Enoch Valley Mine

The Enoch Valley Mine is located in T. 6 S., R. 43 E., Sections 16, 17, 21, 22, and 27 (Figure 188), in Caribou County, Idaho. The mine lies about 19 air miles northeast of Soda Springs, Idaho. Mining is conducted on three Federal phosphate leases and two State of Idaho phosphate leases.

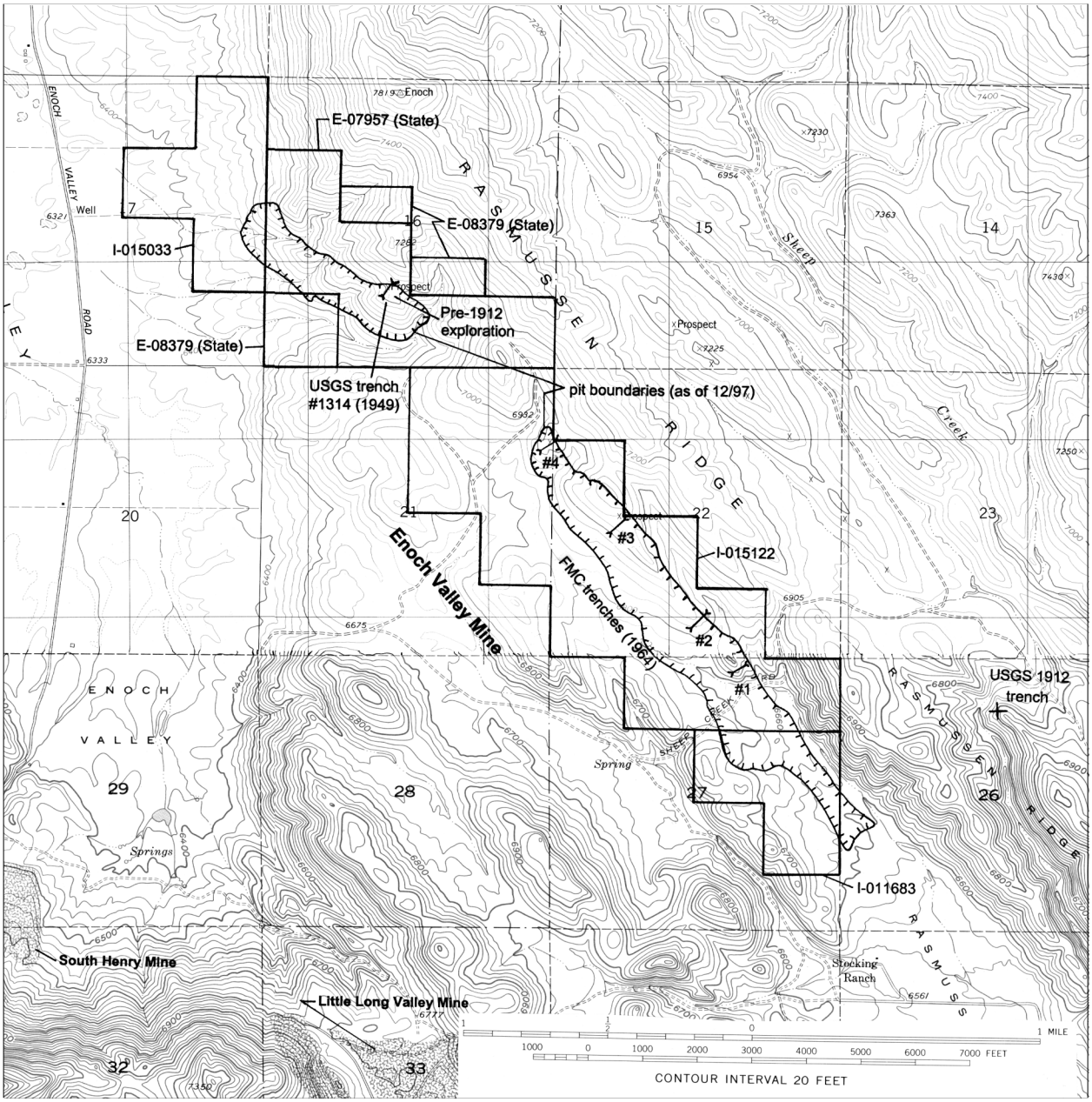

Figure 188. Map showing the location of the Enoch Valley Mine, Caribou County, Idaho.

