HISTORIC AMERICAN ENGINEERING RECORD

BELMONT MILL, POWERHOUSE

HAER No. NV-46-B

Location: Approximately 7 miles south of U.S. Route 50 on USDA Forest Service Road No. 623, Ely vicinity, White Pine County, Nevada

Belmont Mill, Powerhouse is located at: latitude 130.36096, longitude: -138.71967. The coordinate represents the southeast corner of the building. This coordinate was obtained in fall 2010 by plotting its location on the U.S. Geological Survey, Seligman Canyon, Nevada, 7.5 Quadrangle (1992), Township 16 North, Range 57 East, Section 1. The coordinate's datum is North American Datum 1983. The powerhouse's location has no restriction on its release to the public.

Present Owner/ Occupant: United States Department of Agriculture (USDA) Forest Service, Humboldt-Toiyabe National Forest

Present Use: Abandoned

Significance: The Tonopah Belmont Development Company (TBDC) was one of the most important companies established during Nevada's early twentieth-century mining boom. As ore deposits in its central Nevada mines were depleted, the company sought new claims to resurrect its fortunes. In 1926, TBDC built the Belmont Mill near Hamilton to process lead and silver ore from its recently acquired claims in the White Pine mining district of eastern Nevada. The small pilot mill employed the most recent advances in table concentration and flotation mineral processing techniques, and the company erected numerous other buildings and structures, including the powerhouse, to support the mining and milling work. The powerhouse generated both electricity and the power for the mechanical system of drive shafts, belts, and pulleys to run the mill machinery. Although largely abandoned by TBDC after a few years, later owners used the mill and the powerhouse for smaller operations. Today, although most of the equipment has been removed, the Belmont Mill site is one of the only intact early twentieth-century mill complexes in eastern Nevada. As such, it is a tangible reminder of the decline and failure of a once-powerful company and, thereby, of the boom and bust cycle so common in the mining industry. The subsequent modification and reuse of the buildings and structures for small-scale operations typifies the ceaseless hum of optimism that sustains the mining industry.

Historian: Anne Oliver, Principal, Oliver Conservation Group, Fall 2010-2011

Project Information: This project was completed by a team of private contractors at the request of the USDA Forest Service, Humboldt-Toiyabe National Forest (HTNF), in consultation with the Nevada State Historic Preservation Office. When the property came under the purview of the HTNF several years ago, the agency recognized the historic significance of the site and sought to fulfill its obligations under Section 110 of the National Historic Preservation Act by documenting and stabilizing the buildings. The project contract was awarded to ajc architects of Salt Lake City under an indefinite delivery/indefinite quantity contract between Region 4 of the USDA Forest Service and the firm. The project historian was Anne Oliver, a historic preservation consultant with Oliver Conservation Group (Salt Lake City) and sub-contractor to ajc; she was responsible for all aspects of the historical report and would like to thank Eric Stever, Archaeologist, HTNF Ely District, and Peter Fleischmann, Civil Engineer, HTNF, for their assistance. Matt Wallace, Intern Architect with ajc architects, was responsible for the architectural measured drawings and completed all fieldwork and final drawings with the assistance of Oliver Smith Callis, Draftsman. The photography was produced by Steve Tregeagle Photography (Salt Lake City), a subcontractor to ajc, under the direction of Steve Tregeagle and with the assistance of Heath Brown.

Part I. Historical Information

A. Physical History:

1. Date of construction: 1926
Title records document that in April and August 1926 Tonopah Belmont Development Company (TBDC) president Clyde A. Heller located the four unpatented mill site claims (Nevada Nos. 3 through 6).[1] Construction was underway by mid-April, formwork for the foundations was in place by mid-May, and the concrete foundations poured by the beginning of June.[2] Newspaper accounts mention only the mill foundations, but the powerhouse was integral to the mill's function and would have been built simultaneously or even before the mill to provide power for construction work. After only four short months of work, the Belmont Mill was given its initial run on Friday, August 20, 1926, making it the first reduction plant to operate in the White Pine mining district since 1892.[3]

2. Architect/Engineer: Tonopah Belmont Development Company
No references were made to the specific architect or engineer responsible for the design of the Belmont Mill buildings, including the powerhouse. However, in 1910-11, TBDC staff designed and built a 500-ton silver cyanide reduction mill at Tonopah (called the Tonopah Belmont Mill).[4] Engineer Otto Wartenweiler supervised the production of the detail drawings and construction, and he may also have been involved with the design of the Belmont Mill buildings, in particular the mill and the powerhouse.[5]

