

CLINTON - CAMPBELL CONTRACTING INC.

Phoenix Brick Yard

1814 S. 7th Ave., Phoenix, AZ 85007 - Phone (602) 258-7158 - Employees: 96.

President Frederic Campbell
Plant Superintendent Don Campbell
Tolleson Mine T1N R1E Sec. 3

Clay pit located on 84th Avenue north of Van Buren - Used in manufacture of structural clay products.

Pantano Clay Pits T16S R17E Secs. 21, 26, 27, 28, 35

Clay pits located 25 miles southeast of Tucson - 2 miles northwest of the Interstate 10 Pantano Exit - Clay used in the manufacture of structural clay products.

COCONINO CINDER AND MATERIALS

7000 E. Highway 66, Flagstaff, AZ 86004 - Phone (520) 526-9509 - Employees: 4.

Owner/General Manager Bob Payne
Wildcat Hill Pit T21N R8E Sec. 9

Located 2 miles east of Flagstaff - Cinder and basalt quarry - Used for landscaping, aggregate, horticulture, specialty uses, and construction materials.

COLBAUGH PROCESSING

3471 Chea Drive, Kingman, AZ 86413 - Phone (520) 565-4650, Fax (520) 565-3606 - Employees: 15 - Mines turquoise under contract from Equitorial at Mineral Park - Processes and stabilizes turquoise - Sells rough and cut Kingman turquoise.

Sec.-Treas. & Operations Mgr. Martin Colbaugh
Mineral Park T23N R17W Sec. 19

CYPRUS CLIMAX METALS COMPANY

subsidiary of Cyprus Amax Minerals Company
1501 W. Fountainhead Parkway, Suite 290, Tempe, AZ 85282 - Phone (602) 929-4400.

President Jeffrey G. Clevenger
Vice President, Molybdenum Operations . . Bill Doeppen
Sr. Vice President, Sales and Marketing . . Louis Morse
Vice President, Environmental Affairs . . Jerry W. Danni
Sr. Vice President,

Copper Operations William H. Champion
General Attorney Sarah Strunk
General Attorney Ruth Kern
Vice President & Controller Lowell Shonk
Cyprus Sierrita Corp.

Sierrita T18S R12E Secs. 7, 8, 9, 10, 16, 17

P.O. Box 527, Green Valley, AZ 85622 - Phone (520) 648-8500 - Employees: 760 - Sierrita, Ocotillo open pit copper-molybdenum mines - 110,000 TPD concentrator - 17,500 TPD concentrator - Ferromolybdenum plant - Rhodium plant - Dump leach - 72 million lb. capacity solvent

extraction-electrowinning plant - Located 30 miles south of Tucson.

Vice President Alan Edwards
General Manager of Operations James Handley
Manager, Metallurgical Processing Jesus Figueroa
Manager, Human Resources Richard Stilgenbau
Manager, Accounting/

Materials Manager Rickey Lamb
Supt., Mine Operations & Maintenance . . . Terry Ritzel
Manager, Metallurgical Operations Jesus Figueroa
Plant Department Superintendent Steve Koski
SX-EW Superintendent Ramon Hernandez
Superintendent Technical Services . . William Sweetser
Superintendent of Moly Processing . . . Michael Shinn
Conveying Superintendent William Davis
Cyprus Miami Mining Corp.

Miami Mine & Smelter T1N R14E Sec. 24, 25, 26, 35
P.O. Box 4444, Claypool, AZ 85532 - Phone (520) 473-7150 - Employees: 873 + 32 temporaries - Open pit oxide copper mine - Dump leach - 150 million lb per year capacity solvent extraction-electrowinning plant - 120,000 TPD smelter - Acid plant - Electrolytic refinery - 100,000 TPD continuous cast rod plant - 24,000 TPD concentrator is inactive.

Vice President Ken Watkins
Controller/Materials Management Ricky Lamb
General Manager, Operations Robert Wishart
Manager, Mine Lonnie Terrill
Manager, Safety &

Industrial Hygiene Robert Altamirano
Manager, Human Resources/Safety . . . Gary Rawson
Supt. Eng./Strategic Planning Cal Iles
Superintendent, Mine Operations Turk Terrill
Superintendent, Mine Maintenance . . . Ken Benedick
Superintendent Leach/SX/EW Rudy Cabanillas
Superintendent, Smelter Maintenance . . . Gary Hinch
Superintendent, Rod Plant Al Binegar
Coordinator Quality Assurance Richard Dana
Manager, Environmental/ Land Robert Ressler
Superintendent, Smelter Operations Mike Milkic
Manager, Hydrometallurgy Samuel Yang
Cyprus Bagdad Copper Corp.

Bagdad T14N R9W Sec. 4
P.O. Box 245, Bagdad, AZ 86321 - Phone (520) 633-2241 - Employees: 500 - Open pit copper-molybdenum mine - 85,000 TPD concentrator - Dump leach - 30 million PPY capacity solvent extraction-electrowinning plant.

Vice President, General Manager Gene Consalus
Manager, Mine Ed Fidlerv
Plant Manager Tom Come
Manager, Human Resource

& Community Services Carl Kerschen
Manager, Environment/Land Mike Garfield
Controller, Materials Manager Doug Comer

Mill Superintendent Tom Bender
Cyprus Tohono Corporation
Tohono T10S R4E Sec. 25

P.O. Box 15009, Casa Grande, AZ 85230-5009 - Phone (520) 623-1539 - Employees: 116 & 37 contract - Open pit heap leach copper mine - 100 million pounds per year capacity solvent extraction-electrowinning plant.

Vice President & General Manager Al Tittes
Manager, Accounting and Materials W. Fulgham
SX-EW Superintendent Troy Pool
Mine Manager Open
Manager, Human Resources Richard Stilgenbauer
Manager, Environmental/Land Kermit Behnke

DRAKE STONE PRODUCTS

P.O. Box 11676, Prescott, AZ 86304 - Phone (520) 445-3028, Fax (520) 717-1359 - Phoenix sales office - (602) 942-5831 - Stone processing plant at Drake - Quarries and processes Arizona flagstone into flagging, dimension stone, tiles, and specialty landscape shapes.

Owner/Operator Harley Gray Jr.
Co-owner Deborah Gray
Sales (Phoenix) Robin Sherman
Rock House Quarry T19N R1E Sec. 10
M C Quarry T19N R1E Sec. 35

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 - Quarries in Coconino, Maricopa, Mohave, and Yavapai Counties - Flagstone, marble, quartzite, and schist - Stone processing plant in Ashfork - Quarries and processes Arizona stone into flagging, dimension stone, and tiles.

President Gerry E. Dunbar
Vice President W. B. Dunbar
Maintenance Superintendent Ron Dunbar
Office Manager & Transportation Leslie Tooley
Dunbar Stone Plant T21N R2W Sec. 3

Operates over 60 quarries for the production of dimension stone in northern and western Arizona - Quarries are operated intermittently on an as-needed basis.

ENGELHARD CORPORATION

Chemical Division

Box 155, Sanders, AZ 86512 - Phone (520) 688-2468, Fax (520) 521-3796 - Employees: 6 - Located 6 miles southeast of Sanders.

General Superintendent Perry Skersick
Cheto No. 2 T21N R29E Sec. 23

Surface strip bentonite mine - Primary use is in filters and catalysts, also used in agriculture and desiccants - Shipped to Mississippi for processing.

EQUITORIAL MINING

HC 37 Box 500, Kingman, AZ 86401 - Phone (520) 565-2226 - Employees: 25 - Located 16 miles north of Kingman - Dump and bench leach copper mine - Solvent extraction-electrowinning plant.

Mineral Park T23N R17W Sec. 19

Mine Manager Mike Kondelis
Plant Supervisor Joey Matthews
Maintenance Supervisor Greg McClure

FLAGSTAFF CINDER SALES INC.

Old Highway 66 East, P.O. Box 2415, Flagstaff, AZ 86003 - Phone (520) 526-0801 - Employees: 7.

President Mary Lou Olivier
General Manager Rob Olivier
Wildcat Hill Pit T21N R8E Sec. 9

Located 1.5 miles east of Flagstaff - Cinder quarry - Used for aggregate, landscaping, and construction materials.

GEORGIA MARBLE COMPANY OF ARIZONA

16101 S. Wentworth Road, Vail, AZ 85641 - Phone (520) 762-9119, 1-800-952-2769, Fax (520) 762-5592 - Employees: 13.

Plant Manager Roberto Valenzuela
Office Manager Susan Jansen
Sales Carl Cuthbertson
Andrada Marble Quarry T17S R16E Sec. 21

Davidson Quarry T17S R17E Sec. 19

Open pit marble mine - 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

Located 15 miles southeast of Sahuarita at end of Santa Rita Road - White marble quarry - Raymond roller mills - Sizing and bagging plant - Crushed or ground for landscape, functional filler, and chemical uses.

GOLDEN GREEN PLACER MINING PARTNERSHIP

HC2 Box 100, Sells, AZ 85634 - Phone/fax (520) 361-2310 - Employees: 4.

