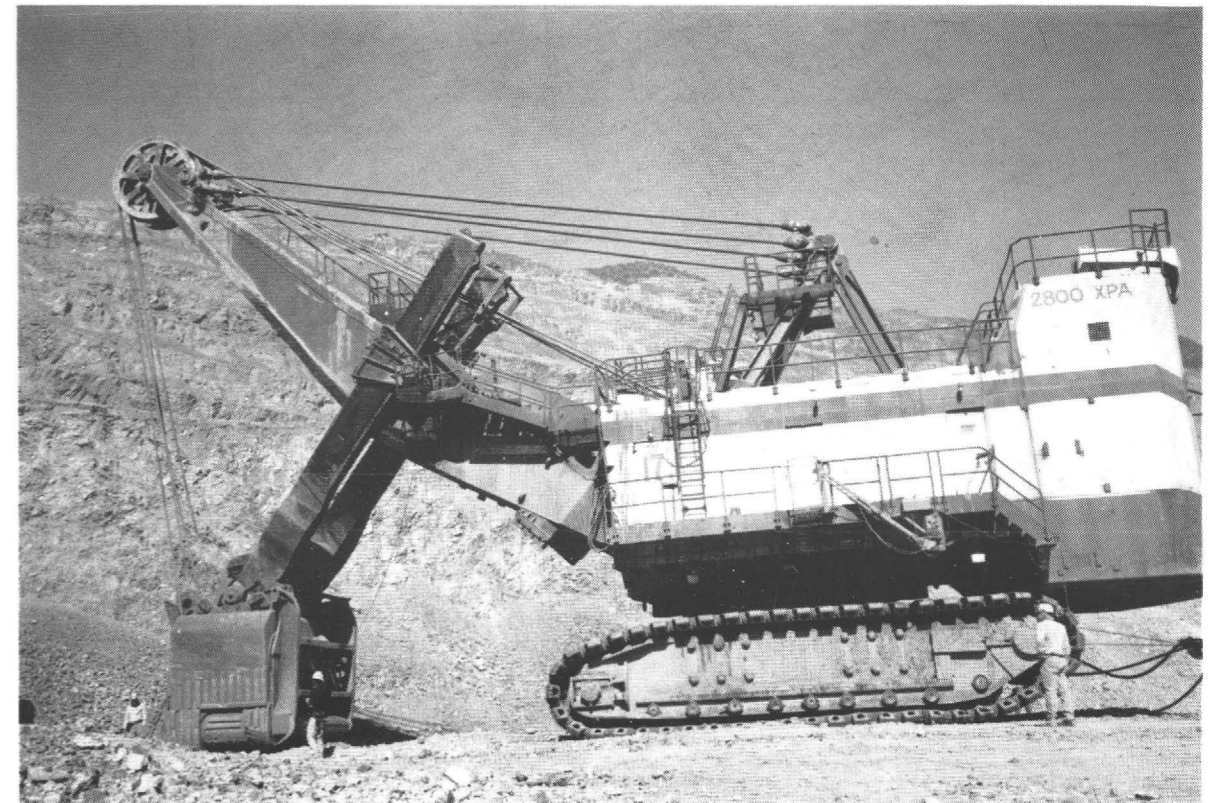


# **Directory of Active Mines in Arizona 2000**



**Arizona Department of Mines and  
Mineral Resources**

## THE ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES

The objective of the Department is to promote the development of Arizona's mineral resources. This is accomplished through technical research, field investigations, compilation of information into a mineral occurrence database, and disseminating information through publications, personal contacts, and seminars.

The Department's mining engineers and geologists assist mining and exploration companies, prospectors and others interested in Arizona's minerals with mineral processing, mineral land acquisition, exploration, mine development, financing, government regulations, and marketing.

The Department is a service agency and does not regulate, tax, or require any type of registration. The agency provides assistance that is tailored to meet the diverse needs of the public. The following is a partial list of services that the Department offers:

- ◆ Maintain a site-specific database of unpublished reports and maps that includes 4,000 mine files and indexes of 10,000 computerized Arizona mineral occurrences.
- ◆ Maintain an information bank and library of mineral and mining information including a mine map library (hard copy and microfilm), government publications, periodicals, and unpublished master and doctorate theses.
- ◆ Gather and disseminate information on commodities and markets.
- ◆ Suggest target areas for exploration activity.
- ◆ Suggest properties for acquisition and development.
- ◆ Assist individuals and companies in their dealings with regulatory agencies to facilitate their mining and exploration activity.
- ◆ Produce publications in the form of mineral reports, annual directories, technical reports, annual mineral industry surveys and information circulars. These publications include:  
*Laws and Regulations Governing Mineral Rights in Arizona, Directory of Active Mines in Arizona, Manual for Determination of Status and Ownership of Arizona Mineral and Water Rights*, and others. A listing of the Department publications is available upon request.
- ◆ Operate the Arizona Mining and Mineral Museum.

# ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES

**Willis D. 'Doug' Sawyer, Director**

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Phoenix, Arizona 85007  
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Cover: 50-ton P & H 2800 XPA electric shovel at Ray

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## Active Mines in Arizona – 2000

By K.A. Phillips, N.J. Niemuth, and D.R. Bain

### Department of Mines and Mineral Resources Directory 48



**State of Arizona**  
Jane Dee Hull, Governor

Phoenix, Arizona  
April, 2000

# Directory of Active Mines in Arizona - 2000

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This directory was compiled between November 1999 and February 2000 from field visits and information received by the Department's technical staff. For the purpose of this directory, an active mine is defined as a mine in continuous operation, either in production or under full-time development for production. Custom milling operations that are active or available on a full-time basis are also included in the directory.

It is acknowledged that there are additional mines not listed that are in an exploration, evaluation, or part-time development phase. There are others where production is on an intermittent basis that are not listed. The report is dependent on the cooperation of government agencies, private industry, and individuals who voluntarily provide information on their progress and activities.

The directory is arranged alphabetically by company name. Each listing includes corporate addresses, mine name and location, commodities, operation description, and key personnel.



Do you need this information in an alternative format? Please call the Department office at 602-255-3795.

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Douglas Quarry  
Nelson Quarry  
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### CINDERS

Darling Cinder Pit  
Wildcat Hill

### CLAY

Burro Creek Clay Pit  
Cheto No. 1 Mine  
Cheto No. 2 Mine  
Dewey Ranch Quarry  
Gee Clay  
Lyles Mine  
Pantano Clay Pits  
Rim Quarry  
Tolleson Mine  
Weary Lode Mine

### COAL

Black Mesa Mine  
Kayenta Mine

### COPPER

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Carlota  
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Florence  
Johnson Camp  
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Mineral Park Mine  
Mission Mine  
Morenci Mine  
Pinto Valley Mine  
Ray Mine  
Safford  
San Manuel Mine  
Sierrita Mine  
Silver Bell Mine  
Tohono Mine

### CUSTOM MILLS

Black Canyon Mill

### DIATOMITE

White Cliff Mine

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Iron King Tailings and Plant

### GEMSTONES

Sleeping Beauty Mine

### GOLD and SILVER

Bagdad Mine\*  
Mission Mine\*  
Ray Mine\*  
Morenci Mine\*  
Sierrita Mine\*

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Bonita  
Cedar Hills

Chloride Pit  
Congress Quarry  
Copper Mtn. Quarry  
Echo Green Quarry  
El Paso Pit  
Fitzgerald Quarry  
Granite Quarry  
Jomax Quarry  
Madison Granite Quarry  
Martin Peak Marble  
May West Quarry  
Mills Quarry  
Mineral Park  
Picacho Quarry  
Prescott Valley Granite  
Red Mountain Quarry  
Seligman Quarry  
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South Mountain Granite  
Star Valley Granite Quarry  
Superior  
Treasure Chest Granite  
Valentine Pit  
White Hills

### GYPSUM

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Salome Gypsum Mine  
Snowflake Gypsum Mine  
White Cross Mine  
White Eagle  
Winkelman Gypsum  
Verde Gypsum Mine

### LIMESTONE/MARBLE

Davidson Marble Quarry  
Indian Town Quarry  
Queen Creek Marble Quarry  
Santa Rita Quarry  
Shipley Pit

### MAGNESIUM HYDROXIDE

White House Mine

### MICA

Black Canyon Mica

### MOLYBDENUM

Bagdad Mine\*  
Mission Mine\*  
Morenci Mine\*  
Pinto Valley Mine\*  
San Manuel Mine\*  
Sierrita Mine\*

### PERLITE

Superior Perlite Mine

### PIGMENT

Iron Chancellor Mine

### PUMICE

Crown Claims  
More Sand, Moon Sand  
White Vulcan Mine

### SALT

Morton Salt Mine

### SAND & GRAVEL

See listing of sand and gravel producers

### SAND, INDUSTRIAL

Ajo Plant & Slag Stockpile  
Houck Silica Sand

### SILICA SMELTER FLUX

Copper Hill Mine  
Gold Hill Mine

### SILVER -see Gold

### SLATE

New River Slate, Anasazi  
New River Slate, Bldg. Prod.

### SMELTERS

Hayden  
Miami  
San Manuel

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Arizona Gold Quarry  
Arizona Picture Rock Quarry  
Black Cat Quarry  
Blue Bell Schist Quarry  
Brown Quarry  
Buckskin Quarry  
Bunker Quarries  
Coconino Quarries  
Cucamonga Quarry  
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Rock House Quarry  
Santa Cruz Quarries  
Sidewinder Quarry  
Sierra Quarry, SW Stone  
Sierra Quarry, T&C Ent.  
Trick Tank Quarry  
US Quarry  
Yellow Horse Quarries

### ZEOLITES

Bowie Chazazite Mine  
Grace Chabazite Mine  
Union Pass Mordenite Mine

\* Produced as a byproduct

## SUPPLEMENTAL INFORMATION

### Arizona State Agencies

#### Arizona Geological Survey

416 West Congress, Tucson, AZ 85701

Phone (520) 770-3500

[www.azgs.state.az.us](http://www.azgs.state.az.us)

#### Arizona Mines and Mineral Resources

1502 West Washington, Phoenix, AZ 85007

Phone (602) 255-3791

[www.admmr.state.az.us/](http://www.admmr.state.az.us/)

#### Land Department - Minerals Section

1616 West Adams, Phoenix, AZ 85007

Phone (602) 542-4628

[www.land.state.az.us](http://www.land.state.az.us)

#### Mine Inspector

State Capital, West Wing, Room 403, Phoenix, AZ 85007

Phone (602) 542-5971

<http://psn.net/~asmi/>

### Federal Agencies

#### Bureau of Land Management

Arizona State Office, 222 North Central,

Phoenix, AZ 850004-2203

Phone (602) 417-9528

[www.az.blm.gov/](http://www.az.blm.gov/)

#### Forest Service

Arizona Zone Office - Minerals, 2324 East

McDowell Rd., Phoenix, AZ 85006

Phone (602) 225-5262

[www.fs.fed.us/](http://www.fs.fed.us/)

#### Mine Safety and Health Administration (MSHA)

63 East Main #303, Mesa, AZ 85201

Phone (602) 649-5452 Fax: (602) 649-5662

[www.msha.gov/](http://www.msha.gov/)

#### U.S. Geological Survey

Minerals Information, 520 North Park Ave.

Suite 355, Tucson, AZ 85719

Phone (520) 670-5544

[www.usgs.gov](http://www.usgs.gov)

To obtain the most recent production and

commodity data by fax, call Mines FaxBack

(703) 648-4999 or, from the Internet at

<http://minerals.er.usgs.gov/minerals/>

### Industry Associations

#### Arizona Mining Association

2702 North 3rd Street, #2015, Phoenix, AZ

85004

Phone (602) 266-4416, Fax (602) 266-4418

[www.azcu.org](http://www.azcu.org)

President ..... Charles Shipley

Administrative Assistant ..... June Castelhana

Director of Education ..... Larry McBiles

#### AMIGOS (Arizona's Mining & Industry Gets Our Support)

2927 North 2nd Street, Phoenix, AZ 85012,

P.O. Box 25187, Phoenix, AZ 85002

Phone (602) 279-3199, Fax (602) 230-8413

[www.azamigos.org](http://www.azamigos.org)

Executive Director ..... Sydney Hoff Hay

#### Arizona Rock Products Association

916 West Adams, Phoenix, AZ 85007

Phone (602) 271-0346, Fax (602) 255-0363

[www.azrockproducts.org](http://www.azrockproducts.org)

President ..... Ken Quartermain

Deputy Director ..... Samuel Aubrey

#### Society For Mining, Metallurgy, and Exploration, Inc. - National Headquarters

P. O. Box 625002, Littleton, CO 80162-5002

Phone (303) 973-9550, Fax (303) 973-3845

[www.smenet.org](http://www.smenet.org)

Executive Director ..... Gary Howell

Manager Member Services ..... Angie Giles

Editor - Mining Engineering ..... Tim O'Neil

Additional copies of the *Directory of Active Mines in Arizona 2000* may be obtained for \$5.00 (\$6.50 by mail). Circulars listing mining related Federal, Arizona, and County agencies as well as mine permitting information are available. For more information or a publication list contact the Department.

## ARIZONA'S MINERAL INDUSTRY - 1998 and 1999

*For the first time in 10 years, Arizona did not rank first in the Nation in non-fuel mineral production in 1998, falling to third. Arizona's production was \$3.0 billion, down \$800 million from 1997. Contributing to this drop was an 11-year low in copper prices. Preliminary figures released from the USGS indicate that Arizona was also third in 1999 with total production valued at \$2.7 billion. During 1999, copper prices fell 3 cents more to 72 cents per pound, the lowest annual average price (in constant dollars) in the century.*

*Arizona did continue to lead the Nation in copper production, accounting for 65 percent of the total U.S. mine production. In addition, Arizona is among the leaders in the production of gemstones, molybdenum, silver, perlite, and sand and gravel. There are 72 mining companies operating 126 mines in the state, with an additional 70 sand and gravel producers. More than 15,000 people are directly employed by the mining industry.*

### COPPER

Low copper prices and increased foreign production resulted in a difficult period for copper producers last year. Arizona's copper production declined 4.8 percent in 1998 and fell 7.5 percent in 1999 to 2.42 billion pounds. The value of copper produced had an even more dramatic decline, dropping 29.9 percent in 1998 and 12.1 percent in 1999. Producers changed the goal of their operations, returning to the mantra of the late 1980s, achieving low-cost production, rather than maximizing production as they had been doing for most of the 90s. In addition to cutting costs and reducing production, the major Arizona copper companies attempted to improve their competitive position in a changing world market through mergers and acquisitions.

In December 1999, following five months of offers, Phelps Dodge acquired Cyprus Amax and is now the world's second largest producer of copper. Phelps Dodge acquired the following operating mines in Arizona: Sierrita, an open-pit copper-molybdenum mine, Miami, an open-pit leach copper mine, smelter, and refinery, and Bagdad, a copper-molybdenum mine. Phelps Dodge also acquired Cyprus' position as the world's largest molybdenum producer. The total equity value was \$1.8 billion based on approximately 90.7 million Cyprus Amax shares outstanding.

In November, Grupo Mexico, S.A. de C.V. purchased Asarco Inc. to become the third largest copper producer in the world. The Arizona producers acquired include: Mission, an open pit copper mine, Silver Bell, a leach copper mine north of Tucson, the Ray complex that includes an open-pit copper mine and the Hayden smelter.

The merger activities began in July of 1999 when Asarco and Cyprus announced a merger of equals' transaction. The company thus created would have been the largest producer of copper in the world. However in August, Phelps Dodge initiated an unsolicited takeover attempt of both companies, offering a 30 percent premium over the companies' existing share prices. This

offer was rejected and Phelps Dodge increased the offer. The Antitrust Division of the Department of Justice quickly issued clearance for the acquisition of Asarco and Cyprus without any divestitures. Later in August, Grupo Mexico made an offer to acquire Asarco. In October, Asarco's board of directors accepted Phelps Dodge's offer of \$29.50 cash per share and the merger was signed, contingent upon 80 percent of the shares being tendered by October 22 and approval by Phelps Dodge's shareholders. Grupo Mexico increased their offer the next day to \$29.75 per share and that offer was eventually accepted. When the companies merged, all Asarco shares were acquired for \$29.75 cash for a total transaction value including assumed debt of \$2.25 billion. Asarco paid a \$30 million termination fee to Phelps Dodge. A passing note: 1999 marked the 100th anniversary of Asarco who commemorated it by releasing *Asarco 1899 - 1999, Celebrating a Century of Accomplishment*.