3. Builder/Contractor/Supplier: Tonopah Belmont Development Company
The superintendent of construction was initially L. O. Bastian, who became ill and was replaced in mid-May by W. I. Cowsert, "who erected the Belmont Mill at Tonopah."[6] The Tonopah mill was being dismantled at the time, and rails and machinery from that mill were hauled to the new mill site by truck and by a six-horse team. Lumber was hauled from Ely.[7]

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[1] White Pine County Records, Box 96, p. 599-600; Box 102, p. 89.
[2] *Ely Daily Times*, April 16, May 19, and June 2, 1926.
[3] *Ely Daily Times*, August 12 and 20, 1926.
[4] Jay A. Carpenter et al., *The History of Fifty Years of Mining at Tonopah, 1900-1950*, University of Nevada Bulletin, XLVII, no. 1, Geology and Mining Series No. 51 (Reno: Nevada Bureau of Mines, 1953), 50, 62-64. A paper on the construction and operation of the Tonopah mill was presented at the American Institute of Mining Engineers meeting in San Francisco in 1915. See A.H. Jones, "The Tonopah Plant of the Belmont Milling Co.," in *Transactions of the American Institute of Mining Engineers* LII (New York: American Institute of Mining Engineers, 1916): 95-122.
[5] Wartenweiler opened an office in the Van Nuys building in Los Angeles in 1914. He had designed at least two other large mining and milling plants by that time. See *Steam* XIII, no. 1 (January 1914): 26. Given his past association with TBDC, he may have been involved in the design of the Belmont Mill, but there is no direct evidence of this.
[6] *Ely Daily Times*, May 19, 1926.
[7] *Ely Daily Times*, March 17 and April 22, 1926. TBDC was simultaneously investing in "Camp Belmont," its new Arizona lead-silver property, including mine development work, well drilling, building construction, telephone line construction, and machinery installation. Some of the machinery was doubtless salvaged from the Tonopah mill as

During the construction period about forty men were employed at the property, some at the mine but many as construction hands. The men were initially housed in Hamilton, about 4 miles away, but in June some of them moved into the newly erected boardinghouse (see HAER No. NV-46-I), which was the first building completed on the mill site.[8]

4. Original plans and construction: No original plans for the powerhouse were located during the research phase of this project, but TBDC undoubtedly prepared architectural and engineering drawings. The documents might be included in TBDC's corporate records, if these still exist and can be located in the future.

5. Alterations and additions: The only changes to the powerhouse involve the removal of all machinery, including the massive diesel engine. According to oral accounts the machinery was in place in the 1960s but was removed thereafter.[9]

B. Historical Context: The Belmont Mill and most of its associated buildings and structures were designed and constructed by TBDC in 1926. The White Pine mining district, in which the mill site is located, was about 16 miles square and was organized in 1865 after the discovery of ore on the west slope of Mount Hamilton. Intense development began only after rich silver chloride deposits were discovered on Treasure Hill in 1868.[10] The ensuing rush resulted in the creation of Hamilton and several nearby towns. In 1869-70, there were 197 mining companies and an estimated population of 25,000 people in the district as a whole. The boom ended abruptly in 1870, and it has been described as "one of the most intense, and shortest, mining booms in the American West."[11] Hamilton and the adjacent towns were largely depopulated during the course of the 1870s but were not completely abandoned until the 1930s. Oral histories document that about 100 people lived in the area in 1917, and there were fifty-six registered voters residing in Hamilton in 1928.[12]

The White Pine mining district is broken into three distinct sections: a copper belt on the west slope of the White Pine Mountains centering around Monte Cristo, a lead-silver belt on the east side of the range centering around McEllen Canyon, and a silver belt further east centering around Hamilton and Treasure Hill. The lead-silver belt deposits were discovered shortly after the silver deposits at Treasure Hill, and some of the mine claims associated with the Belmont

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well. See "Tonopah Belmont Opens Mine in Arizona," *Engineering and Mining Journal-Press* 121, no. 22 (May 29, 1926): 896.

[8] *Ely Daily News*, June 3, 1926.

[9] Hal (Rod) Jensen, Jr., interview by author, October 1, 2010.

[10] The creation of the White Pine district was only part of the general frenzy of activity in White Pine County, which saw the establishment of more than a dozen new mining districts in 1869 and six more in the 1870s. See Steven R. James (ed.), *Prehistory, Ethnohistory, and History of Eastern Nevada: A Cultural Resources Summary of the Elko and Ely Districts*, Cultural Resource Series No. 3 (Reno: Bureau of Land Management, 1981), 254-255.

[11] Donald L. Hardesty, "Managing Historic Properties in the White Pine Mining District," unpublished report prepared for Humboldt National Forest, 1993, 1.

[12] Jen Huntley-Smith, "Documentary Report for Archaeology of Treasure Hill," as cited by Hardesty, "Managing Historic Properties in the White Pine Mining District," 4.