Project Manager Jack Otani
Devils Wash T15S R2E Sec. 2

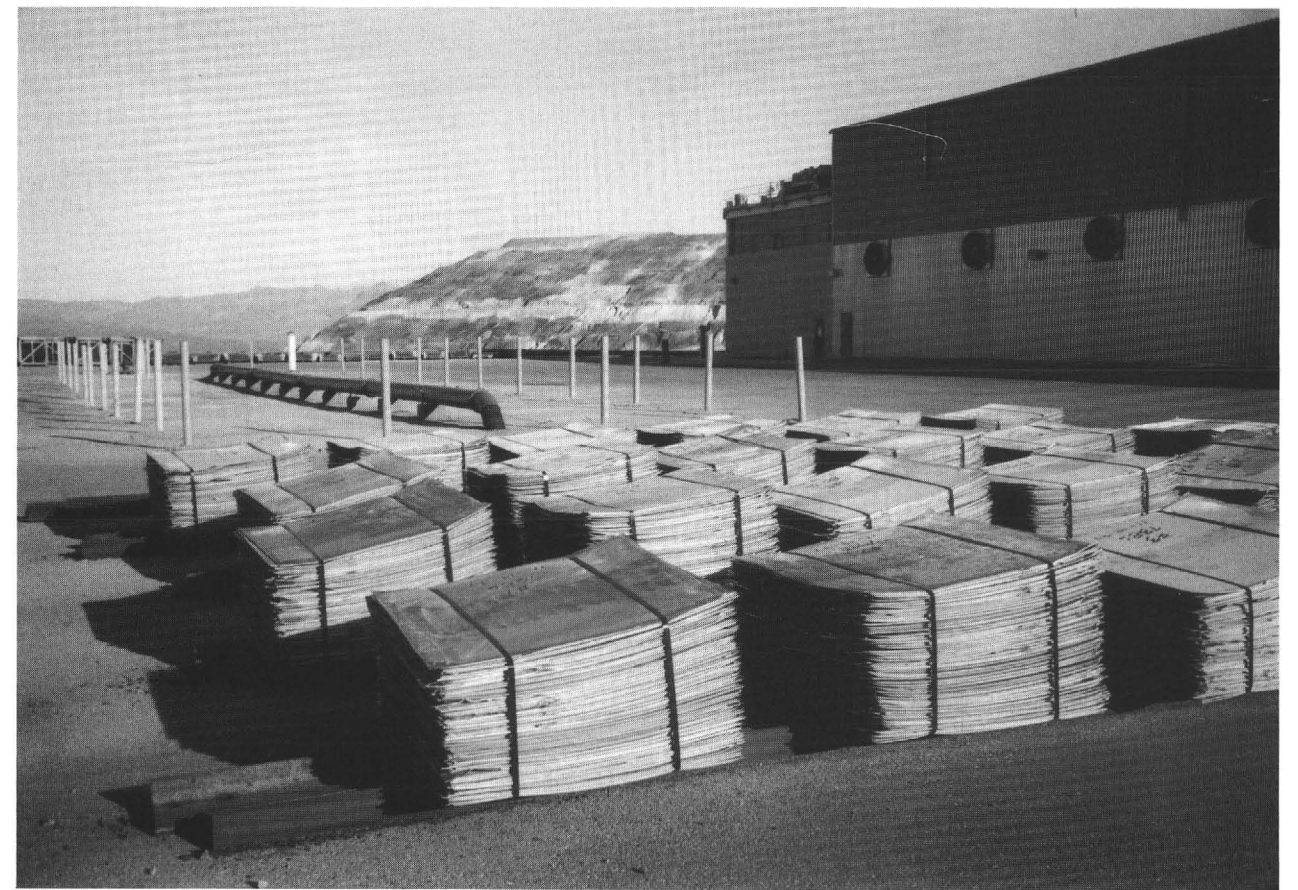
Located approximately 1.5 miles southwest of Quijotoa - Gold placer operation - Wet gravity concentration - Capacity 750 yards/day.

GSA RESOURCES INC.

7660 N. Business Park Drive, Tucson, AZ 85743 - Phone (520) 744-8845 - Employees: 8 (including contractors).

President Ted H. Eyde
Vice President Daniel T. Eyde

Directory of Active Mines In Arizona 1999



Arizona Department of Mines and
Mineral Resources

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ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES

Ken A. Phillips, Acting Director

1502 West Washington
Phoenix, Arizona 85007
(602) 255-3795
Toll-free in Arizona: 800-446-4259

Board of Governors

William J. Miller - Phoenix
Chairman

Richard Oldham - Quartzsite
Vice Chairman

Sydney Hoff-Hay - Phoenix
Secretary

Ken Bennett - Scottsdale
Member

Eric A. Nordhausen - Tucson
Member

Cover: San Manuel, cathodes ready for shipment

PHOTOGRAPHS

The photographs in this year's directory are from the Departments "unidentified" file in our archives. If you recognize any of the people or the mines in the photographs, please give us a call.

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 data base, 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 data base 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.

COMMODITY INDEX

CEMENT/LIME

Clarkdale Quarry
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Nelson Quarry
Rillito Quarry

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Darling Cinder Pit
Wildcat Hill

CLAY

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

COAL

Black Mesa Mine
Kayenta Mine

COPPER

Bagdad Mine
Carlota
Copper Queen Mine
Florence
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Mission Mine
Morenci Mine
Pinto Valley Mine
Ray Mine
San Manuel Mine
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Silver Bell Mine
Tohono Mine

CUSTOM MILLS

Black Canyon Mill

DIATOMITE

White Cliff Mine

FERTILIZER MINERALS

Iron King Tailings and Plant

GEMSTONES

Sleeping Beauty Mine

GOLD and SILVER

Bagdad Mine*
Devils Wash Placer

Mission Mine*
Pinto Valley Mine*
Ray Mine*
Morenci Mine*
San Manuel Mine*
Sierrita Mine*
Yarnell Mine

GRANITE/DECORATIVE STONE

Aztec Quarry
El Paso Pit
Granite Quarry
Jomax Quarry
Madison Granite Quarry
Picacho Quarry
Red Mountain Quarry
Star Valley Granite Quarry
Treasure Chest Granite Quarry

GYPSUM

Feldman Quarry
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

MOLYBDENUM

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

PERLITE

Superior Perlite Mine

PIGMENT

Swansea Mine
Iron Chancellor Mine

PUMICE

Crown Claims
More Sand, Moon Sand Claims
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

Camp Grant Quarry
Copper Hill Mine
Gold Hill Mine

SILVER -see Gold

SLATE

New River Slate Quarry

SMELTERS

Hayden
Miami
San Manuel

STONE, DIMENSION

Arizona Picture Rock Quarry
Arizona Gold Quarry
Black Cat Quarry
Blue Bell Schist Quarry
Brown Quarry
Buckskin Quarry
Cucamonga Quarry
Dunbar Quarries
Flagstone Quarries
Golden Buckskin Quarry
Little Rock Quarry
Lizard Canyon Quarry
M C Quarry
M C Canyon Quarry
Mayer Onyx Quarry
New River Slate Quarry
Rainbow Schist Quarry
Rattlesnake Quarry
Red Rock Quarry
Rock House Quarry
Sidewinder Quarry
Sierra Quarry
Trick Tank Quarry
Western States Stone Quarries
Yellow Wasp Quarry

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

Arizona Mines and Mineral Resources

1502 West Washington, Phoenix, AZ 85007
Phone (602) 255-3791

Land Department - Minerals Section

1616 West Adams, Phoenix, AZ 85007
Phone (602) 542-4628

Mine Inspector

State Capital, West Wing, Room 403, Phoenix,
AZ 85007 Phone (602) 542-5971

Federal Agencies

Bureau of Land Management

Arizona State Office, 222 North Central, Phoenix,
AZ 850004-2203 Phone (602) 417-9528

Forest Service

Arizona Zone Office - Minerals, 2324 East
McDowell Rd., Phoenix, AZ 85006
Phone (602) 225-5262

Mine Safety and Health Administration (MSHA)

63 East Main #303, Mesa, AZ 85201
Phone (602) 649-5452 Fax: (602) 649-5662

U.S. Geological Survey

Minerals Information, 520 N. Park Ave. Suite
355, Tucson, AZ 85719
Phone (520) 670-5544

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
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
Executive Director Sydney Hoff Hay

Arizona Rock Products Association

916 W. Adams, Phoenix, AZ 85007
Phone (602) 271-0346, Fax (602) 255-0363
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
Executive Director Gary Howell
Assoc. Exec. Dir. for Members . . Angie Giles
Director of Publications Joe Zullo
Editor - Mining Engineering . . . Tim O'Neil

Additional copies of the Directory of Active Mines in Arizona 1998 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.

Active Mines in Arizona - 1999

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

Department of Mines and Mineral Resources

Directory 47



State of Arizona

Jane Dee Hull, Governor

Phoenix, Arizona
November, 1998

Arizona Department of Mines & Mineral Resources
 1502 West Washington, Phoenix, Arizona 85007
 (602) 255-3795 Toll-free in-state 1-800-446-4259

Directory of Active Mines in Arizona

1999

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Forward

This directory was compiled in November, 1998 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 projects 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.

AZ - (602) 262-1453 - Sand, gravel, rock products, ready mix concrete, and ABC.
 Plant Superintendent Mike Dillon
Plant 49 - 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

VALLEY CONCRETE & MATERIALS
 2500 W. Cement Plant Road, Clarkdale, AZ 86324, P.O. Box 634, Cottonwood, AZ 86326 - Phone (520) 634-4250 - Employees: 45 - Sand, gravel, rock products, ready mix concrete, ABC, and asphaltic concrete.
 Plant Manager David Heath

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

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.

WICKENBURG CONCRETE & MATERIALS
 U.S. Hwy. 60, M.P. 117.5, P.O. Box 1450, Wickenburg, AZ 85358 - Phone (520) 684-3402 - Employees: 25 - Sand, gravel, rock products, ready mix concrete, ABC, and asphaltic concrete.
 Area Manager Jay Parker, Jr.

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

YAVAPAI MATERIALS, INC.
 5899 Wilkinson Drive, P.O. Box 814, Prescott, AZ 86302 - Phone (520) 445-7305 - Employees: 17 - Sand and gravel.
 President/Owner John Pemberton



Unidentified
 photo #A-300-01
 Unknown
 Arizona mine,
 circa 1940.



