



ARIZONA DEPARTMENT OF MINES & MINERAL RESOURCES

Annual Report 1999 -2000

DEPARTMENT OF MINES AND MINERAL RESOURCES



61st ANNUAL REPORT FY1999/2000

W. 'Doug' Sawyer
Director



**STATE OF
ARIZONA**

Arizona Department of Mines and Mineral Resources
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Honorable Jane Dee Hull, Governor
State of Arizona
1700 West Washington
Phoenix, Arizona 85007

August 15, 2000

Dear Governor Hull:

The Annual Report for the Arizona Department of Mines and Mineral Resources for the fiscal year 1999/2000 is herein submitted in compliance with A.R.S. Section 27-106.

This fiscal year has been one of change for our department as Marianne Charnauskas retired after almost 12 years of service. We also added a new member to the Board of Governors—James Miller, Vice President of CTI.

Omya Corporation has completed construction of a plant in Superior that will process limestone into chemical and food-grade calcium carbonate. The limestone is mined north of the town on forest service land. Our department published an industrial minerals study that lead to the exploration and investment in the mine and new \$3,000,000 plant.

Cambior completed its arduous task of obtaining the necessary federal approvals to begin mining copper at the Carlotta Mine located near Miami. Unfortunately, low copper prices has precluded Cambior from beginning development of the mine and appurtenant facilities. In the late 1980's Cambior's exploration team approached our department and asked about favorable copper exploration areas. We pointed them to the Carlotta mine area and our involvement lead directly to the \$60,000,000 investment in design, permitting, equipment, personnel, and land acquisition that has been spent in the Miami area.

Late last year, a major consolidation of copper mining companies began with the merger of Cyprus and Phelps Dodge Corporation and the acquisition of Asarco by Grupo Mexico. Arizona is now home to the second largest copper mining company in the world—Phelps Dodge. Grupo recently announced relocation of corporate headquarters from New York to the Phoenix metropolitan area. These mergers will likely change the landscape of the copper mining industry in Arizona for years to come. The rock products industry has also experienced a number of acquisitions and mergers under the banner of several large multi-national companies.

The present staff consists of eight FTE's funded by the general fund, five part-time employees (funded by profits from the Museum Gift Shop), and a dedicated group of volunteers provide quality service to the Department's customers and visitors. During the 1999-2000 school year approximately 25,000 children visited and toured our museum. We also assisted the Arizona Mining Association as they educate teachers about the importance minerals in our society.

Governor Hull
August 15, 2000
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As we look to and prepare for the future, members of the department and several key stakeholders have identified the following key tasks. The first is making our mineral and mining information more accessible to the public. Our belief is that the mines and mineral resources of the next fifty years are contained in these files and must be made available to exploration geologists and others. With the advent and explosion of internet information, we are planning to turn our much of our hard copy "information" into electronic files that are accessible from our website. Another area that has been identified is the need to expand our museum and make it more educational about the mineral resources of the state and how modern-day miners are harvesting these resources. We are working with key stakeholders to develop plans and a funding source.

Should you have any questions or need additional information, please do not hesitate to contact me. I wish you the best in all your endeavors.

Sincerely,

A handwritten signature in black ink, appearing to read "Doug Sawyer", with a stylized, flowing script.

Doug Sawyer
Director ADMMR

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	Appropriation	Claims Paid Thru END OF YEAR	Balance	% SPENT
Personal Services	299,300.00	262,943.08	36,356.92	87.85%
Employee Related Expenses	63,700.00	58,224.72	5,475.28	91.40%
Travel (In State)	5,300.00	2,796.02	2,503.98	52.76%
Travel (Out of State)	0.00	0.00	-	
Operating	341,800.00	353,977.35	(12,177.35)	103.56%
Capital Equipment & Furni	0.00	11,549.50	(11,549.50)	0.00%
Non Capital Equip. & Furn	0.00	19,842.42	(19,842.42)	0.00%
Non Capital Software		385.12	(385.12)	0.00%
TOTALS	\$710,100.00	\$709,718.21	381.79	99.95%

PERSONNEL

Board of Governors

Sydney Hoff-Hay
Chairperson – Phoenix

James. Miller
Vice Chairman - Tucson

Leroy Kissinger
Secretary– Tucson

Ken C. Bennett
Member – Phoenix

Eric Nordhausen
Member– Tucson

Staff

Willis D. (Doug) Sawyer
Director

Mineral Resources Information Center

Ken A. Phillips -Chief Engineer

Nyal J. Niemuth - Mining Engineer

Ann Turney – Administrative Assistant

Diane Bain – Public Information
Officer

Arizona Mining & Mineral Museum

Susan Celestian – Education Curator

*Part-time Employees**

Janice Adams – Tour Guide

Liz Anderson– Tour Guide

Ann Baker– Tour Guide

Shirley Côté– Tour Guide

Joanne Hesterman– Tour Guide

Alice Rosenfeld – Tour Guide

* Non-appropriated funds

ARIZONA'S MINERAL INDUSTRY - 1999 and 2000

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

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

COPPER

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

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

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

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

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

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

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

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

Asarco Inc.,

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

Grupo Mexico purchased Asarco Inc. in November 1999. Asarco's copper operations in Arizona include the open-pit mines of Ray and Silver Bell, an open-pit and underground operation at Mission, the Hayden copper

Arizona Mineral Production

Short tons unless otherwise noted

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

1 USGS Preliminary figure

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

3 ADMMR estimate for value

smelter, and the Santa Cruz in situ research project. Ray and Mission are the second and third largest copper mines in Arizona.

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

Ray

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

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

Mission

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

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

Hayden

The Hayden smelter, an INCO flash furnace rated at 720,000-tons-of-charge per year processed a record amount of concentrates during 1998, producing 381.8 million pounds of copper. Modernization of the smelter's gas handling system and the process control system was completed in 1998.

Silver Bell

Silver Bell produced over 40 million pounds of SX-EW copper in 1998, 17.5 percent above design capacity. Asarco began mining the Silver Bell North deposit, part of the Silver Bell complex near Tucson, and dedicated the mine and new processing facility on July 16, 1997. The facility's new \$70-million SX-EW plant was developed as a joint venture with Mitsui & Co. U.S.A.

(25 percent share) and has produced at its design rate of 36-million-pounds-per-year since start up. Rubblization and leaching of material in the El Tiro and Oxide pits also provides solution to the SX-EW plant. Asarco reports cash costs to be 50 cents per pound.

BHP Copper

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

San Manuel

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

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

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

BHP's San Manuel smelter is the largest single furnace smelter in the industry. The smelter had been operating since 1988 without a rebuild, a record time for copper smelters. The smelter was shut down for 2 months in the spring of 1999 for a \$66 million rebuild and modernization. Improvements included installing a new burner design, new draft fans and waste heat boiler, construction of a 40,000-ton concentrate storage building, and improving the conveyor systems to reduce spillage and airborne contamination. These changes will increase the flash smelter volume and result in lower SO₂ emissions. The project was completed but the smelter did not restart due to the mine closure.

Pinto Valley

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

tons at an average grade of 0.40 percent copper, while only 9 million tons at 0.40 percent remain to be processed at the No. 2 Tailings pile.