Before the merger activity began attention had been focused on BHP whose North American copper operations were for sale. Not receiving any acceptable offers, BHP made the decision in June 1999 to close their copper properties, excluding leach production. The San Manuel mine, smelter, and refinery complex, along with the Pinto Valley mine, remain closed and await a buyer.

As copper prices remain low and inventory levels high it is difficult to predict which properties will remain in production, but change is certain. For example at Morenci, North America's largest copper mine, Phelps Dodge plans to phase out sulfide concentration and go to leach-only operations by 2001.

On an optimistic note, copper prices, down as low as 61 cents/lb in May 1999, gradually improved to 83 cents/lb by year's end. Although there is the possibility for more surprises in the Arizona copper industry, it appears that, temporarily at least, the dust has settled.

Arizona Mineral Production

Short tons unless otherwise noted

Commodity	1998 Quantity	1998 Value	1999 <sup>1</sup> Quantity	1999 <sup>1</sup> Value
Copper	1,312,000	2,060,000,000	1,213,000	\$1,810,000,000
Gemstones	na	2,120,000	na	1,920,000
Gold (troy oz)	59,160	17,400,000	24,500	6,870,000
Molybdenum (lb)	36,600,000	w	37,000,000	w
Sand & gravel				
Construction	52,800,000	229,000,000	59,500,000	264,000,000
Industrial	338,000	3,290,000	289,000	4,120,000
Silver (troy oz)	6,780,000	34,700,000	6,080,000	32,500,000
Stone, crushed	8,910,000	44,800,000	9,040,000	46,700,000
Other <sup>2</sup>	na	370,000,000	na	344,000,000
Coal <sup>3</sup>	11,300,000	272,000,000	11,787,000	283,000,000
Total		\$3,030,000,000		\$2,790,000,000

1 USGS Preliminary figure

2 Includes cement, clay, lime, gypsum, molybdenum, perlite, salt, dimension stone, zeolites, and iron oxides.

3 ADMMR estimate for value

Asarco Inc.,

(a wholly owned subsidiary of Grupo Mexico, S.A. de C.V.)

Grupo Mexico purchased Asarco Inc. in November 1999. Asarco's copper operations in Arizona include the open-pit mines of Ray and Silver Bell, an open-pit and underground operation at Mission, the Hayden copper smelter, and the Santa Cruz in situ research project. Ray and Mission are the second and third largest copper mines in Arizona.

Grupo Mexico, headquartered in Mexico City, is Mexico's largest mining company and the third largest copper producer in the world. The two divisions of the company are Grupo Minero Mexico, the mining division, and Grupo Ferroviario Mexico, the railroad division. Grupo Mexico's sales in 1998 totaled \$1.4 billion.

Ray

Copper output at the Ray mine was up from 1997 to 335 million pounds, of which 91 million pounds came from its SX-EW operations. This 24 percent increase was the result of using new leaching technology involving higher acid concentrations in the leach dumps. In July of 1999 an annual 80-million-pound reduction in production was announced for Ray and Mission. This was forecast to reduce Asarco's 1999 North American production by about 7 percent. At Ray, harder ore would reduce output by 25 million pounds. As part of a negotiated settlement with EPA and State agencies to resolve environmental issues Asarco will extend the Mineral Creek diversion tunnel around the Ray mine workings at a cost of \$55 million. When

completed this project will result in shortened hauls and add greatly to leach and dump capacity.

Ray consists of an open-pit mine, dump and heap leach operations, an 80-million-pounds-per-year SX-EW plant at Ray, and two mills - a 28,000-ton-per-day concentrator at Hayden and a 32,000-ton-per-day concentrator at Ray. At the end of 1998 Ray had reserves of 951 million tons grading 0.6 percent sulfide copper and 177 million tons of leachable copper grading 0.45 percent.

Mission

Mission's copper production in 1998 was 255 million pounds, up 4 million pounds from 1997. This increase was attributed to new loading and hauling equipment including a large overland conveyor system designed to move 58 million tons of waste per year. More importantly, it reduced waste haulage costs 11 percent. Accounting for 43 percent of Arizona's silver production, Mission was Arizona's largest silver producer with 2.55 million ounces recovered as a by-product. The cutback announced for Mission in 1999 lays off 150 employees and trims copper production 55 million pounds annually.

The Mission complex consists of the underground mine and two pits, Mission and the smaller, but separate, San Xavier North. Sulfide ore is treated at two mills, Mission and South, with a combined capacity to process 63,000 tons of ore daily. Mission's reserves at the end of 1998 exceeded 494 million tons grading 0.7 percent copper.

Hayden

The Hayden smelter, an INCO flash furnace rated at 720,000-tons-of-charge per year processed a record

VULCAN MATERIALS CO.  
CALMAT DIVISION

Corporate Office - 3200 San Fernando Road, Los Angeles, CA 90065 - Phone (323) 258-2777 - www.vulcanmaterials.com

Concrete and Aggregate Division, Arizona and New Mexico - 1801 E. University Drive, Phoenix, AZ - Phone (602) 254-8464 - Employees: 479 - Sand, gravel, rock products, ready mix concrete, ABC, and asphaltic concrete.

Area Production Manager.....Dick Hrubes  
Area Sales/Marketing Manager..... Pat Kuenrer  
Permitting Manager .....Carolyn Loder  
Properties Division - Phone (602) 254-8465

Director, Real Estate AZ/NM .....Lee Edmonson

Deer Valley Plant

2205 W. Adobe, Phoenix AZ 85027 - Phone (623) 842-4403 - Ready mix concrete Closed.

Area RMC Manager.....Eddie Center

Higley Plant

4000 N. Higley Road, Mesa, AZ 85215 - Phone (480) 854-2958 - Ready mix concrete and asphaltic concrete.

Area RMC Manager.....Eddie Center

Area HMA Manager.....Robbie Louden

Litchfield Plant

11923 W. Indian School Road, Litchfield Park, AZ 85340 - Phone (623) 935- 2323 - Sand, gravel, rock products, ABC, and ready mix concrete.

Area RMC Manager.....Eddie Center

Area HMA Manager.....Robbie Louden  
Manager..... Joe Flores

Mesa Plant

1900 N. Longmore, Scottsdale, AZ 85201 (on the Salt River Pima Maricopa Indian Community Reservation) - Ready mix concrete and asphaltic concrete.

Area RMC Manager.....Eddie Center

Phoenix Plant

1801 E. University Drive, Phoenix, AZ 85034 - Sand, gravel, rock products, ABC, ready mix concrete, and asphaltic concrete.

Manager..... Richard McDonald

Sun City Plant

14521 N. 115th Avenue, El Mirage, AZ 85335 - Sand, gravel, rock products, ABC, ready mix concrete, and asphaltic concrete.

Area RMC Manager.....Eddie Center

Area HMA Manager.....Robbie Louden  
Manager..... Jack Long

West Phoenix Plant

4830 S. 43rd Avenue, Phoenix, AZ 85041 - Sand, gravel, rock products, and ABC.

Manager..... Joe Flores

Area RMC Manager.....Eddie Center

W.A. MORRIS SAND, GRAVEL  
& CONCRETE INC.

US Highway 191 South, Safford, AZ 85546 - Phone (520) 428-1371 - Employees: 40 - Sand, gravel, rock products, ABC, ready mix concrete, and asphaltic concrete.

Owner ..... Jack Gilbert

WHEELER CONSTRUCTION INC.

1310 N. 24th Street, Phoenix, AZ 85008 - Phone (602) 254-3179 - Employees: 25 - Sand, gravel, rock products, and ABC.

Executive Vice President ..... Bob Johnson

Ashfork Pit

Located near Ashfork - Operated on as needed basis.

Dixileta Pit

Located in north Phoenix - Captive production of rock products for construction and rock products marketed by others.

WILLCOX ROCK & SAND

1401 E. Maley, P.O. Box 156, Willcox, AZ 85644 - Phone (520) 384-2181 - Employees: 12 - Sand, gravel, rock products, ABC, and ready mix concrete.

Owners..... Keith, Robert, and William Gallagher

Plant 486 - Lake Havasu City  
1785 Kiowa Blvd. Lake Havasu City, AZ 86403 - Office  
Phone (520) 855-7210 - Fax (520) 855-0506 - Plant  
Phone (520) 764-3277 - Aggregate, ready mix concrete,  
and asphaltic concrete.  
Plant Foreman..... George Davis

#### **TUCSON READY MIX**

6601 N. Casa Grande Hwy., Tucson, AZ 85743, P.O.  
Box 36030, Tucson, AZ 85740-6030 - Phone (520) 744-  
3222 - Fax (520) 744-4394 - Employees: 150 - Two  
operations in the Tucson area - Sand, gravel, rock  
products, ready mix concrete, ABC, and asphaltic  
concrete.  
President ..... Richard Hrubes  
Sales Manager..... Ron Green  
Operations Manager ..... Mike Smith

#### **TWIN PEAKS ROCK AND STONE**

P.O. Box 803, Rillito, AZ 85654 - Phone (520) 682-  
7058 - Employees: 2 - Gravel, rock products, and ABC -  
Operates at Arizona Portland Cement's Twin Peaks  
Limestone Quarry.

#### **UNITED METRO MATERIALS, INC.**

701 N. 44th Street, Phoenix, AZ 85008, P.O. Box  
52140, Phoenix, AZ 85072 - Phone (602) 220-5000 -  
Employees: 825 - Sand, gravel, ready mix concrete, and  
asphalt material.  
President ..... Dan Speck  
Executive Vice President ..... John Fowler  
Vice President Sales ..... Bill Heeter  
Vice President Operations ..... Gary Nielson  
Chief Engineer ..... Bill Peck  
Director Safety & Labor Relations ..... David Chavez  
**Plant 101 - Central Avenue Plant**  
2800 S. Central Ave., Phoenix, AZ 85066 - Phone (602)  
243-7080 or (602) 220-5000 - Sand, gravel, rock  
products, ready mix concrete, ABC, and asphaltic  
concrete.

Plant Superintendent ..... Jim Shields

#### **Plant 102 - Mesa Plant**

2830 North Beeline, Mesa, AZ 85256 - Phone (480)  
990-0844 - Sand, gravel, rock products, ready mix  
concrete, ABC, and asphaltic concrete.

Plant Superintendent ..... Farron Bentley

#### **Plant 106 - El Mirage Plant**

8507 N. El Mirage Road, El Mirage, AZ 85335 - Phone  
(623) 935-2653 - Sand, gravel, rock products, ready mix  
concrete, ABC, and asphaltic concrete - Inactive.

#### **Plant 111 - 19th Avenue Plant**

3640 S. 19th Avenue, Phoenix, AZ 85009 - Phone (602)  
262-1391 - Sand, gravel, rock products, ready mix  
concrete, ABC, and asphaltic concrete.

Plant Superintendent ..... Jim Shields

#### **Plant 112 - Glendale Plant**

11920 W. Glendale Road, Glendale, AZ 85307 - Phone  
(623) 935-3562 - Sand, gravel, rock products, ready mix  
concrete, ABC, and asphaltic concrete.

Plant Superintendent ..... Norris Fish

#### **Plant 333 - Flagstaff Plant**

5200 E. Railroad Avenue, Flagstaff, AZ 86004 - Phone  
(520) 526-5250 - Plant site - Material shipped in from  
various company pits - Ready mix, asphaltic concrete.  
Northern Arizona Area Manager ..... Marcene Turner

#### **Plant 335 - Hill Pit**

Hwy. 89, 12 miles north of Flagstaff - Sand and gravel  
pit - Portable crushing and screening plant - Operated  
on a seasonal basis.

#### **Plant 336 - McCormick Pit**

Highway 89 and Sunset Crater - Sand and gravel pit -  
Portable crushing and screening plant - Operated on a  
seasonal basis.

#### **Plant 141 - Maricopa Plant**

Maricopa Road and the Gila River, Maricopa - Phone  
(602) 220-5540 - Sand, gravel, rock products, ready mix  
concrete, ABC, and asphaltic concrete.

Plant Superintendent ..... Llyn Fulmer

#### **Plant 148 - Sacaton Plant**

Highway 93, 1 mile north of Casa Blanca Road,  
Sacaton, AZ - (602) 262-1453 - Sand, gravel, rock  
products, ready mix concrete, and ABC.

Plant Superintendent ..... Terry Hudson

#### **Plant 447 - Coolidge Plant**

Highway 287 and Attaway Road, Coolidge, AZ - (520)  
220-5454 - Sand, gravel, rock products, ready mix  
concrete, and ABC.

Plant Superintendent ..... Don Wofford

#### **Plant 449 - Casa Grande Plant**

2305 S. Rooftile Rd., Casa Grande, AZ 85222 - Phone  
(520) 836- 8705 - Sand, gravel, rock products, ready  
mix concrete, ABC, and asphaltic concrete.

Plant Superintendent ..... Will Wadkins

#### **Plant 601 - Globe**

P.O. Box 3100, Globe, AZ 85502 - Phone (520) 425-  
5775 - Sand, gravel, rock products, ready mix concrete,  
ABC, asphaltic concrete.

Plant Supervisor ..... Wes Bryant

#### **Mohave Plant - Fort Mohave**

1101 Aztec Rd., Fort Mohave, AZ 86427 Phone (520)  
330-3330 Aggregate and ready mix concrete.

Plant Foreman ..... Phil Malott

#### **VALLEY ROCK & SAND CO.**

10700 E. Irvington Road, P.O. Box 18469, Tucson, AZ  
85731 - Phone (520) 296-1733 - Employees: 3 - Sand,  
gravel, and rock products.

President ..... Martin McCann

amount of concentrates during 1998, producing 381.8  
million pounds of copper. Modernization of the smelter's  
gas handling system and the process control system was  
completed in 1998.

#### **Silver Bell**

Silver Bell produced over 40 million pounds of SX-  
EW copper in 1998, 17.5 percent above design capacity.  
Asarco began mining the Silver Bell North deposit, part  
of the Silver Bell complex near Tucson, and dedicated  
the mine and new processing facility on July 16, 1997.  
The facility's new \$70-million SX-EW plant was  
developed as a joint venture with Mitsui & Co. U.S.A.  
(25 percent share) and has produced at its design rate of  
36-million-pounds-per- year since start up. Rubblization  
and leaching of material in the El Tiro and Oxide pits  
also provides solution to the SX-EW plant. Asarco  
reports cash costs to be 50 cents per pound.

#### **BHP Copper**

In June 1999, BHP announced that the San Manuel  
underground mine and smelter would be closed,  
eliminating 2,200 jobs. About 430 workers continue to  
work at the rod plant and in-situ leach at San Manuel  
and the leach operations at Miami and Pinto Valley.  
Prior to these layoffs BHP was the State's largest copper  
employer.

#### **San Manuel**

San Manuel, on care and maintenance, is the largest  
underground operation in the United States and one of  
the largest underground copper mines in the world. San  
Manuel consists of a block-caving underground copper  
mine, a 62,000-ton-per-day concentrator, in-situ leach, a  
60,000-ton-per-year SX-EW plant, a 1,300,000-ton-per-  
year smelter with a 3,000-ton-per-day acid plant, a 690-  
million pounds-per-year electrolytic refinery, and a  
180,000-ton-per-year rod plant.

San Manuel produced 271 million pounds of copper  
in the fiscal year that ended May 1, 1999. By-product  
gold recovered was over 23,000 ounces for the same  
period.

The Lower Kalamazoo orebody has estimated ore  
reserves of 2.5 billion pounds of contained copper. San  
Manuel's and Lower Kalamazoo's ore reserves were 226  
million tons of sulfide ore at an estimated grade of 0.62  
percent copper as of 1998.

BHP's San Manuel smelter is the largest single  
furnace smelter in the industry. The smelter had been  
operating since 1988 without a rebuild, a record time for  
copper smelters. The smelter was shut down for 2  
months in the spring of 1999 for a \$66 million rebuild  
and modernization. Improvements included installing a  
new burner design, new draft fans and waste heat boiler,  
construction of a 40,000-ton concentrate storage  
building, and improving the conveyor systems to reduce  
spillage and airborne contamination. These changes will  
increase the flash smelter volume and result in lower

SO<sub>2</sub> emissions. The project was completed but the  
smelter did not restart due to the mine closure.

#### **Pinto Valley**

The Pinto Valley division includes the closed Pinto  
Valley sulfide mine, and the Miami in-situ leach and  
Miami No. 2 tailings leach operations. Miami's  
operations recover copper from in-situ leaching of the  
old Miami mine block cave area and by hydraulic  
mining and leaching of the Miami No. 2 Tailings pile.  
The resulting pregnant leach solutions are processed  
through Miami's 20-million-pound-per-year SX-EW  
plant. The Miami in-situ project contains 172 million  
tons at an average grade of 0.40 percent copper, while  
only 9 million tons at 0.40 percent remain to be  
processed at the No. 2 Tailings pile.