The presence of phosphate ore in this area has been known since the early 1900's. There was some very early exploration for phosphate ore in the immediate vicinity of the future Enoch Valley Mine. The USGS explored this area in 1912 and reported earlier prospect pits by unknown prospectors in the NW¼SW¼ of Section 16, T. 6 S., R. 43 E. This early exploration consisted of two pits about 100 feet apart, with the west pit being 12 feet long and four feet deep, and the east pit being 25 feet long and 10 feet deep parallel to bedding and 15 feet deep across bedding (Mansfield, 1927, p. 240). The USGS excavated a trench in 1912 in the NE¼NW¼ of Section 26, T. 6 S., R. 43 E. (Mansfield, 1927, p. 241). This trench was 300 feet long, six feet in average depth and 10½ feet in maximum depth, and up to eight feet wide. Samples were gathered and analyses were made and reported in Mansfield (1927).

There was a flurry of phosphate lease applications filed with the BLM in 1947 for the phosphate resources in the area of the future mine. None of the lease applications were issued for a variety of administrative reasons, mostly lack of controlling regulations, and failure to submit filing fee, but that activity indicated there was interest in the resource in this area. Some of the companies interested in leasing at that time were:

California Farm Supply Company
Farm Bureau Cooperative Assoc., Inc.
Utah Cooperative Association
Pacific Supply Cooperative
Idaho Potato Growers, Inc.
The Consumers' Cooperative Assoc.
Farmer Educational and Coop. Union of America
Frank G. Shelley

There was no further reported phosphate interest or exploration in the vicinity of the future Enoch Valley Mine until the USGS revisited the area in 1949. In August of that year, the USGS excavated a trench (Lot #1314) in the SW¼ of Section 16, T. 6 S., R. 43 E. (Davidson and others, 1953). This was a reopening of the pre-1912 prospects mentioned above.

The next event in the history of the phosphate resource in this area occurred in 1960 when, on June 8, the Ruby Company filed an application for a prospecting permit for phosphate with the BLM. The application was initially suspended pending issuance of implementing regulations. The permit was finally issued December 12, 1961, and the Ruby Company commenced exploration activities. The Ruby Company drilled a total of 11 holes on the permit using an air blast rotary drill. Significant ore reserves were discovered and on December 11, 1962, the Ruby Company filed an application for a preference right lease. A Federal lease, I-011683, was issued to the Ruby Company May 1, 1963.

The issuance of this lease caused other companies to become interested in the commercial development of the phosphate resource of this area. On December 30, 1963, the FMC Corporation filed an application for a prospecting permit for lands adjacent to the Ruby Company lease. The BLM issued the permit on May 20, 1964, and the FMC Corporation started exploration. The company drilled five holes totaling 825 feet on the permit with a portable rotary table drill rig. They encountered some

circulation problems, and sample contamination problems occurred due to ground water. The permit was extended for 2 additional years and on May 2, 1968, an application for a preference right lease was made. The Federal phosphate lease, I-015033, was issued to the FMC Corporation on September 1, 1968.

Meanwhile, on February 10, 1964, the Monsanto Chemical Company applied to the BLM for a phosphate lease for the lands lying between the leases described above. The BLM held a lease sale on June 4, 1964 for that tract of land. There were four bidders at the sale; FMC Corporation, Monsanto Chemical Company, Phyliss E. Colman, and J. A. Terteling and Sons. The FMC Corporation was the high bidder and was awarded the lease, I-015122, on September 1, 1964.

