

Mineral Resource

Active Mines Due for Release

The Arizona Department of Mines and Mineral Resources will release the long-awaited *Directory of Active Mines in Arizona – 2007* in September. This year's directory lists 273 companies, operating 387 mines! There are 221 sand and gravel pits, 53 dimension stone quarries, 41 crushed stone pits, 16 copper mines, 12 cinders pits, 9 clay pits, 8 gypsum mines, 5 marble quarries, 5 industrial sand pits, 3 cement plants, 3 uranium mines, 3 gemstone producers, 3 zeolite mines, 2 silica flux mines, and 1 each of gold, coal, mica, perlite, and salt.

The directory is compiled from direct contacts with industry. For the purpose of the directory an active mine is defined as a mine in continuous operation, either in production or under full-time development for production.

The directory provides company name, corporate addresses and phones, websites, key personnel, number of employees, mine name and location, and a description of the operation. The included 24" X 36" color map will locate all mines including aggregate producers. The map will also indicate commodity. In addition, a Google Earth KML file will be available on our website. The directory will be available from the Department of Mines and Minerals Resources' office, 1502 West Washington, Phoenix, Arizona 85007 for \$20.00 plus postage.

Peabody Energy Honored

In the weeks after the tragic cave-in at the Crandall Canyon coal mine in Utah, the Department received dozens of calls from reporters wanting to learn about Arizona's coal mines. Was there the potential for a similar problem in Arizona? How many underground mines are there in Arizona? How many underground coal mines? Our answers may have disappointed them in a way – no active underground mines, no underground coal mines – hence, they felt there was no story. However, there is a dramatic story to be told about Arizona's coal mines, but one that has not made the headlines.

Peabody Energy, the operator of the only coal mine in Arizona, was honored this spring for developing a model for community and environmental stewardship that is among the best in the world. The prestigious Energy Globe Awards, a worldwide competition that show cases sustainable practices, honored Peabody at the Parliament of the European Union in Belgium for their activities on Black Mesa in Navajo County. Of the 730 entries from 96 countries, Peabody was second in its category and was the only mining company honored.

"Peabody Energy has taken the effort, personal risk and the commitment, even in times when sustainability was widely seen as an academic topic." This quote is from the judges at Energy Globe speaking about Peabody's work on Black Mesa.

The Department played a role in the Global Energy awards story – Director, Dr. Madan Singh, encouraged Peabody Energy to enter the competition and sponsored their application. "Dr. Singh's support is especially meaningful because the Mines and Minerals Department does not have regulatory oversight on Indian lands," says Walter Begay Jr., Peabody's Tribal Affairs Manager in Arizona. "He understands the cultural value of what we do."

Peabody has operated in Arizona for nearly 40 years in collaboration with the Navajo Nation and the Hopi Tribe. The partnership creates hundreds of local jobs and ten of millions of dollars in annual tribal revenue. Additionally, the work they have done in reclaiming mined lands to productive range, implementing grazing management programs, and developing a first-of-its-kind program to restore plants and herbs for ceremonial and medicinal use has won seven major national and international environmental and ecological awards since 1996. Mined land on Black Mesa is 20 times more productive than before it was mined.

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Members of the Navajo Nation survey grazing land reclaimed after mining on Black Mesa.

New Curator Named

The Department of Mines and Mineral Resources has named Dr. Jan C. Rasmussen as Curator of the Arizona Mining and Mineral Museum. She joined the Museum on August 13.

Jan has a Ph.D. in Geosciences from the University of Arizona, with a major in Economic Geology and a minor in Geological Engineering. She comes to the Museum from SRK Consulting in Tucson where she was a Senior Geologist. Prior to working at SRK she had more than 25 years experience as a consulting geologist. Earlier in her career she was Associate Curator of the University of Arizona Mineral Museum for five years. During this time she curated the collection, planned and managed exhibits, managed volunteers, and provided educational opportunities for school children.



Dr. Jan C. Rasmussen

An Arizona registered geologist, Jan has also worked as an environmental geologist, exploration geologist, and geochemist. She taught high school physical science early in her career and has taught physical, historical, and environmental geology at the college level in recent years. She has written 12 books and open-file reports

about geology as well as numerous journal articles. Many of the books she has written and co-authored have focused on the geology of Arizona. Some examples are *Coal, Oil and Gas in Arizona*, *Molybdenum in Arizona*, *Tertiary Uranium in Arizona*, *Fossils of Arizona*, *Bibliography of Arizona Geology*, and articles on Laramide and Tertiary rocks and ore, porphyry copper deposits, and many others.

Of her plans for the Museum Jan says, "My vision for the Arizona Mining and Mineral Museum is of a place of wonder, inspiration, information, and exploration. I envision a magical place for children and adults to learn about the awesome variety of beautiful minerals, how they are formed, how we find and mine them, and how important they are in our daily lives. With better lighting and focus on the minerals displayed, interactive exhibits, short computer/video clips on modern mining, fun activities such as gold panning, and an outstanding gift shop, the Museum will become even more popular, exceeding its current clientele of 40,000 children and adults each year. Everyone who visits will say, 'It's a wonderful place!'"

Dr. Madan M. Singh, Director of the Department of Mines and Mineral Resources says, "We are delighted to have Jan join the Museum as Curator. She has excellent credentials in Arizona geology, experience in diverse aspects of minerals and mining, and enormous enthusiasm for the Museum."

