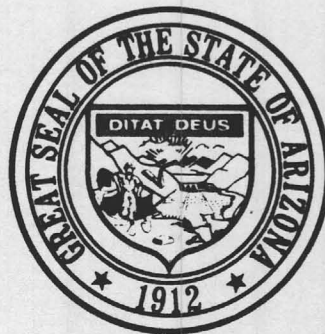


D-13(81)

DIRECTORY OF ACTIVE MINES IN ARIZONA



ARIZONA DEPARTMENT OF MINERAL RESOURCES

JOHN H. JETT, DIRECTOR

JANUARY - 1981

PHOENIX OFFICE

**MINERAL BUILDING, FAIRGROUNDS
PHOENIX, ARIZONA 85007
(602) 255-3791**

TUCSON OFFICE

**STATE OFFICE BUILDING
415 W. CONGRESS
TUCSON, ARIZONA 85701
(602) 882-5399**

BOARD OF GOVERNORS

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RICHARD COLE, SECRETARY - PINETOP

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ED PELOW - TEMPE

CURTIS J. RITTER, CHAIRMAN - KIRKLAND

ACTIVE MINES IN ARIZONA

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This directory is a listing of active mines in Arizona. The list is compiled from field visits and information received by the department engineers.

For the purpose of this directory, an active mine is arbitrarily defined as a mine that is in continuous activity, either in production or under full time development for production.

It is acknowledged that there are additional mines not listed which are in an exploration, evaluation or part-time development phase. There are others whose production is on an intermittent basis which are not listed. There is considerable activity on claim location, land positions, sampling and other type intermittent activities which are not noted. As an example, the directory lists three mines in the Tombstone area. However, in that same area there are at least six additional operations in various stages of exploration, pilot plant testing, etc. which are not yet listed.

It is not the intent of the department to neglect or ignore an operation. Not being a regulatory or taxing authority, our data is obtained by the department field engineers and/or by voluntary submission of information for our records.

AMCA INDUSTRIES LIMITED

SILVER CROSS MINE

P.O. Box 189, Cave Creek 85531 - Phone 488-9326 - Employees 3-5
North of Cave Creek - underground - gold and silver - heap leaching -
carbon absorption

Principal Operator Charles Martin
Managing Engineer Jeff Tognoni

THE ANACONDA COMPANY

MINERAL RESOURCES GROUP

P.O. Box 27007, Tucson 85726 - I-10 & Kolb Road - Phone 889-5361
Metallurgical research facility with small geology department.

Manager, Research Administration Frank Traversone
Manager, Research Group R. W. Bartlett
Manager, Evaluation Group C. Arentzen
Manager, Technical Services Group W. B. Davis
Manager, Industrial Minerals Research Group L. G. Holgemuth
Manager, Process Engineering Group W. A. Yull
Director of Geological Laboratories H. A. Vincent
Manager, Flotation & Hydrometallurgy H. W. Jackey

ANAMAX MINING COMPANY

TWIN BUTTES MINE

P.O. Box 127, Sahuarita 85629 - Phone 791-2810 (Tucson) - Employees 1400
Open pit and underground copper mine - concentrator- electrowinning plant -
agitation leach plant - molybdenum recovery plant

President G. R. Myman
Vice President, Controller R. E. Mielback
Vice President, Operations D. K. Mortensen
Vice President, Personnel Administration J. M. Pijanowski
Director, Scheduling & Water Management L. Polish
Manager, Labor Relations J. Williams
Manager, Engineering Services S. N. Buckner
Manager, Operational Accounting R. L. Colio
Manager, Taxes & Insurance Harold Metz
Manager, Information Systems D. M. Renshaw
Mine Manager J. T. Devere
Metallurgical Manager H. R. Moyer
Manager, Personnel R. M. Larsen
Superintendent, Central Engineering F. B. Brost
Superintendent, Mine Maintenance J. W. Rosson
Superintendent, Oxide Plant W. P. Lorenz
Superintendent, Mine Operations S. A. Hanson
Superintendent, Sulfide Plant J. D. Conklin
Superintendent, Central Services R. W. Kershaw

(Continued on next page)

ANAMAX MINING COMPANY (continued)

Superintendent, Electrical	C. Rucker
Asst. Superintendent, Eisenhower Project	J. Gay
Chief Counsel	J. S. Frankovich
Chief Geologist	J. L. Kelly
Manager, Long Range Planning	K. P. Rooker
Chief Chemist	D. E. Wood
Director, Loss Prevention	G. H. Johnson
Director, Purchasing Material Control & Traffic	J. Garay
Manager, Environmental Control	D. Russell
Chief Metallurgist	E. E. Krist
Director, Accounting	T. L. Dooley
Manager, Financial Accounting	A. R. Eikenbary

ANDRADA MARBLE COMPANY INC.

4901 E. Drexel Road, Tucson 85706 - Phone 294-8361 - Employees 9
 Mine site located 17 miles southeast of Tucson - open pit marble mine -
 calcium feed additive - plastering material, decorative stone, roofing
 material - 3,000 TPM.

President	David Hartley
Vice President	Patricia Murphy

ARIZONA PORTLAND CEMENT COMPANY

P.O. Box 338, Rillito 85246 - Phone 622-3503 (Tucson) - Employees 311
 Limestone quarry 5 miles from plant - lime, cement - annual capacity
 1,300,000 tons cement.