The FMC Corporation began exploration immediately after the lease award. By September 21, 1964, the company had excavated four trenches across the outcrop. Additional exploration was conducted by drilling throughout the leasehold. In July and August, 1972, the FMC Corporation drilled 18 holes averaging 275 feet deep with a Model 504 rotary portadrill. The Monsanto Company, although losing the bid for this lease to FMC, maintained an interest in this parcel of land. Under an agreement with FMC, Monsanto did some exploration drilling of their own on lease I-015122 between 1972 and 1980. Monsanto Company also applied for a State lease E-07957 on February 16, 1978. The State of Idaho awarded the company that lease on May 1, 1978.

The interest in the phosphate resource paid off for the Monsanto Chemical Company. The FMC Corporation decided not to develop their two Federal leases, and on April 1, 1981, they assigned both Federal leases I-015033 and I-015122 to the Monsanto Company as part of a lease exchange. Monsanto immediately initiated an intensive exploration and development drilling program on their new leases, drilling 20 holes totaling 4,648 feet by the end of 1981. It became apparent to the Monsanto Company that the phosphate resource on their new leases could not be fully developed without some additional adjacent State-owned land, so they acquired State lease E-08379 on April 2, 1981.

Meanwhile, the Ruby Company Federal lease, I-011683, was undergoing evolution itself. The Ruby Company underwent a name change to Simplot Industries, Inc. in 1965. On June 1, 1966, the lease was assigned to the Bannock Chemical Company, and was further assigned on February 1, 1983 to the J. R. Simplot Company. Only low level exploration was ever conducted on this lease and that was limited to geologic mapping and 11 shallow drill holes put down with an air blast rotary drill in 1962. Through agreement, the Monsanto Company drilled two holes totaling 619 feet on the Simplot lease in 1988.

The Monsanto Company began to develop their leaseholds in preparation for mining in late 1987. The company's operation at the Henry Mine was winding down and a source of future ore needed to be developed. Construction of in-pit haulroads, tipple pads, siltation ponds, and topsoil salvage piles was started. The company began construction of a haul road into the mine area in late 1988, and the road was completed in September, 1989. Construction of a load-out tipple was also started. Stripping of

the overburden near the south end of lease I-015122 began in mid-September, 1989. The plan for mining the Enoch Valley phosphate reserves called for mining to progress from both ends towards the center of the deposit. The initial pit mining began on October 10, 1989 and was done by truck/shovel methods, operated by Dravo-Soda Springs, a mining contractor (Figures 189 and 190). The primary moving equipment included 85-ton Caterpillar Model 777 haultrucks, Hitachi Model 801 shovel, Caterpillar Model 651 and 656 scrapers and Caterpillar D-9L and D-10N dozers and miscellaneous other equipment such as smaller dozers and motor patrols. By the end of 1989, some ore was stockpiled and the budgeted levels of waste removal were reached.

Figure 189. Enoch Valley Mine, May 4, 1995. Photo by the author.

Actual shipment of ore from the new Enoch Valley Mine began in the spring of 1990, with the first production shipment from Federal lease I-015122 and State of Idaho lease E-07957 in May. The ore from the mine was to feed Monsanto's elemental phosphorous plant near Soda Springs. All of the ore shipped from the Enoch Valley Mine passed through the Enoch Valley Mine tipple. At the tipple the ore was loaded into a fleet of 140-ton or 210-ton capacity diesel powered tractor/trailer belly dump haul units, commonly referred to as rubber tired "trains", and hauled 21 miles to the Monsanto elemental phosphorous furnace at Soda Springs.

Monsanto finally completed their planned reserve leasing at the Enoch Valley Mine when, on June 1, 1990, the J. R. Simplot Company assigned their Federal lease I-011683 to the Monsanto Chemical

Figure 190. Truck-shovel operations, Enoch Valley Mine, August, 1997. Photo by Peter Oberlindacher, BLM.

Company. Monsanto's first production from Federal lease I-011683 occurred in August 1990 (Figure 191). By July, 1992, the phosphate ore reserves on this lease were mined out. In May, 1992, Monsanto started mining on Federal lease I-015033, and by October, 1993, the phosphate reserves were mined out. As of this writing, mining continues on Federal lease I-015122 and State of Idaho lease E-07957 (Figure 192).