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

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

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 Tom Farr

SUPERSTITION CRUSHING LLC
2323 E. Hale, Mesa, AZ 85213 - Phone (602) 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
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 180 - Yuma
13 miles east of Yuma on S.R. 95 @ M.P. 37.5 - Phone (520) 343-4180 - Sand, gravel, and asphaltic concrete.
Plant Foreman Richard Arviso
Mohave Plant - Fort Mohave
1101 Aztec Road, Fort Mohave, AZ 86427 - Phone (520) 330-3330 - Aggregate and ready mix concrete
Plant Foreman Ted Downing
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 John Fowler
Executive Vice President Dan Speck
Vice President Sales Bill Heeter
Chief Engineer Bill Peck
Director Safety & Labor Relations David Chavez
Plant 1 - 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 2 - Mesa Plant
2830 North Beeline, Mesa, AZ 85256 - Phone (602) 990-0844 - Sand, gravel, rock products, ready mix concrete, ABC, and asphaltic concrete.
Plant Superintendent Farron Bentley
Plant 6 - El Mirage Plant
8507 N. El Mirage Road, El Mirage, AZ 85335 - Phone (602) 935-2653 - Sand, gravel, rock products, ready mix concrete, ABC, and asphaltic concrete - Inactive.
Plant 11 - 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 12 - Glendale Plant
11920 W. Glendale Road, Glendale, AZ 85307 - Phone (602) 935-3562 - Sand, gravel, rock products, ready mix concrete, ABC, and asphaltic concrete.
Plant Superintendent Norris Fish
Plant 33 - 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 Gough
Plant 35 - Hill Pit
Hwy. 89, 12 miles north of Flagstaff - Sand and gravel pit - Portable crushing and screening plant - Operated on a seasonal basis.
Plant 36 - McCormick Pit
Highway 89 and Sunset Crater - Sand and gravel pit - Portable crushing and screening plant - Operated on a seasonal basis.
Plant 41 - 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 47 - 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 48 - Sacaton Plant
Highway 93, 1 mile north of Casa Blanca Road, Sacaton,

ARIZONA'S MINERAL INDUSTRY - 1997 and 1998

As it has for nine of the last ten years, Arizona led the Nation in total nonfuel mineral production in 1997. Arizona's production exceeded \$3.5 billion, a 17 percent decrease from 1996. Arizona also leads the Nation in copper production, accounting for 65 percent of the total U.S. copper mine production. In addition, Arizona is among the leaders in the production of gemstones, molybdenum, silver, perlite, and sand and gravel. Excluding sand and gravel operations, there are 65 mining companies operating 126 mines. There are 71 sand and gravel producers in the state. More than 18,000 people are directly employed by the mining industry.

COPPER

Despite a continued high demand for copper, the industry suffered wide-spread losses in the first three quarters of 1998 because of an 11-year low in copper prices. The Asian economic troubles and heavy production from South America are being blamed for the price drop. In the first nine months of 1998 copper was 32 cents lower than in the first nine months of 1997. Despite this, it should be noted that 1997 production from Arizona copper mines was near an all-time high of 2.7 billion pounds with a value of \$2.93 billion.
Copper and its by-products represents over 80 percent of Arizona's nonfuel mineral value. Production comes primarily from four major companies, but strong demand for copper is encouraging other companies to pursue exploration and development in Arizona. The Western Economic Analysis Center reports that Arizona's economy received more than \$10.4 billion and nearly 82,000 Arizona residents had jobs in 1997 as a result of the direct and indirect contributions of the copper industry.

Asarco Incorporated

Asarco's world-wide copper production was 977 million pounds in 1997. The company's Arizona operations consist of 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 experimental copper mine. Ray and Mission are the second and third largest copper mines in Arizona.
Copper output at the Ray mine was down from 1996 to 304 million pounds largely due to a 43 million pound decrease in concentrate production. Operation of the Hayden concentrator was curtailed from the fourth quarter of 1996 until May, 1997 to reduce concentrate inventory. The Ray mine replaced its remaining eleven 170-ton capacity haul trucks with five 240-ton capacity trucks in late 1997.
Ray consists of an open-pit mine, dump and heap leach operations, a 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 1997 Ray had reserves of 969 million tons grading 0.6 percent sulfide copper and 189 million tons of leachable copper.

The leaching process at Ray was changed to use higher acid concentrations to increase recovery rates. A \$10 million EW tankhouse expansion is underway that will add an additional 12 million pounds of capacity. When completed in mid-1999 total SX-EW capacity will be 102 million pounds annually with a projected cash production cost of less than 50 cents per pound. 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.
Mission copper production declined slightly in 1997 as harder ore was milled. Offsetting this however, average ore grade increased as the underground mine contributed higher grade material for all of 1997. Production totaled 252 million pounds of copper. Accounting for 37 percent of Arizona's silver production, Mission was Arizona's largest silver producer with 2.17 million ounces recovered as a by-product. 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

ARIZONA MINERAL PRODUCTION - 1997¹

Thousand tons unless otherwise noted

| COMMODITY | QUANTITY | VALUE |
|----------------------|-----------|------------------------|
| Clay | withheld | withheld |
| Copper | 1,360 | \$2,930,000,000 |
| Gemstones | na | 3,220 |
| Gold | withheld | withheld |
| Sand & gravel | 44,500 | 200,220,000 |
| Silver (troy ounces) | 5,635,000 | 22,300,000 |
| Stone-crushed | 6,700 | 38,000,000 |
| Coal ² | 11,723 | 279,000,000 |
| Other ³ | na | 325,000,000 |
| TOTAL | | \$3,797,740,000 |

1/ USGS preliminary figures
2/ ADMMR estimate for value
3/ Includes cement, gypsum, lime, molybdenum, perlite, salt, dimension stone, and the withheld values

mills, Mission and South with a combined capacity to process 63,000 tons of ore daily.

Development drilling during 1996 increased copper reserves and also identified long-term stripping requirements. This led Asarco to purchase a conveyor system and two new 60 cubic-yard shovels. Installation of the conveyor system was completed in the third quarter of 1997 and will lower waste removal costs eight cents per ton or \$9.5 million per year. During late summer 1998 Asarco was considering buying seven new 320 ton capacity trucks. Mission's reserves at end of 1997 exceeded 500 million tons grading 0.7 percent.

The Hayden smelter, an INCO flash furnace rated at 720,000 tons of charge per year, processed a record amount of concentrates during 1997 producing 423.9 million pounds of copper. Improvements to the smelter's gas handling and process controls began during 1997. They are expected to lower operating costs and increase throughput upon completion in 1998. A scheduled maintenance shutdown reduced smelter output during March and April of 1998.

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. Utilizing six 170-ton trucks from Ray and three 15 cubic-yard shovels from Mission reduced startup capital costs.

President Clinton vetoed funding in October, 1997 to continue the experimental in-situ leach research project at Santa Cruz. Instead, funds were provided for closure of the ongoing test. Injection of leach solutions ceased after 22 months with many technical and environmental goals

1997 Copper Mine Production

| Mine/Company | Production (lbs) |
|----------------------|------------------|
| Morenci/Phelps Dodge | 1,084,000,000 |
| Ray/Asarco Inc. | 304,000,000 |
| Mission/Asarco Inc. | 252,000,000 |
| San Manuel/BHP* | 251,000,000 |
| Sierrita, Cyprus | 246,000,000 |
| Bagdad/Cyprus | 246,000,000 |
| Pinto Valley/BHP** | 157,000,000 |
| Miami/Cyprus | 156,000,000 |

*Period : June 1, 1996- May 31, 1998

** Cyprus sold property Sept., 1997

achieved along with the recovery of 35,000 pounds of copper. The final year of the project was to provide data on economic feasibility but that goal will not be achieved. All results obtained to date will be released. The joint venture partners have applied for permits for additional testing (without federal funds) at another site about one mile south of the initial test site. Information gathered there will provide data on the economics of in-situ leaching the deposit.

BHP Copper

San Manuel and Pinto Valley are the company's two active mining divisions in Arizona. BHP is also developing the Poston Butte deposit, an in-situ leach property that, when fully operational, will be the world's first stand-alone in-situ copper mine.

San Manuel 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 252 million pounds of copper in the fiscal year that ended May 1, 1998.

BHP's San Manuel smelter accounts for about 25 percent of U.S. copper smelting capacity. The Outokumpu flash smelting furnace is the largest single furnace smelter in the industry. The smelter may be shut down for 45 days in early 1999 for rebuilding. It has been operating since 1988 without a shutdown.

The Lower Kalamazoo orebody has estimated ore reserves of 2.5 billion pounds of contained copper that will add 12 years to the San Manuel underground mine. Production commenced in January, 1997 and is being phased in with the depletion of the San Manuel orebody over the next few years. San Manuel's and Lower Kalamazoo's estimated proven and probable ore reserves are 226 million tons of sulfide ore at an estimated grade of 0.62 percent copper.

The Pinto Valley division includes the Pinto Valley mine and the Miami in-situ and Miami No. 2 tailings leach operations. The Pinto Valley mine consists of an open-pit mine, a 63,000-ton-per-day concentrator, dump leach, and 16 million pound-per-year SX-EW plant. In February of 1998 the sulfide portion of Pinto Valley's operation was shut down and 447 employees were laid off. When copper prices recover sufficiently the sulfide operation will recommence. Pinto Valley's estimated recoverable proved and probable ore reserves are 613 million tons of sulfide ore at an average grade of 0.17 percent copper.

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

Vice President Timothy Valente
Marketing Director Allan Ladd
Plant Manager Bob Strom
Controller Toby Ballentine

PIONEER CONCRETE OF ARIZONA, INC.

