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FOR

FISCAL YEAR 1980-1981

79-80

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

PHOENIX, ARIZONA

JOHN H. JETT

DIRECTOR

Sent to Governor by interagency Mail 10/15/80



STATE OF ARIZONA
DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX, ARIZONA 85007

602/255-3791

The Honorable Bruce Babbitt
Governor of the State of Arizona
West Wing, Capitol Bldg.
Phoenix, Arizona 85007

Dear Governor Babbitt:

In accordance with A.R.S. 27-106, we are pleased to submit the Annual Report of the Department of Mineral Resources. The report covers the Department's activities for 1979-1980 fiscal year. An abstract of the Director's Quarterly Reports and a financial statement are included. The Arizona Mineral Museum is a function of the Department and its activities are included.

The mining industry's basic role in society is to provide vital raw materials that are necessary for our present quality of life, balanced with an equitable evaluation of society's other needs.

The Department's objectives are to gather, interpret and disseminate mineral information to encourage interest and investment in Arizona's mineral resources. The mineral information applies to land use planning and resource management as well as the original intent of mineral promotion.

It is the intent of the Department of Mineral Resources to meet its responsibilities in fulfilling its prime obligation, "to aid in the promotion and development of mineral resources of the State." New mineral discoveries and operations provide increased employment opportunities and an expanded tax base. This will be done in a manner compatible with the changing and expanding goals of society.

Respectfully yours,

BOARD OF GOVERNORS
DEPARTMENT OF MINERAL RESOURCES

Curtis J. Ritter, Chairman
Curtis A. Jennings, Vice Chairman
Richard C. Cole, Secretary
Ed Peplow, Member
Thomas A. Clary, Member

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BOARD OF GOVERNORS

Curtis J. Ritter - Chairman - Kirkland
(Term expires January 31, 1980)

Curtis A. Jennings - Phoenix
Vice Chairman
(Term expires January 31, 1979)

Richard C. Cole - Pinetop
Secretary
(Term expires January 31, 1983)

Thomas A. Clary - Miami
(Term expires January 31, 1982)

Ed Peplow - Tempe
(Term expires January 31, 1981)

STAFF PERSONNEL

Phoenix Office - Mineral Building, Fairgrounds

255-3791

John H. Jett	Director
Ken A. Phillips	Field Engineer
Clifford J. Hicks	Field Engineer
Richard R. Beard	Mineral Resources Specialist
Arthur W. Bloyd	Mineral Museum Curator
Ann Turney	Administrative Assistant
Aleta Phillips	Secretary/Bookkeeper
Mary Worthington	Secretary/Receptionist
William Hammers	Custodian

Tucson Office - Room 190, State Office Building

882-5399

Gerald W. Irvin	Mining Engineer
Michael N. Greeley	Mining Engineer
Marie C. Rogers	Secretary

FORWARD

The Department of Mineral Resources was created for the purpose of providing aid in the promotion and development of the mineral resources of the State of Arizona, with special emphasis on assisting the small miner-pro prospector along technical and general economic lines. It is the policy of the Department to work closely with miner-pro prospector organizations, governmental agencies and other organizations concerned with Arizona minerals.

The Department is controlled by a Board of Governors consisting of five members from various parts of the State. These members are appointed for five year terms by the Governor of Arizona. The Board of Governors serve without compensation other than their actual expenses incurred when attending Board meetings which are required by law to be held quarterly. The Board of Governors outlines the policies of the Department and employs the Director, who by law must be an Arizona registered mining engineer. To carry out the policies established, the Director in turn employs such field and office force as is consistent with the appropriation and with the policies of the Board.

The Annual Report is supposed to include copies of the Director's Quarterly Report to the Board of Governors. With the intent of saving on mailing and reproduction costs, the reports have been abstracted. Copies of the complete report will be furnished to any that request them.

ARIZONA MINERAL ACTIVITY

According to preliminary figures from the U.S. Bureau of Mines, the value of Arizona's 1979 mineral output increased to \$2,465,812,000. This is an increase of over 44 percent.

Copper was the largest producer, in both quantity and value. Copper recoverable from ores mined increased to 1,027,871 tons, up four percent from 1978. Value of by-product gold and silver more than doubled to \$108,054,000. This increase is for the most part due to increased prices with some increase in production. Many of the non-metallics such as clay, gypsum, lime, sand and gravel, stone and other minor minerals showed increases. Some decreases were noted in fluorspar, asbestos, pumice and gypsum.