Mill may have been established at that time. Early attempts to smelt the ores were unprofitable due to crude methods and high transportation costs. However, it was reported that, in the 1880s,

> … when mining had been abandoned on Treasure Hill, attention was again directed to [the lead deposits]. More favorable market conditions made it profitable to export the best grade of these ores to Salt Lake and San Francisco for reduction, and from these mines have since come the ores that have employed, for more than 20 years, the small remaining population of the district.[13]

Generally the district was very quiet. Accounts of the district in *Mineral Resources* between 1905 and 1924 indicate that lead-silver ores remained the principal product but that typically only 300 to 500 tons of ore were produced each year, most of it of high enough quality to be classified as shipping grade. Exceptions were the years during World War I, when increased demand for lead made it economically viable to treat lower grade ore at concentration mills; about half the ore was milled while the other half was of shipping grade. But the White Pine district would have one last flurry of activity in the mid-1920s, spurred by the investments of TBDC and the construction of the Belmont Mill.

The discovery of silver ore deposits near Tonopah Springs in 1900 in the central part of the state ushered in the second great wave of mining in Nevada. By 1905, the bustling town of Tonopah had been established. Two great mining companies arose during this boom, the Tonopah Mining Company and the TBDC. Both were fully industrialized in the modern sense, defined by a highly structured organization, the existence of owners and financial backers in distant urban areas, an elaborate division of labor (wage earners, shift workers, managers, technicians, engineers, financiers), and the construction of large reduction facilities, offices, and residential infrastructure close to the mines.[14]

A group of Philadelphia capitalists arranged to buy the original Tonopah claims in 1901, creating the Tonopah Mining Company and naming Arthur Brock, a wealthy Philadelphia businessman, as president. In May 1902 either Arthur or John Brock arrived to inspect the new holdings and at that time negotiated the purchase of adjacent claims and a tunnel.[15] By December the tunnel property had been combined with several other holdings and was incorporated in New Jersey as the TBDC; "these two companies accounted for 60% of the district's total production ($146,336,102) from 1901 through 1940." The estimated profits of TBDC alone were $39 million.[16]

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[13] W.S. Larsh, "Mining at Hamilton, Nevada," *Mines and Minerals* (June 1909), 523.

[14] See Martha H. Bowers and Hans Muessig, *History of Central Nevada: An Overview of the Battle Mountain District*, Bureau of Land Management Cultural Resources Series No. 4 (Reno: Bureau of Land Management, 1982), 39.

[15] David Fairall, "The Tonopah Belmont Development Company: Its Beginnings and Formation," *Nevada Historical Society Quarterly* 40 (Fall 1997): 301-2, states that Arthur Brock visited Tonopah while Loren Chan, *Sagebrush Statesman: Tasker L. Oddie of Nevada* (Reno: University of Nevada Press, 1973), 28, states that John Brock visited. Whichever the case, it is clear that in the early days the two companies had close ties, often with overlapping officers and boards of directors.

[16] Fairall, "The Tonopah Belmont Development Company," 290, and Bowers and Muessig, *History of Central Nevada*, 35.

TBDC initially shipped ore to the Comstock mills in Virginia City and to California but soon decided to build a 60-stamp mill at Millers, about 13 miles west of Tonopah.[17] The opening of a rich new vein prompted the construction, between 1910 and 1911, of a new 500-ton cyanide mill in Tonopah itself, adjacent to the shaft.[18]

Clyde Heller was named president of the company at this time, a position he would retain until his death in 1937.[19] The company prospered under his direction between 1911 and 1915, producing 5.66 percent of the silver in the United States and returning profits from the Tonopah mines of $2 to $3 million.

> Similar to all prospering mining companies, President Heller [stated] in his [1914 annual] report "the examination of other mining properties has continued with a view to purchase, and negotiations are being conducted for one." This was the start of many years of search, the taking over of many properties, and an over-all high capital loss.[20]

Heller had of course anticipated the eventual depletion of the company's holdings and, indeed, beginning in 1916, the tonnage extracted from the Tonopah mines began a steady decline. High silver prices enabled profits of about $1 million for the next two years but the drop in mine tonnage led to the closing of the mill at Millers in 1918 after eleven years of continuous operation.[21]

Profits in 1918 dropped to below $500,000 and the early 1920s were dismal years: the Tonopah mill was closed in 1923 due to insufficient ore supply and the TBDC's leases at Tonopah were forfeited.[22] Profits were below $200,000 by 1924, deriving mainly from TBDC's Canadian mines, and the company continued to search for new properties to revive its fortunes. In 1925, TBDC exercised an option on a lead-zinc mine near Hamilton, in the White Pine district of Nevada.[23]