3450 N. Higley, P.O. Box 20370, Mesa, AZ 85277-0370 - Phone (602) 654-3000 - Employees: 275 - Sand and gravel products.
Regional Manager Wally Wallace

PIONEER SAND COMPANY

745 N. Gilbert #124-360, Gilbert, AZ 85234 - Phone (602) 926-8200 - Employees: 125.
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 (602) 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 (602) 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 - Sand, gravel, ABC, ready mix concrete, and asphaltic concrete.

President and Division Manager Al Wilcox
V.P. Sales & Marketing Benny Bingham
Nogales Plant

91 Old Ruby Road, Nogales, AZ 85621 - Phone (520) 281-9669 - Sand, gravel, ABC, and ready mix concrete.
Plant Superintendent Mark Kincade
Tucson Plants
6200 W. Cortaro Farms Road, Tucson, AZ 85743 and 10011 E. Valencia Road, Tucson, AZ 85747 - Southwest of Tucson International Airport - Sand, gravel, ABC, ready mix concrete, and asphaltic concrete.
Plant Superintendent Bill Wion
Green Valley Plant
24560 S. Old Nogales Highway, Green Valley, AZ 85614 - Phone (520) 625-5889.
Catalina Plant
North of Catalina at Golder Dam - Phone (520) 825-8334.

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 (602) 566-3000 - Employees: 40 - Sand, gravel, ABC, and rock products.
Owner Dolores Walker

SUNWARD MATERIALS

Executive Office, 2625 S. 19th Ave., Phoenix, AZ 85009 - Phone (602) 416-2600 - Employees: 300 - Sand, gravel, rock products, and ready mix concrete.
Plant Operations Manager Dan Miquade
El Mirage Plant 21
4515 N. El Mirage Road, Glendale, AZ 85340 - Phone (602) 935-7767
West Plant 62 and 72
11701 W. Indian School Road, Phoenix, AZ 85037 - Phone (602) 877-2411
North Plant 63
21001 N 7th Street, Phoenix, AZ 85024 - Phone (602) 582-4436
Sun City Plant 67 and 77
24004 N. 107th Avenue, Sun City, AZ 85373 - Phone (602) 566-1851
Mesa Plant 61 and 71
1901 N. Alma School Road, Mesa, AZ 85201 - Phone (602) 898-8230
Tucson Division
Apex Plant
11500 N. CalMat Drive, Marana, AZ 85653 - Phone (520) 629-0460 - Sand, gravel, rock products, ABC, and ready mix concrete.
Hughes Plant
8855 S. Hughes Access Road, Tucson, AZ 85706 - Phone (520) 574-9002 - Ready mix concrete and asphaltic concrete.
Pima Mine Road Plant

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 REDIMIX

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 (602) 830-1521 - Fax (602) 981-9255 Employees: 60

- Operates multiple quarries - Sand, gravel, and asphaltic
concrete.

Owner Edward C. Levy
Vice President Wayne Stamper
Office Manager Bruce Erickson
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.
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 prod-
ucts, 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 (602)
465-7845 and (602) 465-7850 - Employees: 1 - Sand and
gravel.
Owner/Operator Cliff Freeman

PADILLA SAND, GRAVEL, & REDIMIX

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, & REDIMIX

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 prod-
ucts, ready mix concrete, and asphaltic concrete.
Plant Manager George Randall
Plant Manager John Chillson
Asphalt Plant Manager Fred Randall
Sales Representative Tim Hughes

PHOENIX REDIMIX COMPANY

3635 S. 43rd Ave., Phoenix, AZ 85009 - Phone (602)
272-2637 - Employees: 200 - Operates 2 quarries - Sand,
gravel, and ready mix concrete.
President Thomas M. Valente

Miami in-situ project contains an additional 172 million
tons at an average grade of 0.40 percent copper, while 9
million tons at 0.40 percent remain to be processed at the
No. 2 Tailings pile. In 1997, Pinto Valley produced 136
million pounds of copper in concentrate and 36 million
pounds of electrowon copper cathode.

BHP's Florence in-situ leach project has completed
permitting, but will not go into full production until copper
prices are improved. 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 inter-
cept 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 incom-
pletely defined, but it is at least 1,500 feet high, 2,100 feet
long, and 600 feet wide. The top of the deposit is approxi-
mately one mile beneath the surface. BHP is evaluating
options for future exploration.

Cyprus Climax Metals Company

In 1997 the Cyprus Climax Metals division of Cyprus
Amax produced over 1 billion pounds of copper and 63
million pounds of molybdenum. Two thirds of the copper
and over 40 percent of the molybdenum were produced
from their Arizona operations. Cyprus is Arizona's second
largest producer of copper and the world's largest producer
of molybdenum. Cyprus Climax maintains headquarters in
Tempe, Arizona and operates four copper mines in the
State: Bagdad, Tohono, Miami, and Sierrita. In September
of 1997 Cyprus sold their Mineral Park property to Equato-
rial Mining N.L. of Australia.

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 Sier-
rita started mining a 70-million-ton oxide deposit that has
led to increased output. Cathode production during 1997
totaled 39 million pounds.

Cyprus completed construction of two new in-pit crush-
ers and a conveyor system to reduce haulage costs. Sierrita,
recognized as one of the most efficient mines in the world,
operates with the lowest average copper grade, 0.27 percent,
of any milling operation. A contributing factor to this suc-
cess is the mine's by-product molybdenum credit of 20
million pounds. That makes Sierrita the largest molybde-

num mine in Arizona. Sierrita contains proven and probable
copper reserves of 837 million tons.

The Bagdad mine in Yavapai County produced 246
million pounds of copper in 1997, a new production record.
This resulted from mining higher grade sulfide ore, im-
proved recovery and increased equipment availability. 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. Cyprus reports that Bagdad has nearly a billion ton
proven and probable ore reserve of 0.38 percent copper and
0.021 percent molybdenum.

In response to low copper prices during 1998, Cyprus is
reducing copper production by 60 million pounds from
Bagdad and Sierrita. These cutbacks are being made by
reducing the use one of their highest cost equipment. Addi-
tionally expenditures are being reduced by \$10 million by
deferring equipment purchases and holding other expenses
to sustaining levels.

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 elec-
trolytic refinery, and a 135,000 ton-per-year rod plant. The
mine and SX-EW plant produced a record 156 million
pounds of copper in 1997. The smelter processed 633,000
tons of copper concentrates from other Cyprus operations,
five percent less than in 1996. The Miami rod plant pro-
duced 294 million pounds of copper rod, a seven percent
increase over 1996 and a production record.

Cyprus' Tohono operations, located on land leased from
the Tohono O'Odham Nation, consists of an SX-EW plant
fed by a newly developed test open pit and heap leach.
Although mining was suspended in July 1997, leaching of
existing heaps continued. Production at Tohono totaled 27
million pounds of copper during 1997.

Phelps Dodge Corporation

Phelps Dodge's Morenci mine in Greenlee County, the
largest copper mine in North America, again had an annual
production of over 1 billion pounds of copper in 1997.
Phelps Dodge Corporation, headquartered in Phoenix, is the
world's largest producer of SX-EW cathode copper. Its
mining division, Phelps Dodge Mining Company, produces
about one-third of the U.S.'s mined copper at its properties
in southeastern Arizona and southwestern New Mexico. In
Arizona, in addition to Morenci, Phelps Dodge operates the
Copper Queen in Bisbee, and controls significant undevel-
oped copper resources throughout the state, including the
New Cornelia mine at Ajo and several deposits near Saf-
ford. Phelps Dodge owns an 85 percent interest in the
Morenci mine; the remaining 15 percent is owned by Sumi-
tomo Metal Mining Company, Ltd.

Morenci produced 1.1 billion pounds of copper in 1997.
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's milling and leaching reserves totaled over 1.7 billion tons at the end of 1996. Additional resources include: Coronado with 180 million tons of sulfide with an average grade of 0.69 and 310 million tons of oxide mineralization with an average grade of 0.29; 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.

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.

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.

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.

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.



Unidentified photo #A-200-27. Unknown miner, unknown date, unknown stream, unknown dilemma.

and construction materials.
Manager Dave Sloane

CHANDLER READY MIX
3250 E. Lehi Road, P.O. Box 928, Mesa, AZ 85211 -
Corporate phone (602) 892-0501 - Quarry phone (602) 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 William G. Hyslip

FT. MCDOWELL SAND & GRAVEL CO.
State Route 87, P.O. Box 17150, Fountain Hills, AZ 85269 - Phone (602) 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) 467-2252 - Employees: 16 - 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

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

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

SAND AND GRAVEL OPERATIONS

A & A MATERIALS

10333 E. McDowell Road, Scottsdale, AZ 85257 - Phone (602) 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 (602) 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

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

CALMAT COMPANY OF ARIZONA

Corporate Office - 3200 San Fernando Road, Los Angeles, CA 90065 - Phone (213) 258-2777.

Concrete and Aggregate Division, Arizona and New Mexico - 1601 E. University Drive, Phoenix, AZ 85016 (602) 254-8464 - Employees: 479 - Sand, gravel, rock products, ready mix concrete, ABC, and asphaltic concrete.

Vice President/General Manager David Hass
Regional Operations Manager Dick Hrubes
Phoenix District Operations Manager Pat Kuenrer
Properties Division - Phone (602) 254-8465

Mgr, Planning and Regulatory Affairs Lee Edmonson
Deer Valley Plant

2205 W. Adobe, Phoenix AZ 85027 - Phone (602) 842-4403 - Ready mix concrete.

Manager Jack Long
Higley Plant

4000 N. Higley Road, Mesa, AZ 85215 - Phone (602)

854-2958 - Ready mix concrete and asphaltic concrete.

Manager Eddie Center
Litchfield Plant

11923 W. Indian School Road, Litchfield Park, AZ 85340 - Phone (602) 935-2323 - Sand, gravel, rock products, ABC, and ready mix concrete.

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.

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.