Excluding sand and gravel operations, there were at least 49 active mines producing in the state. Forty-three were open pit and six were underground operations. In addition to the copper mines, other mines were producing gold, bentonite, hydra-frac sand, gypsum, silica, coal, decorative stone, perlite, diatomite, fluorspar, salt, and asbestos. There were many intermittent operations periodically starting and closing. Some were producing and others were doing development and/or exploration work. One new open pit copper mine started production and two that had been closed reopened. Numerous small operations, for the most part precious metal recovery plants, opened. Many worked on an intermittent basis. Considerable development work was done on many of the same operations.

Arizona Mineral Activity (continued)

At the end of the year there were at least forty-seven active, full-time exploration companies operating from offices in Arizona. The offices are located in Prescott (3), Phoenix (3), Tucson (34), and one each in Casa Grande, Kingman, Flagstaff, Bagdad, Miami, Claypool, and Douglas. In addition, there are numerous exploration projects being conducted by companies with offices out of state. Many private consultants are conducting exploration projects and an estimate of 100-200 small groups or individuals doing similar work. It is conservatively estimated that as much as \$20,000,000 is being spent on the projects for precious and base metals.

There were 4,267 visitors to the Department's office, seeking information for the most part on prospecting and exploration. 612 Individual properties were discussed and 3,460 mine files were studied by the explorationists.

All of this activity results in a very positive attitude toward an expansion and diversification of Arizona's mineral industry. This activity gives the outlying area of the state an opportunity to participate in these expenditures. They provide a base of operations, sell supplies and services, and provide some labor.

Mineral development is preceded by prospecting and exploration. Therefore, any plans for the development or mining of Arizona minerals should aim first at attracting, encouraging and assisting prospecting and exploration. This is the Department's responsibility.

DEPARTMENT ACTIVITIES

The annual report of the Department must include the activities of the Department. The Director's quarterly reports to the Board of Governors have been abstracted and condensed for inclusion.

Mineral Resources Conferences

Field engineers conduct technical seminars in active mineralized areas of the state. The purpose is to deliver the Department's services to outlying areas where it is difficult for the prospector-small miner to come to the Department's office. These conferences and seminars have proven very successful and conferences were held in Safford, Payson, Congress, Phoenix, Yuma, Tombstone, Kingman, Prescott and Mammoth. On occasion, conferences are held together with Arizona Small Mine Operators' Association Meetings. Subjects discussed include land status, geology, mining and marketing special minerals such as beryl, barite, columbite and tantalite, problems causing failures in cyaniding heap leaching operations, and how to read and use USGS Topographic Maps in prospecting.

Governmental Agencies

Seventy-two other government entities requested some form of assistance from the Department. City parks, libraries, county recorders, assessors, and an

Governmental Agencies (continued)

attorney, Securities Division of Corporation Commission, legislators, and a foreign consulate were among those assisted. There were four local units, ten county entities, four regional units, twelve state offices, seventeen federal agencies, and one foreign consulate.

Meetings

Over 127 meetings were attended by the Director and technical staff. They include trade association meetings, such as, American Mining Congress, Association of Earth Science Clubs, Arizona Mining Association, National Western Mining Conference, Western Mining Council, Federal agency meetings on proposed wilderness hearings, proposed new regulations, and Forest Service rules; State regional meetings, such as, NACOG and CAAG mineral extraction task force; Professional meetings, such as, AIME, Arizona Prospectors' Association, Society of Mining Engineers, Arizona Council for Engineering and Scientific Study, Arizona Small Mine Operators' Association, seminar on mineral exploration technology, and Simon Strauss lecture; and State agency sponsored meetings, such as, Interagency Economic Coordinating Council, Land Task Force, Governor's Commission on Arizona Environment, Water Symposium, State Data Coordinating Network, Technical Registration, Fiscal Notes, Financial Advisory Committee, Arizona Historical Society, Blood Drive, and other similar meetings.

News Media

There has been increasing activity in the use of the Department for information relating to news items or other special reports and for special issues. Those assisted, included Pay Dirt Magazine, all major newspapers in Phoenix and Tucson, Kingman Daily Miner, Mohave Valley News, four free-lance writers, Holyoke, Massachusetts Transcript Telegram, Arizona Weekly Gazette, Fortune Magazine, United Press, Contractor and Engineer, Energy publication, Today Magazine, The Point Magazine, American Metal Market, and several radio and television stations.

Programs

The dissemination of information and public education is done through giving programs to various organizations. Forty-eight programs were presented to high school, civic clubs, earth science clubs, prospector clubs, community colleges (Cochise, Scottsdale, Mohave, Glendale, Grand Canyon), grade schools, county recorders groups, AIME Section, adult groups, and the Arizona Museum. These programs were given by the Director, technical staff, and Board of Governors members.