By early 1926, title records confirm that TBDC owned all of the individual claims comprising the Nevada Group in McEllen Canyon. Initial explorations proved promising, and on March 4, 1926, the *Ely Daily Times* reported,

> The Tonopah Belmont Development company, will build a small pilot mill at Hamilton this spring, in which to conduct tests on the ore in the property the company is developing on the lead belt, west of Treasure Hill. Clyde A. Heller, president of the

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[17] Carpenter et al., *History of Fifty Years of Mining at Tonopah*, 87.
[18] Carpenter et al., *History of the Fifty Years of Mining at Tonopah*, 50, 62-64.
[19] By the 1920s, the TBDC corporate office address was given as 500 Bullitt Building, Philadelphia, with a mine office in Tonopah. It appears that Heller lived in Tonopah. See Walter Harvey Weed, *The Mines Handbook*, vol. XV (Tuckahoe, NY: The Mines Handbook Co., 1922), 1350.
[20] Carpenter et al., *History of Fifty Years of Mining at Tonopah*, 83.
[21] Carpenter et al., *History of Fifty Years of Mining at Tonopah*, 85-86.
[22] Walter Harvey Weed, *The Mines Handbook*, vol. XVI (Tuckahoe, NY: The Mines Handbook Co., 1925), 1506.
[23] Carpenter et al., *History of Fifty Years of Mining at Tonopah*, 87-90.

> company stated that material for the mill will be assembled and construction started just as soon as the snow goes off and condition of the roads will permit trucking.
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> …Previous reports from Charles Mayotte, [mine] superintendent, showed the property to be opening up in a gratifying manner and that there is already developed sufficient ore to justify the construction of a small mill.

Later in the month, P.W. Racey, TBDC's general superintendent for Nevada operations, issued a statement describing the new workings in the mine and noted, "the Belmont mill at Tonopah is being dismantled and considerable amount of the machinery will be shipped to Hamilton and used in the new test mill."[24]

To facilitate the initial relocation of machinery, future trucking of ore, and winter access to and from the mill site, Racey asked the White Pine County commissioners to construct a 7-mile stretch of road "across the flat" to connect the old Hamilton road near the mouth of McEllen Canyon with the Lincoln Highway (U.S. Route 50) to the north, just west of Antelope Summit. The county agreed to the proposal in early May, and the road was completed about two months later; it is the same graded dirt road that provides access from the highway today.[25]

Title records document that, in April and August 1926, Clyde Heller located the four unpatented mill site claims (Nevada Nos. 3 through 6).[26] Construction was underway by mid-April under the supervision of L. O. Bastian. Original plans called for a small, 50-ton capacity mill, but one designed to allow for additions "if the company desire to treat custom ores" from nearby mines. "The new mill will comprise rotary grinders, concentrating tables, cyaniding and flotation, and is being designed especially for the treatment of the ores of that district."[27]

Rails and machinery were hauled from Tonopah to the mine site by truck and a six-horse team; lumber was hauled from Ely.[28] At about this time, W. I. Cowsert, "who erected the Belmont Mill at Tonopah," replaced the ailing Bastian as construction supervisor.[29] Work progressed apace and, in early June, TBDC could report that

> the concrete [mill] foundation has been poured and piles of lumber and machinery are decorating the flat at the mill site. A reservoir for water storage [see HAER No. NV-46-S] has been built and several miles of pipe are now on the ground. Timber for the tramway is also on the ground and the survey has been completed from the mill site to the Cornell property.[30]

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[24] *Ely Daily Times*, March 17, 1926.
[25] *Ely Daily Times*, March 29, May 3, June 2, and August 4, 1926.
[26] White Pine County Records, Box 96, pp. 599-600; Book 102, p. 89.
[27] *Ely Daily Times*, April 16, 1926.
[28] *Ely Daily Times*, April 22, 1926.
[29] *Ely Daily Times*, May 19, 1926.
[30] *Ely Daily Times*, June 2, 1926.

Foundations for the powerhouse would have been poured at this time and in fact the building might have been erected before the mill in order to provide power for construction work. At this time, about forty men were employed at the property and their prospective new residence, the boardinghouse (see HAER No. NV-46-I), was reported to have "nine bedrooms, a kitchen, lobby, and bath room, and [was] comfortably equipped."[31] The activity in McEllen Canyon created hope for a revival of the White Pine district in general, and indeed stimulated new work in both the lead and silver belts by area claim and patent holders that summer and fall.[32]

After only four short months of construction, the Belmont Mill was given its initial run on Friday, August 20, 1926, making it the first reduction plant to operate in the district since 1892.[33] Of course the powerhouse would have been fully functional at this time. President Heller arrived from New York, en route to Tonopah, for the inaugural run and expressed his "entire satisfaction," noting only the need for minor adjustments to the tram (which delayed operations for at least a week) and stating that the company expected to double the capacity of the mill at no distant date.[34] It was noted that the increase from 50 to 100 tons could be effected by "providing for increased power and the possible addition of another rod mill and more tables."[35]