Manager Jack Long
West Phoenix Plant

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

Manager Joe Flores

CAMPBELL REDI-MIX

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

Owner Delbert Campbell

CENTRAL ARIZONA MATERIALS

9699 E. Hwy. 287, Coolidge, AZ 85228 - Phone (520) 723-5719, (602) 649-0244 - Employees: 4 - Landscaping

Other Copper Companies

Carlota Copper Company, a subsidiary of Cambior U.S.A., received their Plan of Operation from the Forest Service on September 30, 1998 and began preliminary construction of road access and monitoring facilities. Efforts continue to obtain all remaining permits to operate their Carlota Mine in Gila County. When startup is achieved Carlota will be the first new, major mine in Arizona in many years.

The property consists of four oxide ore bodies, Carlota, Cactus, and North and South Eder. Mineable reserves 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.

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 currently comes from a combination of dump and bench leaching. Equatorial plans to double production of the SX-EW operation that produced 3 million pounds of copper for Cyprus in 1997.

In 1995 AMT International Mining Corporation acquired the Copper Creek Deposit, located 45 miles northeast of Tucson. By October of 1997 they had completed a feasibility study of the property. The project includes the Old Reliable, Child Aldwinkle, and Copper Prince mines.

On July 1, 1998 the company announced they will purchase BHP's 50 percent interest in a portion of the project. AMT has also purchased several other properties in the district, including the 37,000 acre Mercer Ranch adjacent to the project.

Summo Minerals purchased Johnson Camp in Cochise County from bankrupt Arimetco Inc. The open-pit, heap leach SX-EW operation produced cathode copper from the Burro Pit with an estimated 10 million tons reserves, while another estimated 17.8 million tons await development at the near-by Copper Chief orebody and additional resources outside the reserve area.

The U.S. Bankruptcy Court approved the transaction by Summo Minerals that involves a provision for a due diligence program and a \$2.9 million payment.

COAL

Peabody Group, parent company of Arizona's Peabody Western Coal Company, completed restructuring its U.S. operations this summer. Peabody Group became an independent, privately held company when it was acquired by Lehman Merchant Banking Partners. The sale made Peabody Group the world's largest private sector coal company. The Flagstaff office was closed and management of

the company's two Arizona properties was relocated to St. Louis, Missouri.

Coal ranks second only to copper in economic importance in the State. In 1997 Arizona's coal production was 11,723,000 short tons, having an estimated value of \$279 million. All production is from land leased from the Navajo and Hopi Nations by Peabody Western Group. Royalties from coal production total \$30 million annually.

High-quality coal is strip mined from the Kayenta and Black Mesa mines in central Navajo County. The coal is subbituminous with an average quality of 11.00% Btu, 0.3 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 production was 7,089,532 tons in 1997. The coal from the mine is carried by a conveyor system 17 miles to storage silos. From there it is transported by the electric-powered trains of the Black Mesa & Lake Powell Railroad to the Salt River Project Navajo Generating Plant 78 miles away.

Black Mesa produced 4,633,735 tons in 1997. 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 at 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. The resultant reclaimed land, used for grazing, is more productive than the original land.

GOLD AND SILVER

Arizona's 1997 gold production was not reported by the Department of Interior (either USGS or former USBM) for the first time since reporting began in 1880! Arizona's only operating primary gold mine, Gold Road, produced 35,098 troy ounces in 1997 according to Addwest Mineral's annual report. ADMMR estimates by-product recovery of gold from the sulfide operations of the copper mines would be at least 50,000 ounces. Silver production totaled 5.6 million ounces, recovered as a by-product of copper mining.

The gold price declined \$35 during the first nine months of 1998. It averaged \$294 per ounce, compared with \$331 per troy ounce in 1997. During the second quarter sub-ore grade material was encountered underground in a projected mineable block at the Gold Road mine. These conditions combined with lack of capital for continued development forced Addwest to cease mining and milling in June, 1998. Despite the mine closure and lower gold prices, Addwest continued to add to its holdings in the Oatman district, acquiring rights to the United Western and United Eastern mines. These deposits are located adjacent to the Gold Road

and thus ore from them could be treated by the company's 500 TPD CIP mill. Addwest also controls and has been conducting exploration on the nearby Moss mine.

The Bureau of Land Management released the Yarnell gold project's draft Environmental Impact Statement in June, 1998. BEMA Gold, doing business in Arizona as Yarnell Mining Company, anticipates that construction could begin by mid-1999 if the record of decision and other permits are received. The mine will be operated as an open pit utilizing a closed-loop, heap-leach system.

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, industrial minerals, and gold 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 1998 Salt River Sand & Rock, located in Maricopa County, again operated the second largest sand and gravel plant in the U.S.

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 carries. Quartz and quartzite is mined for use as silica flux in copper concentrate smelting. Industrial sand is produced for use as hydraulic sand used in petroleum production. Mill tailings from a zinc mine are processed for fertilizer. Processing is done so that the contained iron pyrite can provide available iron and sulfur and so that other trace minerals in the tailings and added nitrogen can 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 light-weight aggregate. Stone is quarried and crushed for aggregates and landscaping. Decomposed granite is used for landscaping. Gypsum is

mined and processed for wall board 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.

Omya (Pluess Staufer) of Lucern Valley, California is continuing work on their plans and permits for a calcium carbonate processing plant at Superior in Pinal County. 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.

Arizona Portland Cement together with their parent company, California Portland Cement and their corporate owner, Onoda has received permits to expand their Rillito plant's capacity in phases. Over the next five years the Arizona 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, planned for completion in 2003, requires installing a second pre-calcining tower.

Phoenix Cement Company has announced they have entered the 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.

Adit Canyon L.L.C. acquired the White Cliffs Diatomite mine from Arimetco and plans to reopen the operation by December 1998.

The corporate merger and acquisition fervor has hit Arizona's flagstone stone industry in a small way. The Drake and Ashfork sandstone quarries and processing plant of Western States Stone were acquired by American Sandstone. Western States' schist quarries in the Mayer area were acquired by Apache Stone and their marketing and stone yards were combined into Garden State Stone.

The Department of Mines and Mineral Resources has noted interest in deposits of numerous industrial mineral commodities. These include perlite, clays, industrial sand, mica, limestone, vermiculite, specialty aggregates, and the raw materials containing iron, aluminum, and silica for cement manufacture. Arizona's two cement plants currently source these raw materials from clay, shale, or volcanic zones in their own limestone quarries, from other quarries they own, importers, and waste products from secondary metal processors.

A robust economy with an attendant high level of new residential, commercial, institutional, and industrial construction continues to spur interest in developing additional sources of sand and gravel for construction aggregate.

Vice President (Belen) George Klett
Technical Director (Belen) Matthew Rix
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.

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 United Metro under - Sand and Gravel Operators)
President John Fowler
Vice President Sales Bill Heeter
Chief Engineer Bill Peck
Contact (Superior Materials) Don Fischer
Director Safety & Labor Relations David Chavez
Winkelman Gypsum T6S R16E Sec. 27
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 (801) 628-3916 - Fax (801) 628-4441 - Employees: 21.
President Don Cecala
Mine Superintendent Tracy Cannon
Office Manager Martina 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 (602) 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.

WESTERN STATES STONE COMPANY
P.O. Box 316 - Ash Fork, AZ 86320 - Phone (520) 637-2542 - Employees: 40 - Stone processing facility in Ashfork - Processes sandstone from American Sandstone's quarries located in Coconino and Yavapai counties - Produces flagstone dimension stone, and tiles
Ashfork Plant T21N R2W Sec. 3
Superintendent-Sales Shirley Robertson

YARNELL MINING COMPANY, INC.
P.O. Box 1182, Yarnell, AZ 85362 - Phone (520) 427-3353 - Employees: 4 - Open pit, heap leach, gold mine - Draft EIS released by BLM in June 1998 - Construction may begin in mid 1999 contingent upon receiving Record of Decision, and other permits. - Anticipated employment: 90.
Yarnell Mine T10N R5W Sec. 14
Project Manager Mark Montoya
Operations Manager David LeFevre
Project Engineer Bob Taylor

Produces turquoise under contract with BHP Copper - Sorts, grades, and processes turquoise for worldwide distribution.

SOUTHWESTERN STONE, INC.

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, HCR 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

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: 5 - Open pit cinder mine east of Flagstaff - Volcanic cinders used to make building block at the company's Phoenix and Mesa plants.
Mine Superintendent Terry Mitchell

SWANSEA MINERALS INC.

Office: 6360 E. Rose Circle Dr. Scottsdale, AZ 85251 - Phone (602) 994-9964 - Fax (602) 941-2473 - Beneficiation plant located at 1210 E. Gilbert Rd., Building H2, Tempe, AZ - Employees: 2.
President/General Manager John Challinor
Co-owner Peter Challinor
Swansea Mine T10N R15W Sec. 32
Produces hematite, micaceous-iron-oxide variety - Used for pigment and corrosion barriers.

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 - Fabricates sandstone art objects and tableware.
President Howard Thomas
Sierra Quarry T12N R20E Sec. 20

TREASURE CHEST GRANITE PIT, INC.

P.O. Box 4795, Apache Junction, AZ 85278-4795 - Phone (602) 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 (602) 931-3681 - 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
Office Manager Brenda Kopp
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 - Shipped out of state for further processing.
Union Pass Mordenite T21N R20W Sec. 11
Open pit zeolite mines operated by contract mining company - Mordenite used for specialty adsorbents - Shipped out of state for further processing.