Florence

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

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

Phelps Dodge Corporation

In December 1999 Phelps Dodge acquired Cyprus Amax Minerals' operations in Arizona, making Phelps Dodge the second largest copper company in the world, trailing only Codelco, the government-owned Chilean company. Phelps Dodge Corporation, headquartered in Phoenix, is the world's largest producer of SX-EW cathode copper. Its mining division, Phelps Dodge Mining Company, post merger will produce about one-half of the U.S.'s mined copper from its properties in Arizona and southwestern New Mexico. The purchase also made Phelps Dodge the world's largest molybdenum producer, a position Cyprus had held. The company's Morenci mine in Greenlee County, the largest copper mine in North America, had an annual production of over 1 billion pounds of copper in 1998 and 887.8 pounds in 1999. Phelps Dodge owns an 85 percent interest in the Morenci mine; Sumitomo Metal Mining Company, Ltd owns the remaining 15 percent. In Arizona, in addition to Morenci, Phelps Dodge operates the Copper Queen in Bisbee, and controls significant undeveloped copper resources throughout the state, including several deposits near Safford and the New Cornelia mine at Ajo. The newly acquired operations from Cyprus include Bagdad, Miami, and Sierrita, and other non-producing deposits.

Morenci

The Morenci operation consists of the Morenci, Metcalf, and Northwest Extension open-pit copper

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

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

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

Sierrita

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

The Sierrita property consists of three open-pit copper-molybdenum mines, a 115,000-ton-per-day concentrator, two molybdenum roasting plants, a ferromolybdenum plant, a rhenium plant, and an oxide and low grade sulfide dump leaching operation with SX-EW plant. In 1996 Sierrita started mining a 70-million-ton oxide deposit that has led to increased leach output. Cathode production during 1998 was a record 48 million pounds. A record mill tonnage processed resulted in 178 million pounds of copper in concentrates. Cost cutting efforts resulted in a 17

percent reduction in cash unit costs per pound. The mine's by-product molybdenum credit was 22 million pounds in 1998. That was a third of Cyprus' moly production and made Sierrita the largest molybdenum producer in Arizona. At the end of 1999 Phelps Dodge reported Sierrita contains sulfide reserves of 1.063 billion tons grading 0.27 and oxide reserves of 64 million tons grading 0.18 percent copper.

Bagdad

Arizona Copper Production - 1997-8

Cu (million lb.)

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

* June 1, - May 31, annual basis

** Cyprus sold property 9/97.

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

Miami

The Miami mine consists of an open-pit copper mine, an SX-EW plant, a 650,000-ton-per-year capacity smelter with acid plant, a 380-million-pound-annual capacity electrolytic refinery, and a 135,000-ton-per-year rod plant. All Miami's operations had outstanding levels of production in 1998. The mine and SX-EW plant produced a record 164 million pounds of copper in 1998, a 5 percent improvement over the 1997 record. The smelter processed 605,000 tons of copper concentrates from other operations. The electrorefinery produced 380 million pounds of cathode and the rod plant operated above capacity and produced 306 million

pounds of copper rod in 1998, both amounts were new records. At the end of 1999 Phelps Dodge reported leach reserves for Miami of 189 million tons grading 0.38 percent.

Tohono

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

Copper Queen

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

Safford

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

New Cornelia

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

United Verde

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

Other Copper Companies

After six years of effort the Carlota open pit heap leach SX-EW project is now fully permitted. Carlota Copper Company, a subsidiary of Cambior U.S.A. received a favorable ruling on litigation contesting the Forest Service's record of decision in August of 1999.

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

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

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

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

COAL

Peabody Group, parent company of Arizona's Peabody Western Coal Company is the world's largest private sector coal company. Coal ranks second only to copper in economic importance in the State. In 1998 Arizona's coal production was 11,315,000 short tons, having an estimated value of \$272 million. All

production is from land leased from the Navajo Nation and Hopi Tribe by Peabody. Royalties from coal production total \$30 million annually.

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

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

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

GOLD AND SILVER

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

Only a few gold exploration projects were active. The Moreau property, a detachment hosted target in La Paz County, was drilled by Nevada Pacific Gold in late spring. Exploration of the property was continued by Echo Bay who optioned the property in the fall.

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

INDUSTRIAL MINERALS

Although the mining of copper and its by-products accounts for 80 percent of the State's mineral production

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

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

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

In November of 1999 United Kingdom-based Hanson PLC and Pioneer International agreed to an offer by Hanson to acquire Pioneer for about \$2.54 billion. The combination of these two companies will create one of the world's largest heavy building materials corporations involved in the production of aggregates, ready mix concrete, concrete products, cement, and clay bricks in four continents across the world. The newly combined group will become the world's largest supplier of aggregates, replacing Vulcan Material's ranking in that category. The new group will also be the world's second largest supplier of ready mix concrete.

Vulcan Materials, the nation's largest aggregate producer, completed its acquisition of Calmat in a deal that began in November of 1998 and closed in January 1999. The purchase totaled \$760 million plus assumption of Calmat's debt of \$130 million. Calmat's

southwest US operations included Calmat of Arizona with 479 employees at seven Phoenix area plants.

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

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

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

Common clays are mined to manufacture tile, pipe, and bricks and to provide an aluminum source for the manufacture of cement. Volcanic cinders are mined for aggregates, landscaping, and road deicing. Slag from a copper smelter is processed for roofing granules and abrasives. Pumice is used for fabric treatment and lightweight aggregate. Stone is quarried and crushed for aggregates and landscaping. Decomposed granite is used for landscaping. Gypsum is mined and processed for wallboard manufacture, cement manufacture, and agriculture. Hematite is mined for color and barrier pigments. Sandstone is quarried and worked for flagstone. Schist, limestone, marble, rhyolite, gneiss, and granite are quarried for decorative stone.

Two new industrial mineral producers finished construction and development activities in 1999 for two commodities not produced in Arizona for decades. Applied Chemical Magnesias finished a \$2 million grinding and bagging plant at Bullhead City to process brucite from the underground White House mine located in the San Francisco district of Mohave County. Brucite, a magnesium hydroxide, will be used for waste water treatment and smoke and flame retardant functional

fillers in plastics and coatings. AZCO Mining, better known in Arizona for their previous copper activities, developed the Black Canyon (aka Mica Mule) pegmatite located 30 miles north of Phoenix. It will supply mica for a dry classification and wet grinding facility in Glendale. The ground muscovite will be marketed for functional fillers and strengtheners for industrial coatings, plastics, and cosmetics.

Omya (Pluett Staufer) of Lucerne Valley, California broke ground in June for their \$30 million calcium carbonate processing plant at Superior in Pinal County and is projecting a startup date in June, 2000. Of the 100,000 ton per year capacity two-thirds will be for food grade CaCO_3 additives. Their Queen Creek Limestone mine is continuing to supply mine-run white marble to Mineral Development Inc.'s crushing and screening plant at Queen Creek in Maricopa County. They are in the process of obtaining a new mining plan of operation from the Tonto National Forest for expanded operations at the mine.

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

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

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

The booming economy is also favorably impacting the flagstone stone industry. The Drake and Ashfork area's sandstone quarries and dressing plant's in Yavapai County are operating at near capacity. Existing and new operators are continuing to open new quarries, bring idle quarries back into production, and upgrade processing and transportation facilities. Many of Arizona dimension stone producers are family owned smaller operations.

