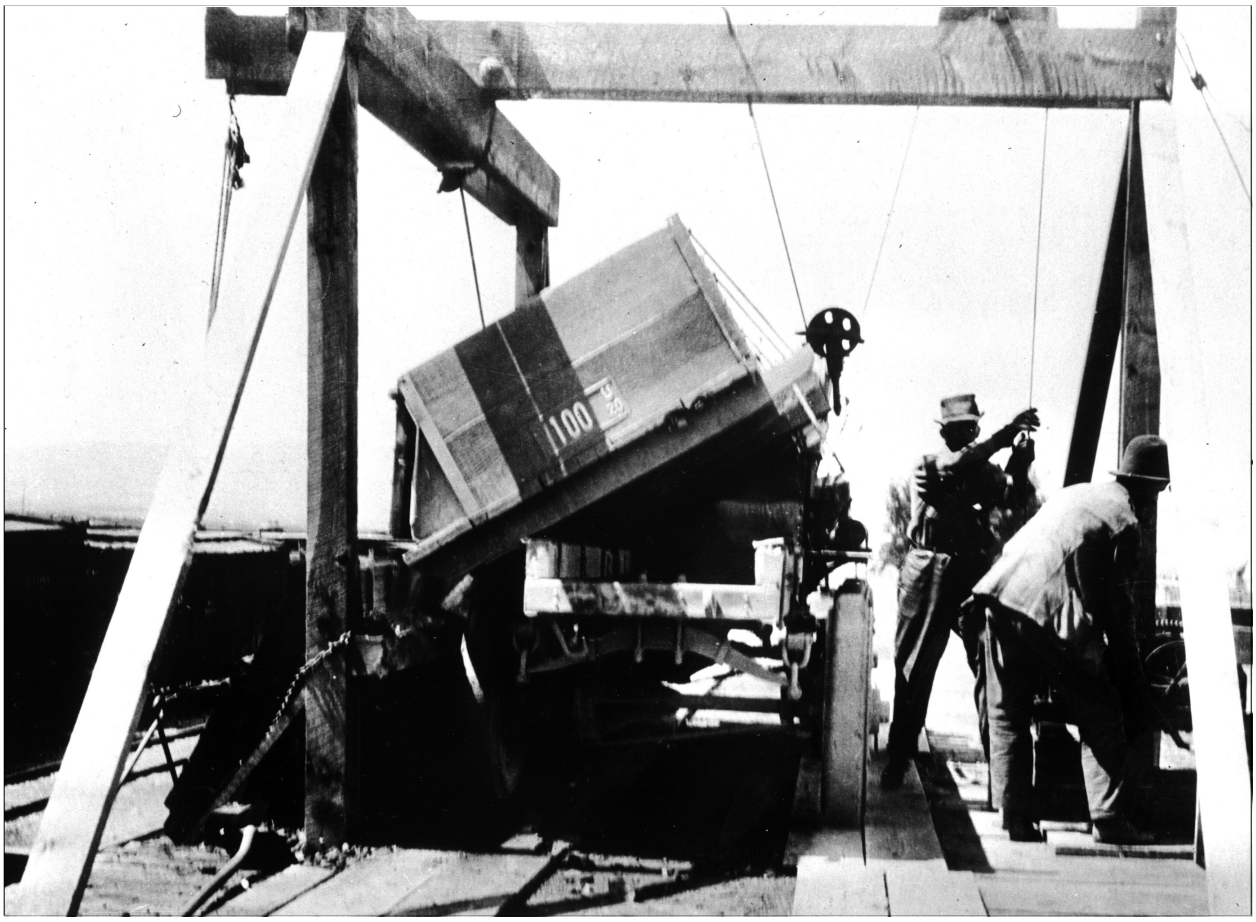

Figure 13. Unloading phosphate rock from truck to car, end view, Montpelier, Idaho, 1925. Photo by V. R. D. Kirkham, courtesy of the Idaho Geological Survey.

is exploring other options for the mine, (IF&G, personal communications, 1998). So goes the saga of the historical Waterloo Mine (1903-1996).