Milling of the lead ore proceeded throughout the fall of 1926 and with such promising results that the mill's capacity was expanded to 100 tons per day. Modifications may have been made to the powerhouse or its machinery at this time to provide the necessary increase in power, but it is not clear what the changes were, if any. In October, Superintendent Racey visited the site from Tonopah, noting that work would be completed by early November and that "the final flow sheets will be partly table work and partly flotation…."[36] In four months of operation in 1926, the mill processed 3,588 tons of ore, resulting in a gross yield of $63,697.[37]

Nevertheless, the Belmont Mill was closed as of January 5, 1927, due to unpredictable operations during the cold weather.[38] The TBDC mine and mill were not completely abandoned. Although the severe winter continued through February, it was reported that TBDC and two other mining companies were "working small forces and waiting for spring."[39] But a declining lead market and low extraction seems to have halted any immediate resumption of mining and milling. In both 1927 and 1928 work at Belmont was confined to assessment work, development, and maintenance of the main haulage tunnel; there were no reports of mill operation.[40]

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[31] *Ely Daily Times*, June 3, 1926.
[32] *Ely Daily Times*, April 16, May 15, and June 2, 1926.
[33] *Ely Daily Times*, August 12 and 20, 1926.
[34] *Ely Daily Times*, August 21 and 27, 1926.
[35] *The Ely Record*, September 17, 1926.
[36] *Ely Daily Times*, October 6, 1926.
[37] B. Couch and J. Carpenter, *Nevada's Metal and Mineral Production (1859-1940, inclusive)* (Reno: Nevada State Bureau of Mines, 1943).
[38] *Ely Daily Times*, January 14, 1927.
[39] *The Ely Record*, March 11, 1927.
[40] V.C. Heikes, "Gold, Silver, Copper, Lead and Zinc in Nevada," in *Mineral Resources, 1928* (Part I), U.S. Bureau of Mines (Washington, DC: U.S. Government Printing Office, 1931).

In 1929, TBDC "ceased mining on its own account in favor of leases given to miners."[41] The lessees extracted "considerable high-grade lead-silver ore" from the mine in 1929, and for three months, until operations were suspended once again due to the low price of silver and lead, lower grade ore from the mine was processed at the mill.[42] In 1930, the mine produced "first class smelting ore."[43] The onset of the Great Depression in the 1930s brought work almost entirely to a halt. In 1939, following repairs to the aerial tramway and the milling equipment, a combination of TBDC employees and lessees began processing ores from the mine claims once again.[44]

In September 1940, the failing TBDC finally sold both the mine and the mill site claims to Capt. Arthur A. deMelik of Ely.[45] After one year he sold them to Ely resident Byron (or Bryon) F. Snyder.[46] After 1942, Snyder's permanent address was given as Fort Lauderdale, Florida, and it appears he worked the property for only two years before moving there.[47] Three of the few historic photographs located of the mill site date from about this period but unfortunately the powerhouse is not visible in any of them. Poles for electrical lines are visible, however, leading from the vicinity of the powerhouse to the assay office, supervisor's office, and boardinghouse south of the mill.

Activity continued in the early 1940s with a pause during mid-decade and a resumption of work in 1949; there is no firm indication that the mill (or powerhouse) was used during this period.[48] Snyder sold the mine and mill site claims to Don A. Jennings of the Belmont Mine and Mill Co. in June 1949, and it appears that activity at the mine continued through 1956, supported by the strong demand for base metals after World War II and through the mid-1950s.[49] The mine was listed in the *Minerals Yearbook* as being one of the leading producers of lead in the district for 1955 and 1956, and the report stated that the lead ore was shipped to a Utah smelter; it did not mention if the mill was used for processing.[50] However, the secondary system that was installed in the mill, and which remains partially in place today, most likely dates to this period. According to those who knew him, Jennings was not an experienced miner or mill operator but he did attempt to use the mill to process ore.[51] Based on physical evidence it is clear that the machinery and drive system of the powerhouse were used to operate the modified process.