#### **Florence**

BHP's Florence in-situ leach project has completed  
permitting, but start up plans have been postponed.  
Oxide resources for the project are 321 million tons  
averaging 0.34 percent copper that are expected to  
produce 72 million pounds of cathode copper per year  
for 15 years.

BHP reported discovery of the Magma Porphyry  
near Superior in mid-1998. It is the first major copper  
discovery announced in Arizona in many years. The  
deposit, deeply buried under post-mineral rocks, was  
first intersected by drill holes from the underground  
 workings of the Magma mine in 1995. Assays from the  
bottom 1,004 feet of intercept yielded arithmetic mean  
grades of 1.75 percent copper and 0.029 percent  
molybdenum. The last 619 feet assayed 2.18 percent  
copper and 0.028 percent molybdenum! The dimensions  
of the Magma Porphyry deposit are still incompletely  
defined, but it is at least 1,500 feet high, 2,100 feet long,  
and 600 feet wide. The top of the deposit is  
approximately one mile beneath the surface and the host  
rocks are reported to have high temperatures similar to  
or higher than those encountered in the Magma mine.

#### **Phelps Dodge Corporation**

In December 1999 Phelps Dodge acquired Cyprus  
Amax Minerals' operations in Arizona, making Phelps  
Dodge the second largest copper company in the world,  
trailing only Codelco, the government-owned Chilean  
company. Phelps Dodge Corporation, headquartered in  
Phoenix, is the world's largest producer of SX-EW  
cathode copper. Its mining division, Phelps Dodge  
Mining Company, post merger will produce about one-  
half of the U.S.'s mined copper from its properties in  
Arizona and southwestern New Mexico. The purchase  
also made Phelps Dodge the world's largest  
molybdenum producer, a position Cyprus had held. The  
company's Morenci mine in Greenlee County, the  
largest copper mine in North America, had an annual  
production of over 1 billion pounds of copper in 1998  
and 887.8 pounds in 1999. Phelps Dodge owns an 85

percent interest in the Morenci mine; Sumitomo Metal Mining Company, Ltd owns the remaining 15 percent. In Arizona, in addition to Morenci, Phelps Dodge operates the Copper Queen in Bisbee, and controls significant undeveloped copper resources throughout the state, including several deposits near Safford and the New Cornelia mine at Ajo. The newly acquired operations from Cyprus include Bagdad, Miami, and Sierrita, and other non-producing deposits.

**Morenci**

The Morenci operation consists of the Morenci, Metcalf, and Northwest Extension open-pit copper mines, the 100,000-ton-per-day Morenci concentrator with a molybdenum circuit, the 40,000 ton-per-day Metcalf concentrator, four dump leaches with three SX plants, the new Southside EW plant with an annual capacity of 130 million pounds, and Morenci, with an annual capacity of 370 million pounds, the worlds largest EW plant.

Morenci produced 494 million pounds of copper by concentration in 1998. This dropped about 100 million pounds to 390 million in 1999 largely due to the closing of the Metcalf concentrator in August. The closure was part of a plan announced to reduce costs by phasing out sulfide concentration and converting Morenci to an all leach operation by 2002. As part of the expansion of leach output, construction has begun on installing mechanical stackers and agglomeration equipment. Although the Metcalf concentrator was written off for \$88 million in the fourth quarter of 1999 its crushing plant will continue to be used for leach operations. The larger Morenci concentrator will be phased out during the next 2 years, but will be maintained to provide flexibility in production. No layoffs are expected to occur from the Morenci concentrator closure. Employees will be reduced through attrition or reassigned to work elsewhere in the mine, however 250 contract employees were laid off with the Metcalf's mill closure.

Morenci's milling reserves totaled over 416 million tons grading 0.64 percent copper, while leaching reserves totaled over 1.86 billion tons at the end of 1999. Additional resources at Morenci include: Western Copper with an estimated 530 million tons of milling material at a grade of 0.55 percent copper, and 500 million tons of leach material at a grade of 0.31 percent copper; Garfield, containing 1 billion tons grading 0.27 percent copper; and American Mountain, containing 140 million tons of leach material grading 0.25 percent copper.

**Sierrita**

In response to low copper prices during 1998, Cyprus announced it was reducing copper production by 60 million pounds from Bagdad and Sierrita. These cutbacks were made by reducing the use of their highest cost, and more productive, equipment. Additionally expenditures are being reduced by \$10 million by

deferring equipment purchases and holding other expenses to sustaining levels.

The Sierrita property consists of three open-pit copper-molybdenum mines, a 115,000-ton-per-day concentrator, two molybdenum roasting plants, a ferromolybdenum plant, a rhenium plant, and an oxide and low grade sulfide dump leaching operation with SX-EW plant. In 1996 Sierrita started mining a 70-million-ton oxide deposit that has led to increased leach output. Cathode production during 1998 was a record 48 million pounds. A record mill tonnage processed resulted in 178 million pounds of copper in concentrates. Cost cutting efforts resulted in a 17 percent reduction in cash unit costs per pound. The mine's by-product molybdenum credit was 22 million pounds in 1998. That was a third of Cyprus' moly production and made Sierrita the largest molybdenum producer in Arizona. At the end of 1999 Phelps Dodge reported Sierrita contains sulfide reserves of 1.063 billion tons grading 0.27 and oxide reserves of 64 million tons grading 0.18 percent copper.

**Arizona Copper Production - 1997-8**  
Cu (million lb.)

Mine, Company	1997	1998
Morenci, Phelps Dodge	1,084	1,046
Ray, Asarco	304	335
San Manuel, BHP *	251	271
Mission, Asarco	252	255
Sierrita, Cyprus	246	226
Bagdad, Cyprus	246	215
Miami, Cyprus	156	164
Silver Bell, Asarco and Mitsui	19	42
Pinto Valley, BHP *	157	37
Tohono, Cyprus	27	8
Mineral Park, Equatorial **	+3	6
Copper Queen, Phelps Dodge	2	0.4
Total	2,744	2,605.4

\* June 1, - May 31, annual basis  
\*\* Cyprus sold property 9/97.

**Bagdad**

The Bagdad mine in Yavapai County produced 215 million pounds of copper in 1998, a 13 percent decline from 1997's record level. Compared to a year earlier, a seven percent drop in cash costs, normalized to grade of copper mined, was achieved. This resulted from finer ore grind, improved control of the flotation circuit , and other minimal capital efforts. The operation consists of an open-pit copper-molybdenum mine, a 85,000-ton-per-day concentrator, an oxide dump leach operation, and an 30-million-pound-per-year SX-EW plant. Phelps Dodge reported that at the end of 1999 Bagdad had a 775 million ton sulfide reserve of 0.37 percent copper and 0.02 percent molybdenum, as well as 16 million tons of leach material of 0.29 percent copper.

**Pioneer Sand #7**

5901 W. Broadway Rd., Phoenix, AZ 85043 - Phone (602) 233-2972 - Sand, natural river rock, crushed rock, and ABC.

Owner ..... Gary Schnurr  
Superintendent ..... Dave Sawyers  
Office Manager .....Tammie MixDorf

**Florence Pit**

19925 East Price Road, Florence, AZ 85232 - Phone (520) 868-4616 - River rock and sand.

**Casa Grande Quarry**

Grande Rose decorative landscape rock and boulders.

**Pioneer Pit #10**

335th Avenue and Indian School Road, Tonopah - Phone (602) 489-0767 - Produces rock, and plaster, mortar, and golf course sand.

**REIDHEAD SAND & ROCK, INC.**

P.O. Box 7, Paper Mill Rd., Taylor, AZ 85939 - Phone (520) 536-4519 - Employees: 35 - Sand, gravel, and ready mix concrete.

Manager..... Jack Zellner

**RUE HALE SAND AND ROCK**

611 S. Voight St., P.O. Box 221, Springerville, AZ 85938 - Phone (520) 333-4483 - Fax (520) 333-5155 - Employees: 2 - Sand and gravel.

Owner ..... Sonny Hale  
Sales Manager ..... Lori Hale

**SALT RIVER SAND & ROCK**

Dobson Road and McKellips Road, P.O. Box 728, Mesa, AZ 85211 - Phone (480) 990-1987 - Employees: 300 - Sand and gravel - Second largest sand and gravel mine in the United States.

Owner .....Maricopa-Pima Salt River Indian Nations  
Manager ..... Wayne Hills  
Sales Manager.....Denny Willcox

**SAND SPECIALTIES, INC.**

5570 N. Bush Highway, Mesa, AZ 85205 - Phone (480) 832-2120 - Employees: 4 - Aggregate products.  
Manager..... Ernest Perkins

**SAN XAVIER ROCK & MATERIALS**

3895 N. Business Center Dr., Suite 11, Tucson, AZ 85705, P.O. Box 551, Cortaro, AZ 85652 - Phone (520) 293-6833 - Employees: 180.

President and Division Manager..... Chris Fischer  
V.P. Sales & Marketing..... Scott Clark  
**Tucson - Plant 223**

6200 W. Cortaro Farms Road, Tucson, AZ 85743 - Sand, gravel, ABC, ready mix concrete, and asphaltic concrete.

**Tucson - Plant 221**

1011 W. Valencia Road, Tucson, AZ 85747 - Sand, gravel, ABC, ready mix concrete, and asphaltic concrete.

Plants Superintendent.....Bill Wion  
**Green Valley Plant 225**

18001 S. Old Nogales Highway, Green Valley, AZ 85614 - Phone (520) 625-5889.

**Catalina Plant 226**

North of Catalina at Golder Dam - Phone (520) 825-8334.

**Nogales - Plant 228**

91 Old Ruby Road, Nogales, AZ 85621 - Phone (520) 281-9669 - Sand, gravel, ABC, and ready mix concrete.  
Plant Superintendent .....Mark Kincade

**SMITH AND BELL CONSTRUCTION**

**Smith & Bell Concrete and Materials**

1711 N. 8th Avenue, Safford, AZ 85546 - Phone (520) 428-4747 - Employees: 14 - Sand, gravel, ABC, rock products, and ready mix concrete.

Owner .....Ivan Smith and Robert Bell  
Manger..... Janell Nichols

**SUN STATE ROCK & MATERIAL CORP.**

P.O. Box 1340, Sun City, AZ 85372 - Phone (623) 566-3000 - Employees: 40 - Sand, gravel, ABC, and rock products.

Owner .....Dolores Walker

**SUPERIOR MATERIALS OF UNITED METRO**

Hayfield Draw & Cherry Pit, P.O. Box 786, Camp Verde, AZ 86322 - Phone (520) 567-2244 - Employees: 75 - Sand, gravel, rock, and ready mix.

Area Manager ..... Greg Davis

**SUPERSTITION CRUSHING LLC.**

2323 E. Hale, Mesa, AZ 85213 - Phone (480) 962-5326.  
Owner .....Johnny Weik  
Owner/Manager ..... Myron Jones  
Employees: 58 - Provides contract crushing for sand and gravel producers including: Calmat Companies, Rock Solid, Pulte Construction, etc.

**Yuma Pit**

Southwest intersection Avenue 3E and County 19 east of Yuma, 2500 S. Industry Ave., Yuma, AZ 85365 - Phone (520) 341-9866 - Employees: 25 - Sand, gravel, rock products, and ABC. Aggregate also supplied to company's ready mix concrete and asphaltic concrete plants at another Yuma location.

Plant Foreman ..... Conrad Mulhauser

**THE TANNER COMPANIES (Yuma)**

2088 E. 20th Street, P.O. Box 1449, Yuma, AZ 85366 - Phone (520) 343-4100 - Fax (520) 343-4190 - Employees: 200.

President ..... Gerald Janney  
**Plant 801 - Yuma**

13 miles east of Yuma on S.R. 95 at mile marker 37.5 - Phone (520) 343-4180 - Sand, gravel, and asphaltic concrete.

Plant Foreman ..... Richard Arviso

Accounts Payable ..... Belinda Beck  
Operations Manager, East Side..... Dave Scheffler  
Operations Manager, West Side..... Ron Ernst  
Receptionist..... Ciny Longmire  
Safety Manager ..... Frank Vallie

#### **METRO MATERIALS CO.**

5231 E. Buffalo Soldier Road, P.O. Box 520, Sierra  
Vista, AZ 85636 - Phone (520) 378-2321 - Employees:  
55 - Sand, gravel, and ready mix concrete.  
**Plant 229**  
General Manager.....Tim Dillahunt

#### **MOHAVE CONCRETE & MATERIALS INC.**

4502 N. Hwy. 95, Lake Havasu City, AZ 86404 - Phone  
(520) 764-2226 - Employees: 60 - Sand, gravel, rock  
products, and ready mix concrete.  
General Manager.....Dan Porter  
**Mohave Concrete S&G No. 1**  
**Mohave Concrete S&G No. 2**  
1781 E. Boundary Cone Road, Mohave Valley, AZ -  
Phone (520) 330-3750.  
**Mohave Concrete S&G No. 3**  
2699 West Hwy. 66, Kingman, AZ - Phone (520) 753-  
5554.

#### **NEW RIVER SAND & GRAVEL**

58202 N. 51st Avenue, Phoenix, AZ 85027 - Phone  
(623) 465-7845 and (623) 465-7850 - Employees: 1 -  
Sand and gravel.  
Owner/Operator ..... Cliff Freeman

#### **PADILLA SAND, GRAVEL, & REDI MIX**

409 Camino Ramanote, Rio Rico, AZ 85648 - Phone  
(520) 761-4998 - Employees: 10 - Sand, gravel, and  
ready mix concrete.  
Owner ..... Manuel Padilla

#### **PAULDEN SAND, ROCK, & REDI-MIX**

Division of Dunbar Stone Co., Inc.  
P.O. Box 403, Paulden, AZ 86334 - Phone (520) 636-  
2500 - Employees: 11 - Sand, gravel, and ready mix  
concrete.  
Vice President ..... Warren Dunbar  
Office Manager/Sales & Orders.....Robin Larson

#### **PAYSON CONCRETE & MATERIALS, INC.**

1900 E. Hwy. 260, Payson, AZ 85541 - Phone (520)  
474-2231 - Employees: 40 - Aggregate, sand, gravel,  
rock products, ready mix concrete, and asphaltic  
concrete.  
Plant Manager.....George Randall  
Plant Manager.....John Chillson  
Asphalt Plant Manager.....Fred Randall  
Sales Representative.....Tim Hughes

#### **PIONEER CONCRETE OF ARIZONA, INC.**

**Corporate Office** - 3450 N. Higley, P.O. Box 20370,  
Mesa, AZ 85277-0370 - Phone (480) 654-3000 -  
Employees: 275 - www.pionint.com.au  
Regional Manager ..... Chris Petro  
General Manager..... Tim Valente  
Operations Manager ..... Bob Strom  
**51st Avenue Plant**  
4002 S. 51 Avenue, Phoenix, AZ 85045- Phone (602)  
352-1210 - Sand, rock, ABC, ready mix concrete.  
**Apache Junction**  
2941 W. 37 Avenue, Apache Junction, AZ 85220 -  
Phone (480) 671-9702 - Ready mix concrete.  
**Deer Valley**  
21829 N. 16 St., Phoenix, AZ 85022 - Phone (602) 492-  
9063 - Ready mix concrete.  
**Higley Plant**  
3602 N. Higley Rd., Mesa, AZ 85215 Phone (480) 981-  
0134 - Ready mix concrete.  
**Mesa Plant**  
2001 W. McKellips Rd., Mesa, AZ 85201 - Phone  
(480)990-3536 - Ready mix concrete.  
**North Plant**  
2147 W. Adobe, Phoenix, AZ 85027 - Phone (623) 587-  
4467 - Ready mix concrete.  
**Queen Creek Plant**  
44191 Peckary Rd., Apache Junction, AZ 85219 Phone  
(480) 983-4111 - Sand, rock, ABC, ready mix concrete.  
**River Ranch Plant**  
5159 N. El Mirage Rd., Phoenix, AZ 85340 - Phone  
(623) 935-1875 - Sand, rock, ABC, ready mix concrete.  
**Sun City Plant**  
21801 N. 115 Avenue, Sun City, AZ, 85373 - Phone  
(623) 584-8695 - Ready mix concrete.  
**Tempe Plant**  
1976 E. Pima St., Tempe, AZ 85281 Phone (480) 894-  
0172 - ready mix concrete.  
**Clarkdale Plant**  
2500 W. Cement Plant Road, Clarkdale, AZ 86324,  
P.O. Box 634, Cottonwood, AZ 86326 - Phone (520)  
634-4250 - Employees: 45 - Sand, rock, ABC, ready mix  
concrete, and asphaltic concrete.  
Plant Manager ..... Dennis Barry  
**Wickenburg Plant**  
U.S. Hwy. 60 at mile marker 117.5, P.O. Box 1450,  
Wickenburg, AZ 85358 - Phone (520) 684-3402 Sand,  
rock, ABC, ready mix concrete, and asphaltic concrete.  
General Manager..... Jay Parker, Jr.  
**Yavapai Materials**  
5899 Wilkinson Drive, P.O. Box 814, Prescott, AZ  
86302 - Phone (520) 445-7305 - Sand, rock, and ABC.  
General Manager..... John Pemberton

**PIONEER SAND COMPANY**  
745 N. Gilbert #124-360, Gilbert, AZ 85234 - Phone  
(480) 926-8200 - Employees: 125.

#### **Miami**

The Miami mine consists of an open-pit copper  
mine, an SX-EW plant, a 650,000-ton-per-year capacity  
smelter with acid plant, a 380-million-pound-annual  
capacity electrolytic refinery, and a 135,000-ton-per-  
year rod plant. All Miami's operations had outstanding  
levels of production in 1998. The mine and SX-EW  
plant produced a record 164 million pounds of copper in  
1998, a 5 percent improvement over the 1997 record.  
The smelter processed 605,000 tons of copper  
concentrates from other operations. The electrorefinery  
produced 380 million pounds of cathode and the rod  
plant operated above capacity and produced 306 million  
pounds of copper rod in 1998, both amounts were new  
records. At the end of 1999 Phelps Dodge reported  
leach reserves for Miami of 189 million tons grading  
0.38 percent.