Plant Manager	Tom Brosnan
Plant Chemist	J. Boyette
Plant Engineer	Les Claire
Chief Electrician	Jack Meeler
Office Manager	Fran Young
Quarry Foreman	Chuck Hansen
Asst. Quarry Foreman	Bob Blackford
Purchasing Agent	Paul Cowan

ASARCO INCORPORATED

TUCSON OFFICE

1150 N. 7th Avenue, P.O. Box 5747, Tucson 85703 - Phone 792-3010

Western Mining Department

General Manager, Western Mining Department	C. W. Campbell
Assistant to General Manager	J. R. Stringham

Mining Department

Assistant to Vice President	A. D. Coumides
Chief Geologist	S. A. Anzalone

(Continued)

ASARCO INCORPORATED (Continued)

TUCSON OFFICE (Continued)

Legal Department

Assistant General Counsel G. M. Clark, Jr.

Mineral - Benefication Department

Director D. E. Crowell
Chief Metallurgist T. D. Henderson

Exploration Department

Manager, Western U.S.A. W. L. Kurtz
Property Engineer R. B. Crist

Southwestern Mining Department

Manager T. E. Scartaccini
Assistant to Manager D. F. Skidmore
Accounting Manager R. L. Hoyle
Director of Industrial Relations J. G. Moore, Jr.

Southwestern Ore Purchasing Department

Manager A. J. Kroha
Assistant Manager J. N. Lambe
Administrative Assistant M. Hinton

Department of Safety & Technical Employment

General Safety Engineer A. L. Schaefer

HAYDEN UNIT

Box 98, Hayden 85235 - Phone 356-7804 - Employees 544 - Copper smelter capacity 960,000 TPY - Acid plant capacity 1,000 TPD.

Manager W. F. Cummins
General Superintendent D. J. Parker
Assistant General Superintendent W. D. Marczeski
Plant Engineer L. DiPastena
Accounting Manager R. A. Moon
Purchasing Agent K. C. Newnam

MISSION UNIT

Box 111, Sahuarita 85629 - W. Pima Mine Road - Phone 791-2920 - Employees 940
Open pit copper mine - concentrator - dump leaching.

Manager R. S. Herde
Superintendent S. L. Burrill
Mine Superintendent R. E. Thompson
Chief Engineer G. H. Bloomfield

(Continued)

ASARCO INCORPORATED (Continued)

MISSION UNIT (Continued)

Geologist	G. W. Spangenberg
Chief Chemist	C. D. Lobley
Chief Metallurgist	V. C. Martz
Mechanical Superintendent	C. W. McClain
Mill Superintendent	H. W. Walker
Purchasing Agent	L. J. Schiller
Chief Accountant	C. G. Noland
Director of Safety & Personnel	R. W. Hildebrand
Safety Engineer	P. J. Maley

SAN XAVIER UNIT

Open pit copper mine operated by Mission Unit.

SACATON UNIT

P.O. Box V, Casa Grande 85222 - Maricopa Road - Phone 836-2171 - Employees 307
3 Miles northwest of Casa Grande - Open pit copper mine - concentrator -
Underground mine under development.

Manager	T. R. Edwards
Mine Superintendent	J. B. Lichtenhan
Mill Superintendent	K. W. Deter
Chief Engineer	M. A. Melcher
Geologist	R. B. Cummings
Mechanical Supervisor	J. P. Smith
Chief Accountant	M. L. Beebe
Purchasing Agent	W. B. Manakee
Personnel Director	W. G. Stewart, Jr.
Underground Superintendent	R. C. Byrd

SILVER BELL UNIT

Silver Bell 85270 - Phone 622-6751 - Employees 302 - Open pit copper
mine - concentrator - dump leach - precipitation plant.

Manager	B. K. Malone
Mine Superintendent	W. D. Gay
Chief Engineer	R. A. Barnes
Mill Superintendent	D. J. Duncan
Mechanical Superintendent	D. J. Shea
Geologist	C. A. Dilbert
Purchasing Agent	C. R. Henry
Chief Accountant	G. H. Myers
Personnel Director	J. F. Coxon

ASH PEAK MINES INC.

3715 N. Hash Knife Circle, Tucson 85715 - Phone 749-3573 - Ash Peak Mine
is located on south side of U.S. Highway 70, 10 miles west of Duncan -

(Continued)

ASH PEAK MINES INC. (Continued)

Siliceous tailings shipped as flux to copper smelter - Carbon-in-Pulp plant under construction.

President L. Patton
Operations Manager M. Umphres

CITIES SERVICE COMPANY

MIAMI OPERATIONS

P.O. Box 100, Miami 85539 - Phone 425-7611 - Employees 961
Pinto Valley Mine - Open pit copper mine - concentrator - solvent extraction - electrowinning plant.
Miami East Project- Underground copper mine under development.
Miami - Copper Cities Mine - Underground and dump leach.

Vice President C. T. Brown
General Manager R. P. Hughes
Manager of Administration Gene Nichols
Manager of Employee Relations D. D. Rickabaugh
Manager of Planning J. J. Spencer
Manager of Operations G. E. Napp
Underground Mine Manager R. L. Stoughton
Manager, Maintenance & Engineering Service N. B. Gillespie
Manager, Technical Services A. D. Kennedy
Asst. Manager, Maintenance G. M. Barnard
Mine Superintendent, Pinto Valley D. L. Goar
Construction Coordinator E. I. Osborn
Leaching Superintendent J. R. Sosh
Purchasing Agent B. L. Beydler
Employee Relations Assistant G. C. Bocardo
Concentrator Superintendent, Pinto Valley W. G. Slack
Resident Geologist R. A. Breitrick
Safety Engineer, Pinto Valley G. J. Klein
Environmental Engineer R. J. Cing-Mars
Personnel Manager L. S. Gonzales (Mrs)
Safety Coordinator R. Johnson
Mine Superintendent, Underground E. O. Anderson
Chief Engineer, Underground H. W. Schulz

CONGRESS CONSOLIDATED GOLD MINING COMPANY

CONGRESS MINE

1219 S. 19th Avenue, Phoenix 85009 - Phone 254-6494 - Employees 10
3 Miles north of Congress - gold and silver heap leaching.