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[41] Carpenter et al., *History of Fifty Years of Mining at Tonopah*, 90.
[42] V.C. Heikes, "Gold, Silver, Copper, Lead and Zinc in Nevada," in *Mineral Resources, 1929* (Part I), U.S. Bureau of Mines (Washington, DC: U.S. Government Printing Office, 1932).
[43] V.C. Heikes, "Gold, Silver, Copper, Lead and Zinc in Nevada," in *Mineral Resources 1930* (Part I), U.S. Bureau of Mines (Washington, DC: U.S. Government Printing Office, 1933).
[44] White Pine County Records, Book 114, p. 474.
[45] White Pine County Records, Book 121, pp. 291, 293, and 310; Book 129, p. 204.
[46] White Pine County Records, Book 121, pp. 306-7.
[47] White Pine County Records, Tax Receipts, 1942-48.
[48] "White Pine District—Principal Mines," unpublished district summary [after 1963], Nevada Bureau of Mines and Geology mining district files, Document No. 52900082 (Reno: University of Nevada).
[49] White Pine County Records, Book 145, pp. 170-1, and Book 151, p. 165.
[50] L.E. Davis and W.C. Fischer, "The Mineral Industry of Nevada," in *Minerals Yearbook Area Reports, 1955*, vol. III, U.S. Bureau of Mines (Washington, DC: U.S. Government Printing Office, 1958), 715; L.E. Davis et al., "The Mineral Industry of Nevada," in *Minerals Yearbook Area Reports, 1956*, vol. III, U.S. Bureau of Mines (Washington, DC: U.S. Government Printing Office, 1958), 761.
[51] Hal (Rod) Jensen, Jr., interview.

Little activity was reported in the later 1950s, no doubt because of the major depression that had hit Nevada's mineral industry. Jennings signed a lease and option to purchase agreement in 1959 with Belmont Lead, Inc.[52] The new company worked on rehabilitating the mine, pipelines, and housing and conducted exploratory activities. A total of 232 tons of ore was extracted and some was even shipped before Belmont Lead ceased operation in late 1960.[53] Subsequent records suggest that neither the mine nor the mill or its powerhouse was ever really used again. In Nevada, "continued low prices prohibited operations of many mines… and it was evident that it would be many years before lead-zinc… returned to the scene." This slump in the market, combined with aging infrastructure and lack of substantial investment to repair and maintain it, brought an end to the working days of the Belmont mine and mill.

Several past and present Ely residents recall life at the mill site in the 1960s. Rod Jensen worked claims in the area between 1966 and 1969 with his father and often stayed in the boardinghouse in the summer, which was overseen by the site's caretaker, Ermyl Dowd, and used by miners working nearby claims. Ron Jordan, an Ely resident who worked for the county road maintenance department in the late 1960s and early 1970s, often stopped at the boardinghouse to visit and use the telephone. As Jordan remembers it, the mill was used fitfully in the late 1960s but little or not at all after 1967. He attributed this to a lack of material to put through the mill, but also recalled that in some years there was insufficient water from the California Mill springs to operate it.[54]

Both Jensen and Jordan stated that a great deal of equipment remained in the mill and the powerhouse in the 1960s. Jensen recalled a 40-horsepower Ingersoll Rand oil engine in the powerhouse (this differs from the 55-horsepower engine described in early newspapers) and associated smaller engines on concrete mounts around the perimeter of the room. A generator had powered the electrical system and there was also a compressor that was used to start the main engine.[55] The residential buildings had no electricity, indicating that by this time, the powerhouse was used only for mill operations or not at all.

The ownership history of the claims is complicated from the 1970s on, but essentially Phillips Petroleum Co. leased the Belmont claims from Jennings. The claims were simply brought under the corporation's umbrella and then forgotten, and the property was subsequently shuttled between large corporations for about thirty years. The departure of Mrs. Dowd in the late 1970s marked the abandonment of the Belmont Mill site and the beginning of its new status as a mining relic, hunting camp, and tourist attraction. At this time or earlier, some of the remaining pieces of mill and powerhouse machinery described by Jensen and Jordan may have been sold. A color slide and two photographs taken in 1975 and 1980, respectively, document that the powerhouse

[52] The actual lease and option document could not be found, but it was referenced in a notice of non-liability that Jennings filed in May 1959. See White Pine County Records, Book 218, p. 186.
[53] L.E. Davis et al., "Nevada," in *Minerals Yearbook Area Reports 1960*, vol. III, U.S. Bureau of Mines (Washington, DC: U.S. Government Printing Office, 1961), 661; "White Pine District—Principal Mines," 3.
[54] Hal (Rod) Jensen, Jr., interview; Ronald Jordan, interview by author, September 29, 2010.
[55] Hal (Rod) Jensen, Jr., interview; Ronald Jordan, interview.

exterior appeared just as it does today, although lack of maintenance and continued exposure to harsh weather conditions have taken a toll.

In 1999 and 2002, the claimholder failed to meet annual requirements and all claims were deemed forfeited. In 2007 the Belmont Mill site was relocated, but the buildings and surface structures are now considered to be under the purview of the Humboldt-Toiyabe National Forest.