On September 1, 1997, Monsanto spun off its traditional chemical business to form Solutia. Monsanto retained its pharmaceutical, foods, biotech, agricultural chemicals and seeds business. On that same day, Solutia and Monsanto formed a joint venture called P4 Production L.L.C., organized under the laws of the State of Delaware. The phosphate leases were assigned to P4 Production. P4 Production also owns, to the current time, the Soda Springs elemental phosphorous plant and all other mineral rights formerly held by Monsanto. Operation of the joint venture was originally with Solutia and in June, 2000, transferred to Monsanto.

Figure 191. South end of the Enoch Valley Mine, June 26, 1996. Photo by the author.

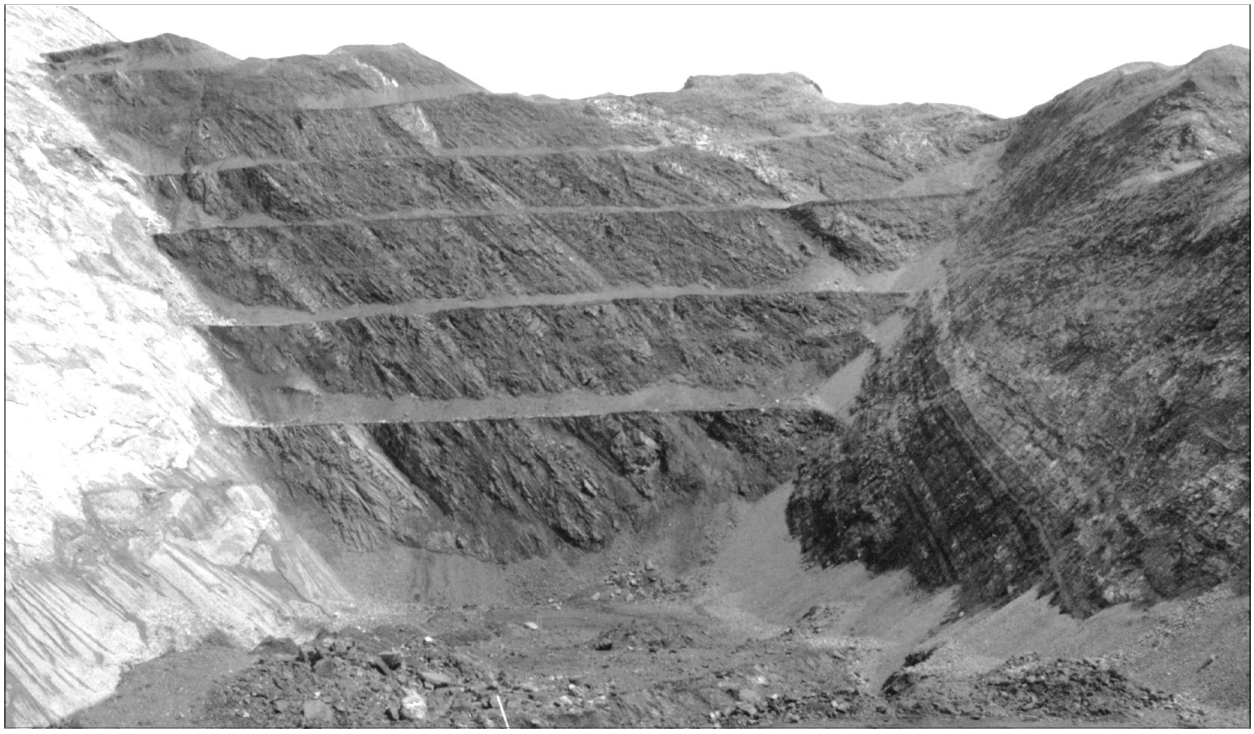

Figure 192. Monsanto's State lease, Enoch Valley Mine, May 4, 1995. Photo by the author.