

REGIONAL DEVELOPMENTS PAPER, 1975

During 1975, mining activity in Idaho followed the pattern established in 1974 as major companies carried on operations with cautious optimism. Demand and prices for most mineral commodities have been high enough to cause a number of idle properties to be re-examined or re-opened this year. Statewide, two mining areas continue to dominate mining activity in Idaho; these are the Coeur d'Alene district in the north, and the Phosphate region in the southeast.

In the Coeur d'Alene district, *American Smelting and Refining Company's Coeur Project*, located on claims owned by the *Coeur d'Alene Mines Corp.*, is on schedule and within budget. This operation is located between the U.S.'s two largest silver mines, the Sunshine and Galena, and is projected to be the district's fourth largest silver mine when in full operation. About 50 personnel are working two shifts to ready the property for production. This step will begin upon completion of surface facilities including a 450 ton per day mill complex, which is scheduled for completion in the beginning of 1976. The Coeur Project has been under exploration and development by ASARCO over the past ten years at a cost of \$10,000,000; another \$10,000,000 will be needed before the operation begins production in 1976. The new mine is expected to produce 2.2 million ounces of silver per year and employ 125 personnel when operational.

At the *Galena Mine* during 1975, development of the 4,600 level continued in the southeastern area and in the footwall of the Silver Vein. Diamond drilling to guide the level's development continued during the year. Elsewhere in the mine, extensions of known veins are being explored and prepared for stoping.

A new market for some of the antimony concentrate produced from the Coeur and Galena workings is developing. ASARCO plans to build a \$7,000,000 refinery at El Paso, Texas, and handle concentrate from the Coeur d'Alene district.

Normal mining activities continued during 1975 in the *Sunshine Mine*, the country's richest silver mine. The aspect gaining the most attention during the year was not the high rate of sustained production but rather the ownership problem in the *Sunshine Unit Area* where Sunshine, as the operator, has been taken to court by *Silver Syndicate Mining Company* for allegedly mining some of its holdings within the Rambo area. Vein 625 is the ore body in contention. Hecla and *Silver Dollar Mining Companies*, the other participants in the Sunshine Unit area, have joined with Sunshine and filed a complaint to clear up the ownership problem. The issue of extra-lateral rights in underground mining has often been raised but never fully resolved in the Coeur d'Alene mining district; the methods established in this case for determining those rights are expected to form the guidelines for settling future extra-lateral disputes.

In the Sunshine Unit Area of the district's Silver Belt, the 4,800 level development of the Copper Vein continued and a total of 900 feet of drifting on the vein is completed. Exploration of the Chester Vein on level 5,400 is at stand-by pending completion of raise boring in the main part of the mine.

During 1975, the *Hecla Mining Company* continued regular operations at the *Star Morning Mine* (jointly held with Gulf Resources) and *Lucky Friday Mine*; Hecla has also benefitted from its participation with Sunshine Mining Company in the Sunshine Unit Area development. Deep-level development was emphasized in all of its operations.

Hecla maintained active exploration programs both within the district and elsewhere. In the Coeur d'Alene district exploration continued in the *D.I.A* , *Abot North*, and *West Independence Projects* near the Star-Morning and Lucky Friday mines and in the *South Morning Project* east of Wallace. The *Alice Consolidated Project*, south of the latter, was completed in early 1975 without encountering significant mineralization.

The *Consolidated Silver Project*, planned to test Silver Belt structures at deep levels in the area east of the Sunshine Mine, remains on stand-by as it did in 1974.

There was no new exploration by *Bunker Hill* this year in the Coeur d'Alene district. Bunker Hill reports that its outside exploration responsibilities were assumed by a newly organized exploration subsidiary of the parent company, *Gulf Resources and Chemical Corporation*, named the Gulf Resources and Chemical Exploration Company. *GRC Exploration Company* has not yet wet its feet in Idaho. In-mine programs at the Bunker Hill, Crescent and Star Mines continued as part of the normal development sequence. Considerable research emphasis has been given by the mine geology group to ore controls. Newspaper reports indicate that the *Crescent mine* is getting low on reserves and could be closed down in the near future if no new reserves are found.

Production increased from Bunker Hill mine workings located above the Kellogg Tunnel level where mining by blast hole and pillar system methods using trackless equipment were employed. Pioneering in the change-over from pneumatic to electrohydraulic power on underground diamond drills of intermediate and long depth range has had positive results. Introduction of Diesel haulage units in the Kellogg Tunnel was accomplished during the year.

In an effort to meet required ambient air standards by mid 1977, two 700 foot tall stacks are to be constructed at the Bunker Hill smelters. A cost of \$7,000,000 is anticipated for the stacks, fans and connecting equipment; an additional \$3,000,000 may be needed to take full advantage of the revised system.