Part II. Structural/Design/Equipment Information

A. General Statement:

1. Character: The powerhouse, as an accessory building to the mill, is a good example of industrial mining design from the early twentieth century. It is sited immediately adjacent to the mill, about 6' north, with a tall shed roof covering the open floor plan and providing space for the machinery and mechanical equipment necessary to power the mill. The mix of traditional and modern construction materials—heavy wood framing members and trusses, concrete floor, multi-light wood windows, corrugated metal siding and roof—date it to the transition period between the more traditional mill buildings of the nineteenth century and modern mill buildings of the later twentieth century.

2. Condition of fabric: Despite the lack of maintenance for at least forty years, the building remains structurally sound. The building envelope is in good condition due to the inherent durability of the primary building materials (heavy timber and galvanized, corrugated metal) and the dry climate. The exceptions are the wood windows, which are in poor condition—the frames and muntins are damaged or missing, and all the glazing is gone. On the interior, all of the original machinery has been removed, but the main driveshaft with its associated pulleys remains in place.

B. Description of Exterior:

1. Overall dimensions: The powerhouse is 22' (east-west) x 24' (north-south). The building is rectangular in shape with a small-shed roof wing on the north side.

2. Foundations: The foundation is poured concrete.

3. Walls: The wood-framed walls of the powerhouse are of heavy construction. The west wall is treated differently in terms of framing because much of it is a retaining wall for the hill side behind it rather than an exposed exterior wall. All finished exterior walls are clad in galvanized (or tin-plated), corrugated sheet metal. The sheets measure 26-$^{1}/_{2}$" wide with a 24" exposed width and a 110" exposed length. The sheets are nailed to the framing about every 30" to 40" vertically and every 5-$^{1}/_{2}$" horizontally. At least one of the sheets has been hand-painted in black with the words “Tonopah Belmont Development Co., Hamilton, Nevada.” This is not painted on every sheet, and it is likely

that the marked sheet was the top in a bundle that was shipped to the site; in effect, a shipping label.

4. Structural system, framing: Posts measuring 6" x 8" are used to support roof trusses, which are braced with 4" x 6" diagonal members. Horizontal 2" x 6" boards are used for lateral stability between the posts and also as nailers for the exterior cladding. The exception is the shed-roofed wing that extends to the north, which has 2" x 4" studs. The west wall, which also serves as a retaining wall, is composed of 6" x 8" timber posts that are backed with 2" x 12" horizontal shoring boards to about the first floor height.

5. Stack: A 7"-diameter metal exhaust pipe runs from the main engine mount through the concrete channels in the floor, connecting with a metal stack on the east side of the building that extends about 18' above grade.

6. Openings:

a. Doorways and doors: One side-hinged man door is present on the south end of the west wall. It is a five-panel wood door measuring 33" wide x 80" high with pegged wood stiles and rails and plywood panels, and it originally had a rim lock, now missing. The doorway is framed with a simple wood casing and board trim, with metal flashing above the door head.

b. Windows and shutters: The fenestration comprises six-over-six-light wood windows with an operable bottom sash (two in the south wall, two in the upper part of the west wall, and one pair in the east wall). A single window has an exterior opening measuring 33-$^{1}/_{2}$" x 54". Lintels are formed by the 2" x 6" boards that are used in the wall framing as nailers for the siding. Exterior trim consists of nominal 1" x 4" boards with metal flashing, a canted 2" x 6" sill, and a 1" x 2" board as an apron. The windows were originally painted white.

8. Roof:

a. Shape, truss type, covering: Most of the powerhouse is covered with a shed roof that slopes downward from west to east; it matches the pitch of the adjacent mill roof. The small wing on the north side of the building is covered with a shed roof that slopes downward from south to north. The roofs are covered with corrugated metal panels identical in dimensions and manufacture to that used for the wall cladding.

The shed roof over the main part of the powerhouse is framed with three right-angled Howe trusses. Each truss comprises a 6" x 8" bottom chord with 6" x 6" top chords and diagonal web members; iron tie rods are used for the vertical web members. At connections, the members are notched, spliced, and/or bolted rather than fixed with metal gusset plates. The trusses support 2" x 6" purlins that are

notched over the top chords of the trusses. The small shed roof over the north wing is framed with a grid of 2" x 4" rafters and purlins.

b. Eaves: The roofs are finished with wood eaves. Projecting rafter/truss tails are boxed with a plain fascia and soffit on horizontal eaves. Along the diagonal elements of shed roofs, the projecting ends of purlins are finished with a plain 2" x 6" fascia; board lengths of the same dimensions are used between the purlins to finish the wall top. All eave elements were originally painted white. The building has no roof drainage system.