#### **Tohono**

The Tohono operations, located on land leased from  
the Tohono O'Odham Nation, consists of an SX-EW  
plant fed by a test open pit and heap leach. Although  
mining was suspended in July 1997, leaching of existing  
heaps continued until February 1999. Production at  
Tohono totaled 8 million pounds of copper during 1998.

#### **Copper Queen**

The company's Copper Queen mine consists of a  
small dump leaching and precipitation operation at the  
depleted Lavender pit. No decision has been made as to  
when to bring the adjacent Cochise deposit, containing  
210 million tons of 0.4 percent leach material, to  
production.

#### **Safford**

Phelps Dodge opened a district office in Safford  
where feasibility studies and environmental permitting  
were initiated in 1996 for the Lone Star, Dos Pobres,  
and San Juan deposits. The draft EIS was released in  
min-1998. The Dos Pobres and San Juan deposits  
contain 555 million tons of leachable material and 330  
million tons of sulfide material with a grade of 0.65  
percent copper. The acquisition of the Sanchez deposit  
in 1995 increased the company's open pit, leachable  
copper resources in the district, including Lone Star, to  
nearly 2.4 billion tons.

#### **New Cornelia**

In 1997 Phelps Dodge announced that a \$238  
million construction project is planned for the New  
Cornelia mine at Ajo. The project, scheduled to include  
a new concentrator and mining equipment, will allow  
resumption of mining the deposit that last operated in  
1983. The sulfide resource there is 150 million tons  
grading 0.56 percent copper. The New Cornelia  
operation, which will employ about 400 people, is  
expected to produce 135 million pounds of copper and  
25,000 ounces of gold annually. The project is  
mothballed pending improved copper prices.

#### **United Verde**

Phelps Dodge and Cominco continue a joint venture  
exploration agreement on the United Verde massive  
sulfide deposit at Jerome. The property, one of the  
largest zinc resources in the U.S., contains 21 million  
tons grading 6.6 percent zinc, plus copper and precious  
metals.

#### **Other Copper Companies**

After six years of effort the Carlota open pit heap  
leach SX-EW project is now fully permitted. Carlota  
Copper Company, a subsidiary of Cambior U.S.A.  
received a favorable ruling on litigation contesting the  
Forest Service's record of decision in August of 1999.  
The plaintiffs' allotted time to file an appeal has  
expired. Carlota Copper Company acquired the Carlota  
project in August of 1991 and applied for permits in  
February of 1992. Since that time various environmental  
groups have tried to obstruct the mine even though the  
local community has favored the project and the  
company has met all conditions for permitting. The  
property consists of four oxide ore bodies, Carlota,  
Cactus, and North and South Eder with reserves that  
total 96 million tons grading 0.44 percent copper.  
Production is planned at a rate of 30,000 tons of copper  
per year for the first 10 years via open-pit mining, heap  
leaching, and SX-EW. Capital costs are estimated at  
\$100 million. The project will employ 300 workers  
when in full operation, with a \$125,000,000 annual  
contribution to Arizona's economy. When startup is  
achieved Carlota will be the first new, major mine in  
Arizona in many years. Unfortunately heavy debt  
problems related to Cambior's gold hedging activities  
have put the company in the position of having to offer  
the project for sale as of late 1999.

Equatorial Mining exercised their option to  
purchase Mineral Park from Cyprus Climax Metals  
Company on October 1, 1997. Mineral Park is an open-  
pit copper-molybdenum mine located in Mohave  
County. Production of 6 million pounds of copper per  
year currently comes from a combination of dump and  
bench leaching. In October 1999 Equatorial secured a 3  
year option on the Zonia mine, Yavapai County from  
bankrupt Arimetco. A pre-feasibility study is planned to  
evaluate the property's 142-million-ton resource grading  
0.31percent Cu.

On July 1, 1998 the AMT international Mining  
announced they will purchase BHP's 50 percent interest  
in a portion of the Copper Creek project. AMT has also  
purchased several other properties in the district,  
including the 37,000-acre Mercer Ranch adjacent to the  
project. AMT has since completed 12 drill holes hitting  
high grades of copper (~1.0 percent) and molybdenum  
(~0.31 percent) in several holes.

Nord Resources of Albuquerque acquired Johnson  
Camp mine in Cochise County from Summo Metals in

the spring of 1999. The mine, currently on care and maintenance, continues to produce 1 to 2 million pounds of copper annually by SX-EW from existing heap leaches. With a rise in copper prices the mine is expected to reopen with a production of cathode copper of 18 million pounds per year.

COAL

Peabody Group, parent company of Arizona's Peabody Western Coal Company is the world's largest private sector coal company. Coal ranks second only to copper in economic importance in the State. In 1998 Arizona's coal production was 11,315,000 short tons, having an estimated value of \$272 million. All production is from land leased from the Navajo Nation and Hopi Tribe by Peabody. Royalties from coal production total \$30 million annually.

High-quality, low-sulfur coal is strip mined from the Kayenta and Black Mesa mines in central Navajo County. The coal is subbituminous with an average quality of 11,000 Btu, 0.5 percent sulfur, and 10 percent ash. Both mines are now using 300-ton capacity tractor-trailer bottom-dump trucks to transport coal from the mine to the conveyors and pipeline feed plants.

Kayenta Mine's coal is carried by a conveyor system 17 miles to storage silos. Electric-powered unit trains of the Black Mesa & Lake Powell Railroad transport 78 miles to Salt River Project's Navajo Generating Plant at Page. At Black Mesa the coal is powdered and mixed with water prior to transport by the world's longest coal-slurry pipeline. The 273-mile journey to the Mohave Generating Station at Laughlin, Nevada takes three days.

Peabody's operations on Black Mesa are model reclamation programs. Mining and reclamation proceed at the same rate of approximately 500 acres annually. As an area is mined, the topsoil is removed and stored. After mining is completed, the topsoil is returned and the surface is contoured. More than 10,000 acres have been reclaimed, with the land put back to hardy range that is least 10 times more productive than before mining.

GOLD AND SILVER

By-product recovery of gold and silver from the sulfide copper operations was reported at 67,000 troy ounces gold and 5.95 million troy ounces silver in 1998. Low gold prices, dropping slightly to average below \$280 per ounce in 1999, continued to have a negative impact on activity. Bema, dba in Arizona as Yarnell Mining, ceased funding of the NEPA/EIS for the Yarnell gold project and closed their engineering office in August delaying their open pit heap leach operation until prices improve.

Only a few gold exploration projects were active. The Moreau property, a detachment hosted target in La

Paz County, was drilled by Nevada Pacific Gold in late spring. Exploration of the property was continued by Echo Bay who optioned the property in the fall.

Another detachment-hosted deposit, the past producer Copperstone, continued to be of interest. However, Royal Oak's bankruptcy hindered efforts by subsidiary Arctic Precious Metals to continue exploration. Asia Minerals has acquired the project, reported an underground resource of nearly 500,000 ounces, and plans further drilling.

INDUSTRIAL MINERALS

Although the mining of copper and its by-products accounts for 80 percent of the State's mineral production by value, mining in Arizona continues to be a diversified activity. Coal and industrial minerals largely account for the remaining 20 percent. Sand and gravel for construction aggregates, cement, and lime for chemical and construction material uses make up the majority of industrial mineral value. In 1999 Salt River Sand & Rock, located in Maricopa County, again operated the second largest sand and gravel plant in the U.S.

Sand and gravel is increasingly important as Arizona, especially the metro Phoenix area continues its rapid growth. The valley's construction industry was paced by the addition of 30,000 plus new homes per year in 1998 and 1999 and associated commercial construction. Creating additional demand is the accelerated urban freeway and rural highway-building program of the Arizona Department of Transportation. The Federal government passed the Transportation Equities Act for the 21st Century (aka TEA-21), a multi-year highway-funding bill that is expected to increase highway construction spending. This rapidly growing demand for aggregates and concrete has attracted global players including Pioneer International, Hanson PLC, Vulcan Materials, and Cemex to Arizona.

Australia's Pioneer International continued its rapid pace of acquisitions of sand and gravel and concrete producers in Arizona by buying Phoenix Redimix, Wickenburg Concrete and Materials, Valley Concrete and Materials (of Clarkdale), and Yavapai Materials during 1999. The purchase of Phoenix Redimix Inc. for approximately \$50 million by itself added more than 30 million tons of aggregate reserves with a life of 15 years at current production rates. With the latest acquisitions Pioneer is now the second largest concrete producer and fourth largest aggregate supplier in Arizona, operating 12 batch plants and 6 quarries. Combined annual sales from over 1 million cubic yards of concrete and 4 million tons of aggregate are expected to be over \$100 million.

In November of 1999 United Kingdom-based Hanson PLC and Pioneer International agreed to an offer by Hanson to acquire Pioneer for about \$2.54 billion. The combination of these two companies will

GENERAL ROCK & SAND

Industrial Road, P.O. Box 3049, Page, AZ 86040 - Phone (520) 645-3289 - Employees: 35 - Quarry in Utah, batch plants in Arizona - Sand, gravel, ready mix concrete, and asphaltic concrete.  
President ..... Merril Jessop  
Superintendent ..... Donovan Stubbs

GLORY ENTERPRISE, LLC

P.O. Box 3627, Flagstaff, AZ 86003 - Phone (520) 526-5571 - Employees: 4 - Volcanic cinders, and dirty cinders/fill dirt.  
Owner ..... Bonnie and Jim Crick

GRANITE CONSTRUCTION CO.

4115 E. Illinois, P.O. Box 27557, Tucson, AZ 85726 - Phone (520) 748-8000 - Employees: 298 - Sand, gravel, road materials, soil, ready mix concrete, and asphaltic concrete.  
Branch Manager ..... Ted Haworth  
Office Manager ..... Maura Noland  
Plant Manager ..... Bill Mahey  
GRANITE MOUNTAIN MATERIALS  
560 EZ Street, P.O. Box 3520, Prescott, AZ 86302 - Phone (520) 778-5553 - Employees: 6 - Crushed granite.  
Owner ..... Dorvin Jones

GUZMAN CONSTRUCTION

Bixby Road, P.O. Box 3100, Globe, AZ 85502 - Phone (520) 425-5775 - Employees: 60 - Sand, gravel, rock, road materials, ready mix concrete, and asphaltic concrete.  
President ..... Mike Guzman Jr.  
Vice President ..... Wes Bryant  
Superintendent ..... Steve Stratton

HAMILTON SAND & GRAVEL

Hamilton Rd., RR 1 Box 1350, Willcox, AZ 85643 - Phone (520) 384-2582 - Employees: 4 - Sand, gravel, and rock.  
Owner ..... David May

HATCH CONSTRUCTION & PAVING

Hwy. 77, Taylor, AZ 85939 - Phone (520) 536-7213 - Employees: 40 - Sand, gravel, road materials, ready mix concrete, and asphaltic concrete.  
President ..... Jerrold L. Hatch  
Secretary/Treasurer ..... Lynn R. Hatch  
Vice President ..... Lenn B. Hatch

HUACHUCA CONCRETE, INC.

Office; 423 S. Schrader Rd., Sierra Vista, AZ 85635; plant, 293 W. Rail Road Drive, Huachuca City, AZ 85616 - Phone (520) 456-1600 - Employees: 20 - Sand, gravel, aggregate products, ABC, leach rock, rip rap, and ready mix concrete.  
General Manager ..... Mike Berry

J.D.'S SAND & GRAVEL INC.

1512 W. Frontage Rd., P.O. Box 4435, Rio Rico, AZ 85648-4435 - Phone (520) 281- 7980 - Employees: 6 - ABC, fill, and aggregate.  
President ..... Michael Williams

JIM BUSH SAND & GRAVEL

1015 N. Cameron, Ajo, AZ 85321 - Phone (520) 387-6250 - Employees: 4 - Sand, gravel, and landscaping material.  
President ..... Patti Bush  
Vice President ..... David Bush

KINGMAN REDI-MIX

9985 Shipping Lane, Kingman, AZ 86401 - Phone (520) 757-7446 - Employees: 12 - Sand, gravel, and ready mix concrete.  
President ..... Pete Campbell

KOCJAN ASSOCIATES, INC.

2030 E. Frontage Rd. P.O. Box 3748, Page, AZ 86040 - Phone (520) 645-3602 - Employees: 10 - Sand, gravel, ABC, ready mix concrete, and asphaltic concrete.  
President ..... John Kocjan  
Vice President ..... Gerald Kocjan  
Secretary ..... Ted Kocjan

LINDEN PEARCE CONSTRUCTION, INC.

1020 Pearce Road, Show Low, AZ 85901 - Phone (520) 537-7454 - Employees: 28 - Rock, sand, cinders, ready mix concrete, and asphaltic concrete.  
Owner/President ..... Joy T. Pearce, Jr.  
Owner ..... Lavar Merrill  
Secretary ..... Kim Pearce

MADDUX & SONS, INC.

1927 Pan American, P.O. Box 1077, Douglas, AZ 85608 - Phone (520) 364-7564 - Employees: 40 - Sand, gravel, ready mix, and rock products.  
President ..... Leonard Maddux  
Office Manager ..... Toni Vance  
Sales and Orders ..... Roxy Maddux

MCCORMICK CONSTRUCTION

1941 Richardo Ave., P.O. Box 545, Bullhead City, AZ 86430 - Phone (520) 763-2272 - Employees: 19 - Sand, gravel, rock products, and asphaltic concrete.  
President ..... Scott Merrill  
Office Manager ..... Sharon Hartman

MESA MATERIALS, INC.

3410 N. Higley Road, P.O. Box 20040, Mesa, AZ 85277 - Phone (480) 830-1521 - Fax (480) 981-9255  
Employees: 60 - Operates multiple quarries - Sand, gravel, and asphaltic concrete.  
Owner ..... Edward C. Levy  
Vice President ..... Wayne Stamper  
Office Manager ..... Bruce Erickson

**Tucson Division**

**Apex Plant 12 and 22**

11500 N. CalMat Drive, Marana, AZ 85653 - Phone (520) 629-0033 - Sand, gravel, rock products, ABC, and ready mix concrete.

**Hughes Plant 31**

8855 S. Hughes Access Road, Tucson, AZ 85706 - Phone (520) 574-9002 - Asphaltic concrete.

**Pima Mine Road Plant 17 and 27**

13599 S. Nogales Hwy., Tucson, AZ 85706 - Phone (520) 295-1500 - Sand, gravel, rock products, ABC, and ready mix concrete.

