

Arizona Sand and Gravel Ranked Third

For 1994 and the first quarter of 1995, Arizona's sand and gravel production ranked third in the United States. For the same period Arizona's position in total construction aggregate (sand and gravel combined with crushed stone) production was eleventh in the United States. Salt River Sand and Rock, located in Maricopa County, is the nation's second largest producer of sand and gravel.

Arizona is fortunate to have large quantities of sand and gravel near consuming centers. Slightly over ninety percent of Arizona construction aggregate is produced from sand and gravel deposits. The remaining ten percent is produced from quarries where it must be drilled, loaded with explosives, blasted, and crushed and screened. The average value of Arizona's sand and gravel is \$4.10 per ton compared to \$5.80 per ton for crushed rock.

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Hit it! Hit it!

The National Mining Team Competition to be held at the Arizona State Fair this year will be hosted by the Arizona Department of Mines and Mineral Resources, the Arizona State Lottery, the Arizona Mine Inspector, AMIGOS and the Arizona Mining Association. The events slated for the competition will include machine drilling, hand mucking, spike driving, and hand drilling for a purse of nearly \$20,000. The event will start Friday, October 27 at 1:00 pm in the main arena. Charles Marshall, operator of a mine safety training program in Colorado, will promote the mining industry during his announcing.

Mining Legislation News

The National Mining Association reports in the October 10 *Mining News* that the House of Representatives recently voted 277-147 to send the Interior Department Appropriations Bill (H.R.1977) back to the conference committee, with instructions to continue the patent moratorium contained in the House version of H.R.1977.

The Senate lifted the patent moratorium and included language in H.R. 1977 that would charge mining companies the fair market value of the surface. The conferencees agreed to the Senate language.

Although House debate centered on the patent moratorium, other provisions in H.R.1977 could be opened up for discussion in a new conference, including provisions to bar additional listings under the Endangered Species Act, merger of the National Biological Service into the U.S. Geological Survey, and the future of the Mojave National Preserve.

When the vote in the House was taken, 91 Republicans joined 185 Democrats and one independent to send H.R.1977 back to conference. The vote echoes the House vote earlier this year to extend the patent moratorium.

Bagdad Proposes New Tailing and Waste Rock Storage

Cyprus Bagdad Copper Corporation has prepared a Draft Environmental Impact Statement on its proposed tailings and waste rock storage areas. These facilities will allow Bagdad to continue mining its ore deposit which is located on company-owned private property. This program will extend the mine life to 35 years and will have a positive impact to the Arizona economy. The impact is measured as follows:

IMPACT OF BAGDAD MINE ON ARIZONA ECONOMY		
	Per Year	Mine Life
Direct impact on Arizona economy	\$95.8 million	\$3.3 billion
Purchase of goods & services	56.7 million	198.0 billion
Personal income to Yavapai County	29.0 million	1.1 billion
State & local government revenues		
Severance tax	\$2,558,000	89,530,000
State property tax	281,000	9,835,000
County property tax	1,267,000	44,345,000
School property tax	2,931,000	102,585,000
Community college property tax	964,000	33,740,000
Other property tax	67,000	2,345,000
Sales taxes on purchases	1,800,000	63,000,000
State payroll tax	54,000	1,890,000
Motor vehicle license tax	10,000	350,000
Fuel tax	199,000	6,965,000
TOTAL	\$10,131,000	\$354,585,000

With the adoption of this proposal the projected production from the property will be increased to 3,660,000 tons of recoverable copper. Bagdad currently plans to continue present employment levels for the next 35 years.

New Fish and Wildlife Approach

About 100 people attended the Patagonia public hearing of the U.S. Fish and Wildlife Service on the proposed adding of one animal species, the Sonora tiger salamander, and two plant species, the Canelo Hills ladies-tresses and the Huachuca water umbel, to the list of endangered species. Under the Endangered Species Act of 1973 (16 U.S.C. 1531-1544) these species may be



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listed if they meet certain arbitrary criteria established by members of the U.S. Fish and Wildlife Service. The Fish and Wildlife Representatives at the meeting described each species, its habitat and the program that would preserve these species. This program will prohibit grazing, farming, mining, and surface and ground water diversion on lands now owned by local ranchers and farmers. No economic impact statement is required to explain how the land owners would be compensated for their loss through the taking of their property by federal agencies.

The Fish and Wildlife representatives warned the local residents that unless they treated the species as endangered now they would have to add the species to the endangered species list. The Nature Conservancy, with representatives at the meeting, has an interest in the area as they plan to greatly expand the San Pedro River Riparian Habitat.

### Addwest Sells to Cornucopia

Cornucopia Resources plans to purchase Addwest Minerals for \$22.3 million. Addwest is the wholly owned subsidiary of Addington Resources and their biggest asset is the Gold Road Mine near Oatman, Arizona. Cornucopia Resources expects Gold Road to produce gold at a rate of 50,000 ounces per year by the end of 1995. A consulting firm calculated reserves of 518,000 tons averaging 0.3 opt in gold. Cornucopia expects to increase this reserve from identified resources. Addwest has constructed a 500 tpd mill on the property and is confident that they can produce at the 500 tpd rate. Cornucopia will pay \$7 million in cash and issue 6 million shares.