GEMSTONES

Arizona is a leading state in the value of mined gemstones in the United States. Approximately \$4 million worth of commercial gemstone production is reported for Arizona annually. Turquoise, peridot, and

petrified wood account for most of the value, with amethyst, chrysocolla, azurite, malachite, and fire agate making up the remainder.

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

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

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

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

GOVERNMENT NEWS

The Clinton administration has closed additional areas in Arizona to possible development of mineral resources. In January 2000 the administration created two new National Monuments in areas of known mineral resource potential. They are the Agua Fria

National Monument east of I-17 in southeast Yavapai County and Shiviwits National Monument north of the Colorado River in Mohave County. Both monuments were created by Presidential Order without the oversight of Congress or public hearings. One reason stated for their declaration of National Monument status protection for the areas was to prohibit possible mine development of future valuable mineral resources.

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

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

RECREATIONAL MINING

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

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



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EXAMPLE ACTIVITIES AND CURRENT EVENTS FROM THE ADMMR MINING AND MINERAL RESOURCE INFORMATION, PROMOTION AND DEVELOPMENT PROGRAM

1ST QUARTER, 1999-2000

(OCTOBER 27, 1999)

Meetings With Key Arizona Sandstone Flagstone Producer.

A meeting was held with Harley Gray, Jr. President and Robin Sherman, Market Development Coordinator, of Drake Stone Products to determine their interest in a partnership with ADMMR and the Arizona Dept. of Commerce to produce an Arizona flagstone industry-marketing catalog. The Italian Marble Commission produces such a catalog that is distributed through out the world. Stone handling yards and flagstone quarries in the Drake and Ashfork areas were visited. As a result of the visits it was determined that there are only nine different color patterns of sandstone flagstone produced in Arizona, even though there are hundreds of source quarries and over a dozen operating companies. Any Arizona stone catalog would need to include all of the state's dimension stone types as well as all of the decorative crushed stone products to justify the effort.

ADMMR Serves Thousands of Callers, Visitors, and Members of the Mining, Rock Hounding, Prospecting, Earth Science, and Tourism Communities.

In the last quarter nearly 6,000 people visited the Museum, while we communicated with over 4,300 clients by phone, fax, and letter, and 342 visited the Department for mining and mineral resource development information.

Copper Price Closed at 85.00¢ Per Pound Tuesday (October 26, 1999).

Copper - 85.0 cents per lb.; cathode - full plate, U.S. destinations, Tuesday, October 26, 1999

Copper - 79.30 cents per lb., N.Y. Mercantile, spot, 3:45 p.m., Tuesday, October 26, 1999

This compares to 75.00¢ per pound at the last Board of Governors' meeting, July 27, 1999.

ADMMR OSPB Strategic Planning Scoping Meeting Sponsored by Salt River Project.

A staff and public users meeting was held to begin the strategic planning process for ADMMR. Participants were Ev Dickson, Museum Volunteer; Fred Johnson, Consulting Geologist; Leroy Kissinger, Board of Governors member, Consultant, and former ADMMR Director; Sam Aubry, V.P. government Affairs, Arizona Rock Products Association; Larry McBiles, Arizona Mining Association; Marc Osborn, Manager of Government Affairs, R and R Partners; and ADMMR personnel Doug Sawyer, Ken Phillips, and Susan Celestian. The meeting was facilitated by Carolyn Addie, Senior Training Analyst, Salt River Project. From the meeting an initial strategic plan was developed by Doug Sawyer to meet the requirements of the Governor's Office of Strategic Planning and Budget.

Asarco Announces Copper Production Cutback at Mission and Ray

Asarco announced a 55 million pound per year cutback in production at Mission due to low copper prices. 150 workers will be laid off at Mission reducing costs 1 cent per pound. Although there will be no cut at Ray, a 25 million pound reduction will occur due to harder ore reducing mill output. For 1999 the copper reduction will amount to 52 million pounds or about 7% of Asarco's N. America production.

Arizona Copper Giants Merge

Initially Asarco and Cyprus announced a 'merger of equals' transaction. The new company, to be called Asarco Cyprus, would be the largest privately held copper producer in the world with about 2 billion pounds annual production. The corporate office was to be in New York, while the copper operations office will be in Tempe, AZ. The merger was expected to save \$150 million annually. Total reserves of the merged company was estimated at 62 billion pounds of copper. Shareholders were to vote on the merger September 30, 1999.

Then Phelps Dodge (PD) initiated a hostile takeover attempt for both Cyprus and Asarco offering a 30% premium over companies existing share prices to their shareholders in PD stock.

Phelps Dodge soon increased the offer and the amount of cash for the takeover of Asarco and Cyprus. The Antitrust Div. of the Dept. of Justice issued clearance for the acquisition of Asarco and Cyprus with no divestitures required. PD shareholders were expected to vote on the acquisition October 13, 1999 following the planned September 30 vote of Cyprus and Asarco shareholders.

Next Grupo Mexico made an offer to acquire Asarco!

Cyprus and Phelps Dodge signed a definitive merger agreement. Cyprus shareholders have the option of an all cash election of \$20.54 per Cyprus Amax share and the all-stock election is 0.3500 Phelps Dodge shares per Cyprus Amax share, subject to proration to maintain the overall cash/stock allocation of approximately 63% stock and 37% cash. The stock portion of the consideration received will be tax-free to Cyprus Amax shareholders. Based on Phelps Dodge's closing share price the day of record, the agreement valued Cyprus Amax at \$19.80 per share, or a total equity value of approximately \$1.8 billion, based on approximately 90.7 million Cyprus Amax shares outstanding.

These following events continue beyond the end of the 4th Quarter

Asarco's Board of Directors accepted the latest offer from Phelps Dodge that values the company at \$1.1 billion or 28.21 per share. Both company boards signed the merger agreement under which PD will acquire Asarco. Phelps Dodge will acquire Asarco for \$14.75 in cash and 0.2513 for each share on a prorated basis. (\$29.50 all cash or .50266 PD share) Approximately 40 million shares of Asarco are outstanding. Completion of the deal is contingent on 80% of the shares being tendered by Oct. 22 and approval by PD shareholders on Oct. 13.

Then Grupo Mexico upped the offer for Asarco to \$29.50 per share all cash.

Finally, Phelps Dodge announced completion of the exchange offer for Cyprus Amax Minerals Co. Shareholders received \$7.61 and 0.2203 PD share prorated for each share of Cyprus Amax stock held. The cash request was over subscribed so those requesting stock received 0.35 PD shares, while those requesting cash were prorated to receive prorated \$13.48878207 in cash and 0.1202 PD shares.

In the end Grupo Mexico and Asarco agree to merger. All Asarco shares will be acquired for \$29.75 cash. The tender was offer extended to Nov. 9, 1999. Including Asarco's \$1.02 billion debt **total transaction value was \$2.25 billion**. Asarco has paid a \$30 million termination fee to Phelps Dodge. Grupo Mexico will become worlds 3rd largest copper producer.

Morenci Copper Mine To Soon Be All Leaching – SX/EW Operation

Phelps Dodge Morenci plans to phase out the Morenci concentrator and go to 100% leach operations by 2001. No layoffs are planned; employment will be reduced through attrition.

Federal District Court Decision Favors Carlotta Mine

Federal District Court heard litigation contesting the Forest Service's record of decision approving a Plan of Operations for Cambior's Carlotta Mine near Miami. A decision was expected in mid-September. On September 24, 1999 a favorable decision was received from the Federal District Court for the project. Plaintiffs have 60 days to file an appeal. Further appeal will go to the 9th Circuit Court of Appeals in San Francisco and could result in a further delay 6 months or more.