UNITED DESICCANTS

United Catalyst, 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.
Vice President (Louisville) Bill Monin

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. It is mined as a by-product by contractors at a number of Arizona porphyry copper deposits. 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 Yellow Hair Trading and Mining 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 is the gem variety of the mineral olivine. The translucent green material 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. The mine, inactive for over 10 years, was purchased in late 1997 by Kurt Cavano and Jim Machlan. They plan to secure the mine and begin production. The amethyst will be mined by hand, flown by helicopter to Phoenix (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

Mine fraud is of increasing concern to stock exchanges and government security regulators. Although Bre-X, and its Indonesian property Busang, may be the most infamous of recent scandals, others have had connections to Arizona. Additional scandals reported in *Setting New Standards*, by the Toronto Stock Exchnage and the Ontario Securities Commision, include International Platinum (IP), Delgratia

and Naxos. In early 1998 International Precious Metals (successor to IP who was delisted by the Toronto Stock Exchange), was delisted by the NASDAQ stock exchange. The Arizona Corporation Commission issued a cease and desist order to Black Diamond Mining.

These and other companies' activites were the impetus for the Ontario Securities Commission and the TSE to form the mining standards task force to review standards governing the conduct of mineral exploration programs and reporting of results. The task force's interim report, *Setting New Standards*, made four key recommendations: 1) designate a qualified person to sign off on exploration disclosures, 2) establish best exploration and field practices to ensure integrity of results, 3) raise disclosure standards, and 4) improve regulatory oversight.

An all too common occurrence is the reporting of gold or other precious metals where none exists. Investors seem vulnerable to promotions that claim to be able to detect or recover gold that reputable laboratories cannot detect. Despite regulatory agencies investigations and shutdowns, investors should remain wary as the proposed improvements are expected to discourage, but not stop, mine fraud.

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 important segment of recreational mining in Arizona includes gold-panners and operators of small hobby-type suction dredges. Although gold is likely recovered by nearly all who participate in this form of recreation, 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.

COMPANY LISTING

The following list is arranged alphabetically by company. To locate a specific mine use the index

ADIT CANYON L.L.C.

P.O. Box 1049, San Manuel, AZ 85618 - Phone (520) 385-2515 - Employees: 5
President Ward Seiburt
White Cliffs Diatomite T9S R17E Sec. 24
Open pit diatomaceous earth mine and processing plant.
Used for metallurgical insulation, filler, and silica source.

AMERICAN SANDSTONE

Blaser Corporation

2600 N. Highway 89, P.O. Box 1154, Chino Valley, AZ 86323 - Phone (520) 636-4454 - Fax (520) 636-2780 - Employees: 110 - 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 Stoneyard T16N R2W Sec. 22
Black Cat Quarries T22N R1W Sec. 17
Yellow Wasp No. 2 T22N R1W Sec. 9
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
Cucamunga 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

ANASAZI COMPANY

7486 E. Adobe Drive, Scottsdale, AZ 85255 - Phone (602) 585-9882 - 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) - 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
Mayer Onyx Quarry T12N R1E Sec. 22
Echo Green Quarry T12N R2E Sec. 7 & 18
Brown Dog Quarry T12N R1E Sec. 15

ARIZONA OXIDES

8250 N. El Mirage Road, El Mirage, AZ 85335 - Phone (602) 935-9350, (800) 576-1500 - Fax (602) 935-9365 - Employees: 20.
President David C. Lincoln
Executive V. President & Gen. Mgr. Vincent Scott
Sales and Distribution Mgr. Jerry Spinner
Plant Manager Currently Vacant
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.
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: 176 - 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

General Manager, Technical Services . . . J.C. Galassini
Manager, Mining Operations J.G. Davis
Manager, Mine Operations J.D. Brack
Manager, Concentrator Operations T.E. Perkins
Manager, Hydrometallurgical Operations . W.J. Mitchell
Manager, Engineer & Geological Services . D.B. Travis
Manager, Geological Services

AZ Operations M.S. Enders
Director of Analytical Services D.K. Farquhar
Manager, Environmental Services,

AZ Operations R.N. Mohr
Manager, Supply Strategy & Logistics . . . C.G. Ragle
Manager, Maintenance,

Construction & engineering J.C. Armbrust
Manager, Human Resources L.J. Tanton
Manager, Health & Safety E.H. Valentine
Controller A.D. Zerwas
Manager, Mine Safety F.E. Sanders
New Cornelia T12S R6W Sec. 23, 26, 27

P.O. Drawer 9, Ajo, AZ 85321 - Phone (520) 387-7451 - Employees: 22 - Open pit mine - Permitting & development.

President A.J. Broderick
Safford District Office

625 Main Street, Safford, AZ 85546 - Phone (520) 428-8720 - Permitting and 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.

Area Superintendent D.N. Sexton

PHOENIX CEMENT COMPANY

Owned by Salt River Pima-Maricopa Indian Community

Phoenix Office

2501 W. Behrend Drive, Suite 23, Phoenix, AZ 85027, P.O. Box 43740, Phoenix, AZ 85080 - Phone (602) 264-0511 - Employees: 11.

President Roger Smith, Jr.
V.P. Sales & Marketing Pete Kuehner

Bulk Cement Terminal

1941 W. Lower Buckeye Road, Phoenix, AZ 85009 - Phone (602) 258-7798.

Clarkdale Quarry & Plant T16N R2E Sec. 11
P.O. Box 428, Clarkdale, AZ 86324 - Phone (520) 634-2261

- Employees: 165 - Quarry and plant two miles northwest of Clarkdale - 630,000 TPY - Cement used for building industry.

V.P. Operations/Plant Manager John B. Conway
V.P. Finance Micheal La Lond
Assistant Plant Manager/Maintenance . . Joe D'Avignon
Assistant Plant Manager/Engineering Jim Wells
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 HARVEST

dba PINAL GYPSUM COMPANY

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 Kirke Anderson
Office Manager Patricia Gerkin

White Cross Mine T7S R17E Sec. 31
Agricultural gypsum - Company 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 (602) 832-3390 - Employees: 28.

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.

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 - Employees: 45.

President Monty Nichols
Sales Dan Courvoisier

Sleeping Beauty Mine T1N R14E Sec. 12

NATIONAL GYPSUM COMPANY
Gold Bond Building Products Division
 1414 E. Hadley St., Phoenix, AZ 85034 - Phone (602) 258-9321 - Employees: 58 - Wallboard plant.
 Plant Manager Gary McEwen
 Office Manager Wendy Self
 Production Manager Robert Piercy
 Joint Cement Quality Control Nick Tuhus
Feldman Quarry T6S R16E Sec. 27
 1103 South 77 Highway, Winkelman, AZ 85392 - 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

OMYA (ARIZONA), INC.
 P.O. Box 825, Lucern Valley, CA 92356 - (800) 222-0120.
 Plant Manager (California) Manfred Keil
 Geologist (California) Howard Brown)
Queen Creek Marble Quarry T1S R13E Sec. 17
 Employees: 5 - Marble quarry - Primary crushing and screening plant.
 Quarry Manager (Arizona) 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
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, Engineering Mine Douglas G. Botone
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
 Assistant Superintendent, 1st Shift . . . Barry L. Grass
 Assistant Superintendent, 2nd Shift . . . Paul C. Yazzie
 Assistant Superintendent, 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
 Assistant Superintendent, 1st Shift Alan Gough
 Assistant Superintendent, 2nd Shift Randall L. Hendrix
 Assistant Superintendent, 3rd Shift Jonas Grass
 Safety Supervisor Daniel Ashike
 Ariz. Business Unit Manager,
 Safety and Training William K. Bippus
 Ariz. Business Unit Controller Charles W. Tilly

PHelps DODGE CORPORATION
Corporate Headquarters
 2600 N. Central Ave., Phoenix, AZ 85004-3014 - Phone (602) 234-8100.
 Chairman, & CEO D.C. Yearley
 President & COO J.S. Whisler
 Senior Vice President and
 President, Phelps Dodge International . . . M.J. Iraola
 Senior Vice President T.R. Snider
 Senior Vice President
 Organization Development & IT R.G. Peru
 Senior Vice President & CFO T.M. St. Clair
 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
 Executive Vice President J.L. Madson
 Vice President, Exploration A.L. Lawrence
 Vice President, Engineering R.W. Rice
 Vice President, New Mexico Operations . . W.S. Brack
 Vice President & Controller J.M. McCarty
 Vice President, Supply Strategy M.F. Upton
 Vice President, Technology J.O. Marsden
 Vice Presdident, Strategy
 & Business Devel. K.V. Madhavepeddi
 General Traffic Manager E.J. Pajor
Phelps Dodge Exploration Corporation
 2600 N. Central Ave., Phoenix, AZ 85004-3014 - Phone (602) 234-8100.
 President A.L. Lawrence
 Counsel L.D. Milner
Copper Queen T23S R24E Sec. 15
 36 W. Highway 92, Bisbee, AZ 85603 - Phone (520) 432-3621 - Employees: 54 - Mine dump leaching - Copper precipitation plant.
 Project Manager D.N. Sexton
Morenci. 81 square miles, centered on T4S R29E
 4521 State Hwy. 191, Morenci, AZ 85540 - Phone (520) 865-4521 - Employees: 2,618 - Open pit copper mine - Two concentrators (one with molybdenum circuit), total capacity 135,000 TPD - Four SX plants - Two EW tankhouses - Total SX-EW capacity 550 million pounds per year.
 President H.M. Conger
 General Manager, Operations R.H. White