**Flagstaff Division**

633 E. Brannen, Flagstaff, AZ 86001 - Phone (520) 774-0304 - Ready mix concrete.

**CENTRAL ARIZONA MATERIALS**

9699 E. Hwy. 287, Coolidge, AZ 85228 - Phone (520) 723-5719, (480) 649-0244 - Employees: 4 - Landscaping and construction materials.  
Manager.....Dave Sloane

**CHANDLER READY MIX**

3250 E. Lehi Road, P.O. Box 928, Mesa, AZ 85211 - Corporate phone (480) 892-0501 - Quarry phone (480) 830-3464 - Employees: 30 - Sand, gravel, and ready mix concrete.  
President.....Juan Alvarez

**CHURCHMAN SAND & GRAVEL**

P. O. Box 42874, Tucson, AZ 85733 - Phone (520) 325-1611 - Employees: 4 - Sand and gravel.  
President.....Dick Smith  
Vice President.....Doug Smith

**CKC MATERIALS DIVISION**

1234 E. Airport Road, Safford, AZ 85546 - Phone (520) 428-3423 - Employees: 25 - Aggregate base, mineral base, and ready mix concrete.  
President.....David Cluff  
General Manager.....Carl Bryce

**CSR WEST**

1950 Bullhead Parkway, P.O. Box 31, Bullhead. City, AZ 86430 - Phone (520) 763-1022 - Employees: 22 - Sand, gravel, rock products, ready mix concrete, ABC, and asphaltic concrete.  
Manager.....Bob Swartzman

**DESERT CONSTRUCTION INC.**

4490 E. Hwy. 66, Kingman, AZ 86401 - Phone (520) 757- 2213 - Employees: 60 - Paving materials, ready mix concrete, and rock products.  
President.....Tom Short  
Secretary/Treasurer.....Jim Short

**DOWNEY, L. A. & SONS INC.**

11600 E. Poorman Rd., Tucson, AZ 85747 - Phone (520) 886-2315 - Employees: 9 - Sand and gravel.  
President.....Dennis C. Downey  
Vice President.....Darrell Downey  
Secretary/Treasurer.....David Downey

**EADS CONSTRUCTION & REDI-MIX INC.**

608 Highway 92, 46 Cochise Row, Bisbee, AZ 85603 - Phone (520) 432-4121 - Employees: 7 - Sand, gravel, and ready mix concrete.  
President.....Charles R. Eads  
Vice President.....Sunny Quinn  
Secretary/Treasurer/Owner.....Louise Eads

**EARTH PRODUCTS**

7563 E. Highway 69, Prescott Valley, AZ 86314 - Phone (520) 772-6446 - Employees: 30 - Sand and gravel, rock, leach rock, and decomposed granite.  
President.....William H. Hyslip  
Superintendent.....Scott Glattfelder

**FNF CONSTRUCTION, INC.**

115 S. 48<sup>th</sup> Street, PO Box 5005, Tempe, AZ 85280-5005 - Phone 480-784-2910 - Fax 480-829-8607 - Employees: 500 - www.fnfinc.com. - Sand and gravel production and heavy highway and road construction.  
President.....Jed Billings  
Senior V.P.....Matt Gully  
**New River Pit**  
One half mile west of Interstate 17 and Anthem Way interchange - Phone 623-465-4741 - Sand and gravel.  
Site Superintendent.....Ken Quartermain

**FT. MCDOWELL SAND & GRAVEL CO.**

State Route 87, P.O. Box 17150, Fountain Hills, AZ 85269 - Phone (480) 837-2358 - Employees: 80 - Sand and gravel.  
General Manager.....Delbert Hallford

**FRANCIS DAY & SONS**

P.O. Box 157, St. Johns, AZ 85936 - Phone (520) 337-2121 - Employees: 7 - Sand, gravel, and ready mix concrete.  
Owners.....Francis and Marlow Day

**FRED CLARK TRUCKING CO. INC.**

104 Main, P.O. Box 116, Mammoth, AZ 85618 - Phone (520) 487-2232 - Employees: 18 - Sand, gravel, and ready mix concrete.  
Owner.....Charles Clark

**G & S SAND & ROCK**

P.O. Box 1259, Mayer, AZ 86333 - Phone (520) 632-9359 - Employees: 4 - Aggregate materials.  
Owner.....Susan Bennett

create one of the world's largest heavy building materials corporations involved in the production of aggregates, ready mix concrete, concrete products, cement, and clay bricks in four continents across the world. The newly combined group will become the world's largest supplier of aggregates, replacing Vulcan Material's ranking in that category. The new group will also be the world's second largest supplier of ready mix concrete.

Vulcan Materials, the nation's largest aggregate producer, completed its acquisition of Calmat in a deal that began in November of 1998 and closed in January 1999. The purchase totaled \$760 million plus assumption of Calmat's debt of \$130 million. Calmat's southwest US operations included Calmat of Arizona with 479 employees at seven Phoenix area plants.

The globalization trend continued as yet another international company, CEMEX, the worlds third largest cement producer, revealed its brand in Arizona as Sunward Materials, doing business as CEMEX USA - Arizona.

Other industrial minerals mined in the state are more interesting in terms of their variety than their dollar value. These include limestone and marble, bentonite, diatomite, common clays, salt, cinders, smelter slag, pumice, zeolites, crushed stone, decomposed granite, perlite, gypsum, silica flux, hematite, sandstone, dimension stone, industrial sand, and mine tailings.

Calcium carbonate is mined as limestone and marble for mineral filler and as raw material for lime and cement plants. The zeolite minerals, chabazite and mordenite, are mined for processing into molecular sieves and for waste treatment. Diatomite is produced for metallurgical process insulation. Salt is crystallized by solar evaporation from brines produced by solution mining for use in food processing, livestock feed, and chemicals. Perlite is mined for processing into filter media, fillers, and carriers. Quartz and quartzite is mined for use as silica flux in copper concentrate smelting. Industrial sand is produced for use as hydrafrac sand used in petroleum production. Mill tailings from a closed zinc mine are processed into fertilizer. This enables the tailings to provide iron, sulfur and other trace elements, along with added nitrogen, to be used by plants. Bentonite is mined for out-of-state processing into desiccants and for bleaching and clarifying of edible oils.

Common clays are mined to manufacture tile, pipe, and bricks and to provide an aluminum source for the manufacture of cement. Volcanic cinders are mined for aggregates, landscaping, and road deicing. Slag from a copper smelter is processed for roofing granules and abrasives. Pumice is used for fabric treatment and lightweight aggregate. Stone is quarried and crushed for aggregates and landscaping. Decomposed granite is used for landscaping. Gypsum is mined and processed for

wallboard manufacture, cement manufacture, and agriculture. Hematite is mined for color and barrier pigments. Sandstone is quarried and worked for flagstone. Schist, limestone, marble, rhyolite, gneiss, and granite are quarried for decorative stone.

Two new industrial mineral producers finished construction and development activities in 1999 for two commodities not produced in Arizona for decades. Applied Chemical Magnesias finished a \$2 million grinding and bagging plant at Bullhead city to process brucite from the underground White House mine located in the San Francisco district of Mohave County. Brucite, a magnesium hydroxide, will be used for waste water treatment and smoke and flame retardant functional fillers in plastics and coatings. AZCO Mining, better known in Arizona for their previous copper activities, developed the Black Canyon (aka Mica Mule) pegmatite located 30 miles north of Phoenix. It will supply mica for a dry classification and wet grinding facility in Glendale. The ground muscovite will be marketed for functional fillers and strengtheners for industrial coatings, plastics, and cosmetics.

Omya (Pluess Staufer) of Lucerne Valley, California broke ground in June for their \$30 million calcium carbonate processing plant at Superior in Pinal County and is projecting a startup date in June, 2000. Of the 100,000 ton per year capacity two-thirds will be for food grade CaCO<sub>3</sub> additives. Their Queen Creek Limestone mine is continuing to supply mine-run white marble to Mineral Development Inc.'s crushing and screening plant at Queen Creek in Maricopa County. They are in the process of obtaining a new mining plan of operation from the Tonto National Forest for expanded operations at the mine.

Mineral Development Inc. has reported acquisition of property for a new white marble crushing and screening plant to be constructed near Omya's plant in Superior. The plant will replace the company's current facilities at Queen Creek.

Arizona Portland Cement is continuing with their capacity expansion at their Rillito cement plant. When completed in 2003, the plant's capacity will be increased to 2,300,000 tons of cement per year. The initial phase will increase capacity to 1,560,000 tons per year and involves installing a new raw feed roller mill and converting the existing raw feed mill into a finish mill. The second phase requires installing a second pre-calcining tower.

Phoenix Cement Company continues with their planning stage for plant modernization at their Clarkdale operation. Plans include an increase in plant capacity from the current 630,000 tons of cement per year to 1,100,000 tons per year. Phoenix Cement Company is wholly owned by the Salt River Pima - Maricopa Indian Community.

The booming economy is also favorably impacting the flagstone stone industry. The Drake and Ashfork

area's sandstone quarries and dressing plant's in Yavapai County are operating at near capacity. Existing and new operators are continuing to open new quarries, bring idle quarries back into production, and upgrade processing and transportation facilities. Many of Arizona dimension stone producers are family owned smaller operations.

GEMSTONES

Arizona is a leading state in the value of mined gemstones in the United States. Approximately \$4 million worth of commercial gemstone production is reported for Arizona annually. Turquoise, peridot, and petrified wood account for most of the value, with amethyst, chrysocolla, azurite, malachite, and fire agate making up the remainder.

Turquoise, a hydrous phosphate of aluminum and copper, is the leading gemstone produced in Arizona. Prized for its color, turquoise is the traditional gemstone used in Southwestern Native American jewelry. Contractors at a few of Arizona porphyry copper deposits mine it as a by-product. The best quality material is sold by the piece, and the remainder sold or processed for sale by weight. By-product turquoise is produced by Sleeping Beauty Turquoise from the Sleeping Beauty Mine at Pinto Valley. Colbaugh Processing terminated their turquoise mining agreement at the Mineral Park Mine in June and processes only purchased material. Although long known for their turquoise, the Morenci Mine and the deposits at Bisbee are currently yielding very little.

Peridot, the gem variety of the mineral olivine, comes from the Peridot Mesa area of the San Carlos Apache Reservation east of Globe. Arizona material is suitable for faceting and is the finest quality in the world. This deposit accounts for approximately 90 percent of the world's production.

Amethyst from the Four Peaks mine in Maricopa County has been coveted by lapidaries and collectors since the turn of the century. The best quality Four Peaks material is as good as any in the world. Kurt Cavano and Jim Machlan purchased the mine, inactive for over 10 years, in late 1997. The amethyst is mined by hand, flown by helicopter to Mesa (the property is surrounded by the Four Peaks Wilderness Area), and shipped to Bangkok for faceting.

Petrified wood, although occurring in nearly every state, is best known as an Arizona gem material. Petrified wood is a fossil in which a mineral material, usually silica, has replaced the original cellular structure of the wood. Petrified wood occurs in all Arizona counties, but that occurring in Navajo and Apache counties in the Triassic Chinle Formation supplies nearly all of the gem market. Commercial production comes only from private lands.

GOVERNMENT NEWS

The Clinton administration has closed additional areas in Arizona to possible development of mineral resources. In January 2000 the administration created two new National Monuments in areas of known mineral resource potential. They are the Agua Fria National Monument east of I-17 in southeast Yavapai County and Shiviwits National Monument north of the Colorado River in Mohave County. Both monuments were created by Presidential Order without the oversight of Congress or public hearings. One reason stated for their declaration of National Monument status protection for the areas was to prohibit possible mine development of future valuable mineral resources.

The Arizona State Land Department has begun mineral evaluation programs for copper and sand and gravel occurrences on State Trust Lands in a thirty-mile perimeter around the Phoenix – Casa Grande – Tucson development corridor. The study is to provide the Land Department with information that will assist them in maximizing revenue from the Trust Lands that may be subject to eventual preservation related to ‘growing smarter initiative’ and the ‘Arizona preserve initiative.’

Thanks to the cooperation of many county, state, and federal agencies the Arizona State Office of the BLM produced the *Arizona Mining Summit, Guide to Permitting Mining Operations*. This publication makes an excellent scoping document as it includes each permitting agency’s authorizing statutes, estimates of the cost and time to acquire permits, as well as providing contact information.

RECREATIONAL MINING

Gem material, mineral specimens, and fossils collected by the rockhound and small contractors at the mines are not generally included in the reported gemstone production. It is likely that the value of this production is higher than that officially reported for gemstone production. Some portion of rockhound-collected material goes directly into collections, however, much of it and most of the other material collected is sold privately or at gem shows. The gem show in Quartzsite, for example, is the largest in the world, drawing in excess of 100,000 visitors. The prestigious Tucson Gem And Mineral Show attracts dealers and buyers from around the world. More than 25 additional gem shows are held in the state annually and 37 organized earth science clubs are currently active.

Another segment includes gold panners and operators of small suction dredges. Although gold is recovered by nearly all who participate, the recreational value is undoubtedly greater than the value of gold produced. Economic data for recreational mining is difficult to quantify, but the impact on the Arizona tourism industry is significant

SAND AND GRAVEL OPERATIONS

A & A MATERIALS

10333 E. McDowell Road, Scottsdale, AZ 85257 - Phone (480) 990-0557 - Employees: 25 - Landscape materials, granite, river rock, sand, and gravel. President/Owner/Manager..... Arthur H. Adams Vice President..... Raymond A. Adams Vice President..... DeWayne Adams

A-ROCK INC.

P.O. Box 781, Flagstaff, 86002 - Phone (520) 527-0031 - Employees: 12 - Sand and gravel. Manager..... Don Merrick

ABC SAND & ROCK

5401 N. 119th Avenue, Glendale, AZ 85307 - Phone (623) 935-1677 - Employees: 6 - River rock and sand. Owner..... David Waltemath

ACE SAND & GRAVEL

1011 W. Silverlake Rd., Tucson, AZ 85713 - Phone (520) 622-1869 - Employees: 3 - Sand and gravel. Owner..... Delia Gastelum

ACME SAND & GRAVEL

7707 E. 22nd Street, Tucson, AZ 85710 - Phone (520) 296-6231 - Employees: 6 - Sand and gravel, fill, and top soil. Owner..... Flo Kempton

AJAX SAND & GRAVEL

5026 S. 51st Avenue, Laveen, AZ 85339 - Phone (602) 237-3232 - Employees: 2 - Landscaping rock. Owner..... Bert Guinn

ALLECO STONE

10401 S. Miller Road, Buckeye, AZ 85326, P.O. Box 729, Avondale, AZ 85323, Phone (623)386-1148; Fax (623) 386-3755 – www.alleco.com - Employees: 30 – Sand and gravel, stucco sand, ready mix concrete. Facilities Manager..... Micheal Louk Sales..... Mick Greise

ALLISON ROCK & SAND CONSTRUCTION L. Sheldon & Co.

P.O. Box 5065, Huachuca City, AZ 85616 - Phone (520) 456-1521 - Employees: 6 - ABC, sand, leach rock, and topsoil. President..... Loren Sheldon

ARIZONA SAND & GRAVEL

1401 Atlantic Ave., Yuma, AZ 85365 - Phone (520) 344-5577 - Employees: 3 - Sand and gravel. President..... Ernie Kaznak

B & R MATERIALS

4200 S. Harrison Road, P.O. Box 18138, Tucson, AZ 85731 - Phone (520) 298-2371 - Employees: 25 - Sand and gravel. President..... Roland C. Brown Vice President..... Kim Schroeder

BRIMHALL SAND, ROCK, & BUILDING MATERIAL

P.O. Box 750, Snowflake, AZ 85937 - Phone (520) 536-4226 - Employees: 60 - Sand and gravel products. President..... Gary Brimhall Vice President..... Brian Brimhall General Manager..... M. Kirk Brimhall Secretary..... David Brimhall

BULLHEAD CITY MATERIALS OF UNITED METRO

1950 Bullhead Parkway, Bullhead City, AZ 86429 - Phone (520) 763-2355 - Aggregate, ready mix concrete and asphaltic concrete Area Manager..... Phil Malott

CAMPBELL REDI-MIX

1510 Copper Lane, Lake Havasu, AZ 86403 - Phone (520) 855-6535 - Employees: 50 - Sand, gravel, and rock products. Owner..... Delbert Campbell

CEMEX USA - ARIZONA

Executive Office, 2625 S. 19th Ave., Phoenix, AZ 85009 - Phone (602) 416-2600 - Fax (602) 495-1672 - www.cemexusa.com - Employees: 300 Sand, gravel, rock products, and ready mix concrete. Aggregate Plant Operations Manager ..... Dan Mcquade Concrete Operations Manager ..... Phillip Robinson **El Mirage Plant 21** 4515 N. El Mirage Road, Glendale, AZ 85340 - Phone (623) 935-7767 **West Plant 62 and 72** 11701 W. Indian School Road, Phoenix, AZ 85037 - Phone (623) 877-2411 **North Plant 63** 21001 N 7th Street, Phoenix, AZ 85024 - Phone (623) 582-4436 **Sun City Plant 67 and 77** 24004 N. 107th Avenue, Sun City, AZ 85373 - Phone (623) 566-1851 **Mesa Plant 61 and 71** 1901 N. Alma School Road, Mesa, AZ 85201 - Phone (480) 898-8230

P.O. Box 327, Winkelman, AZ 85292 - Phone (520) 357-7002 - Gypsum quarry - Gypsum for Arizona Portland Cement Plant at Rillito and agricultural uses. Superintendent ..... John Nevitt

**WESTERN GYPSUM INC.**  
225 N. Bluff Street, Suite 5, St. George, UT 84770, P.O. Box 850, St. George, UT 84771 - Phone (435) 628-3916 - Fax (435) 628-4441 - Employees: 21.  
President ..... Don Cecala  
Mine Superintendent ..... Kenny Thompson  
Office Manager ..... Matina Harward  
**Snowflake Gypsum Mine** T41N R13W Sec. 25  
Open pit gypsum mines - Primary and secondary crushing and screening plant - 100 TPD Raymond roller mill fine grinding plant and loading terminal at Apex, Nevada - Supplies the cement, plaster products, wall board, and fertilizer industries.