Additionally on August 24, 1999 the company received approval for construction from Arizona Department of Water Resources. Carlota now has all major permits required to construct the project.

Brucite (magnesium hydroxide) Mining and Processing Starts in Mohave County

Applied Chemical Magnesia (ACM) announced that construction of the grinding plant is complete and production of brucite is reported to have started. Underground mining at the White House Group near Oatman is done by a Prescott Valley contractor.

Donation of Mine File Data Received

Cambior USA Exploration donated fifteen file boxes of mine data files, drilling data, mine maps, and reports on Arizona properties from exploration efforts of Cambior, Westmont, and Nicor. The contents are being listed and will be coordinated to AZMILS and the ADMMR mine files.

Nyal Niemuth Appointed to Board of Technical Registration Committee

Nyal Niemuth has been appointed to the Board of Technical Registration's Geologic Enforcement Advisory Committee. Nyal serves as chair of the committee. The Committee makes technical recommendations for Board action including assessments of the work of both registrants and nonregistrants when the Board receives complaints.

PROJECTS

Computer and data processing improvements.

Computer hardware and software that was purchased before the end of Fiscal 1998-1999 has been set up and installed. There are still some details and modifications to be worked out. All employee workstations are part of a Novell Small Business 4.22 for NOS and Groupwise for E-mail and Internet communications software systems. Progress is being made to set up official agency e-mail accounts and the ability to modify the ADMMR website directly from within ADMMR. Prior to getting official e-mail accounts some employees have set up free personal e-mail accounts to communicate with the industry.

ADOA has completes upstairs Museum carpeting, electrical service, and lighting grid.

The Arizona Department of Administration reports that the carpet installation is complete but awaiting manufacturer warranty review before being declared officially done. The successful bidding electrical contractor has reached substantial completion of the electrical raceway and lighting track grid. Final sign-off is expected Thursday, October 28, 1999.

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ACTIVITIES AND CURRENT EVENTS FROM THE ADMMR MINING AND MINERAL RESOURCE INFORMATION, PROMOTION AND DEVELOPMENT PROGRAM

2ND QUARTER, 1999-2000

(FEBRUARY 3, 2000)

An Interesting Rumor.

Writing under "This Month in Mining," about Grupo Mexico, S.A. de C.V. (GM), the editorial staff of *E-MJ* magazine reports on the comments of one Peruvian source as saying "... that GM may focus on smelting and refining, with Southern Peru Copper Company functioning as a 'cash cow,' as Asarco's Arizona mines will likely be sold to Phelps Dodge."

Compilation of Data & Publication of Directory of Active Mines

A major project by the agency each 2nd quarter is the compilation of the necessary data and publication of the *Directory of Active Mines in Arizona*. Each company and often each mine when a company operates more than one, is personally contacted by a member of the technical staff to update information for the directory. Further, this contact is often the only time during the year that we are able to remind the company of our existence, services, and review industry events and activity at their operation. The Directory includes an entry for every full-time operating mine we believe is in Arizona. The Directory includes a map at the scale of 1:1,000,000 of the metal and nonmetal mines excepting sand and gravel mines. The Directory also includes a brief review of significant activities in Arizona's mining industry. Nearly 600 hours of staff time are devoted to this publication.

The *Directory of Active Mines in Arizona* is the premier publication of the agency and has become a model for many of the Western mining states. Between 750 and 1,000 copies are sold annually. The publishers of *Southwest Contractor Magazine* also include the directory without the map with subscriptions to that publication.

Copper Price Closed at 88.00¢ Per Pound Friday January 28, 2000.

Copper - 88.0 cents per lb.; cathode - full plate, U.S. destinations, Friday January 28, 2000.

Copper - 83.00 cents per lb., N.Y. Mercantile, spot, 4:14 p.m., Friday January 28, 2000.

The cathode price compares to 85.00¢ per pound on Tuesday, October 26, 1999 reported at the last Board of Governors' meeting.

Computer and data processing improvements.

Computer hardware, software, and internet connections begun in the first quarter of the year have been nearly completed. Small updates and improvements have been made to the Department's website at <http://www.admmr.state.az.us>.

Y2K compliance updates and tests were completed for all of the Departments computers. Local area network compliance was reviewed by the Novel, the supplier of the agency's network software. No Y2K problems were expected and none developed. There continues to be the need to set up official agency e-mail accounts and the ability to modify the ADMMR website directly from within ADMMR. Prior to getting official e-mail accounts some employees have set up free personal e-mail accounts to communicate with the industry.

ADOA has completed upstairs Museum carpeting, electrical service, and lighting grid.

The project funded with building renewal funds from the Arizona Department of Administration to provide upstairs Museum carpeting, electrical service, and lighting grid was completed. Museum volunteers completed a storage room in the north east corner of the upstairs for overflow storage of the library and mine file information.

ADMMR Serves Thousands of Callers, Visitors, and Members of the Mining, Rock Hounding, Prospecting, Earth Science, and Tourism Communities.

In the last quarter over 8,000 people visited the Museum, while we communicated with over 3,100 clients by phone, fax, and letter, and 241 visited the Department for mining and mineral resource development information.

Cataloging of Cambior USA Exploration Donation of Mine File Continues

We are continuing to review and catalog the fifteen file boxes of mine data files, drilling data, mine maps, and reports on Arizona properties from exploration efforts of Cambior, Westmont, and Nicor. The contents are being listed and will be coordinated to AZMILS and the ADMMR mine files.

Questionable Mining Promotion Activity Continues in Arizona

Gold, platinum group metals, and industrial minerals are continuing to be the subject of a number of questionable mining promotions in Arizona. The technical staff receives inquiries about both the companies and commodities. Providing copies of file and published data and providing mining and mineral resource information answer such inquiries. The Superior Courts of Maricopa County have determined we do not have the authority to comment on likelihood of success of any of these promotions even when they have all of the characteristics of scams. We do, however, have the statutory duty to cooperate with the Arizona Corporation Commission and these promotions are discussed with investigators within that agency. Generally these promotions revolve around reports of high grade "ore" that cannot be independently substantiated by acceptable testing practice and/or news release driven "pump and dump" penny stock promotions that combine high-risk, high profile, brokerage promotion and Internet bulletin board hype.

New Edition of the ADMMR's Land Status Manual Expected Back from Printers

The newly revised edition of *Manual for Determination of Status and Ownership, Arizona Mineral and Water Rights* is expected from the state's printing office in the next couple of weeks. This new edition has been updated by its author, John Lacy, and new graphics and editing has been completed by Diane Bain. The manual ranks fourth in overall Department publication sales behind our *Directory of Active Mines in Arizona*, *Gold Panning in Arizona*, and *Laws and Regulations Governing Mineral Rights in Arizona*.

Twenty Fourth Issue of *Mineral Resource* Released in December

Issue number 24 of the Arizona Department of Mines and Mineral Resources quarterly newsletter was mailed in December 1999. The newsletters provide news of our agency and industry to friends and supporters and to a large number of select people and businesses that do or should have an interest in the continued mining and development of mineral resources in Arizona.