Peabody Energy continued

Peabody Energy accomplished all this while producing approximately 12 million tons of high-quality, low-sulfur coal per year. The coal is sub-bituminous with an average quality of 11,000 BTU, 0.5 percent sulfur, and 10 percent ash. Mining and reclamation has proceeded at the same rate, an average of 500 acres annually.

Dr. Singh says, "Peabody has done remarkable reclamation and sustainable development in Arizona. They have helped the Native American community a great deal with the land they reclaimed. They are replanting with culturally acceptable plants and have developed methods to grow the plants. And, they are doing all of this while mining activities are ongoing. This is a real success story I thought the world should know about."

NOTICE

Change of Phone Numbers

Effective immediately the phone and fax numbers for the **Department of Mines and Mineral Resources** have changed. Our new numbers are as follows:

General Number: 602-771-1600
 Mining Information Center: 602-771-1601
 Mineral Museum: 602-771-1611
 Dr. Madan M. Singh: 602-771-1603
 Nyal J. Niemuth: 602-771-1604
 Diane R. Bain: 602-771-1605
 Frank S. Kimbler: 602-771-1606
 Jacqueline Hall: 602-771-1602
 Dr. Jan C. Rasmussen: 602-771-1612
 Tour Guides: 602-771-1613
 Lapidary Shop: 602-771-1614
 Fax: 602-771-1616

A reminder that our website also changed within the past year: www.mines.az.gov



Do you need this information in an alternative format? Please call the Department at 602-771-1600.

From the Director's Desk

by Dr. Madan M. Singh

Suspicious Mining Activities

Recent news articles on suspicious mining activity serve to remind investors that they still need to be vigilant about precious metals investments. One such article was by Mr. Jeff Hatch-Miller, a member of the Arizona Corporation Commission (ACC) in *The Arizona Republic* on August 21, 2007, entitled "Mining scams aren't a thing of the past." In the August 13, 2007 issue of *Northern Miner* Mr. James Whyte writes of the recently concluded trial of Mr. John Felderhof relating to the notorious Bre-X Minerals scandal.

The Department of Mines and Mineral Resources is charged in its statute to "conduct studies of the properties and claims of companies and individuals," and to "cooperate with the corporation commission in its investigations." These goals are accomplished through education, publication, and dissemination of materials that would aid potential investors in arriving at informed decisions.

Recent cases of mine claims that have represented "ore deposits" and "proprietary processes" in Arizona have included companies that profess to extract platinum group metals (PGMs) from cinders and/or have large gold deposits that can be exploited at great profit. Some of these claims have been proven to be fraudulent and have been prosecuted in other jurisdictions, resulting in cease-and-desist orders, fines, and even prison terms. Securities, "ore purchase agreements", and/or hedge fund contributions have been promoted on the basis of these claims. Investors in mine claims should follow the adage *caveat emptor*. Activities of this nature reflect poorly on the image of the mining industry.

DMMR has assisted with the early identification of several such activities, and its staff has often been called upon to help in the technical review of these cases. The Department follows this type of activity closely and the public is encouraged to make inquiries on any proposed mining ventures.

See you in Spokane!
Northwest Mining Association
 Nyal Niemuth will be speaking at the Northwest Mining Association Convention in Spokane on Dec. 3 in the morning session.

See you in Toronto!
PDAC - 2007
 The Department will again be attending the Prospectors and Developers Association of Canada Trade Show from March 2 -5. If you are attending the show please stop by to see us at Booth 426.

Gemstone Donation

The Museum has added a new gemstone display that includes faceted stones from the David and Stephanie Walker Collection. The Walkers, of Kalispell, Montana, recently donated 63 faceted gems to the Museum. This is the Walkers' fourth donation of gemstones in the last three years.

One of the remarkable things about the donations is the unusual material used; lovely faceted gemstones from minerals we ordinarily do not see faceted. For instance there are two gorgeous cerussites from Tsumeb, Namibia on display. Cerussite is an ore of lead, but these stones bear no resemblance to galena. One is a large (14.74 carat) colorless stone in a square cut. The other is a 15.39-carat round cut in golden brown. John Sinkansus, in his book, *Gemstones of North America*, writes that cerussite, "can be faceted, with difficulty, into striking highly dispersive gems of considerable beauty." These Walker Donation gems demonstrate that 'considerable beauty' quite well.



Another rare gem in the collection is one of scheelite, an ore of tungsten. Tungsten is the metal used for the filament in light bulbs. This gorgeous stone is a golden scheelite from Mexico; 7.79 carat in an oval cut.

The more traditional gems in the Walker collection are also distinctive. Along with a red spinel from Myanmar - red being spinel's most common color - there is a sapphire-blue spinel from Ceylon, and a smoke-colored one with brilliant highlights from Myanmar. Red spinel looks very much like ruby, as well as being chemically similar. In fact, many of the great rubies of history, when tested, are turning out to be spinels.

Compare the peridot from China, Pakistan, Myanmar, and Burma, with Arizona's famous peridot. The USGS estimates that 80 to 95% of the world's production of peridot comes from Arizona's San Carlos Reservation.



Make certain, when enjoying the new donation, that you see the Nigerian tourmaline. It is a huge 18.87-carat, oval-cut in a remarkable tawny brown.



Governor Janet Napolitano recognized Curator Susan Celestian's 12 years of service at the Arizona Mining and Mineral Museum. Sue retired in May. She will be missed!

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Arizona Department of Mines & Mineral Resources
1502 West Washington
Phoenix, AZ 85007

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