President D. W. Jaquays
Vice President D. R. Lindsay
Secretary Ethelyn Jaquays
Treasurer P. F. Cary
Superintendent J. L. Kleiner

COPPER HILL MINE

Box 752, Globe 85501 - Phone 425-7006 - Employees 6 - Silica flux for copper smelters

Contractor-Lessee Charlie Nichols

CORVAL DEVELOPMENT INC. (ARICON MINING)

Box 3905, Kingman 86401 - Phone 767-3695 - Employees 15 - heap leach, silver - mine at White Hills - reopening GAR shaft.

Resident Manager Corwin Coe

CYPRUS BAGDAD COPPER COMPANY

P.O. Box 245, Bagdad 86321 - Phone 633-2241 - Employees 880 - Open pit copper mine - sulphide concentrator - dump leach - solvent extraction and electrowinning plant

General Manager Alex R. Jacobs
Assistant General Manager R. J. Bonnis
Operations Manager K. C. Apland
Mine Manager T. D. Vaughn
Concentrator Manager R. E. Wakefield
Solvent Extraction Manager M. S. Swain
Engineering and Construction Manager H. W. Smith
Maintenance Superintendent, Mine Claude Murphy
Maintenance Superintendent, Concentrator R. T. Comstock
Operations Superintendent, Concentrator A. G. Austin
Planning & Development Manager P. K. Medhi
Purchasing & Warehousing Manager C. W. Jenkins
Controller J. C. Ryan

CYPRUS JOHNSON COPPER COMPANY

P.O. Drawer R, Benson 85602 - Phone 586-2241 - Employees 70 - open pit copper mine - heap leach - solvent extraction - electrowinning plant - 5 miles north of Dragoon

General Manager J. O. Sierakoski
Mining Engineer George Schuler
Mine Superintendent Warren Montgomery
Plant Superintendent William Rudy
Purchasing Agent Charley Burleson
Assistant General Manager D. L. Zimmerman

CYPRUS PIMA MINING COMPANY

P.O. Box 7187, Tucson 85725 - Pima Mine Road, 12 miles south of Tucson -
Phone 791-2870 - Employees 700 - open pit copper-molybdenum mine - concentrator

Vice President & General Manager	G. A. Komadina
Resident Manager	Burjore Choksey
Mill Superintendent.	Conrad Pilz
Mine Superintendent.	Delbert W. Rich
Mechanical Superintendent.	Richard J. Rea
Electrical Superintendent.	Bob Wright
Chief Geologist	Don R. Williamson
Treasurer	Don Tremper

DUNBAR STONE COMPANY

P.O. Box 246, Ashfork 86320 - 716 Lewis - Phone 637-2592 - Employees 25 -
Quarries in Yavapai, Coconino and Mohave Counties - flagstone, sand and gravel,
redimix, decorative flagstone, sold in and out of state.

President.	G. E. Dunbar
Vice President	W. B. Dunbar

DUVAL CORPORATION

4715 E. Ft. Lowell Road, Tucson 85712 - Phone 881-6200 - Employees 102

Chairman of the Board & Chief Executive Officer. . .	G. E. Atwood
President - Houston.	D. J. Bourne
Sr. Vice President - Operations.	A. E. Smith
Sr. Vice President - Planning.	Royce A. Hardy
Vice President - Production.	T. H. Pate Jr.
Vice President - Special Projects.	D. E. Cochran
Vice President - Development	E. D. Bowman Jr.

(Continued)

DUVAL CORPORATION (Continued)

General Manager, Exploration	J. I. Sharpe
General Manager of Materials	G. R. Kemp
Manager, Land Department	J. L. Kirby
Manager, Process Technology	R. W. Livingston
Manager of Systems	E. J. Freeh
Manager, Mine Planning	T. Jancic
Manager, Maintenance Methods	W. H. Long
Manager, Electrical Engineering	A. T. Jones
Manager, Development	K. E. Elers
Manager of Employee Relations	S. L. Vaughn
Director, Safety Affairs	E. L. Gay
Director, Environmental Affairs	A. Gomez
Director, Health Affairs	R. L. Brown
Director of Industrial Relations	M. H. Campbell
Director, Research	A. T. Wilson
Director of Public Relations	D. W. Lynch

MINERAL PARK DIVISION

P.O. Box 3009, Kingman 86401 - Phone 565-2226 - Employees 410 - 7 miles north of Kingman - Open pit copper and molybdenum mine - concentrator - heap leach - precipitation plant.

Resident Manager	M. R. Miller
Mine Superintendent	K. K. Kelley
Mill Superintendent	Tom Chowns
Mine Engineer	G. P. Boone
Plant Maintenance Superintendent	N. D. Wright, Jr.
Purchasing Agent	G. F. Cummins

ESPERANZA AND SIERRITA PROPERTIES

P.O. Box 125, Sahuarita 85629 - Phone 791-2950 - Employees 2500 - 32 Miles south of Tucson - Open pit copper and molybdenum mines - 2 concentrators - ferromolybdenum plant - 109,000 TPD.

General Manager	H. L. Shively
Manager Mining	K. L. Lamb
Manager Milling	C. G. Janes
Manager Plant Maintenance	Arlou-Shiell
Mine General Production Superintendent	L. R. Fletcher
Mine Engineering Superintendent	W. H. Dunkel
Mine General Maintenance Superintendent	R. J. Arnold
Concentrator Superintendent, Sierrita	R. L. Bevers
Metallurgical Superintendent	L. M. Johnson Jr.
Manager, CLEAR Plant	Frank Schweitzer
Mill Superintendent, Esperanza	J. Beck
Mine Engineer	C. D. Iles
Administrative Assistant	J. K. Peters
Purchasing Agent	J. L. Dempsey
Industrial Relations Superintendent	J. W. Fortson

ENERGY FUELS NUCLEAR, INC.