Boras Headframe Hoist House Awaits Final Details For Completion

Hoist house building construction has been completed with all donated labor and a significant amount of donated materials. Details yet to be completed include historic restoration of the lighting and hoist motor controls. The lighting will be restored to be functional. Moving the machinery to this new location removes it from the main museum building, thus eliminating dust, engine exhaust, and noise from the museum. Further those volunteers and employees that operate the equipment no longer need to move the heavy machinery into the vehicle alley for use.

**ACTIVITIES AND CURRENT EVENTS FROM THE ADMMR MINING AND MINERAL RESOURCE
INFORMATION, PROMOTION AND DEVELOPMENT PROGRAM****3RD QUARTER, 1999-2000****(MAY 9, 2000)****Still An Interesting Rumor.**

The following rumor was the lead item in last quarter's report. The rumor continues to persist. Writing under "This Month in Mining," about Grupo Mexico, S.A. de C.V. (GM), the editorial staff of *E-MJ* magazine reports on the comments of one Peruvian source as saying "... that GM may focus on smelting and refining, with Southern Peru Copper Company functioning as a 'cash cow,' as Asarco's Arizona mines will likely be sold to Phelps Dodge."

Directory of Active Mines in Arizona

The *Directory of Active Mines in Arizona* for the year 2000 has been delivered to the printer. It is the premier publication of the agency and has become a model for many of the Western mining states. This year's edition has been delayed four months awaiting information from the Grupo Mexico, S.A. de C.V. acquired ASARCO Inc. Normally between 750 and 1,000 copies are sold annually. Due to the delayed publication date only 500 copies are being ordered. The publishers of *Southwest Contractor Magazine* included a preliminary version of the directory with subscriptions to that publication early in 2000.

Copper Price Closed at 88.00¢ Per Pound Monday May 8, 2000.

Copper - 88.0 cents per lb.; cathode - full plate, U.S. destinations, Monday May 8, 2000.

Copper - 83.35 cents per lb., N.Y. Mercantile, spot, 3:19 p.m., Monday May 8, 2000, 2000.

The cathode price is the same as the 88.00¢ per pound on Friday January 28, 2000 reported at the last Board of Governors' meeting.

ADMMR Serves Thousands of Callers, Visitors, and Members of the Mining, Rock Hounding, Prospecting, Earth Science, and Tourism Communities.

In the last quarter over 11,000 people visited the Museum, while we communicated with almost 4,200 clients by phone, fax, and letter, and 288 visited the Department for mining and mineral resource development information.

Many ADMMR Users Will Never Start a mine

The mining and mineral resource information center serves a variety of patrons many of whom have no intent of ever developing a mine in Arizona. These patrons fall into one of three general classifications: environmental liability consultants for financial institutions, government agencies, and individuals searching history. All of these patrons have a right to our service even though they have no interest in developing mineral resources. We occasionally find it necessary to assist antiminining organizations as they occasionally come to our agency in hopes of finding negative information in our files they can use against the industry. Our long-standing and well-known pro mineral resource development function discourages many who are searching for "dirt on the industry" from using our agency.

Cataloging of Massive Cambior USA Exploration Donation of Mine Files Continues

We are continuing to review and catalog the fifteen file boxes of mine data files, drilling data, mine maps, and reports on Arizona properties from exploration efforts of Cambior, Westmont, and Nicor. The contents are being listed and will be coordinated to AZMILS and the ADMMR mine files. We have received some assistance from members of the exploration community anxious to review the data.

Questionable Mining Promotion Activity Continues in Arizona

Gold, platinum group metals, and industrial minerals are continuing to be the subject of a number of questionable mining promotions in Arizona. The technical staff receives inquiries about both the companies and commodities. Providing copies of file and published data and providing mining and mineral resource information answer such inquiries. The Superior Courts of Maricopa County have determined we do not have the authority to comment on likelihood of success of any of these promotions even when they have all of the characteristics of scams. We do, however, have the statutory duty to cooperate with the Arizona Corporation Commission and these promotions are discussed with investigators within that agency. Generally these promotions revolve around reports of high grade "ore" that cannot be independently substantiated by acceptable testing practice and/or news release driven "pump and dump" penny stock promotions that combine high-risk, high profile, brokerage promotion and Internet bulletin board hype. We have received questions regarding Terra Natural, Global Platinum + Gold, Orrex Resources, Hexagon Resources, MG Gold, Maxam. A twist to this subject has been announcements of ready to operate mines and mills that do not appear to exist or are at a location that promoters refuse to divulge.

Twenty Fifth Issue of *Mineral Resource* Released in April

Issue number 25 of the Arizona Department of Mines and Mineral Resources quarterly newsletter was mailed in April 2000. The newsletters provide news of our agency and industry to friends and supporters and to a large number of select people and businesses that do or should have an interest in the continued mining and development of mineral resources in Arizona. This issue includes a story prepared by the Director on some iron resources in La Paz County. Although the story does not promote a specific mining property, it does promote an awareness of the type of information available at ADMMR. We know for certain the story has prompted one exploration geologist to contact the ADMMR for similar information on zinc resources, one prospector contact us for information on iron occurrences that have color pigment possibilities, and a broker to contact us for information on iron sources amenable to use Portland cement manufacture

Example Field Trips, Conferences, and Programs

Moreau Mine, La Paz County
Clara Peak Area, La Paz County
Swansea Mine Area, La Paz County
Volcanic Terrain Mapping short course, Pinal County
Mine Life Cycle short course
Maricopa SME program on the State Land Dept. Minerals Section
State Land Dept. urban lands mineral resource evaluation expert committee
Presented Mineral and Rock Identification program at Superstition Treasure Hunters
Presented Diversity of Mining in Arizona to Sun City Lions

Boras Hoist House Essentially Completed and Work Begun On Stamp Mill Restoration

Hoist house building construction has been completed with all donated labor and a significant amount of donated materials. Details yet to be completed include restoration of the hoist motor controls. The electrical hoist motor control system will not be operational, but its components will be displayed in their original configuration. The lean-to workshop on the backside of the hoist house is used to house the Department's sample preparation and teacher kit, mineral crushing machinery. Operating the machinery in this new location removes it from the main museum building, thus eliminating dust, noise from the museum. Further those volunteers and employees that operate the equipment no longer need to move the heavy machinery into the vehicle alley for use.

The need to supply and handle gasoline and engine lubrication oils for the sample crusher has been eliminated by replacement of the worn out gasoline engine with a 3hp electric motor.

Charlie Connell, Eve Dixon, Gerry Ohland, and other museum volunteers have restoration of the 5-stamp mill for eventual display. It is hoped that the mill can be cycled through at one revolution to demonstrate both its method of operation and its original impact on the environment.

Bad News – Good News

An announcement of a new perlite operation at Milford, Utah by Basin Perlite Corporation may negatively impact the potential to develop the perlite deposits in western Mohave County. Interestingly, the new operation's Vice President Tim Hall has been an ardent supporter of ADMMR's interests, in seeing a reduction in questionable mining activity in Arizona. Mr. Hall has often been the first to alert us of new activity that could ultimately give Arizona a bigger negative reputation.