**WESTERN ORGANICS INC.**  
420 East Southern, Tempe, AZ 85282, P.O. Box 25406, Tempe, AZ 85285-5406 - Phone (480) 966-4442 - Plant located at 27th Avenue and Lower Buckeye Road in Phoenix - Phone (602) 269-5756 - Fax (602) 269-7621 - Employees: 100.  
President ..... James Porter  
Vice President/Operations Manager ..... D. C. Porter  
Sales Manager ..... Dave Diehnelt  
Office Manager ..... Adrian Cluff  
Controller ..... David Hancock  
**Salome Gypsum Mine** T5N R11W Sec. 30  
Open pit gypsum mine operated by contractors - Gypsum for agricultural and horticultural uses, bagged and bulk - Used directly and in blends.

**COMPANY LISTING**

The following list is arranged alphabetically by company. Use the index to locate a specific mine

**ADIT CANYON L.L.C.**  
P.O. Box 1049, Mammoth, AZ 85618 - Phone (520) 385-2515 - Employees: 5  
President ..... Ward Seiburt  
Operations ..... Rich Gilliland  
**White Cliffs Diatomite** T9S R17E Sec. 24  
Open pit diatomaceous earth mine and processing plant. Used for agricultural feed supplements, insecticide carries, fillers, metallurgical insulation, , and as a silica source.

**ALL STAR MATERIALS CORP.**  
Main Office: 9031 S. I-10 Freeway, Guadalupe, AZ 85282 - Phone (480) 839-1442 - Fax (480) 730-5049  
Display Yard: 7243 N. El Mirage Road, Glendale, AZ 85307 - Phone (623) 535-1219 - Fax (623) 535-1205 - Employees: 57 - www.allstarmat.com/  
Operations Manager ..... Sam Schippers  
**South Mountain Granite Pit** T1S N R2E Sec. 15  
Granite quarry - Granite boulders and crushed and screened gray-green granite for landscaping. ABC produced as a byproduct.

**AMERICAN SANDSTONE**  
Blaser Corporation  
2600 N. Highway 89, P.O. Box 1154, Chino Valley, AZ 86323 - Phone (520) 636-4454 - Fax (520) 636-2780 - (800) 331-4220 - Employees: 160 - Quarries and processes Arizona flagstone into flagging, dimension stone, and tiles.  
President ..... Donald Blaser  
Vice President ..... W. Larry Blaser  
Sec./Treas. & Mgr. Operations - Orders ..... Dayle Blaser  
Superintendent - Mining ..... Jim Baker  
Transportation Coordination ..... Marcia Stewart  
**Blaser Stoneyards:**  
2600 N. Highway 89, Chino Valley  
900 W. Lewis, Ash Fork  
**Black Cat Quarries** T22N R1W Sec. 17  
**Little Rock Quarry** T22N R2W Sec. 24  
**Lizard Canyon Quarry** T20N R1E Sec. 32  
**Red Rock Quarry** T22N R1W Sec. 20  
**Golden Buckskin** T19N R2E Sec. 19, 20, 29, 30  
**Cucamonga Quarries** T22N R1W Sec. 9  
**Trick Tank Quarries** T23N Sec. 26  
**Bunker Quarries** T23N R2W Sec. 24  
**Geronimo Quarries** T23N R2W Sec. 2  
**Mills Quarries** T19N R2W Sec. 4 and 9  
**Santa Cruz Quarries** T22N R2W Sec. 12

**Yellow Horse Quarries** T23W R2W Sec. 14  
**Coconino Quarries** T23N R2W Sec. 22  
**Red Bird Quarries** T20N R1E Sec. 32  
**Apache Quarry** T23N R2W Sec. 24

**ANASAZI COMPANY**  
7486 E. Adobe Drive, Scottsdale, AZ 85255 - Phone (480) 585-9882 - Fax (480) 585-9884 - Employees: 25 - Operates flagstone quarries in Coconino County and slate quarry in Maricopa County - Fabrication yard in Scottsdale - Marketed in the United States and Asia.  
Co-owner & Fabrication Manager ..... Grady Dawe  
Co-owner & Mining Supervisor ..... Neil Cowie  
**Anasazi Stoneyard** T4N R4E Sec. 14  
**New River Slate Quarry** T7N R3E Sec. 5  
**Rattlesnake Quarries** T20N R1E Sec. 19  
**Sidewinder Quarries** T23N R2W Sec. 36

**APACHE STONE DIVISION**  
Halquist Stone Co. Inc.  
22040 N. 21st Ave., Phoenix, AZ 85027 - Phone (602) 267-8658 - Employees: 9 (including contractors) - www.halquiststone.com - Quarries located near Mayer - Schist and onyx marble quarries - Landscape boulders, building and dimension stone.  
President ..... Perry Halquist  
Manager ..... Wayne Evans  
**Blue Bell Schist Quarry** T11.5N R1E Sec. 24  
**Rainbow Schist Quarry** T12N R1E Sec. 23  
**Echo Green Quarry** T12N R2E Sec. 7 & 18  
**Brown Dog Quarry** T12N R1E Sec. 15

**APPLIED CHEMICAL MAGNESIAS CORP.**  
P.O. Box 270941, Fort Collins, Colorado 80527 - Phone (979) 223-7790, (800) 397-1210 - Fax (970) 223-7755 - http://magnesias.com  
President / CEO ..... Bob McCreless  
**Processing Plant**  
2011 Platta Caleta, Bullhead City, P.O. Box 22303  
Bullhead City, AZ 86439 - Employees: 15 (including contractors)  
40,000 tpy mill - Size reduction and classification of magnesium hydroxide for waste water treatment and smoke and flame retardent functional fillers in plastics and coatings.  
**White House Mine** T19N R20W Sec. 7  
Underground brucite mine - mining by independent contractor.  
Plant Manager ..... Bob Main  
Mine Superintendent ..... Ben File

## ARIZONA OXIDES

12519 W. Butler Drive, El Mirage, AZ 85335 - Phone (623) 935-9350, (800) 576-1500 - Fax (623) 935-9365 - [www.arizonaoxides.com](http://www.arizonaoxides.com) - Employees: 24

President ..... David C. Lincoln  
Executive V. President & Gen. Mgr. .... Vincent Scott  
Sales and Distribution Mgr. .... Jerry Spinner  
Plant Manager ..... Dan Dunn  
Production Manager. .... Steve Licano  
Technical Director ..... Barbara Penunuri

### Processing Plant

Grinding and sizing plant reduces crude hematite to red iron oxide pigment; grinds and blends synthetic iron oxide pigments produced by others - Used in paints, plastics, concrete products and as a mold release in castings.

**Iron Chancellor Mine** T20N R6W Sec. 22

Open pit and underground hematite pigment mine - Mining by contractors.

## ARIZONA PORTLAND CEMENT COMPANY

### State Sales Office

2400 N. Central, Suite 308, Phoenix, AZ 85004 - Phone (602) 271-0069 - Fax (602) 254-9027 - (800) 462-475 - [www.calportland.com](http://www.calportland.com).

Executive V. President & Gen. Mgr. .... Vaughn S. Corley  
Vice President, Sales ..... Craig Starkey

**Twin Peaks Quarry** T12S R11E Sec. 26

**Rillito Plant** T12S, R12E, Sec. 6

P.O. Box 338, Rillito, AZ 85654 - Phone (520) 682-2221 - Employees: 150 - Limestone quarry 5 miles west of plant - Cement plant - Capacity 1,150,000 TPY - Permits received to expand capacity to 2,300,000 TPY by 2003.

Plant Manager ..... Dave Bittel  
Quality Control Superintendent ..... John Bartolucci  
Quality Control Supervisor ..... Bill Phillips  
Plant Engineer ..... Russell Hawks  
Personnel Manager ..... Mardi Nagy  
Quarry Supervisor ..... Chuck Hansen  
Environmental Manager ..... Janelle Kennedy  
Purchasing Agent ..... Tom Follett

## ARIZONA SILICA SAND COMPANY

P.O. Box 2108, Houck, AZ 86506 - Phone (520) 688-2602 - Fax (520) 688-2607 - Employees: 18 - Plant south of Houck - Hydrafrac sand for oil well treatment - Abrasives and mold sand - Markets in Arizona, California, and New Mexico - Bagged and bulk products available.

President ..... Robert D. Fisher  
General Manager ..... James Burkewitz  
Foreman ..... Ralph Nelson  
Evening Foreman ..... Robert Castillo  
**Houck Silica Sand** T22N R29E Sec. 29  
Open pit hydrafrac sand mine.

## ASARCO INCORPORATED

*A subsidiary of Grupo Mexico, S.A. de C.V.*

### Tucson Office

1150 N. 7th Avenue, Tucson, AZ 85705, Phone (520) 798-7500 - Fax (520) 798-7781 - [www.asarco.com](http://www.asarco.com)

### Asarco Copper Operations

President and COO ..... Xavier Garcia de Quevedo  
Assistant to the President ..... T.E. Scartaccini  
Divisional Environmental Mgr. .... D.M. Yantorno  
Director of Purchasing ..... Roy Alvarado  
Chief Geologist ..... Fred Graybeal  
Mineral Discovery Center Manager ..... R.W. Vugteveen

### Project Development

Manager Development,  
Projects & Services ..... D.C. Dixon, Jr.

### Human Resources

Vice President ..... Brian P. Boylan

### Treasurer's Department

Finance Vice President ..... Genaro Guerrero  
Treasury Senior Manager ..... H.W. Tuck  
**Sulfuric Acid**

Manager Sulfuric Acid ..... Greg S. Meade

### Governmental Affairs

Vice President, Gov. & Public Affairs .... D.E. McAllister  
Director, State Legislative Affairs ..... R.E. Quick

### Information Systems

Director ..... J. Guillermo Ardon

**Mission Mine** T16S R12E Sec. 36

Box 111, Sahuarita, AZ 85629 - 4201 W. Pima Rd. -

Phone (520) 648-2500 - Fax (520) 648-0802 -

Employees: 905 - Open pit copper mine - Underground copper mine - Two concentrators: Mission and South - Total capacity 63,000 TPD.

General Manager ..... John D. Low  
Operations Manager ..... J.B. Lichtenhan  
Mine Manager ..... S.L. Lakosky  
Chief Engineer ..... B.M. Williams  
Senior Geologist ..... R.B. Cummings  
Mill Manager, Mission ..... S.D. Lawrence  
Mill Manager, South ..... D.E. Fisbeck  
Financial Manager ..... D.J. Hoffman  
Industrial Relations Manager ..... J.F. Coxon  
Electrical Manager ..... J.B. Barton  
Safety Administrator ..... R.E. Jordan  
Sr. Environmental Engineer ..... A.T. Cooper  
Technical Services Manager ..... C.A. Carroll  
**Santa Cruz** T6S R4E, Sec. 13

P O Box 5747, Tucson, AZ 85703-0747 - Phone (520) 798-7500 Fax - (520) 798-7783.

Experimental in-situ copper leach - SX-EW plant. On stand-by.

**Santa Cruz Manager** ..... T.E. Scartaccini  
Site Manager ..... H.G. Kreis

**Silver Bell Mining L.L.C.** (25% Mitsui & Co.)

**Silver Bell** T12S R8E Sec. 11

## Süd-CHEMIE PERFORMANCE PACKAGING

(Formerly United Desiccants, Inc.)

Corporate Headquarters - P.O. Box 32370, Louisville, KY 40232 - Phone (502) 634-7200 - Processing plant c/o United Desiccants, 101 Christine Drive, Belen, NM 87002 - Phone (505) 864-6691 -

[www.uniteddesiccants.com](http://www.uniteddesiccants.com), [www.sued-chemie.de](http://www.sued-chemie.de)

Vice President (Louisville) ..... Bill Monin  
Global Business Unit Mgr. (Belen) ..... Klaus Langer  
Vice President (Belen) ..... Currently Vacant  
Technical Director (Belen) ..... Steve Shannon  
Marketing Manager (Belen) ..... Randall Taussig  
**Cheto No. 1** T21N R29E Sec. 23

Employees: 6 - Located 6 miles southeast of Sanders in northeastern Arizona - Strip bentonite mine - Seasonal operation by mining contractors - Low swelling bentonite is shipped to Belen, New Mexico for the production of desiccants.

## SUPERIOR MARBLE LLC

21555 East Ocotillo, Queen Creek, AZ 85242 - Phone (480) 987-1916 - Fax (480) 987-1917 -

[www.superiormarble.com](http://www.superiormarble.com) - Employees: 20.

### Queen Creek Marble Processing Plant

Marble crushing and screening plant - Used for landscape, plaster, feed supplements, texture sand for EFIS wall systems, and specialty aggregate.

President ..... Mike Smith  
Vice President ..... Gary Smith  
Plant Manager ..... Bruce Carter  
Sales ..... Rick Erman  
Office Manager ..... Linda Carter

## SUPERLITE BLOCK COMPANY

4150 W. Turney, P.O. Box 23163, Phoenix, AZ 85063 - Phone (602) 269-3561.

President ..... Cameron Klein  
**Darling Cinder Pit** T21N R9E Sec. 2

P.O. Box 30956, Flagstaff, AZ 86003-0956 - Phone (520) 526-5499 - Employees: 6 - Open pit cinder mine east of Flagstaff - Volcanic cinders used to make building block at the Phoenix and Mesa plants.  
Mine Superintendent ..... Terry Mitchell

## 3 WINS QUARRIES

P.O. Box 3794, Riverside, CA 92519 - Phone (909) 681-0681 - Employees: 16.

Owner/General Manager ..... Richard Gutierrez  
**M C Canyon Quarries** T19N R1E Sec. 23

Sandstone quarries located 8 miles northeast of Drake - Stone processing plant located at Drake - Sandstone quarried for flagstone.

## T & C ENTERPRISES

### Stone Fabrication Plant

State Road 277 West, Snowflake, AZ 85937, P.O. Box 832, Taylor, 85939 - Phone (520) 536-4944 - Employees: 4 - Quarries picture sandstone.  
President ..... Howard Thomas  
**Sierra Quarry** T12N R20E Sec. 20

## TREASURE CHEST GRANITE PIT, INC.

P.O. Box 4795, Apache Junction, AZ 85278-4795 - Phone (480) 983-1606 - Employees: 8 - Produces screened granite.

General Manager ..... P.J. Patton  
**Treasure Chest Granite Quarry** T1N R8E Sec. 3

## TUFFLITE INC.

2432 W. Peoria, Suite 1081, Phoenix, AZ 85029 - Phone (623) 931-3681 (800) 942-6368 - Fax (602) 943-9227 - Yard located at 6856 W. Orangewood, Glendale - Employees: 20.

President ..... C. T. Morgan  
Vice President/Mine Manager (Flagstaff) .... Ed Morgan  
Secretary/Treasurer ..... Clay Morgan  
Orders and Transportation ..... Maureen Dunn  
Sales Manager ..... Tim Doyle

**Crown Claims** T23N R7E Sec. several

**More Sand, Moon Sand** T23N R7E Sec. 24

**White Vulcan** T23N R8E Sec. 19

Mines located 12 miles north of Flagstaff - Pozzolanitic pumice quarries - 10,000 yards/month - Used in making lightweight ready mix and block and in the preparation of stone washed denim and in horticultural preparations.