HACKS CANYON MINE

P.O. Box 1320, Kanab, Utah 84741 - Phone (801) 644-5836 - Employees approx. 40 - Underground uranium mine - direct shipping ore - 35 miles south of Fredonia - under development.

District Geologist Pat Hillard
Production Manager Roger Smith
Mine Manager Pete Caulfield
Geochemist Allen Reid

FILTERS INTERNATIONAL INC.

CHICAGO PIT (Old Cliff)

Box Z, Superior 85273 - Phone 689-5631 - Employees 6-8 - Plant at Superior on Silver King Mine Road - Open pit mine 2 miles southwest of Superior - Perlite - Major market in Louisiana, Illinois, Wyoming and Texas - Filter Aid - used in filtering for pharmaceuticals, chemicals, sugar and beverages.

General Manager. Lewis Williams
Foreman. Thomas Williams

FILTROL CORPORATION

CHETO NO. 2

Box 155, Sanders 86512 - Phone 688-2736 - Employees 9 - 6 Miles southeast of Sanders - surface mine - bentonite - main use is in filter industry - some is used in agriculture and shipped overseas - also shipped to Utah and Mississippi.

General Superintendent Alden Jack

FLAGSTAFF CINDER SALES INC.

WILDCAT HILL PIT

P.O. Box 2796, Old Highway 66, Flagstaff 86003 - Phone 526-0801 - Employees 20 - 5 miles northeast of Flagstaff - cinder quarry - aggregate landscaping.

Manager. Ron Oliver

FLINTKOTE LIME COMPANY - GENSTAR COMPANY

NEILSON QUARRIES & PLANT

P.O. Box 197, Peach Springs 86434 - Phone 422-3216 or 422-3454 - Employees 63 - Limestone quarry - 1800 tons per day of lime - lime plant - lime for processing and building industry, marketed in Arizona, and other states. Most goes to copper industry.

(Continued)

FLINTKOTE LIME COMPANY - GENSTAR COMPANY (Continued)

NELSON QUARRIES & PLANT (Continued)

Manager	Dave Brooks
Quarry Superintendent.	James Osborne
Production Superintendent	Phillip Bravo
Maintenance Superintendent	Roy Boyes

GILBERT CONSTRUCTION COMPANY

P.O. Box 5288, Bisbee 85603 - Phone 432-2078 - Employees 34 - Quarry 1 mile north of Don Luis - silica flux.

President	A. J. Gilbert Jr.
Vice President	A. J. Gilbert III
Foreman	W. Whisman
Secretary/Treasurer.	Shirley Gilbert

CAMP GRANT LIMESTONE & SILICA QUARRY

Leased by Magma Copper Company - Lime and Silica flux for plant and smelter - Employees 3 to 4 part-time.

Foreman E. C. Munoz

TIGER MINE

Owned by Magma Copper Company - Employees 5 - silica for plant and smelter.

Foreman E. C. Munoz

GRUBSTAKE MINING DEVELOPMENT COMPANY

P.O. Box 115, Sonoita 85637 - Phone 455-5697 - Mobile Unit 624-6646 #0436 - Employees 9 - Sorrel Top underground mine is located about 15 miles south-east of Arivaca, via Ruby Road - mining, milling and refining of precious metal ores.

President	John W. Frye
Office Manager	Gordon Rock
Foreman.	Harold Green

GUZMAN CONSTRUCTION

P.O. Box 7, Superior 85273 - Phone 689-5632 - Employees 30-35
Globe Plant - Phone 425-5775

PERLITE PIT

Perlite pit 2 miles west of Superior - producing crude perlite for further local processing.

(Continued)

GUZMAN CONSTRUCTIONS (Continued)

SILVER KING MINE

Mine located 3 miles north of Superior - producing silver - heap leaching - recovery with Merrill Crowe system.

HARBORLITE INC.

SUPERIOR MINE

P.O. Box 960, Superior 85273 - Plant located 2 miles west of Superior on Silver King Mine Road - Phone 689-5723 - Employees 4-6 - Perlite from open pit mines - markets in California and Michigan - used in filtering for pharmaceuticals, chemicals, sugar and beverages. Also used as agricultural fertilizer carrier.

Plant Manager Bill Smith

HUDMAN STONE

5351 E. Peach, Tucson 85710 - Phone 325-6662 - Quarry 8 miles northeast of Drake - flagstone for decorative use and river run flagstone and surface material for building use.

General Manager. Roger Hudman

INSPIRATION CONSOLIDATED COPPER COMPANY

First National Bank Plaza, Suite 1120, 100 W. Washington, Phoenix 85003 - Phone 258-4561

President Peter Steen
Vice President, Administration Robert F. Morison
Vice President, Finance Michael B. Smith
Treasurer Gordon W. D. Petrie
Public Affairs Coordinator R. J. Pursley

INSPIRATION

Inspiration AZ - P.O. Box 4444, Claypool AZ 85532 - Phone 473-2411 - Employees 2,200 (approx) - 5 Open pit copper mines - OX HIDE MINE, Phone 473-4457 - CHRISTMAS MINE, Phone 356-7803 - dump leach - vat leach - concentrator - electrowinning plant - rod plant - acid plant - smelter, 450,000 TPY capacity.