Cement Raw Materials

A Portland cement materials broker in Atlanta has inquired about sources of high alumina clays and iron minerals for use in manufacturer of Portland cement. Suggestions of clay deposits in the Pantano area of Pima County were discussed, as were possible sources of kyanite minerals. The clays of the Pantano area have been used by Arizona Portland Cement Company as a source of alumina at various times time over the last 50 years. Livingston felt that the alumina content was too low to justify shipping the clays any distance (such as southern California) for their alumina content. Kyanite occurrences in western Arizona may have to support the cost of beneficiation to be usable as an alumina source. As-mined material could run from 20 to 60 percent Al_2O_3 with silica being the primary additional component.

Argentine Company and Italian Consultant Desire Ceramic Tile Factory in Arizona

Possible Arizona sources of clays, feldspars, wollastonite, calcite, talc, and fluorite were discussed for possible use in the manufacture of white body ceramic tile. Italian ceramic materials consultant Dr. Viviano Venturi and Italian tile plant equipment company manager Luca Berrone assembled information and toured Arizona for their Argentine client Gabriel Della Chiara of Ceramica San Lorenzo. The Argentina ceramics company is interested in a Southwestern USA area for international business expansion. Their contact with the ADMMR was primarily for information on raw material deposits and/or producers that could supply them. Arizona producers were explained including locations, type and use of clays produced, as well as geology and history of ceramic raw materials in Arizona. Messrs Venturi and Berrone had also contacted the Arizona State University, the Arizona Geological Survey, and the Arizona Department of Commerce, all of who suggested that ADMMR was the primary place for the mining information they needed. They subsequently visited three clay mining operations in the State and plan additional work in the fall.

Sale of Excess Books via Ebay.com

We have raised \$283 by auctioning off 12 select excess books or maps on the Internet site Ebay.com. Only one of these had any historical or collector value. Items sold have varied from some believed to be valuable to some they are very common. Highest price paid for a book or pamphlet has been \$125.00, the lowest, \$0.50. Shipping charges are collected in addition to the winning bid amount. The following note has been distributed to our users we know to be Internet users:

To all our friends of ADMMR

We at the Arizona Department of Mines and Mineral Resources are upgrading and modernizing our reference library and hoping to pay for new acquisitions by selling 3rd or 4th copies of many of our old items. So far the employees have been donating the time and the fees for using Ebay. So far items we are auctioning are under my private free e-mail account name, kenfillups. Thus kenfillups is the Ebay user we are listing items under. Use the link http://pages.ebay.com/search/items/search_seller.html and enter kenfillups. No listing of items is available except those on Ebay.



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ACTIVITIES AND CURRENT EVENTS FROM THE ADMMR MINING AND MINERAL RESOURCE INFORMATION, PROMOTION AND DEVELOPMENT PROGRAM

4TH QUARTER, 1999-2000

(JULY 13, 2000)

Directory of Active Mines in Arizona

The *Directory of Active Mines in Arizona* for the year 2000 has been received from the printer. It is the premier publication of the agency and has become a model for many of the Western mining states. This year's edition was delayed four months awaiting information from the Grupo Mexico, S.A. de C.V. acquired ASARCO Inc. Normally between 750 and 1,000 copies are sold annually. Due to the delayed publication date only 500 copies are being ordered. The *Active Mines in Arizona – 2000* map has been completed and printed. It is included with the *Directory of Active Mines in Arizona* and is also available separately to those who obtain their directory through *Southwest Contractor* magazine. .

Copper Price Closed at 85.00¢ Per Pound Friday July 7, 2000.

Copper - 85.0 cents per lb.; cathode - full plate, U.S. destinations, Friday July 7, 2000.

Copper – 80.6 cents per lb., N.Y. Mercantile, spot, 2:21 p.m., Friday July 7, 2000.

The cathode price is 3 cents lower than price quoted for Monday May 8, 2000 reported at the last Board of Governors' meeting.

Still An Interesting Rumor.

The following rumor was the lead item the fall quarter's report. The rumor continues to persist, but with some dilution caused by the passage of time. Writing under "This Month in Mining," about Grupo Mexico, S.A. de C.V. (GM), the editorial staff of *E-MJ* magazine reports on the comments of one Peruvian source as saying "... that GM may focus on smelting and refining, with Southern Peru Copper Company functioning as a 'cash cow,' as Asarco's Arizona mines will likely be sold to Phelps Dodge."

ADMMR Serves Thousands of Callers, Visitors, and Members of the Mining, Rock Hounding, Prospecting, Earth Science, and Tourism Communities.

In the last quarter nearly 11,000 people visited the Museum, while we communicated with almost 4,200 clients by phone, fax, and letter, and 301 visited the Department for mining and mineral resource development information.

Mineral Information Center Staff Time Favors Information Dissemination

- Information dissemination (50%)
 - Publications
 - Office visitors
 - Provision of copies of documents
 - Telephone contacts
- Information collection (30%)
 - Receipt of reports
 - Receipt of periodicals and press releases
 - Data from business and media websites
 - Mine visits
 - Field and factory visits

- Industry meetings and conventions
- Office visitors
- Telephone contacts
- Information handling and cataloging
- Abstracting
- Cross referencing
- Filing
- Administration (20%)
 - Public relations
 - Purchasing
 - Facility management
 - Information technology (computers) management
 - Budgeting and supervision

ADMMR Users Consume Majority of Staff's Time

The mining and mineral resource information center serves a variety of patrons; many will never have the potential to start a new mine:

- corporate and independent mineral exploration professionals
- Arizona mining companies
- out-of-state mining companies in search of development or acquisition targets
- prospectors, mining claim holders, and mineral rights owners
- consumers of mineral raw materials
- environmental liability consultants for financial institutions
- government agencies
- individuals searching mining or family history
- antiminining organizations hoping to find negative information to use against the industry (*our long-standing and well-known pro mining function discourages many who are searching for "dirt on the industry" from using our agency*)
- media writers looking for a story or back ground for a story
- real estate agents and vendors of equipment and supplies

One Day Example Of Public Contact

The following list is a typical example of the mining information and public contacts made by one Information Center professional on May 2:

- Karen Harbour, Tonto National Forest was assisted in researching uranium properties in Gila and Pinal Counties.
- Suggestions for specimen collecting field trips were provided to a local rockhound club.
- Carl Goin, ADEQ, was provided information for a research project on tailings appraisal and clean-up in Graham County.
- Keenan Murray, State land Department, Minerals Division, was provided with aggregate production for Arizona for past 20 years.
- Discussed use of our newsletter and gave approval to Tracy Gaggenheimer of the Arizona Rock Products Association to use our newsletter article on James Miller in their newsletter. Scanned and e-mailed a photo of Mr. Miller.
- Jimmy Vacek of 49er Minerals, a bulk mineral specimen dealer, was sent a copy of a map the Critic Mine, La Paz County by facsimile so he can visit the site and assess its potential to supply specimens to his customers.

- Thorny Rogers, consulting geologist, was assisted in researching mines in central Arizona for possible exploration targets.
- The new owner of the Swastika and Lincoln mines, Yavapai County was introduced to the ADMMR and assisted in obtaining copies of information regarding their mines from our files.
- Searched for and located a photograph of the Swansea Town site, circa 1918, for Carol Griffith of the Arizona Preservation Office.

