

## Ballard Mine

The Ballard Mine is located in T. 7 S., R. 42-43 E. (Figure 91). The first recorded phosphate-related activity in the area of the mine occurred in 1912 when a U. S. Geological Survey field party under the direction of R. W. Richards explored the phosphate in the area of the future Ballard Mine with two hand-dug trenches. One trench was located in the NW $\frac{1}{4}$ SE $\frac{1}{4}$  Section 7, T. 7 S., R. 43 E. That trench found an unsuspected fault and had to be abandoned. A second trench in the NE $\frac{1}{4}$ SW $\frac{1}{4}$  of Section 7 found a complete section of the phosphate deposit. The trench was 270 feet long, seven feet wide, and two to six feet deep. A measured section in this trench is given in Mansfield (1927, p.242).

There was no further interest in the phosphate deposits of this area until the J. R. Simplot Processing Company (later the J. R. Simplot Company) filed an application to lease the phosphate from the Federal government on August 28, 1947. A lease sale was held on July 21, 1948. There were two bidders in the sale, the J. R. Simplot Company and the Washington Cooperative Farmers Association. The Simplot Company was the successful high bidder and was issued lease BL-055875 on December 1, 1948. The Simplot Company's intentions were to mine the lower grade phosphatic shales to feed an electric furnace to make elemental phosphorous. The Simplot lease was the first lease ever issued by the Federal government in which development of lower grade ores specifically was the intent (Salt Lake City Tribune, Thursday, December 9, 1948). Simplot never developed the lease for either low-grade or high-grade ore and on May 23, 1951, the Simplot Company assigned the lease to the Monsanto Chemical Company. Monsanto began exploration activities on July 16, 1951 with 115 drill holes and numerous trenches (Figure 92).

Concurrent with the development of the Ballard Mine, Monsanto was building an elemental phosphorous plant at Soda Springs, with construction starting in early July, 1951. The elemental phosphorous plant was completed and put into operation in December, 1952. Ore from the first production of the mine was stockpiled at the plant site until the furnace could be put on line. The capacity of the one electric furnace was quickly met and a second furnace was completed in September, 1954. Initially, mined ore was sorted into three grades, 31%, 27%, and 19-20% P<sub>2</sub>O<sub>5</sub> (unpublished BLM information, 1954). The two lowest grades were to be used as furnace feed for elemental phosphorous production while the high grade was to be shipped to the Victor Chemical Company in Montana. In actuality, all grades of ore were shipped to the elemental plant at Soda Springs (Service, 1966).

The Monsanto Company contracted with the Morrison Knudsen Company of Boise, Idaho to build the plant and to mine and haul the ore. Initially, the ore was trucked over county roads and State highways (McDivitt, 1956; Service, 1966). Because of State highway load restrictions, it soon became apparent that a private haul road would have to be built between the mine and the plant. In 1958, construction began on a heavy-duty private haul road that would accommodate the heavy ore-filled trucks. The road was completed July 20, 1959, and was 11½ miles long with an maximum grade of 2.7% (Service, 1966).