Vice President and General Manager J. Burgess Winter
Assistant General Manager John J. Ellis
Manager Metallurgical Services James Uwings
Manager Mining Operations Division Don Prah
Manager Personnel Services Division Richard L. Sparks
Manager Smelter Operations Division Al Tittes
Manager Administrative Services Division Robert H. Rundle
Manager Christmas Division Sherman Quayle

(Continued)

INSPIRATION CONSOLIDATED COPPER COMPANY (Continued)

INSPIRATION (Continued)

Manager Engineering Services	Stewart B. Smith
Manager Engineering Projects SX Plant	Gerald F. Fountain
Mine Maintenance Superintendent	Robert Cooper
SX Plant Superintendent	Gerald F. Fountain
Superintendent, Leaching & Refining	Howard Bardwell
Concentrator Superintendent	William Brooks
Crushing Plant Superintendent	James H. Lundy
Superintendent, Engineering Projects	Charles Orsen
Maintenance Superintendent	John C. Lorenzen
Superintendent, Engineering Services	Carter E. Nelms
Rod Plant Superintendent	Larry LeCompte
Smelter Production Superintendent	Jim Yingst
Smelter Maintenance Superintendent	Mark Broshe
Smelter Development Superintendent	Kenneth Britton
Smelter Metallurgical Control Superintendent	Al Binager
Open Pit Operations Superintendent	Don Prah
Mine Engineering Superintendent	Tom Couzens
Asst Superintendent, Dump Leach & Ferric Cure	Vernon Jones
Mine Planning Superintendent	Gary LaChapelle
Consulting Geologist	John T. Eastlick
Chief of Chemical Analysis	Leonard D. Vanell
Manager of Environmental Affairs	Tom Larsen
Director of Community Relations	Johnny Gregovich
Industrial Relations Director	Dorman A. Reed
Labor Relations Director	Tom Langwell
Asst Superintendent, Pyro Metallurgy	Norman Bowles
Training & Development Director	Tom Cowell
Chief of Industrial Hygiene	Ralph V. Bamerio
Director of Safety and Security	Keith Adams
Material Management Director	Hugo Schriver
Director of Research	Ed Bilson

JAQUAYS MINING CORPORATION

EL DORADO MINE

Box 328, Globe 85501 - Phone 425-2621 and 425-6381 (Globe), 254-6494 (Phoenix)
Employees 19 - Mine 33 miles northeast of Globe, mill at Globe - underground
mine - low iron, chrysotile - filter asbestos for filter industry - out of
Arizona markets.

President and General Manager	D. W. Jaquays
Mining Superintendent	Frank Stephenson
Mill Foreman	Viviano Saucedo

KENNECOTT MINERALS COMPANY

RAY MINES DIVISION

General Offices - Hayden 85235 - Phone 356-7811 - also located at Hayden
are smelter, concentrator - 2 open pit copper mines - vat leach-

(Continued)

KENNECOTT MINERALS COMPANY (Continued)

RAY MINES DIVISION (Continued)

precipitation plant - electrowinning plant located at Ray - Phone 363-5531 - Employees 2070 - smelter 360,000 ton capacity.

General Manager	C. K. Vance
Public Relations Director	J. H. Maize
Director of Safety & Environmental Control	Ralf Henkel
Quality Control Director	L. A. Davis
Industrial Relations Director	Rulon Ellett
Controller	Raymond P. Keenan
Purchasing Agent	J. L. Sharrah

PLANT

Reduction Plant Superintendent	W. R. Strickland
Smelter Superintendent	Donald J. Nelson
Concentrator Operations Superintendent	J. W. Lowry
Reduction Plant Chief Engineer	Harvey M. Smith
Reduction Plant Maintenance Superintendent	R. A. Barrass

OPEN PIT

Mines Plant Superintendent	E. C. Newman
Pit Operations Superintendent	S. F. Johnsen
Mines Plant Chief Engineer	J. C. Larimore
Leaching Operations Superintendent	D. J. Quinn
Mine Plant Maintenance	D. J. Justensen
Division Geologist	N. A. Gambell

LITTLE HILLS MINES INC.

GOLD HILL MINE

P.O. Box 332, Oracle 85623 - Phone 896-2245 - Employees 9 - Open pit mine 6 miles southwest of Oracle - copper - silica flux for copper smelter.

President	Dave McGee
General Superintendent	Art Coughanour

MAGMA COPPER COMPANY

CORPORATE RESPONSIBILITIES

P.O. Box M, San Manuel 85631 - Operates two divisions - details shown below.

Chairman of the Board	W. P. Goss
President (New York)	W. H. Burt
Executive Vice President	W. L. Parks
Vice President	W. G. Wood
Vice President	J. W. Goss

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MAGMA COPPER COMPANY (Continued)

CORPORATE RESPONSIBILITIES (Continued)

Controller G. P. O'Brien
Public Relations Officer F. R. Harris
Assistant to the President T. G. Chilton

SAN MANUEL DIVISION

P.O. Box M, San Manuel 85631 - Phone 385-2201 - Employees 4,600 -
Underground copper mine - concentrator - smelter (800,000 TPY approx.
capacity) - acid plant (2,000 TPD approx. capacity) - electrolytic
refinery - rod plant.

General Manager. J. W. Goss
Assistant General Manager T. E. Hearon
Manager, Plant Operations J. D. McIver
Manager, Mining H. W. Seaney
Mgr, Engineering & Technical Services J. R. Tinnin
Manager, Personnel Services R. Skiba
Superintendent, Mine R. L. Zerga
Superintendent, Mill G. W. Dopson
Superintendent, Smelter D. W. Rodolff
Superintendent, Refinery K. D. Parks
Director, Metallurgical D. E. Zabel
Director, Procurement and Warehousing W. J. Mewha
Director, Environmental Services S. K. Young

SUPERIOR DIVISION

P.O. Box 37, Superior 85273 - Phone 689-2444 - Employees 1,350 -
Underground copper mine - concentrator.