Publications - Projects Completed by the Mineral Resource Information Center in the 4th Quarter

- Produced *Arizona Mineral Resource*, No. 25
- Completed editing *Directory of Active Mines in Arizona – 2000*.
- Drafted *Active Mines Map- 2000*
- Edited and released Circular 84, *Arizona Gem Shows – 2000 - 2001*
- Edited and released Circular 85, *Earth Science Clubs, 2000-2001*
- Compiled and released Circular 86, *State Agencies Concerned with Mining and Mineral Resources in Arizona*
- Completed Arizona Mineral Production Table for '98, and '99.
- Cataloged donation of mining periodicals, 6 boxes of Mining Journal, Mining and Metallurgy, and Engineering & Mining Journal from 1920s and 30s.
- Listed and purchased materials for the museum's demonstration house that will show and interpret the use of mined products in a typical home.
- Authored an article reviewing Arizona mining activities during 1999 to the USGS to be published in the Minerals Yearbook and their web site.
- Authored an article reviewing Arizona mining and exploration activities during 1999 to the SME publication *Mining Engineering*. It was published in the May 2000 issue.
- The Copper Reserve database was updated with new reserve figures and the changed/merged companies' names and addresses. New introduction and index pages were made for the *OFR92-11 Arizona Copper Reserves*, (Reserve and ownership information for approximately 80 major copper properties.)
- Mailing list and contact data base has been updated
- A stone publication, *Stone Landmarks – Flagstaff's Geology and Historic Building Stones* by Marie D. Jackson was abstracted and used to identify many stone quarries in the Flagstaff area. Many of these quarries had been listed as unknown in AZMILS. (The existence of a quarry was previously known, but there was no available name or material description.)

WWW.ADMMR.STATE.AZ.US Website Continues To Evolve

New pages have been created:

- government links
- industry links
- general mining/geology links
- staff page with phone extensions, and email addresses
- tourist/rockhound page
- updated earth science clubs page
- updated gem and mineral show pages

A "footer" for all pages has been designed that complies with GITA standards. It includes a Arizona State Government home link, disclosure statement, date, webmaster contact, and other required details.

Bronze Statues In Museum

The Department received the loan of three 8-ft bronze statues of miners from Phelps Dodge.

They are currently on display in the mining room on the Museum's main floor.

New and Replacement Computer Equipment Specified and Purchased

The following new and updated computer equipment has been acquired:

- 2 replacement desktop pc's
- 4 replacement 17" monitors
- new HP LaserJet printer
- new notebook pc
- new pc driven projector
- software for virus protection and web publishing

Questionable Mining Promotion Activity Continues in Arizona

The staff continues to work with Corporation Commission Securities Division on previously reported suspicious mining activities. New such activities were identified: Silver Crest/Black Eagle, North American Industrial Development Authority, and G. Brian Stone dba Gold Mining Ventures, Inc. Earlier cooperative efforts with the BLM resulted in their producing a report that fails to validate a site of a promoted gold, platinum, and platinum group metals deposit in Nevada. The report also reveals problems with a registered Arizona assayer among others.

Numerous contacts were received from potential investors contacting ADMMR for information. Contacts were made with the Nevada Attorney Generals Office and the Nevada Division of Minerals. These agencies are part of the Nevada Mine Fraud Task Force. An informal invitation was received to present a paper at their fall conference in Las Vegas. Both ADMMR and Securities Division employees plan to attend.

Cement Raw Materials

An investment group is researching the feasibility of an additional cement plant in Arizona. Suggestion and data has been provided as to sources of limestone to feed the cement plant. Any cement plant must be located near sources of limestone and in close proximity to rail and highway transportation.

Argentine and Chilean Company and Italian Equipment Manufacturer Continue Toward New Ceramic Tile Factory in Arizona

Based on information provided by ADMMR, possible sources of clay in Arizona were pinpointed by an Italian ceramic materials consultant and an Italian tile plant equipment company manager. Based on initial reconnaissance a plant location in Kingman, Lake Havasu City, or Bullhead City is being considered for a new ceramic tile factory by San Lorenzo Ceramic. Meetings have been held with the Arizona Department of Commerce, Southwest Gas, Citizens Utilities, and Arizona regarding possible plant sites.

Arizona Construction Boom Continues to Drive Inquiries for New Material Sources

Inquiries for sand and gravel, building stone, decorative boulders, and landscape stone have dominated the requests for industrial mineral deposit data. These same commodities have accounted for the majority of requests for permitting information and assistance.

Prospectors, Property Holders, Investors, and Consultants Encouraged to File With Department

The staff of the Mineral Resource Information Center encourages the filing of mineral resource technical data with the agency. Although there is no legal requirement for anyone to file such data it is often to their benefit to do so. It provides a extra copy available in a public place as well as allowing the staff the use of the data in carrying out the objectives of the agency.

Prospectors, property holders and consultant are also encouraged to provide the ADMMR with a technical summary of any mineral property they hope to promote, joint venture, or sell. The staff can then make the property known to a large audience of possible developers.

Copper Still Of Interest

Two groups researching copper deposits and acquisition targets visited ADMMR. They were researching both development opportunities and looking at properties and operations that might be for sale.

Staff Involved With Museum Advisory Committee

Members of the technical staff are involved with some of the Arizona Mining and Mineral Museum advisory committee's display committees:

- Ken Phillips – Display House showing use of metals and nonmetals in home construction and furnishings
- Ken Phillips – Where Is Mining In Arizona? A map and photo display of current mines, commodities, and mining and processing methods and facilities
- Nyal Niemuth – Stope Display – Simulated full size display of under ground mining and mining methods
- Diane Bain – Copper – A display and display area centralizing and emphasizing copper minerals, ores, products, and uses.

Sale of Excess Books via Ebay.com

We have raised \$420.57 by auctioning off 39 select excess books or maps on the Internet site Ebay.com.

I:\ADMMR\CALENDER\1999-00\Tech4-00.doc 7/12/2000

STATISTICAL REPORT FOR ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES JULY 1, 1999 THROUGH JUNE 30, 2000.

(Some data is not available due to partial reporting periods, tabulation startup, and illness of Museum Curator.)

(Item italicized in parentheses are measurement items in the current strategic plan)

	1 st ¼ 1999-2000	2nd ¼ 1999-2000	3rd ¼ 1999- 2000	4th ¼ 1999-2000	Total Fiscal 1999-2000
[1] Visitors Mineral Resource and Development Technical Information Center (upstairs) [Visitors to the mining and mineral resources information center.] <i>(people requesting information on mines & minerals in office)</i>	342	241	288	301	1172
Number of above using databases, files, library, etc. [Those above who sign in to use files, library materials, maps, or magazines.] <i>(Mineral occurrences research by the public)</i>	193	218	129	111	651
Possible new mine startups <i>(Requests for permitting, environmental, and mine startup information)</i>	11	4	7	3	25
[2] Arizona Mining and Mineral Museum [Total of the following five groupings]	5,942	8,078	11,154	10,794	35,968
General Museum Visitors [All Arizona Mining and Mineral Museum visitors]	2,860	2,770	4,048	2,969	12,647
Student Visitors [Number of students and teachers in scheduled school field trips to the Museum]	2,142	4378	5,674	6,407	18,601
Club Members [Earth science club members using the Museum facility.]	630	769	1,085	999	3,483
Americans With Disabilities	185	44	81	181	491
Scouts	125	117	135	101	478
Lapidary Shop Users	682 hours	423 hours	131 w/874hr	137 w/644hr	267 w/ 2,623 hours
Organized museum tours [Includes schools & other tours]	59	75	79	97	310
[3] Telephone contacts [Incoming and outgoing]	4,017	2,702	3,400	3182	13,301
[4] Letters and information sent out by mail, facsimile, and e-mail.	321	402	610	721	2054