Currently, Bunker Hill plans on taking the Environment Protection Agency into Federal Appeals Court to nullify or reduce the proposed emission standard requirement of recovering 82% of all sulfur going into the operation. No proven sulfur burning technology or demonstration units can be identified which will meet this recovery standard. As it is, present standards have forced many lead and zinc smelters to close so that less than ten are in operation in the U.S..

Noranda Exploration Incorporated focused activity on an exploration program at the *Atlas Mine* Property near Mullan, Idaho. This program is in its third year and has progressed to the stage

where extensive underground drilling to test the economic potential of several vein systems is being conducted. To carry out further underground evaluations, a 1,500 foot crosscut is being driven to gain strategic points from which to test veins at levels greater than 2,000 feet beneath the lowest known points on the property. Noranda's Northwest District exploration in 1975 included reconnaissance work throughout much of Idaho as well as examination of various prospects.

As the metals' market looks better, old or inactive properties are being sought out by established companies with the objective of re-evaluating the mineral potential. A joint venture is underway between *U.S. Antimony Corp.* and *Intermountain Mineral Engineers, Inc.*, to explore and develop a group of properties in the Pine Creek area. Of primary interest are the *Sidney*, *Little Pittsburgh*, and *Nabob Mines*. Drilling and renovation programs were initiated during 1975 and lead-zinc-silver ore shipments began in the fall.

Interest has been shown in several other areas of the district. Examples are *Magna Mining Company* and its evaluation work through drilling and geochemical studies of the *Princeton property*; *Earth Resources Company* and what may turn out to be a \$20,000,000 venture on the *Niagara properties*; the *Painted Desert Uranium and Oil Company* looking into 26 claims of the *Beauty Bay properties* through a drilling program; and the *New Wellington-Gold Leaf Mining Corporation* joint venture to put the *Canyon Silver Mine* back into operation. Even the City of Mullan is getting into the act with its joint venture with *Allied Silver-Lead Company* and *United States Borax and Chemical Corporation* to explore under the town site.

Phosphate production in southeastern Idaho continued to expand in 1975 with growth limits now being placed by plant facilities and federal regulations.

International Minerals and Chemical Corporation conducted a drilling program in leased areas extending from the Stewart Canyon area in which 32,000 feet of drill holes were put down in 1974 to the general vicinity of the Diamond Creek Georgetown Canyon drainage area. A total of approximately 17,000 feet of drilling was completed in fifty-two drill holes.

The Company's development plans for a new mine and a beneficiation-calcination facility have been temporarily deferred pending completion and approval of the ongoing Environmental Impact Statement covering the southeast Idaho phosphate area. The final manuscript of the EIS is expected to be given to the Secretary of Interior for his decision in late June or early July, 1976.

A 1974 proposal by *National Steel Corporation-Southwire Company-Earth Sciences Incorporated*, to construct a complex of plants to produce phosphate, aluminum and other commodities in the Soda Springs area is still being held in abeyance because of an inability to acquire leases and to start developmental work until the EIS for the region is complete. Arrangements by *Alumet*, the operational name taken by the three companies, have been made for the selling of fertilizer and other products on a sustained basis.

The *J. R. Simplot Company* continued phosphate production from the *Gay* and *Conda* operations at near capacity during 1975. The Conda plant was expanded so that it could handle 1,500,000 tons annually.

F.M.C. Corporation continued developmental drilling on phosphate reserves in the Soda Springs area, this included a rather extensive hydrologic study of groundwater conditions and their possible impact in the development of a future open-pit mine .

There was significant activity in 1975 in other areas of the state outside of the Coeur d'Alene and southeastern phosphate areas. *Earth Resources Company* continued silver-gold exploration in the DeLamar-Silver City region. This is a joint venture with *Canadian Superior Oil (U.S.) Ltd.* and Superior Oil Company. Ground has been broken for a mill by *Mountain States Mineral Enterprises, Incorporated*. Mill capacity design is being raised from 1,400 to 1,700 tons of ore per day; a combined total for this property investment is predicted to be nearly \$20,000,000. If silver production meets anticipated levels, this operation could become the fourth largest silver producer in Idaho and exceed the predicted output of the Coeur Project.

Silver King Mines Incorporated cutback from a seven day to a five day schedule in February as a result of increased costs and lower copper prices at the *Copper Cliff* mining and milling operation in the Seven Devils-Cuprum area. The cutback has delayed an expansion program but this should still be completed by the beginning of 1976. During 1975, concentrates were shipped to the Anaconda smelter. As of late 1975, 1,000,000 pounds of copper and 30,000 ounces of silver have been processed by Anaconda since the first shipment was made in March.

The feasibility of mining kyanite at Woodrat Mountain in central Idaho still is being pursued by *Ethyl Corporation*. At this time environmental impact studies are being carried on by company, Federal and State agencies. Diamond drill crews were utilized this summer so help delineate the kyanite deposit now in its fourth year of study. An open pit development is anticipated; a start up time is dependent upon the completion and results of the impact statement. If placed in operation, the mine should employ 150 people.