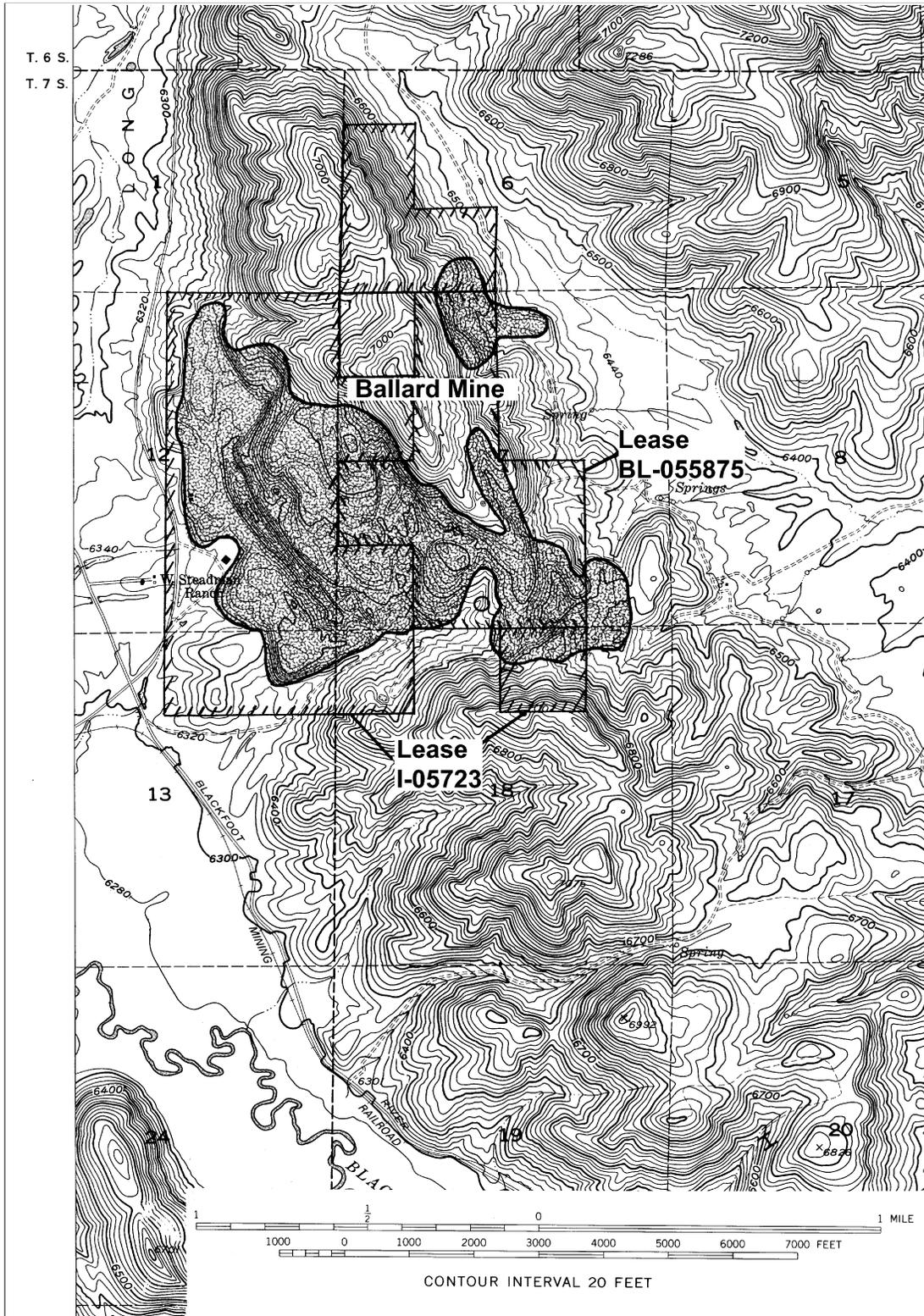


Figure 91. Map showing the location of the Ballard Mine, Caribou County, Idaho.



Figure 92. Ballard Mine, July 16, 1951. BLM file photo.

The phosphate rock occurs at two horizons and is separated by 100 feet of waste rock. Stripping operations started in June, 1951 on Lease BL-055875 in what was known as the Ballard Pit (Service (1966) refers to the site as the South Ballard Pit). Actual mining in the Ballard Pit started when the weather permitted early in 1952. Mining was done with power shovels and scrapers. Since all of the ore grades were earmarked for the elemental phosphorous plant at Soda Springs, careful ore control was not as critical as at some other mines, however a lower limit of ore grade was carefully determined. Mining operations continued out of the Ballard Pit into the area known as the North Ballard area.

Exploration in 1954 in the area of the mine and development of the ore body within the existing lease showed that there was a large volume of ore that existed outside of lease BL-055875. On February 7, 1955, Monsanto made an application to lease that ore with the BLM. Lease I-05723 was issued to the Monsanto Company on July 1, 1955. Once that ore had been secured, the West Ballard Pit was developed on the new lease. The West Ballard Pit contained the largest ore reserves and was operated longer than any of the other pits in the mine. The Ballard Mine eventually consisted of several side-hill, open-pit excavations (Figures 93 and 94).

In May, 1961, a 470-foot long conveyor belt was installed from the footwall to the tippie level in the West Ballard Pit, some 90 feet in vertical elevation difference. This improved the haulage situation greatly, as the ore only needed to be trucked on the level to the tippie loading facility.



Figure 93. Ballard Mine, 1975. BLM file photo.



Figure 94. Ballard Mine, August 12, 1975. Photo by Peter Oberlindacher, BLM.

According to Service (1966), the loading facilities included tipples, screens, conveyors, weigh bins, and automatic samplers (Figure 95). In 1962, Monsanto contracted with Wells Cargo to be the mine operator while Morrison Knudsen Company retained the contract to haul the ore to the processing plant. Also in 1962, the conveyor belt was removed from the West Ballard Pit because of the advance of mining made it unusable.



Figure 95. West Ballard Mine tippel, July 10, 1962. BLM file photo.

During the mining season of 1964, Monsanto purchased and put into use a 45-inch horizontal auger to recover ore that remained under the highwall in stripped-out pit areas. The auger was first used in the West Ballard Pit and extended the recovery of ore to an average hole depth of 89 feet (Figure 96). The auger was apparently only used for two mining seasons because by October, 1965, the auger was idle.

Mining continued in various places on the two leases until late 1969 when the Ballard Mine was finally worked out entirely. Even before the mine was worked out, reclamation had started on the earlier pits. As early as 1958, the Ballard Mine dumps were used for experimental plantings for reclamation. Additional experimental plantings were done in the 1960's, and in the early 1970's, the U. S. Forest Service Experimental Station at Logan, Utah planted a total of 78 different types of trees, shrubs, grasses, and forb seeds, and seedlings and cuttings on the dumps (USGS, 1977). These experimental reclamation plantings had varying degrees of success.



Figure 96. Ballard Mine, north pit of West Ballard, view east, showing 45-inch auger holes, spring, 1966. Photo courtesy of the FMC Corporation.

In 1970, the Monsanto Company completed active mining at the Ballard Mine. During the 18 years of production, about 11 million tons of phosphate rock was mined and removed from about 191 acres at the Ballard Mine on the two Federal leases. Over 20 million cubic yards of waste rock were stripped; of this amount 2 millions cubic yards were used to backfill the pits with the remaining 18 million cubic yards hauled to the dumps. About 317 acres of land were covered by the dumps and an additional 96 acres were used as service areas for the mine (USGS, 1977).

The Monsanto Company filed relinquishments for the two Federal leases on April 30, 1984. The BLM accepted the relinquishments and the leases were closed on July 3, 1984.