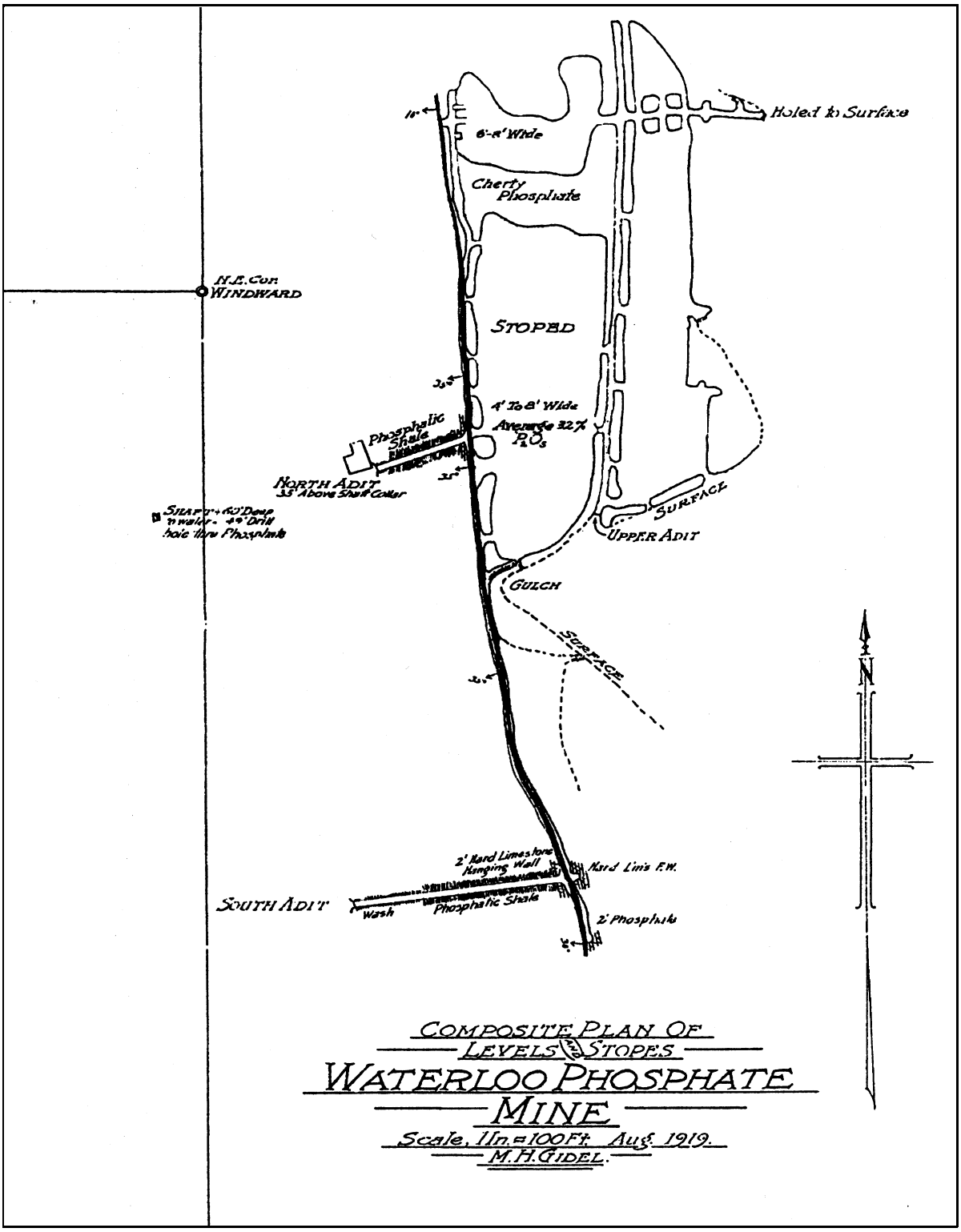

Figure 14. Underground workings, Waterloo Mine, August, 1919. Map courtesy of the Anaconda Collection, American Heritage Center, Laramie, Wyoming.

Figure 15. Waterloo Mine east of Montpelier, Idaho, August, 1975. Photo by Peter Oberlindacher, BLM.