Plant Engineer Russell Hawks
 Personnel Manager Mardi Nagy
 Quarry Supervisor Chuck Hansen
 Environmental Manager Jannelle 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 - Hydraulic 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
Tucson Office
 1150 N. 7th Avenue, Tucson, AZ 85705, P.O. Box 5747, Tucson, AZ 85703 - Phone (520) 798-7500 - Fax (520) 798-7781.
Asarco Copper Operations
 President and Chief Operating Officer . . F.R. McAllister
 Assistant to Executive V. President . . . T.E. Scartaccini
 Divisional Environmental Mgr. D.M. Yantorno
 Director, Materials Services L.G. Widugiris
 Chief Geologist S. A. Anzalone
 Mineral Discovery Center Manager . . . R.W. Vugteveen
Project Development
 Manager Development,
 Projects & Services D.C. Dixon, Jr.
 Santa Cruz and
 Special Projects Manager D.F. Skidmore
Controller Department
 Financial Manager J.T. O'Neil, Jr.
 Financial Coordinator O. Ho
 Shared Services Manager H.W. Tuck
Specialty Products Group
 Commercial Director G.P. Gillen
Governmental Affairs
 Director, State Legislative Affairs R.E. Quick
Tucson Information Services
 Manager T. Fedoruk
Mission Mine T16S R12E Sec. 36
 Box 111, Sahuarita, AZ 85629 - 4201 W. Pima Rd. - Phone (520) 648-2500 - Fax (520) 648-0802 - Employees: 922 - 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
 Maintenance Manager H.E. Hughes
 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
Ray Operations 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: 1,541 - 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, Ray Operations B.P. Boylan
 Manager, Hayden Operations J.A. Wilhelm
 Technical Support Manager R.E. Thompson
 Mine Manager J.A. Bowsher
 SX-EW Manager G.R. Burns
 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 R.D. Thompson
 Maintenance Manager, Hayden Hugh Alexander
 Support Manager J.W. Murphy
 Financial Manager D.K. Hiemstra
 Human Resources Manager R.Y. Estrada
 Materials Manager K.C. Newnam
 Engineering Manager R.S. Rhoades
 Safety Manager T.C. Heyn
 Senior Geologist Greg Nickel
 Project Manager D.J. Cooke
Silver Bell Mining L.L.C. (25% Mitsui & Co.)
Silver Bell North Pit T12S R8E Sec. 11
 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 J.A. Stalcup
 Chief Engineer H.T. Richins
 General Electrical Supervisor M. Canez
 General Maintenance Supervisor D.A. Rosette

Safety Engineer R.W. Edgell
Santa Cruz T6S R4E, Sec. 13
P.O. Box 11226, Casa Grande, AZ 85230-1226 - Phone
(520) 836-6249 - Fax (520) 836-0179 - Experimental in-
situ copper leach research project with joint venture part-
ner Freeport McMoran - SX-EW plant.
Santa Cruz Manager D.F. Skidmore*
Site Manager H.G. Kreis**
* At Tucson Office - Phone (520) 798-7766 Fax (520)
798-7783
** At Tucson Office - Phone (520) 798-7717 Fax (520)
798-7783

ASHTON COMPANY

2727 S. Country Club, Tucson, AZ 85713 - Phone (520)
624-5500 - Employees: 7 (at Camp Grant Quarry).
Camp Grant Quarry T7S R16E Sec. 5
Quartzite quarry - 480,000 TPY capacity crushing and
screening plant for silica flux for BHP's San Manuel copper
smelter.
Crusher Superintendent Bob Bishop

BHP COPPER

Tucson Office
7400 N. Oracle Road, Tucson, AZ 85704 - Phone (520)
575-5600 - Fax (520) 575-5663.
San Francisco Office
550 California Street, 5th Floor
San Francisco, CA 94104 - Phone (415) 774-2545 - Fax
(415) 774-2530.
Executive General Manager Jim E. Lewis
San Manuel T8S R16E Sec. 34, 35
P.O. Box M, San Manuel, AZ 85631 - Phone (520) 385-
3100 - Employees: 1,850 - San Manuel and Kalamazoo
underground copper-molybdenum mines - 62,000 TPD
concentrator - In-situ leach - SX-EW plant - Capacity 120
million lb. per year.
Vice President & Gen. Manager Doug McGregor
Manager Sulfide Mining Ron Allum
Superintendent Concentrator . . . Gerald R. Brunskill
Superintendent In-situ Dan Ramey
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 - Employees: 1,060 - 1,300,000 TPY flash smelter -
1,150,000 TPY acid plant - 345,000 TPY electrolytic refin-
ery - 180,000 TPY continuous cast rod plant.
Vice President & General Manager,
Metals Operation Ken Driggs
Vice President Operations Rob Chesher
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 - Capac-
ity 25 million lb. per year. **Sulfide operations on standby.**
Operations Manager Rick Seaney
Mgr. Concentrator Operations Jack D. Conklin
Florence
14001 East Hunt Highway, Florence, AZ 85232 - Phone
(520) 868-5094 - Employees: 18 - Fully permitted in situ
copper mine project in pilot testing phase - Test includes
an in-situ leach and solvent extraction-electrowinning
plant.
Project Manager John Pio

BLACK CANYON MILLING

P.O. Box 33638, Phoenix, AZ 85067 - Phone (602) 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

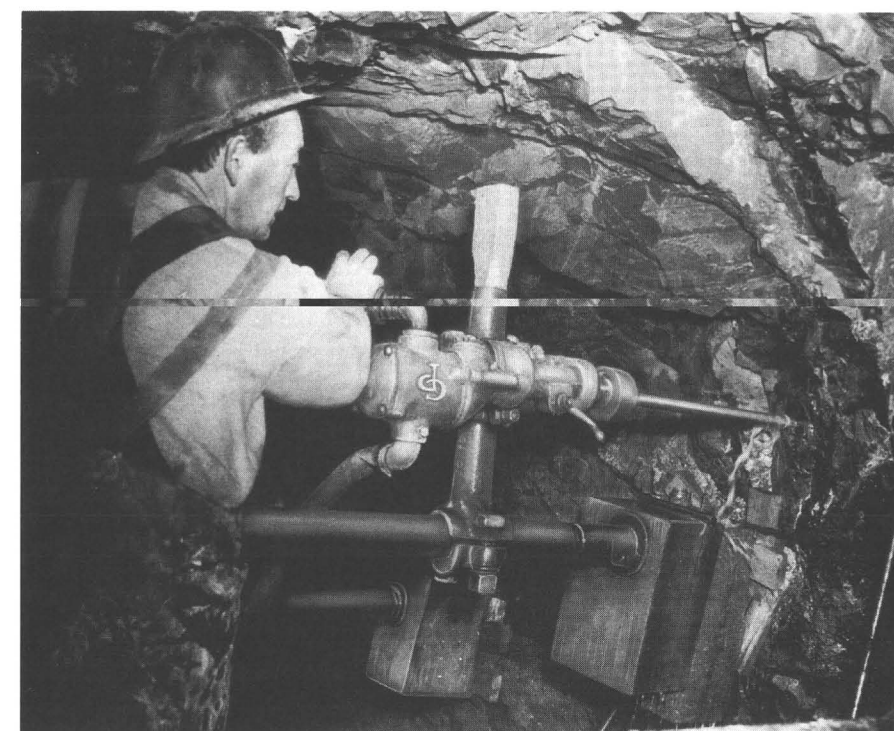
BUILDING PRODUCTS COMPANY

Phoenix Plant
4850 W. Buckeye Road, Phoenix, AZ 85043 - Phone (602)
272-5576 - Employees: 2-3 (involved in clay mining) -
Produces extruded vitreous clay permanent sewer pipe.
Plant Manager and Mining Supervisor . Jon Humphreys
Rim Quarry T11N R19E Sec. 30
Clay mine located 10 miles southwest of Clay Springs.
New River Slate Quarry T7N R3E Sec. 5
Slate quarry located approximately 6 miles northeast of
New River.
Dewey Ranch #2 T14N R1E Sec. 15
Clay mine located approximately 6 miles north of Dewey.

CARLOTA COPPER COMPANY subsidiary of Cambior USA Inc.

P.O. Box 1009, Miami, AZ, 85539 - Phone (520) 473-3518
- Employees: 9.
Carlota T1N R13E Sec. 36
Located 8 miles east of Miami - Anticipated employment:
300 - Open pit copper mine - Heap leach - SX-EW plant -
Capacity 60 million lb. per year - Plan of Operations signed
by Tonto Forest in September, 1998. - Preliminary construc-
tion began October, 1998.
General Manager Bob Walish
Mine Manager George Bell
Human Resource Manager Kevin Webster

Unidentified photo
A-200-25.



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

MINERAL DEVELOPMENT, INC. Superior Marble Division

21555 East Ocotillo, Queen Creek, AZ 85242 - Phone (602)
987-1916 - Fax (602) 987-1917 - Employees: 20.
Queen Creek Marble Processing Plant
Marble crushing and screening plant - Used for landscape,
plaster, feed supplements, and specialty aggregate.
Owner Mike Smith
Owner Gary Smith
Plant Manager Bruce Carter

Sales Rick Erman
Office Manager Linda Carter

MINERALS RESEARCH AND RECOVERY, INC.

Tucson Office and Plant
4620 S. Coach, Tucson, AZ 85714 - Phone (520) 748-9362
- 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 - Proc-
esses copper smelter slag for roofing granules and abrasives.

MORTON SALT DIVISION Morton International

13000 W. Glendale Ave., Glendale, AZ 85307 - Phone
(602) 247-3000 - Employees: 38.
Facilities Manager Geron Turnquest
Environmental Coord./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.

President Ted H. Eyde
Vice President Daniel T. Eyde
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 ad-
sorbing Cs¹³⁷ and Sr⁹⁰.

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 - Employees: 13 - Crushing, screen-
ing, 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.
Plant Manager Louie Lucero
Assistant Manager 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) 636-0576
- Employees: 25-35 - Quarries located 8 miles northeast of
Drake - Quarries and processes Arizona flagstone into flag-
ging, 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 (602) 991-9804 - Fax (602) 991-1727 - 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 - 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 Schmucher

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 (602) 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 - 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.