	1 st ¼ 1999-2000	2nd ¼ 1999-2000	3rd ¼ 1999- 2000	4th ¼ 1999-2000	Total Fiscal 1999-2000
Mineral and Rock samples identified for the public	128	88	188	51	455
Total direct patron contacts (1+2+3+4+5)	10,709	11,467	15,629	15,299	53,104
Mining & Mineral Museum Gift Shop sales	\$12,593.00	\$19,634.0	\$23,013.21	\$22,019.23	\$77,259.44
Publication sales	\$1,351.83	\$1,060.00	\$2,298.71	\$1189.66	\$5,900.20
Mine files and library references used	678	357	370	171	1576
Technical conferences held	7	8	14	11	40
Meetings attended	41	47	62	53	203
Seminars and symposiums attended	2	3	1	1	7
[5] Programs given and (number of people in attendance)	6 (327) ^r	2 (44)	4(177)	7(301)	19(849)
Written or public advocacy statements	8	3	4	11	26
Mining/mineral resource properties visited	8	3	6	2	19
Volunteer hours received	348	1,890	2,232	2,645	7,115
Donations Cash	\$398.50	\$1193.00	\$3,268	\$775	\$5,634.50
Donations Bulk rock & mineral material (pounds)	3,193 lbs.	4,4849 lbs	2,414 lbs	1,428 lbs	11,524 lbs
Donations Individual specimens	182	152	20	26	380
Donations *Mine data, libraries, materials, collections [See list at end of table]					
Donations Outgoing [See list at end of table]					
Additions to Museum collection	125	79	31	24	259
(School curriculum programs)					
Teacher mineral kits distributed	49	* 164	* 154	☼285	652
Additions and corrections to information base					
Museum specimens & information	4,755	7,458	2,144	13,091	27,448
Mineral resources information (Files updated)	40	122	101	94	357
New / modified internal exhibits (both in galleries and out doors)	2	3	0	2	7
External exhibits	1	† 3	† 5	1	10
Display cases cleaned, relamped, relabeled, etc.	12	1	1	5	19

* 21 mining video set were also distributed to teachers in 2nd qtr; 27 in the 3rd qtr

† Exhibits were provided for (2nd qtr: Red Rock State Park, the Rossen House at Phoenix Heritage Park, and the State Senate lobby, 3rd qtr: Tucson Gem & Mineral Show, Apache Junction Gem Show, Maricopa Lapidary Society Show, and Cottonwood Gem Show.

☼ Includes 150 given to the Arizona Mining Association and 70 sold to an out-of-state school

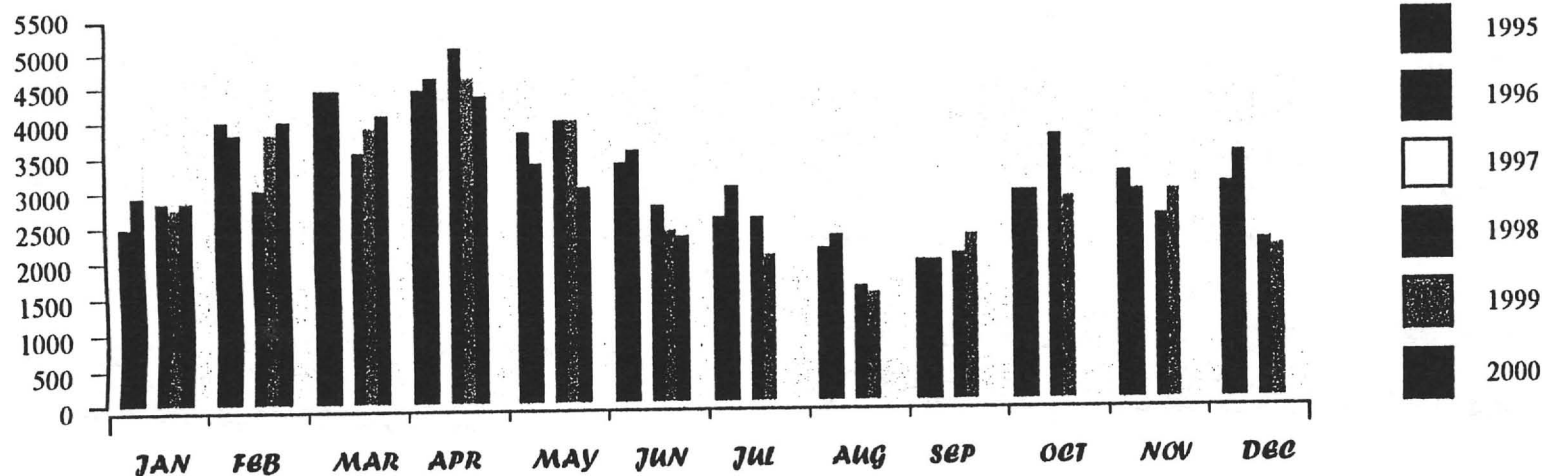
^r Revised number

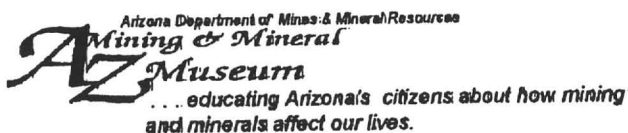
ANNUAL VISITATION (inc. students) For The Years 1995-2000

	1995	1996	1997	1998	1999	2000
JAN	2453	2897	3332	2857	2765	2852
FEB	4040	3691	4174	2984	3733	3914
MAR	4442	4467	4434	3579	3834	4171
APR	4454	4527	5522	5052	4547	4383
MAY	3816	3339	3151	3937	4000	3109
JUN	3313	3487	2111	2719	2319	2385
JUL	2628	2909	2892	2534	2064	
AUG	2051	2189	1475	1514	1470	
SEP	1927	1942	2637	2006	2273	
OCT	2935	2972	2655	3650	2741	
NOV	3208	2852	2619	2525	2823	
DEC	2974	3426	2364	2228	2182	
TOTAL	38241	38698	37366	35585	34751	15391

FISCAL YEAR SUMMARY

Fy 1995/96 - 38,131
Fy 1996/97 - 39,014
Fy 1997/98 - 36,770
Fy 1998/99 - 36,666
Fy 1999/00 - 34,490
35,167





ANNUAL STUDENT VISITORS For The Years 1995-2000

	1995	1996	1997	1998	1999	2000
JAN	586	1104	1592	1153	1182	1259
FEB	1941	1778	2331	1285	2236	2053
MAR	2090	2278	2271	1854	2159	2411
APR	2361	2739	3174	3584	3834	2990
MAY	2257	2084	1826	2725	2590	2535
JUN	1492	1201	569	1168	869	993
JUL	560	665	1017	1205	622	
AUG	430	449	160	495	308	
SEP	355	587	1358	777	1219	
OCT	1435	1570	1320	2165	1426	
NOV	1859	1573	1411	1448	1665	
DEC	1607	1895	898	997	1042	
TOTAL	16973	17923	17927	18856	19152	8702

FISCAL YEAR SUMMARY

FY 1995/96 - 17,430
FY 1996/97 - 18,502
FY 1997/98 - 17,933
FY 1998/99 - 19,967
FY 1999/00 - 12,005
18,523