General Manager. C. G. Freeman
Assistant General Manager F. M. Florez
Manager, Personnel Services R. Skiba
Superintendent, Mine F. J. Schmitz
Superintendent, Mill R. H. Johnson
Superintendent, Maintenance J. L. Clark
Director, Procurement and Warehousing W. J. Mewha
Director, Environmental Services S. K. Young

McFARLAND - HULLINGER

WINKELMAN PLANT

P.O. Box 811, Tucson 85702 - Phone 790-2408 - Employees 3 -
Plant and quarry at Winkelman.

General Manager. W. D. Nelson

HAYDEN QUARRY

Hayden 85235 - Employees 6 - located at rear of ASARCO Smelter -
limestone flux.

(Continued)

McFARLAND - HULLINGER (Continued)

TIGER MINE TAILINGS

Two miles southwest of Mammoth - Employees 5 - reworking tailings - silica flux.

ROBERT E. MCKEE INC.

P.O. Box 107, Peach Springs 86434 - Phone 769-2364 - 4 miles east of Peach Springs - dolomite quarry - used for railroad ballast.

Superintendent Whitey Bradley

McKUSICK MOSAIC

Route 1, Box 35-D, Globe 85501 - Phone 425-5051 or 425-7478 - Surface clay mine - tile and wind chime clay - cosmetic additives - sealant - and slip glazing material. Weary Mine located five miles south of Globe.

Owners Robert and Charmion McKusick

MINDY INCORPORATED

P.O. Box 4149, Kingman 86401 - Phone 766-2321 - Employees 60

GUNSLINGER MINE

Located about 45 miles southeast of Yucca - open pit silver/lead mine - Mill about 4 miles southeast of Yucca - concentrate is shipped out of state.

General Manager. Robert E. Green
Mine Superintendent Dan Howard
Mill Superintendent Robert Allgood
Office Manager Kent Giles

NATIONAL GYPSUM COMPANY

Gold Bond Building Products Division - P.O. Box 20863, Phoenix 85036 - Phone 258-9321 - gypsum quarry located near Winkelman.

Office Manager (Purchasing) Wallace McElyea

WINKELMAN GYPSUM PIT

Star Route Box 90, Winkelman 85292 - Phone 356-7180 - Employees 13 - Open pit mine located at Winkelman - gypsum used in plaster board.

Plant Manager. David Steele
Mine Superintendent Lyle Faith

NORANDA LAKESHORE MINES, INC.

P.O. Box C6, Casa Grande 85222 - Phone 836-2141 - Employees 500 - 32 miles south of Casa Grande - underground copper mine - vat leach - electrowinning - solvent extraction plant under construction.

General Manager	William Allan
Manager Mining	E. W. Cokayne
Manager Metallurgy	Paul Musgrove
Manager Administration	G. I. Valdez
Manager Employee Relations	R. W. Baber
Manager Maintenance	G. W. Corfield

ORACLE RIDGE MINING PARTNERS

P.O. Box 983, Oracle 85623 - Phone 791-9841 - Development - located 17 miles southwest of San Manuel on north side of Catalina Mountains - underground copper mine and concentrator.

Project Manager	Richard J. Thompson
Mine Superintendent	Dennis Fischer

PAUL LIME DIVISION - CAN-AM CORPORATION

Drawer T, Douglas 85607 - Phone 364-2429 - Employees 54 - quarry and plant located at Paul Spur - 3 lime kilns - 910 tons per day capacity - lime for use in copper processing plants.

President	Robert A. Barbero
Operations Manager	Howard Gorball
Purchasing Agent	C. T. "Tom" Bishop
Secretary/Treasurer	Harold Hansen

PEABODY COAL COMPANY

FLAGSTAFF OFFICE

1300 S. Yale, Flagstaff 86001 - Phone 774-5253

President	K. R. Moore
Vice President of Operations	G. S. "Sam" Shiflett
Vice President of Sales	G. D. Grow
Sr. Manager, Employee Relations	L. W. Bennett
Director of Engineering	Frank Farnsworth
Division Materials Manager	Merle Hendricks
Controller	T. S. Hilton

BLACK MESA #1

P.O. Box 605, Kayenta 86033 - Phone 677-3203 or 677-3205 - Employees 364 - Surface coal mine approximately 25 miles southwest of Kayenta.

Vice President of Operations	G. S. "Sam" Shiflett
Mine Superintendent	Joe Johnson
Assistant Superintendent	Delbert Hukill

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PEABODY COAL COMPANY (Continued)

BLACK MESA #1 (Continued)

Manager of Safety Alan Cook
Chief Mine Clerk Marlene Shondee

KAYENTA MINE

P.O. Box 606, Kayenta 86033 - Phone 677-3208 - Employees 529 -
Surface coal mine.

Vice President of Operations G. S. "Sam" Shiflett
Mine Superintendent Sil Perla
Assistant Superintendent Allan Gough
Manager of Safety Alan Cook
Chief Clerk Marcella Hill

PHELPS DODGE CORPORATION

WESTERN OPERATIONS OFFICE

P.O. Drawer 1238, Douglas 85607 - Phone 364-7521

Sr. VicePresident & General Manager A. H. Kinneberg
Vice President & Asst General Manager S. C. Holmes
Vice President L. R. Judd
Executive Assistant K. C. Bennett
Land Use & Reclamation Coordinator E. F. Haase
Editorial Assistant. Betty K. Cloudt
Office Manager Janice L. Fuller
Administrative Services Coordinator J. K. Palmer
Manager of Engineering Services D. H. Orr
Assistant Chief Engineer R. W. Rice