### Magma Spends \$22 Million to Develop New Copper Reserves

According to a news release by Burgess Winter, Magma plans to develop a feasibility study for the Florence insitu mining operation, Miami's insitu leaching project, the Tintaya oxide leach, the Tintaya sulfide expansion and advanced stage exploration at Tintaya and Superior. They are planning work in Mexico, the US, Chile, Peru, and northeast Asia.



Do you need this information in an alternative format? Please call the Department office at 255-3791.

### Yarnell Mining Submits Plan of Operations

Yarnell Mining Company, a wholly owned subsidiary of Bema Mining, has submitted a plan of operations to the Bureau of Land Management. This is the first in a series of permits required before the mine can be brought into operation. The proposed mine will be an open pit, heap-leach gold mine. The mine will bring a much needed source of income to the area and will provide jobs for about 100 people over its 7 to 10 years of life.

### Holistic Reclamation

For years mining companies have been trying unsuccessfully to promote plant growth on their tailings ponds. Now in a cooperative effort with several ranchers and farmers they are succeeding. After ore is crushed, ground and the valuable minerals recovered through flotation or other methods what's left is barren crushed and ground rock. In the past large ponds of these tailing would grow nothing but dust. In spite of industry's best efforts to fertilize, water, and seed, this material would support life for only a short time and required constant attention. This all changed in 1989 when Gary Jones of Cyprus Miami's Environmental Department started his Holistic Resource Management Plan. In a unique opportunity to show the effect of cattle grazing against no treatment or other treatments, parts of the old Inspiration tailings were fenced and cattle allowed to feed over the steep slopes of the tailings ponds. Within a short period the cattle grazing areas were covered with a lush green grass.

In this operation hay is placed at the top of the tailings pile, water and salt are placed at the other end. The several varieties of hay contain large amounts of seeds that are eaten and passed through the rumen stomachs. These are successfully reseeded on the tailings surface by the cows in their natural foraging patterns. The cattle hooves are constantly working both seed and manure into the surface of the soil over these trails. The trail breaking also slows down rainfall runoff and checks erosion. Cycling the cattle to alternate areas allows the grass to recover in a greatly improved environment. Grazing the area in a regular pattern will strengthen the grass bonding and soil development. Cyprus is currently extending their Holistic Resource Management program to Sierrita and other areas.



Jean and Bill Manning, volunteers at the Department, are shown at their monumental task of cataloging and archiving the Department's map collection.

### Babbitt Chooses "Rhetoric Over Reason"

Recent criticism of the mining industry by Interior Secretary Bruce Babbitt show "he continues to rely on rhetoric over reason and places politics over policy in his quest to drive the natural resources industries away from the United States," NMA President Richard L. Lawson said last week.

"Somehow, Secretary Babbitt has decided that the natural resources industries are working against the best interests of the American public. In his frenzy to tear down the industries that have built America, Bruce Babbitt chooses to ignore the facts, especially when he campaigns against the domestic mining industry," Lawson said.

Starting with a press conference on budget cuts last week in Washington, followed by a series of appearances in New York, Florida, Georgia, Michigan, Wisconsin and Missouri, Babbitt articulated a number of criticisms of the natural resources industry and bipartisan efforts in Congress to reform the U.S. mining law.

When Babbitt speaks of "giveaways" and "corporate welfare," Lawson says, "he ignores the hundreds of millions of tax dollars paid to local, state and federal governments by mining companies, he ignores the salaries paid to tens of thousands of miners, many working in rural communities where jobs are scarce; and he ignores the hundreds of millions of dollars invested to explore, permit and develop a mine and the hundreds of millions of dollars spent by mining companies to restore,

protect and improve the environment of the communities in which they operate.

From: Mining Week, Vol 1, Issue 33

### BOOK REVIEW

**MINERALOGY OF ARIZONA**, Third Edition  
John W. Anthony, Sidney A. Williams, Richard A. Bideaux, and Raymond W. Grant  
ISBN 0-8165-1555-7  
1995, 508 pages

At last! The eagerly-awaited *Mineralogy of Arizona*, completely revised and greatly expanded, is available. This handsome edition, like its predecessors published in 1977 and 1983, is the definitive source of information on Arizona minerals. The size of this exceptional work is more than double that of the first and second editions. Features include: • 61 stunning new color plates • 16 maps of Arizona mineral districts • expanded sections on porphyry-copper related deposits, Arizona meteorites, and uranium and vanadium deposits • new chapters on the history of Arizona mining and mineralogy, breccia pipes, and pegmatites. The new text includes 232 minerals that have been discovered in Arizona since release of the first edition, bringing the total number of minerals found in Arizona to 809.

*Mineralogy of Arizona* is essential for anyone interested in Arizona's minerals, from the novice to the professional geologist. It is available from bookstores or at the Museum.