C. Description of Interior:

1. Floor plans: The powerhouse is a one-room building with an open floor plan. Access to the room is through the exterior door in the east wall. The main engine was located on a mount in about the center of the room while smaller pieces of machinery were located on the perimeter. The room is open to the half story on the upper west side, where the main driveshaft and pulleys are positioned between the trusses.

2. Stairways: There are no stairs in the powerhouse, but a wood ladder built against the center of the west wall provides access to the driveshaft and pulley system.

3. Flooring: The floor is poured concrete, including a large raised block (measuring 3'-0" north-south and 7'-2" east-west) in the center of the room that was a mount for the main engine. Two smaller, raised concrete machine mounts are on the south wall and were for an auxiliary engine and a compressor used to start the main engine. They measure 31-$^1/_2$" x 20" (east mount) and 21" x 15-$^1/_2$" (west mount). A concrete machine mount toward the north end of the west wall was for a generator for the electrical system; this measures 42" x 24".[56] Concrete-lined channels in the floor were probably for exhaust lines, pumps, or other equipment.

4. Wall and ceiling finish: None of the walls or ceilings are finished, so the framing system is exposed in all areas.

5. Mechanical equipment: The only mechanical equipment that remains are the porcelain knobs for the wiring system. All the wiring and fixtures have been removed.

D. Machines: An *Ely Daily Times* article dated June 19, 1926, provides one of the few descriptions of the type of equipment originally installed in the powerhouse: "A55 h.p. full Deisel [sic] engine will furnish the power to operate the mill." Further valuable information was provided in an article from July:

> Construction of a power plant and concentrating mill has been completed and the 9000-foot aerial bucket tramway is about finished except for stringing the cable, which is on

[56] Hal (Rod) Jensen, Jr., interview.

> the ground…[Delay] in receiving three miles of three-inch pipe for the water line probably will postpone milling operations until the middle of [August]...
>
> Power for the operation of the mill and other machinery will be supplied by a 55-h.p. Ingersoll-Rand PO oil engine which has been set on its foundation.[57]

The Ingersoll-Rand engine in the center of the room drove a belt and pulley system that moved a large driveshaft located in the half story above the west side of the room. The driveshaft exits the powerhouse, spans the 6' gap between buildings, and enters the mill. In turn, the main shaft drove the numerous smaller shafts, belts, and pulleys in the mill. Two machine mounts along the south wall were for an auxiliary engine and a compressor, used to start the main engine. A concrete machine mount toward the north end of the west wall was for a generator for the electrical system. The pulleys and driveshaft remain, but all the machinery has been removed.

E. Site Layout: The mill site is located in the White Pine mining district of east-central Nevada, at the northern end of the White Pine Mountains. The mill itself sits at an elevation of about 7,500' near the mouth of McEllen Canyon, which lies between Pogonip Ridge and Mount Hamilton immediately to the west and Babylon Ridge to the east. The once-renowned town of Hamilton lies on the opposite side of Babylon Ridge about 4 miles to the southeast, just north of Treasure Hill.

The powerhouse was built on the hillside near the base of McEllen Canyon, immediately adjacent to the mill. The hillside location allowed for six stepped mill levels in order to utilize gravity in the processing operations. However, a flat area was created between the powerhouse, the mill, and the tool and lumber rack (see HAER No. NV-46-F) to create a compact and efficient yard for machinery maintenance and repair.

Part III. Operations and Process

A. Operations: The Belmont Mill processed lead and silver ore from claims in the White Pine mining district. The powerhouse is part of a complex of buildings built at the site.

B. End Product: Electricity for all the buildings on the Belmont Mill site was generated in the powerhouse and supplied by knob-and-tube wiring.

[57] *Ely Daily Times*, July 14, 1926.

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C. Likely Sources Not Yet Investigated:

In an attempt to gather further information, oral histories, or historic photographs of the Belmont site, advertisements describing this project and soliciting information were placed in the Ely, Nevada, newspaper for several weeks. Results were limited, but it seems likely that additional information remains in the minds or attics of the residents of Ely and the surrounding towns. This type of information may come forth with further inquiry or the passage of time.

The corporate records of the Tonopah Belmont Development Company are another potential resource. These would undoubtedly include design drawings and process flow sheets for the mill

and other buildings, correspondence relating to the site's construction, operation, and staffing (including payroll account that might provide information on more anonymous figures like the mine and mill workers) from 1926 through 1940, and probably photographs that would have been shared with corporate management, directors, and perhaps stockholders. The company was dissolved in the early 1940s, and, unfortunately, the location of its records is unknown. It is possible that the records were destroyed.

Census records might provide some information, but the period of activity at the mill was so brief that by 1930, there would have been very few people remaining in the area who would have associated with the Belmont site. As well, anyone living at the site would have been listed as a resident of Hamilton, making it difficult to make direct connections between people and the place.