P.O. Drawer 9, Douglas 85607

Controller, Western Operations N. S. Balich
Assistant Controller R. G. Mock

P.O. Drawer 1178, Douglas 85607

Director of Labor Relations J. H. Ladd

P.O. Drawer 1278, Douglas 85607

Director, Materials Management R. D. Crowley
Asst Director & Purchasing Agt, Western Operations D. G. Dahlmeier

P.O. Drawer 1199, Douglas 85607

Western Traffic Manager F. C. Madden

DIVISION OF ENVIRONMENT ENGINEERING & RESEARCH

P.O. Box 2265, Tucson 85702 - Phone 792-2874

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PHELPS DODGE CORPORATION (Continued)

DIVISION OF ENVIRONMENTAL ENGINEERING & RESEARCH (Continued)

Director, Div. Environmental Engr. & Research. . . J. L. Dick
Dir., Dept of Environmental & Energy Matters . . . J. E. Foard

DOUGLAS REDUCTION WORKS

P.O. Drawer E, Douglas 85607 - Phone 364-2441 - Employees 515 -
Smelter capacity 700,000 tons - copper.

Superintendent W. L. Gage
Plant Engineer A. F. Hallett
Master Mechanic B. F. Kenyon
Supply Department Head E. Cordova
Labor Department Head S. T. Sorich

COPPER QUEEN BRANCH

Highway 92, Bisbee 85603 - Phone 432-3621 - Employees 92 -
Underground leach - copper - precipitation plant.

Chief Geologist & Resident Agent K. J. Coke

MORENCI BRANCH

Morenci 85540 - Phone 865-4521 - Employees 2886 - Two open pit copper
mines - two concentrators - smelter capacity 900,000 tons, acid plant
852,000 tons acid per year - tailings leach plant - precipitation plant.

Manager J. L. Bolles
Gen. Supt.-Operations & Production C. J. Forstrom
General Superintendent, Admin. & Tech. J. L. Madson
Mine Superintendent L. D. Olson
Concentrator Superintendent A. J. Broderick
Smelter Superintendent. H. E. Dunham
Superintendent, Mech. & Elec. Div. J. L. Armstrong
Chief Engineer J. P. McFadden
Research Director G. W. Clevenger
Materials Management Supervisor G. A. Gray
Supply Supervisor R. F. Ayers
Master Mechanic S. C. Cocks
Employment Agent H. W. Bacon
Chief Geologist E. M. Schern

METCALF MINE

Open pit mine - See Morenci above for key personnel.

NEW CORNELIA BRANCH

Ajo 85321 - Phone 387-7451 - Employees 1107 - Open pit copper mine -
concentrator - acid plant - smelter - capacity of smelter 250,000 tons
per year.

Manager. R. E. Rhoades

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PHELPS DODGE CORPORATION (Continued)

NEW CORNELIA BRANCH (Continued)

Mine Superintendent	Jim Roche
Concentrator Superintendent	C. D. Kuchera
Smelter Superintendent	J. M. Robertson
Chief Engineer	J. M. Sudler
Mech. & Elec. Div. Supervisor	J. B. McBiles
Chief Accountant	R. E. Darnell
Supply Department Head	J. C. Steel
Employment Agent	J. E. Breen

SAFFORD BRANCH

Box 151, Safford 85546 - Phone 428-6900 - Employees 111 -
Underground copper mine - UNDER DEVELOPMENT.

Mine Superintendent	J. A. Riddle
Chief Engineer	R. B. Nichols
Master Mechanic	M. L. Hinkins

PHOENIX CEMENT COMPANY - A GIFFORD-HILL COMPANY

PHOENIX OFFICE

2505 W. Beryl, P.O. Box 35395, Phoenix 85069 - Phone 264-0511

Vice President, Marketing	John Stoss
Vice President, Administration	Don O. LeGate

CLARKDALE PLANT

P.O. Box 428, Clarkdale 86324 - Phone 634-2261 - Employees 145 -
Quarry and plant 2 miles northwest of Clarkdale - 550,000 tons per year.

Vice President, Manufacturing	Dave Erdenberger
Quarry Superintendent	John G. Leibert
Maintenance Superintendent	Joe E. D'Avignon
Production Supervisor	C. A. Rienie
Administrative Superintendent	W. J. St. Clair
Purchasing Superintendent	Kelly R. Rodieck
Pack House Superintendent	A. Clyde Hance
Construction Engineer	Keith W. Miller
Supervisor of Quality	Steve Rowley

PINAL MAMMOTH GYPSUM

2020 S. 9th Street, Coolidge 85228 - Phone 723-3131 - Employees 12 -
Quarry 6 miles north of Mammoth - agricultural gypsum.

President	Lawanda Bechtel
Vice President	Jim Bechtel

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RANCHERS EXPLORATION & DEVELOPMENT COMPANY

BLUEBIRD MINE

P.O. Box 880, Miami 85539 - Phone 473-4405 - Employees 78 - 1 mile west of Miami - open pit copper mine - heap leach - solvent extraction plant - electrowinning plant.

General Manager	George Van Etten
Mine Manager	Mike Attaway
Mine Foreman	Steve Drake
Master Mechanic	Jack Roberts
Office Manager & Purchasing Agent	Robert Barte
Metallurgist	John Davis
Mining Engineer	Sandi Cole

RUBR-TECH INC.

CUSTOM GRAVITY MILL

4158 W. Whitton Avenue, P.O. Box 14447, Phoenix 85063 - Phone 272-0413 - Custom gravity mill using Wilfrey tables - 6 to 10 ton daily capacity - processing custom simple milling gold and other ores.

President	Gerald F. Rosinski
Vice President	Joe S. Faulkner, Sr.