## UOP

P.O. Box 2790, Grand Junction, CO 81502 - Phone (970) 245-7957.

Senior Mining Engineer ..... Jim Kirchner  
**Bowie Chabazite** T11S R28E & T11S R29E

Open pit zeolite mines operated by contract mining company - Chabazite used for specialty adsorbents .

**Union Pass Mordenite** T21N R20W Sec. 11

Open pit zeolite mines operated by contract mining company - Mordenite used for specialty adsorbents.

## UNITED METRO MATERIALS, INC.

dba Superior Materials

701 N. 44th Street, Phoenix, AZ 85008, P.O. Box 52140, Phoenix, AZ 85072 - Phone (602) 220-5000 - (Also see listing under Sand and Gravel Operators)

President ..... John Fowler  
Vice President Sales ..... Bill Heeter  
Vice President Operations ..... Gary Nielson  
Contact (Superior Materials) ..... George Davis  
Chief Engineer ..... Bill Peck  
Contact (Superior Materials) ..... Don Fischer  
Director Safety & Labor Relations ..... David Chavez  
**Winkelman Gypsum** T6S R16E Sec. 27

Manager of Logistics .....Cliff Ayres  
Purchasing/Stores..... Bill Ayres  
Environmental Engineer .....Floyd Fusselman  
**Verde Gypsum T13N R5E Sec. 11**  
P.O. Box 786, Camp Verde, AZ 86322 - Phone (520) 567-3854 - Gypsum and clay quarry five miles east of Camp Verde on State Highway 260 - Supplies gypsum to cement plant at Clarkdale, also agricultural and horticultural uses - Clay for pond, ditch, and liner uses.  
Foreman .....Bruce McDonald

#### **PINAL GYPSUM**

P.O. Box 99, Coolidge, AZ 85228 - Phone (520) 723-3131 - Fax (520) 723-9711 - Employees: 10.  
President and General Manager ..... James Bechtel  
Orders and Transportation ..... Lee Skiles  
Office Manager ..... Zora Bechtel  
**White Cross Mine T7S R17E Sec. 31**  
Agricultural gypsum - Company processes, delivers and applies gypsum to crop land and golf courses.

#### **PRESCOTT VALLEY GRANITE**

HC 61, Box 1188, Dewey, AZ 86327 - Phone (520) 632-8204 - Employees: 2.  
Owner/Operator .....Ed Respondek  
Partner ..... Joe Raleigh  
**Prescott Valley Granite Pit T14N R2E Sec. 33**  
Quarry located 5 miles north east of Dewey north of Highway 169 - Decomposed and crushed granite for desert landscaping.

#### **RED MOUNTAIN MINING INC.**

4250 North Bush Highway, Mesa, AZ 85215 - Phone (480) 832-3390 Employees: 38.  
Owner .....D. Lavoy Adams  
**Red Mountain Quarry T2N R6E Sec. 24**  
Quarry located 10 miles north east of Mesa - Boulders, broken and crushed granite for desert landscaping.

#### **ROCK RESOURCES**

**Office and Stone Yard**  
21401 N. Seventh Street, Phoenix, AZ 85024 - Phone (623) 780-0333 - Fax (623) 780-0336 -  
www.rockresourcesaz.com - Employees: 67  
President ..... Steve Richards  
V.P. Operations..... James Bond  
V.P. Sales.....Mike Hitchman  
**Design and Display Center**  
15815 N. Frank Lloyd Wright Blvd., Scottsdale, AZ 85260  
**Stone Yard**  
15315 S. Higley, Gilbert, AZ 85236 - Phone (480) 988-4314 - Fax (480) 988-4314  
**Congress Quarry T10N R6W Sec. 4**  
Surface landscape rocks and boulders  
Quarry Operation Manager..... Robert Bixler

#### **SILICA MINES INC.**

P.O. Box 332, Oracle, AZ 85623 - Phone (520) 896-2245 - Employees: 12.  
President .....Dave McGee  
General Superintendent ..... Pete Ruiz, Jr.  
**Gold Hill Mine T10S R15E Sec. 5**  
Open pit mine - Located 6 miles southwest of Oracle - Copper bearing silica flux for Asarco's Hayden copper smelter - Decorative rock for landscaping.

#### **SLEEPING BEAUTY TURQUOISE**

P.O. Box 111, Globe, AZ 85502 - Phone (520) 425-7625 or 425-0446 - Fax (520) 425-0638 -  
www.sbturquoise.com - Employees: 45.  
President ..... Monty Nichols  
Sales ..... Dan Courvoisier  
**Sleeping Beauty Mine T1N R14E Sec. 12**  
Produces turquoise under contract with BHP Copper - Sorts, grades, and processes turquoise for worldwide distribution.

#### **SOUTHWESTERN STONE**

18 S. Main, P.O. Box 454, Taylor, AZ 85939 - Phone (520) 536-4912 - Employees: 12 - Quarries sandstone - Fabricates building and patio stone - Diamond saws tiles and decorative objects.  
Owners/Operator .....Lee and Barbara Chartrand  
General Manager..... Denise Chartrand  
Foreman ..... Pat Denetso  
**Sierra Quarry T12N R20E Sec. 20**  
**Arizona Picture Rock Quarry T11N R14E Sec. 3**  
**Brown Quarry T15N R19E Sec. 31**  
**Buckskin Quarry T17N R21E Sec. 30**  
**Arizona Gold T14N R21E Sec 25**

#### **STAR VALLEY GRANITE & MATERIALS**

Star Valley, HC5 Box 43B, Payson, AZ 85541 - Phone (520) 474-9396 - Employees: 3 - Quarries and processes decomposed granite.  
Owner/Operator..... Roy Haught  
**Star Valley Granite Quarry T11N R11E Sec. 31**

#### **STONE SUPPLY**

P.O. Box 685, Mayer, AZ 856333 - Phone (520) 632-9325 - Fax (520) 632-4985 - Employees: 4 - Quarries located near Mayer and Cordes. - Quarry and process travertine onyx, jasper, granite, schist, river run sand and gravel, and landscape cobbles.  
Owner/Operator.....Bruce Bennett  
Marketing.....Dale Bennett  
**Copper Mountain Quarry T12N R2E Sec. 18**  
**Bloody Basin Green Granite T11N R11E Sec. 31**  
**Mayer Onyx Quarry T12N R1E Sec. 12**

25000 W. Avra Valley Rd., Marana, AZ 85653 - Phone (520) 682-2420 - Fax (520) 682-2347 - Employees: 112 - Open-pit copper mine - SX-EW plant - Capacity 36 million lb. per year.  
Operations Manager .....D.J. Duncan  
Mine Manager ..... T.H. Phillips  
SX-EW Manager .....R.V. Washnock  
General Mine Supervisor ..... Wade Malone  
General SX-EW Supervisor ..... Brandon Beard  
Chief Engineer ..... H.T. Richins  
General Electrical Supervisor ..... M. Canez  
General Maintenance Supervisor ..... John Hazen  
Safety Engineer ..... R.W. Edgell  
Environmental Engineer.....Kathy Arnold  
**Ray T3S R13E Sec. 10**  
**Hayden Operations & Smelter T5S R15E Sec. 11**  
Ray Complex, P.O. Box 8, Hayden, AZ 85235 - Phone (520) 356-7811 - Fax (520) 356-3802 - Employees: 1,504 - Open pit copper mine - Dump leach - Heap leach - SX-EW plant - Capacity 80 million lb. per year - Two concentrators: Ray rated at 32,000 TPD and Hayden rated at 28,000 TPD - Smelter capacity 720,000 TPY and 1,600 TPD acid plant.  
General Manager ..... T.E. Erskine  
Manager of Mining ..... G.R. Burns  
Manager of Metallurgy..... J.A. Wilhelm  
Technical Support Manager.....R.E. Thompson  
SX-EW Manager..... R.S. Rhoades  
Environmental Services Manager ..... N.A. Gambell  
Ray Concentrator Manager..... S.A. McGhee  
Hayden Concentrator Manager ..... G.L. Lubers  
Electrical Manager, Ray ..... J.L. Weller  
Electrical Manager, Hayden ..... G.T. Coryell  
Maintenance Manager, Ray ..... D.R. McKee  
Maintenance Manager, Hayden ..... Hugh Alexander  
Support Manager.....J.W. Murphy  
Human Resources Manager ..... R.Y. Estrada  
Materials Manager ..... K.C. Newnam  
Engineering Manager ..... D.J. Cooke  
Project Manager ..... D.J. Cooke

#### **AZCO MICA, INC.**

7239 N. El Mirage Road, Glendale, AZ 85307 - Phone (623) 935-0774 - Fax (623) 935-0781 - www.azco.com - Employees: 15.  
Mica processing plant -Wet ground muscovite mica for functional fillers and strengtheners for industrial coatings, plastics, and cosmetics.  
President ..... Allen T. Lindsaay  
Vice President of Operations ..... Gary Zimmerman  
Marketing Director..... John Rud  
Plant Manager ..... Currently Vacant  
Mine Manager.....Fred Brost  
**Black Canyon Mica Mine T8N R2E Sec. 7**  
Open pit pegmatite mica mine - primary and secondary crusher and concentrator.

#### **BHP COPPER**

7400 N. Oracle Road , Tucson, AZ 85704 Phone (520) 575-5600 Fax (520) 575-5663 - www.bhp.com.au  
**Houston Office**  
1360 Post Oak Blvd., Suite 500, Houston, TX 77056-3020 Phone (713)961-8500 Fax (713)961-8400.  
Executive General Manager.....Jim E. Lewis  
**Florence**  
14601 East Hunt Highway, Florence, AZ 85232 - Phone (520) 868-5094 - In-situ leach and solvent extraction-electrowinning plant - Permitted, awaiting start-up.  
Project Manager ..... John Kuhn  
**Pinto Valley Operations T1N R14E Sec. 20**  
**Miami T1N R15E Sec. 19**  
P.O. Box 100, Miami, AZ 85539 - Phone (520) 473-6200 - Employees: 183 - Open pit copper-molybdenum mine - 63,000 TPD concentrator - Dump leach - SX-EW plant - Capacity 22 million lb. per year - Miami in-situ leach - Miami No. 2 tailings reclaim leach - SX-EW plant - Capacity 25 million lb. per year. Sulfide operations on standby.  
Operations Manager .....Jack D. Conklin  
**San Manuel T8S R16E Sec. 34, 35**  
P.O. Box M, San Manuel, AZ 85631 - Phone (520) 385-3100 - San Manuel and Kalamazoo underground copper-molybdenum mines - 62,000 TPD concentrator - In-situ leach - SX-EW plant - Capacity 120 million lb. per year. On stand-by except in-situ.  
Vice President & Gen. Manager .....Ron Allum  
Manager Sulfide/Oxide Mining ..... Jon Graham  
Mgr. Concentrator ..... Gerald R. Brunskill  
Superintendent SX-EW ..... Joel Witt  
**BHP Copper Metals**  
**San Manuel Smelter T9S R17E Sec. 32**  
P.O. Box M, San Manuel, AZ 85631 - Phone (520) 385-3100 - 1,300,000 TPY flash smelter - 1,150,000 TPY acid plant - 345,000 TPY electrolytic refinery - 180,000 TPY continuous cast rod plant. On stand-by.  
Vice President & General Manager,  
Metals Operation .....Ken Driggs  
Vice President Operations .....Ron Allum

#### **BLACK CANYON MILLING**

P.O. Box 33638, Phoenix, AZ 85067 - Phone (623) 374-5547.  
**Black Canyon Mill T8N R2E Sec. 15**  
Mill located one half mile south of Rock Springs, west of Interstate 17 - 3-ton-per-hour gravity mill consisting of crushing, grinding, magnetic separation, and table and cone concentration.  
Owner/Manager ..... Bill Schleisman

## OMYA (ARIZONA), INC.

### Corporate Office

P.O. Box 825, Lucern Valley, CA 92356 - (800) 222-0120 - [www.omya.com](http://www.omya.com).

President (California) ..... Jim Reddy

Geologist (California) ..... Howard Brown

### Omya Arizona Plant

6 N. Mesquite Road, Superior, AZ 85273 - Phone (520) 689-0109 - Fax (520) 689-5332 - Plant under construction. Startup planned for May 2000 - Marble processing plant to produce powdered calcium carbonate for chemical and functional filler uses in pharmaceuticals, food, industrial, construction, and building products.

Plant manager ..... Steve Pain

**Queen Creek Marble Quarry** T1S R13E Sec. 17

Employees: 5 - Marble quarry - Primary crushing and screening plant.

Quarry Manager ..... Larry Steingasser

## OUTLAND RESOURCES INC.

2260 E. Andy Devine, Kingman, AZ 86401 - Phone (520) 753-1444 - Employees: 8 (plus contracted services).

President ..... Patti Lewis

**Seligman Quarry** T23N R6W Sec. 32

**Shipley Pit** T25N R10W Sec. 28

Produces dolomite, sandstone, and natural colored aggregates for landscape and specialty aggregate.

## PEABODY GROUP

701 Market Street, Suite 825, St. Louis, Missouri 631010-1826, Phone (314) 342-3400 - [www.peabodygroup.com](http://www.peabodygroup.com)

### Arizona Business Unit

P.O. Box 605, Kayenta, AZ 86033 - Phone (520) 677-3201.

Manager, Coal Operations ..... Charles J. Stenftenagel

Manager, Reclamation & Local Affairs ..... Brian Dunfee

General Manager ..... C. Scott Williams

Manager, Information Services ..... Douglas G. Botone

Mgr. Safety and Training ..... William K. Bippus

Ariz. Business Unit Controller ..... Charles W. Tilly

**Black Mesa Mine** T35N R18E Sec. 5

P.O. Box 605, Kayenta, AZ 86033 - Phone (520) 677-5040 - Employees: 331 - Surface coal mine - Located approximately 30 miles southwest of Kayenta.

Mine Manager ..... Buck R. Woodward

Production Mgr., 1st Shift ..... Barry L. Grass

Production Supt., 2nd Shift ..... Paul C. Yazzie

Production Supt., 3rd Shift ..... Tim Kozela

Safety Supervisor ..... Keith Grass

**Kayenta Mine** T36N R18E Sec. 9

P.O. Box 605, Kayenta, AZ 86033 - Phone (520) 677-5008 - Employees: 511 - Surface coal mine - Located 30 miles southwest of Kayenta.

Mine Manager ..... D. Scott Pearson

Production Mgr., 1st Shift ..... Alan Gough

Production Supt., 2nd Shift ..... Randall L. Hendrix

Production Supt., 3rd Shift ..... Jonas Grass

Safety Supervisor ..... Daniel Ashike

## PHELPS DODGE CORPORATION

*In November of this year Phelps Dodge acquired Cyprus Amax.*

### Corporate Headquarters

2600 N. Central Ave., Phoenix, AZ 85004-3014 - Phone (602) 234-8100 - [www.phelpsdodge.com](http://www.phelpsdodge.com)

Chairman, & CEO ..... D.C. Yearley

President & COO ..... J.S. Whisler

Senior Vice President and

President, Phelps Dodge International ..... M.J. Iraola

Senior Vice President and

President, Phelps Dodge Mining Company ..... T.R. Snider

Senior Vice President

Organization Development & IT ..... D.L. Pulatie

Senior Vice President & CFO ..... R.G. Peru

Senior Vice President & General Counsel ..... S.D. Colton

### Phelps Dodge Mining Company

2600 N. Central Ave., Phoenix, AZ 85004-3014 - Phone (602) 234-8100.

President ..... T. R. Snider

Senior Vice President, Development & President,

Climax Molybdenum Co. .... D.E. Bartlett

Senior Vice President,

South American Operations ..... G. A. Loving

Vice President, Exploration ..... A.L. Lawrence

Vice President, Morenci ..... H.M. Conger

Vice President, Engineering ..... W.S. Brack

Vice President, New Mexico Operations ..... D.H. Thornton

Vice President & Controller ..... J.M. McCarty

Vice President, Supply Strategy ..... M.F. Upton

Vice President, Technology ..... J.O. Marsden

Vice President,

Business & Operational Analysis ..... L.A. Shonk

### Phelps Dodge Exploration Corporation

2600 N. Central Ave., Phoenix, AZ 85004-3014 - Phone (602) 234-8100.

President ..... A.L. Lawrence

Counsel ..... L.D. Milner

**New Cornelia** T12S R6W Sec. 23, 26, 27

P.O. Drawer 9, Ajo, AZ 85321 - Phone (520) 387-7451 -

Employees: 22 - Copper mine - Permitting &

development.