P.O. Box 95, Ashfork, AZ 86320 - Phone (520) 637-2288 -
Employees: 35-50 - Processing plant located on Double A
Ranch Road 2 miles north of Ashfork - Quarries and proc-
esses 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. Supr. Ilene Harrison

MADISON GRANITE

7050 Grand Avenue, Glendale, AZ 85301 - Phone (602)
931-7760 - 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

CATALINA MARBLE, INC.

2601 W Broadway, # 542, Tucson, AZ, 85745 - Phone (520)
884-7263 - Employees: 3.
President Kevin Hall
Vice President James B. Fink
Indian Town Quarry T10S R13E Sec. 32
Marble quarry - Crushing, screening, and bagging plant -
Produces white aggregate, for construction, landscape, and
specialty uses.

CHEMICAL LIME

Scottsdale Office - Gainey Office (Sales)
8777 N. Gainey Center Drive, Suite 280, Scottsdale, AZ
85258 - Phone (602) 443-6980, (800) 288-9676 - Fax (602)
948-4293.
Vice President, Industrial Sales Bob Plains
Account Representative Brett Tanner
Account Representative Darren Fry
Scottsdale Office - Forum Office
6263 N. Scottsdale Road, Suite 280, Scottsdale, AZ 85250
- Phone (602) 368-4200, (800) 978-0325 - Fax (602) 368-
4220.
President, Western Division Bob Derks
Director New Business Development David Fleming
Manager, Technical Services Starr Curtis
Distribution Manager Jim Kenney
Transportation Coordinator Rick Caldwell
Nelson Quarries & Plant T25N R10W Sec. 25
P.O. Box 370, Peach Springs, AZ 86434 - Phone (520)
769-2271 - Fax (520) 769-2305 - Employees: 72 - Lime-
stone quarry - Two rotary kilns - Capacity 1800 TPD lime
- Marketed for flue gas desulfurization, water treatment, soil
stabilization, and alkalinity control for copper ore beneficia-
tion and gold leaching.
Plant Manager William Schoof
Maintenance Superintendent Mark Phillips
Quarry Superintendent Jim Blackwell
Plant Buyer Linda Smith
Shipping/Transportation Coordinator Terry Witte
Senior Process Control Engineer John Prodlly
Quality Control Technician Perry Curley
Douglas Quarry & Plant T24S R26E Sec. 7
4753 West Paul Spur Road, Douglas, AZ 85607 - Phone
(520) 364-2429 - Fax (520) 364-2706 - Employees: 60 -
Limestone quarry - Three lime kilns - Capacity 1,000 TPD
lime - Marketed for alkalinity control for copper ore bene-
ficiation, stabilization, and crude crushed limestone for flue
gas desulfurization.
Plant Manager Jerry Young
Maintenance Superintendent Richard Anderson
Quarry Superintendent Don Russell
Production Services Superintendent Robert Kline
Process Engineer Pat Morgan
Quality Control Technician Louis Roqueni

CLINTON - CAMPBELL CONTRACTING INC.

Phoenix Brick Yard
1814 S. 7th Ave., Phoenix, AZ 85007 - Phone (602) 258-
7158 - Employees: 96.
President Frederic Campbell
Plant Superintendent Don Campbell
Tolleson Mine T1N R1E Sec. 3
Clay pit located on 84th Ave. north of Van Buren - Used to
manufacture structural clay products.
Pantano Clay Pits T16S R17E Sec. 21, 26, 27, 28, 35
Clay pits located 25 miles southeast of Tucson - 2 miles
northwest of the Interstate 10 Business Exit - Used to man-
ufacture structural clay products.

COCONINO CINDER AND MATERIALS

7000 E. Highway 66, Flagstaff, AZ 86004 - Phone (520)
526-9509 - Employees: 4.
Owner/General Manager Bob Payne
Wildcat Hill Pit T21N R8E Sec. 9
Located 2 miles east of Flagstaff - Cinder and basalt quarry
- Used for landscaping, aggregate, horticulture, specialty
uses, and construction materials.

CYPRUS CLIMAX METALS COMPANY

subsidiary of Cyprus Amax Minerals Company
1501 W. Fountainhead Parkway, Suite 290, Tempe, AZ
85282 - Phone (602) 929-4400.
President Jeffrey G. Clevenger
Sr. Vice President, Sales and Marketing Louis Morse
Vice President, Environmental Affairs Jerry W. Danni
Executive Vice President William H. Champion
General Attorney Sarah Strunk
General Attorney Ruth Kern
Vice President & Controller Lowell Shonk
Cyprus Sierrita Corp.
Sierrita T18S R12E Sec. 7, 8, 9, 10, 16, 17
P.O. Box 527, Green Valley, AZ 85622 - Phone (520)
648-8500 - Employees: 730 - Sierrita, Ocotillo open pit
copper-molybdenum mines - 110,000 TPD concentrator -
17,500 TPD concentrator - Ferromolybdenum plant - Rhe-
nium plant - Dump leach - SX-EW plant - Capacity 72
million lb. per year - Located 30 miles south of Tucson.
Vice President John Fenn
General Manager of Operations James Handley
Manager, Metallurgical Processing William Sweetser
Manager, Human Resources Richard Stilgenbaur
Controller Kent Alme
Supt., Mine Operations & Maintenance Terry Ritzel
Manager, Copper Processing Steve Koski
SX-EW Superintendent Ramon Hernandez
Manager, Technical Services Jackson Jenkins
Superintendent, Crushing & Conveying William Davis
Cyprus Miami Mining Corp.

Miami Mine & Smelter T1N R14E Sec. 24, 25, 26, 35
P.O. Box 4444, Claypool, AZ 85532 - Phone (520) 473-7150 - Employees: 900 - Open pit oxide copper mine - Dump leach - SX-EW plant - Capacity 150 million lb. per year - 120,000 TPY smelter - Acid plant - Electrolytic refinery - 100,000 TPY continuous cast rod plant - 24,000 TPD concentrator is inactive.
Vice President Ken Watkins
Controller/Materials Management Ricky Lamb
General Manager, Operations Robert Wishart
Manager, Pyrometallurgy Richard Riddle
Manager, Mine Lonnie Terrill
Manager, Hydrometallurgy Samuel Yang
Manager, Human Resources/Safety Gary Rawson
Chief Mine Engineer Michael Curran
Superintendent, Mine Operations Steve Williamson
Superintendent, Mine Maintenance Ken Benedick
Superintendent Leach/SX/EW Rudy Cabanillas
Superintendent, Electrorefinery James Garvey
Superintendent, Smelter Maintenance Gary Hinch
Superintendent, Rod Plant Richard Hyde
Coordinator Quality Assurance Richard Dana

Manager, Environmental/Land Robert Ressler
Superintendent, Smelter Operations Pete Bagdon
Manager, Hydrometallurgy Samuel Yang
Cyprus Bagdad Copper Corp.
Bagdad T14N R9W Sec. 4
P.O. Box 245, Bagdad, AZ 86321 - Phone (520) 633-2241 - Employees: 500 - Open pit copper-molybdenum mine - 85,000 TPD concentrator - Dump leach - SX-EW plant - Capacity 30 million lb. per year.
Vice President, General Manager Gene Consalus
Manager, Mine Ed Fidler
Manager, Plant Operations Tom Comi
Manager, Human Resource & Community Services Carl Kerschen
Manager, Environment/Land Mike Garfield
Controller Doug Comer
Sourcing Manager Darryl Kriebel

Cyprus Tohono Corporation
Tohono T10S R4E Sec. 25
P.O. Box 15009, Casa Grande, AZ 85230-5009 - Phone (520) 623-1539 - Employees: 40 - Open pit copper mine -

Heap leach - SX-EW plant - Capacity 100 million lb. per year. **Open pit on standby.**
Vice President & General Manager Al Tittes
Manager, Human Resources Richard Stilgenbauer
Manager, Environmental/Land Hermit Behnke

DRAKE STONE PRODUCTS
P.O. Box 11676, Prescott, AZ 86304 - Phone (520) 445-3028 - Fax (520) 717-1359 - Phoenix sales office - (602) 942-5831 - Employees: 50 - Stone processing plant at Drake - Quarries and processes flagstone into flagging, dimension stone, tiles, and specialty landscape shapes. Also, Co-owner/Operator Harley Gray Jr.
Co-owner Deborah Gray
Sales (Phoenix) Robin Sherman
Rock House Quarry T19N R1E Sec. 10
M C Quarry T19N R1E Sec. 35

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 William G. Hyslip
Granite Quarry T13N R2E Sec. 5

ENGELHARD CORPORATION
Chemical Division
Box 155, Sanders, AZ 86512 - Phone (520) 521-5468 - Fax (520) 521-3796 - Employees: 6.
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.
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.
Mine Manager Mike Kondelis
Plant Supervisor Joey Matthews
Maintenance Supervisor Greg McClure
Environmental Coordinator Brian Henderson
Metallurgist Jerry Rodriguez

FLAGSTAFF CINDER SALES INC.
Old Highway 66 East, P.O. Box 2415, Flagstaff, AZ 86003 - Phone (520) 526-0801 - 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 - Employees: 16.
Plant Manager Mark Snyder
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.

GOLDEN GREEN PLACER MINING PARTNERSHIP
HC2 Box 100, Sells, AZ 85634 - Phone/fax (520) 361-2310 - Employees: 4.
Devils Wash T15S R2E Sec. 2
Located approximately 1.5 miles southwest of Quijotoa - Gold placer operation - Wet gravity concentration - Capacity 750 yards/day.
Project Manager Jack Otani

GSA RESOURCES INC.
7660 N. Business Park Drive, Tucson, AZ 85743 - Phone (520) 744-8845 - Employees: 8 (including contractors).



Unidentified photo # A-200-23. Unknown surface plant. The long inclined devise in the center appears to discharge tailings.