The *Clayton Silver Mine* operated along developmental lines in 1975, with the general emphasis on increasing ore reserves. This posture was taken in late 1974 when an offset shaft was started to open up new areas and excavation for hoist equipment and ore pockets were subsequently completed.

Cyprus Mines Corp. (Tuscarora Mining Company) drilled four surface holes for a total of just over 5,100 feet on the *Thompson Creek Molybdenum* Project.

Hanna Mining Company (*Coastal Mining Company*) continued its program of general exploration in Lemhi County with particular attention given to the cobalt-copper belt around the *Blackbird Mine*.

El Paso Mining and Milling Company entered a joint venture with *Louisiana Land and Exploration Company* in the vicinity of *Stibnite*, Idaho. The work consisted of geological, geophysical and geochemical investigations plus some diamond drilling. The project is still active.

A reconnaissance metals exploration program, by *United States Borax*, is underway in the Northwest and includes portions of Idaho. A drilling program is also being carried out on a Coeur d'Alene Silver vein deposit. U.S. Borax still holds its lease on the Gold Hill vermiculite property.

Other companies active in Idaho in the search for metals through drilling and field programs included: *Amax Exploration Incorporated*, *Bear Creek Mining Company*, *Union Carbide Corporation*, *Cominco American* and *Amoco*. Other companies which have been evaluating submittals included: *Phelps Dodge Corporation*, *Occidental Minerals Corporation*, *Atlantic Richfield Exploration* and *Superior Mining Company*.

Isolated localities in Idaho which received marked attention were the *Plume Creek Silver Mines* property north of Clark Fork, the *Montgomery Mines* near Copeland, the *Hercules Silver properties* in Washington County and the Weiser quartz pegmatite deposit. The latter is producing SiO₂ for silicon metal and silicon carbide plants; approximately 30,000 tons per year are processed and shipped. Exploration for large tonnage - low grade deposits also was carried out in the Challis Volcanics of the Yankee Fork area.

Companies which reported little or suspended activities in Idaho this year included: Callahan Mining Corporation, Ranchers Exploration and Development Corporation, Porter and Company, Newmont Mining Corporation, Exxon and Ozark-Mahoning Company.

Geothermal leaching activity subsided during 1975 from the rush which occurred in June of 1974 at the time the State Board of Land Commissioners placed into effect the rules and regulations governing the issuance of geothermal leases on State lands. In March, 1975, following a period during which applications in conflict were resolved, 536 geothermal State leases encompassing 213,350 acres were granted to eleven different lessees and a comparable number were processed for Federal lands. To date, few drilling permits have been requested by private companies for exploratory drilling.

Two test wells were drilled by the Energy Research and Development Administration through Aero Jet Nuclear in the Raft River Basin. Well number 1 went to about 5,000 feet and encountered water of about 265 - 280°F., with a flow rate of 600 gallons/minute. Well number 2 was drilled to about 6,000 feet and had similar water temperatures. Flow rate was 800 gallons/minute. A general consensus appears to be developing that low temperature steam will typify Idaho's easily accessible geothermal water and will best serve for non-electrical uses.

Shallow drilling was started along the Boise Front to determine the feasibility of heating State buildings with thermal water; no private funds are involved.

Deep drilling for petroleum has as yet been unsuccessful in Idaho although renewed interest is being shown by oil companies. Two drilling permits were issued this year to *Standard American Company* for drilling in Payette County. One well is reported to have reached 4,850 feet. Two more applications are pending; one well is proposed for Bonneville County and one for Caldwell, Idaho.

One oil company reports looking at post-Paleozoic stratigraphy in southeastern Idaho for potential reservoir and trap rocks. A detailed seismic study over one prospect is proposed for this fall.

There is a deep test well being drilled for hydrocarbons in Montana's Centennial Basin by Farmer's Union Central Exchange, which will affect the several hundred thousand acres under lease in Idaho's Clark County. Recent Nugget and Twin Creek Formation discoveries in Summit County, Utah, have spurred the search for Nugget oil in the overthrust belt of southeastern Idaho; the Weber Formation may be tested in 1976.

During 1975, the Idaho Bureau of Mines and Geology gained a new permanent Director--Dr. Maynard M. Miller (formerly at Michigan State University). Dr. Miller replaced Dr. John Bond, who served as acting director during the first part of the year. Besides many internal projects, the Bureau expanded its cooperative programs with various federal agencies. Input continued into both the Computer Resource Information Bank (CRIB) and the Minerals Availability System (MAS). Research on the use of low impact exploration techniques was conducted in Owyhee County, Idaho, and hydrologic investigations of water resource problems continued in the Coeur d'Alene and Blackbird Mining Districts and in the phosphate area of southeastern Idaho. In addition, mineral inventories were initiated in the Loon Creek and Yellowjacket areas on the South Fork of the Salmon River.

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