President ..... A.J. Broderick

### Safford District

625 Main Street, Safford, AZ 85546 - Phone (520) 428-8720 Mine plan of operations/land exchange underway.

Project Manager ..... E.M. Schern

**United Verde Mine** T16N R2E Sec. 22

Zinc exploration joint-venture with Cominco - Located

at Jerome, AZ - Phone (520) 634-2622.

## CYPRUS CLIMAX METALS COMPANY

*In November of this year Phelps Dodge acquired Cyprus Amax. See Phelps Dodge for listing.*

## DRAKE STONE PRODUCTS

P.O. Box 11676, Prescott, AZ 86304 - Phone (520) 445-3028 - Fax (520) 717-1359 - Employees: 118 - Stone processing plant at Drake and Ash Fork - Quarries and processes flagstone into flagging, dimension stone, tiles, and specialty landscape shapes.

Co-owner/Operator ..... Harley Gray Jr.

Co-owner ..... Deborah Gray

**Rock House Quarry** T19N R1E Sec. 10

**M C Quarry** T19N R1E Sec. 35

**May West Quarry** T23N R2W Sec. 36

**Fitzgerald Quarry** T22n R1W Sec. 20

## DUNBAR STONE COMPANY

901 Lewis, P.O. Box 246, Ash Fork, AZ 86320 - Phone (520) 637- 2591 or (520) 637-2592 - Fax (520) 637-2355 - Employees: 85 - Flagstone, marble, quartzite, and schist quarries - Located in Coconino, Maricopa, Mohave, and Yavapai Counties - Operates over 60 quarries intermittently on an as-needed basis - Produces flagging, dimension stone, and tiles.

**Dunbar Stone Plant** T21N R2W Sec. 3

President ..... Gerry E. Dunbar

Vice President ..... W. B. Dunbar

Maintenance Superintendent ..... Ron Dunbar

Office Manager & Transportation ..... Leslie Tooley

## EARTH PRODUCTS

dba Coast To Coast Home & Garden

7563 E. Highway 69, Prescott Valley, AZ 86314 - Phone (520) 772-6446 - Employees: 3 - Granite quarry for landscape uses - Crushing and sizing plant.

President ..... William H. Hyslip

Superintendent ..... Scott Glattfelder

**Granite Quarry** T13N R2E Sec. 5

## ELIAS CLAY COMPANY

P.O. Box 10449, Casa Grande, AZ 85230 - Phone 1-888-581-2529 - Fax (520) 876-0994 - Employees: 2 - Open pit clay mine on south side of Santa Cruz River at Friendly Corners - Clay for furnace linings, sports surfaces, construction products, terra cotta, and linings - Markets in Arizona, California, and New Mexico.

Owner-Operator ..... Earnesto Elias

**Gee Clay** T9S R7E Sec. 35

Open pit clay mine

## ENGELHARD CORPORATION

Chemical Division

Box 155, Sanders, AZ 86512 - Phone (520) 521-5468 -

Fax (520) 521-3796 - Employees: 8.

**Cheto No. 2** T21N R29E Sec. 23

Located 6 miles southeast of Sanders - Surface strip bentonite mine - Primary use is in filters and catalysts, also agriculture and desiccants - Shipped to Mississippi for processing.

General Superintendent ..... Perry Skersick

## EQUATORIAL MINING NORTH AMERICA INC.

1430 E. Fort Lowell Rd. #200, Tucson, AZ 85719-2366 (520) 327-6171 - [www.equatorial.com.au](http://www.equatorial.com.au)

### Equatorial Mineral Park

HC 37 Box 500, Kingman, AZ 86401 - Phone (520)

565-2226 - Employees: 27.

**Mineral Park** T23N R17W Sec. 19

Located 16 miles north of Kingman - Dump and bench leach copper mine - SX-EW plant.

Plant Supervisor ..... Joey Matthews

Environmental Coordinator ..... Brian Henderson

## FLAGSTAFF CINDER SALES INC.

Old Highway 66 East, P.O. Box 2415, Flagstaff, AZ 86003 - Phone (520) 526-0801 - Fax (520) 526-6580 - [www.flagcinder.com](http://www.flagcinder.com) - Employees: 12

President ..... Mary Lou Olivier

General Manager ..... Rob Olivier

**Wildcat Hill Pit** T21N R8E Sec. 9

Located 1.5 miles east of Flagstaff Mall - Cinder quarry

- Used for aggregate, landscaping, and construction materials.

## GEORGIA MARBLE COMPANY OF ARIZONA

P.O. Box 759, Sahuarita, AZ 85629 - Phone (520) 625-6040, 1-800-952-2769 - Fax (520) 625-0388 - [www.georgiamarble.com](http://www.georgiamarble.com) - Employees: 16.

Plant Manager ..... Jay Kown

Office Manager ..... Susan Jansen

Sales ..... Carl Cuthbertson

**Davidson Quarry** T17S R17E Sec. 19

Marble quarry - Crushing and grinding plant - Used for calcium feed additive, decorative stone, plaster and roofing material - Fine ground material used as mineral filler.

**Santa Rita Quarry** T18S R15E Sec. 15

Marble quarry - Located 15 miles southeast of Sahuarita

- Raymond roller mill - Sizing and bagging plant -

Crushed or ground marble for landscape, construction,

functional filler, and chemical uses.

## GSA RESOURCES INC.

7660 N. Business Park Drive, Tucson, AZ 85743 - Phone (520) 744-8845 - (800)-866-4052 Fax (520) 744-7770 - [www.gsaresources.com](http://www.gsaresources.com) - Employees: 8 (including contractors).

President ..... Daniel T. Eyde

Manager of Consulting Services ..... Ted H. Eyde

Chief Financial Officer ..... Steve Nelson

MIS Manager .....Barbara Carroll  
 Sales Manager..... Hale Probst  
**Lyles Mine** T13N R6W Sec. 11, 12  
 Open pit clay mine located west of Kirkland - Hectorite clay - Used as viscosifier and thickener in pharmaceuticals and cosmetics.  
**Grace Chabazite Mine** T12S R29E Sec. 1, 2, 12  
 Open pit zeolite mine located 13 miles north of Bowie - Chabazite - Used for cation exchange media, specialty adsorbents, deodorizers, and RAD waste treatment for adsorbing Cs<sup>137</sup> and Sr<sup>90</sup>.  
**Burro Creek Clay** T14N R10W Sec. 7  
 Open pit clay mine located 8 miles southwest of Bagdad - Saponite clay - Shipped out of state for manufacture into viscosifiers for detergents and drainage aid for treating pulp for fine white paper made from recycled paper fibers.

**HARBORLITE CORPORATION**  
 P.O. Box 960, Superior, AZ 85273 - Phone (520) 689-5723 - Fax (520) 689-2362 - www.worldminerals.com - Employees: 11 - Crushing, screening, and drying plant located 2 miles west of Superior - Two open pit perlite mines - Used in the manufacture of filter media for filtering pharmaceuticals, chemicals, sugar, and beverages and as an agricultural fertilizer carrier.  
 Production Supervisor ..... Mike Putz  
 Office Manager ..... Jackie Alvarez  
**Superior Perlite** T2S R12E Sec. 9

**HARLEY GRAY STONE COMPANY**  
 P.O. Box 323, Paulden, AZ 86334 - Phone (520) 636-2436 - Fax (520) 636-0704 - Employees: 25-35 - Quarries located 8 miles northeast of Drake - Quarries and processes Arizona flagstone into flagging, dimension stone, and tiles.  
 Owner .....Carl Gray  
 Office Administrator ..... Nancy McCabe  
**Flagstone Quarries**

**IRONITE PRODUCTS COMPANY**  
**Scottsdale Office**  
 8700 E. Via De Ventura, Suite 280, Scottsdale, AZ - 85258 - Phone (480) 991-9804 - Fax (480) 991-1727 - www.ironite.com - Employees: 45.  
 President .....Heinz Brungs  
 Executive Vice President ..... Vern Adams  
**Iron King Tailings** T13N R1E Sec. 15  
 Iron King Road, Humboldt, AZ, P.O. Box 218, Humboldt, AZ 86329 - Phone (520) 632-7214 - (800) 677-9941 - Fax (520) 632-5747 - Reclaims zinc mine tailings - Activation, pelletization, and packaging plant - Produces fertilizer-soil supplement which provides available iron, zinc, trace elements, and nutrients.  
 Plant Manager..... Hans Schumacher

**Kalamazoo Materials**  
 6975 N. Oracle Rd. Tucson, AZ 85705 - Phone (520) 575-9601 Fax (520) 575-9604 - Employees: 30  
 President .....Paul D'Alessio  
 General Manger ..... Bob Linsell  
 Produces crushed granite and other decorative landscape rock.  
**Amber** T9S R16E Sec. 19  
**Bonita** T10S R16E Sec. 14  
**Chloride Pit** T24N R18W Sec. 34  
**Silver Bell Pit** T12S R9E Sec. 20  
**Superior** T2S R12E Sec. 14  
**Valentine Pit** T23N R13W Sec. 20  
**White Hills** T28N R19W Sec. 21

**KESSON AND KESSON**  
 P.O. Box 174, Globe, AZ 85502 - Phone (520) 425-8452 - Employees: 10.  
 Owner ..... Stewart Kesson  
**Copper Hill Mine** T1N R15E Sec. 15  
 Silica flux for Cyprus Miami copper smelter - Mine located northwest of Globe.

**KILAUEA CRUSHERS INC.**  
 P.O. Box 10606, Glendale, AZ 85318-0606 - Phone (602) 843-1888 - Fax (623) 561-1528 - Employees: 12.  
 President ..... Bill Nichols  
**Picacho Quarry** T6N R2W Sec. 5  
 Quarry located 12 miles east of Morristown - Crushed rhyolite for desert landscaping.  
**Jomax Quarry** T5N R1W Sec. 34  
 Quarry located 135th Avenue and Jomax Road - Crushed rhyolite for desert landscaping.

**KINDER AND SONS**  
**AGRICULTURAL GYPSUM**  
 Packing Plant Road, Willcox - P.O. Box 45, Willcox, AZ 85644 - Phone (520) 384-4489 and (520) 384-4901 - Employees: 7.  
 President/Operator.....Tommy Kinder, Sr.  
 Secretary/Treasurer ..... Carol Kinder-Stevens  
**White Eagle Gypsum Mine** T24S R28E Sec. 11  
 Open pit gypsum mine - Crushing and screening plant - Gypsum for agricultural use.

**LEVIN STONE COMPANY, INC.**  
 Double A Ranch Road, P.O. Box 95, Ashfork, AZ 86320 - Phone (520) 637-2288 - Fax (520) 637-2288 - Employees: 35-50 - Processing plant located on Double A Ranch Road 2 miles north of Ashfork - Quarries and processes sandstone from nine deposits - Purchases sandstone from independent quarries - Specializes in hand cut hearths, table tops, and dimensional cuts.  
**Levin Stone Plant** T22N R2W Sec 34  
 President .....Phil Levin  
 Manager..... Lyle Levin  
 Transportation & Maint. Supt.....Ilene Harrison

**MADISON GRANITE**  
 7050 Grand Avenue, Glendale, AZ 85301 - Phone (623) 931-7760 - Fax (623) 939-7722 - Employees: 6.  
 President ..... Stan Novak  
**Madison Granite** T5N R2E Sec. 24  
 Open pit granite quarry - Located east of Interstate 17, 4 miles south of Carefree Rd. - Crushed granite products for desert landscaping.

**McKUSICK MOSAIC**  
 Route 1, Box 35-D, Globe, AZ 85501 - Phone (520) 425-5051 or 425-8428 - Fax (520) 425-7471 - Employees: 3.  
 Co-owner ..... Robert & Charmion McKusick  
 Co-owner ..... Kathleen Condit  
**Weary Lode Mine** T1S R15E Sec. 22  
 Clay quarry located 5 miles south of Globe - Used for tile and wind chimes, cosmetic additives, sealants, horticultural mixes, and slip glazing material.

**MATERIAL DELIVERY, INC.**  
 dba MDI  
 P.O. Box 30881, Phoenix, AZ 85046 - Phone (602) 493-9819 - also 9300 E. Lorna Lane, Prescott Valley, AZ 86314 - Phone (520) 772-0092 - Employees: 28.  
 Owner/General Manager .....Mike Denny  
 Prescott Yard Manager.....Tom Ray  
**El Paso Pit** T13N R1E Sec 1  
 Pits located 3 miles east of Dewey north of Highway 169 - Produces decorative boulders and screened material.  
 Pit Manager.....Rick Denny

**MG QUARRIES**  
 1334 East Chandler Blvd., Bldg. 5, B72, Phoenix, AZ 85048 - Phone (480) 460-7842 - Fax (480) 460-6324 - Employees: 6.  
 Manager.....Mike Amundson  
**Martin Peak Marble Quarry** T4N R13W Sec. 28  
 Marble quarry - crushing and screening plant - produces "Cotton Candy Marble" decorative landscape stone.  
 Quarry Foreman..... Bryce Adams

**MINERAL PARK DECORATIVE ROCK**  
 8275 N. Mineral Park Rd., HC 30 Box 266, Kingman, AZ 86401 and Cedar Hills Div., 9376 E. Wright Dr., Kingman, AZ 86401 - Phone (520) 565-9455 - Employees: 10 - Crushed granite and boulders for landscaping.  
**Mineral Park** T23N R17W Sec. 19  
**Cedar Hills** T21N R14W Sec. 20  
 Owner .....D. Lavoy Adams

**MINERALS RESEARCH AND RECOVERY, INC.**  
**Tucson Office and Plant**  
 4620 S. Coach, Tucson, AZ 85714 - Phone (520) 748-9362 - (800) 875-0776 - Fax (520) 748-9364 - www.mrrinc.com - Employees: 35.

President .....Michael Vick  
 Plant Superintendent ..... Frank Phillipeck  
 V. President Sales.....Steve Mehlman  
**Ajo Plant and Slag Stockpile** T12S R6W Sec. 23  
 Highway 85, Ajo, 85321 - Phone (520) 387-7682 - Processes copper smelter slag for roofing granules and abrasives.

**MORTON SALT DIVISION**  
 Morton International  
 13000 W. Glendale Ave., Glendale, AZ 85307 - Phone (623) 247-3000 -www.mortonsalt.com - Employees: 38.  
 Facilities Manager .....Geron Turnquest  
 Environmental Co-or./Safety Mgr.....Michele Schuler  
**Morton Salt Mine** T2N R1W Sec. 2  
 Solution mining via wells - Solar evaporation of brines - Produces salt for water softeners, domestic, agricultural, and industrial use.

**NATIONAL GYPSUM COMPANY**  
 Gold Bond Building Products Division  
 1414 E. Hadley St., Phoenix, AZ 85034 - Phone (602) 258-9321 - Fax (602) 257-8250 - www.nationalgypsum.com - Employees: 58 - Wallboard and joint treatment plant.  
 Plant Manager .....Gary McEwen  
 Office Manager ..... Wendy Self  
 Production Manager .....Robert Piercy  
 Joint Treatment Quality Control.....Nick Tuhus  
**Feldman Quarry** T6S R16E Sec. 27  
 1103 South Highway 77, Winkelman, AZ 85292 - Phone (520) 357-7180 - Employees: 4 - Open pit gypsum mine located 12 miles south of Winkelman - Gypsum shipped to Phoenix plant for manufacture of plaster board.  
 Quarry Superintendent ..... Robert Foster

**NORD COPPER CORPORATION**  
 Nord Resources Corporation  
**Johnson Camp** T15S R22E Sec. 26  
 3048 Seven Dash Road, Dragoon, AZ 85609, P.O. Box 384, Dragoon, AZ 85609 - Phone (520) 586-2241- www.nordresources.com - Employees: 16 - Located north of exit 322 off I-10 - Open pit copper mine - Heap leach - Solvent extraction-electrowinning plant - Capacity 45,000 lb per day - On care and maintenance.  
 Operations Manager ..... Erland Anderson  
 Superintendent ..... Matt Williams

**NORTHERN ARIZONA STONE COMPANY**  
 P.O. Box, Ashfork, AZ 86320 - Phone (520) 637-2515  
**Gleed Quarry** T22N R3W Sec 18  
 Contact.....Paula Henderson  
 Sandstone deminsion stone qaurry - stone cutting and shaping plant - Produces Buckskin and Rosa sandstone flag stone.