SILVER RIDGE MINING COMPANY

P.O. Box 748, Tombstone 85638 - Phone 457-3990 - Employees 14 - 2½ miles southwest of Tombstone via Emerald Gulch Road - 2 underground mines - heap leaching silver ore - precipitation and smelting - GAMBASINO'S DREAM mine currently producing - NICHOLS mine under development.

Mine Manager	Kenneth P. Hodgson
Surface Operations Foreman	Steve Henderson
Underground Supervisor	Les Boyer
Secretary/Bookkeeper	Rita Hodgson

SOUTHWEST SALT COMPANY

P.O. Box 1237, Litchfield Park 85340 - Phone 247-3000 - Employees 16 - Solution mining - wells - salt for water softeners, domestic and industrial tannery:

President	G. J. Grott
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STATE OF MAINE MINING COMPANY

P.O. Box 453, Tombstone 85638 - Phone 457-3601 - Employees 13 - Located 2 miles southwest of Tombstone, via Charleston Road - surface mine and heap leaching of silver ore - precipitation, smelting and electrolytic refining - manufacturing plant for precipitation units.

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STATE OF MAINE MINING COMPANY (Continued)

Mine Manager	Charles B. Escapule
Manager, Manufacturing	Louis W. Escapule
Chief Geologist	C. Bailey Escapule
Mine Foreman	Arley Escapule
Foreman, Manufacturing	Rusty Escapule
Manager, Refining	Betty Escapule
Manager, Metallurgy	Garry Lindroos

SUNNY SOUTH MINING COMPANY

326 W. Alice Avenue, Phoenix 85021 - Phone 943-9007 - Employees 3 -
Located 8 miles south of Prescott - underground silver mine - pilot
agitation leach plant in operation.

President	William E. Clubb
Vice President	Ruby E. Karr

SUPERIOR COMPANIES

2402 S. 19th Avenue, Phoenix 85005 - Phone 253-2116

President	William O. Fisher
Secretary/Treasurer	William J. Kessler
VicePresident & Manager, Mine Division	Archer Shelton

CLARKDALE

P.O. Box 786, Camp Verde 86332 - Aggregate.

Superintendent	Lester Hall
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ST. JOHNS

P.O. Box 2777, St. Johns 85936 - Limestone.

Superintendent	Joe Smith
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SUPERIOR COMPANIES PIT & PLANT

P.O. Box 786, Camp Verde 86332 - Employees 25 - Gypsum quarry 4 miles
southeast of Camp Verde - aggregate plant at I-17 and Hwy 279.

Superintendent (gypsum)	Alvin Hazelwood
Superintendent (aggregate)	Lester Hall

WINKELMAN GYPSUM

P.O. Box 327, Winkelman 85292 - Phone 356-7002 - Employees 7 - Gypsum.

Superintendent	John Nebitt
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SUPERLITE BUILDERS SUPPLY

P.O. Box 23163, Phoenix 85063 - 4150 W. Turney - Phone 269-3561

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SUPERLITE BUILDERS SUPPLY (Continued)

President Fred Bengtson
Mine Superintendent Lee Brown

DARLING CINDER PIT

Mobile phone 774-7475 - Employees 4 - Open pit mine east of Flagstaff - cinders used for building blocks.

TOMBSTONE EXPLORATION INC.

P.O. Box 610, Tombstone 85638 - Skyline Drive - Phone 457-2231 - Employees 47 - located immediately south of Tombstone - surface mine - heap leaching of silver ore - precipitation.

President (New York) Thomas Schloss
General Manager Dustin L. Escapule
General Superintendent Bob Lee
Project Supervisor John Soileau

TUFA CORPORATION dba MAGIC MOUNTAIN MINING COMPANY

Kirkland 86332 - Phone 442-3419 - Employees 6 - mine located east of Kirkland - home office in San Francisco - crushing, drying and bagging plant at mine site - used for kitty litter and oil sweep - markets in state and out of state.

Manager Glyn Tomlinson

O. BRICE WILLIS

HARMONY NO. 1

P.O. Box 1325, Clifton 85533 - Phone 865-3782 - Employees 2 - located on Chase Creek 6 miles north of Morenci - open pit mine - silica.

President (Owner) O. Brice Willis
General Superintendent M. Clifford Willis

WESTERN STATES STONE COMPANY

2830 Grand Avenue, Phoenix 85017 - Phone 253-2018.

President C. E. Webster

PLANT

P.O. Box 316, Ashfork 86220 - Phone 637-2542 - Employees 6 - quarries located in Coconino, Yavapai, Maricopa, Mohave and Yuma Counties - commercial and decorative building stone marketed locally and out of state.

Superintendent G. B. Madison

ARIZONA DEPARTMENT OF MINERAL RESOURCES

The Department was created to aid in the promotion, development, and conservation of the mineral resources of the State. Particular emphasis is placed on providing prospectors and small miners with semi-technical assistance and economic information.

The general goal of the Department is developed by working with the following objectives:

- Provide technical assistance to prospectors and operators of small mines.
- Disseminate comprehensive mining and mineral information to the citizens and government officials of Arizona counties.
- Study conditions regarding small mine activity and seek solutions to problems.
- Serve as the State's public bureau of mining and mineral information.
- Maintain and expand the Department's mine file library.
- Provide educational services in the field of mineral resources and mining.
- Analyze proposed Federal and State administrative actions.
- Develop interagency cooperation between the Department and other local State and Federal offices.
- Gather all information available on mineral occurrences, prospects, partially developed properties and known mines in the State in order to promote further exploration.
- Provide publications in the form of mineral reports, annual directories, technical reports, annual mineral industry surveys, information circulars, and media articles.

DEPARTMENT MINERAL RESOURCES
MINERAL BLDG. FAIR GROUNDS
PHOENIX, ARIZONA 85007