Publications

A total of 89 publications were written and published. Some of the publications were printed, but most were mimeographed in the interest of making a small budget go further. The following items were included:

Publications (continued)

Mineral Reports..... 740 copies of Copper, Molybdenum, and Industrial Mineral Reports.

Information Circulars. 1560 copies of Land Status Determination, Pertinent Data for New Mining Operations, Cyaniding Clean Up, Patenting a Mining Claim, and Assayers List.

Directories 2521 copies of Consulting Engineers, Exploration Companies, Active Mines, Earth Science Clubs, and State, County & Federal Agencies in Arizona for Mining and Mineral Resources.

Laws and Regulations.. 1500 copies were printed and 900 copies were mimeographed.

Miscellaneous..... 8,290 copies of items such as List of Publications, Information on Turquoise, Museum Treasure Hunts, Book Lists, Apache Tear Tumbling Instructions, post cards, posters, and others.

Total pages mimeographed were 169,547.

Operational Highlights

A second contract was received from the U.S. Bureau of Mines to complete the MILS (Mineral Industry Location System) study of the state. Total contract price was \$114,000 including an in-kind Department contribution.

An unsolicited proposal was submitted to the U.S. Bureau of Mines for a contract to micro-film the underground mine maps in the Department's files.

A field trip and a copper availability study were made for a Taiwan representative.

Operational Highlights (continued)

Mica ore was furnished to Tuscaloosa Division of the U.S. Bureau of Mines for experimental separation work.

Luke Air Force Base Mineral Study was printed and made available to the public.

A film slide program on USGS Topographic Maps and a second program on volcanoes in Arizona were made and narrated by the staff.

A study was made for the possible exploration of a garnet deposit in a major open pit copper mine.

Numerous environmental impact statements relating to Arizona strip country, land withdrawals, power line right of way, land exchange and others were reviewed.

A field study was made to develop data on the relationship of field work to paper research on the MILS grant.

New office space was acquired in Tucson which is approximately 40% larger.

The Director and Board Member Clary were recommended for appointment to a mining advisory group to the Department of Health.

Board member Peplow presented a program to the Tucson AIME.

Board member Cole and the Director were elected to the Board of Directors of the Arizona Council of AIME Sections.

Operational Highlights (Continued)

Analysis made of mineral future of Gila County for potential marketing of county bonds.

Security system installed in Mineral Museum. A small theft occurred in the Museum shortly before installation.

Discussions were held on filter media, road stabilizers, sponge iron and shredded cans with out-of-state firm studying possibilities of opening an Arizona office.

Exporting Arizona gem stone was discussed with an out of country firm.

A Monthly Mineral Commodity Price Sheet was made for, and published by Pay Dirt Magazine.

A sixty pound sample of manganese silver ore was collected in the field and shipped to San Francisco for metallurgical testing.

An insulation company started operation using Arizona basalt, limestone and copper smelter slag to manufacture rock wool.

Technical discussions with the small miner included subjects such as gold washing plants, sluice box design, fire assaying, oil shale, mineable oil, black sand gold operation, uranium in porphyry copper environment, ground water analysis, feldspar-quartz separation, azurite nodules for pigment and small lot custom smelter.

One engineer visited several companies in Los Angeles (at his expense) trying to develop markets for Arizona industrial minerals.

Operational Highlights (continued)

599 Mineral specimens were donated to the Department's Museum with an estimated value of \$14,051.00

12,198 Pounds of mineral specimens were donated for mineral kits and other educational uses.

A mineral display case and some equipment were donated in addition to minerals.

A MILS contract for five counties was completed for the U.S. Bureau of Mines. Data will be made available to the public.

Black sand potential was researched for a copper company.

Numerous prospectors were assisted with the making of their claim maps for filing. Field assistance was provided in the locating and surveying.

Fundamentals of prospecting and problems in marketing minerals were topics for conference seminars provided by the field engineers.

STATISTICAL REVIEW OF ACTIVITIES

Office Visitors	4,267
Telephone Contacts	14,050
Mine Visits	238
Field Interviews	221
Mine Reports Written	162
Mineral Resources Conferences and ASMOA	15
Meetings Attended	127
Programs Presented	48
Properties Discussed	612
Mine Files Used	3,460
(30 States and 8 Foreign Countries Represented)	
File Pages Reproduced	3,784
Publications Sold	2,091
Mineral Identifications Made	1,212
School Tours Conducted Through Museum	148
Attendance	5,568
Club Meetings Held in Museum Hall	26
Attendance	505
Museum Attendance	43,881
(Representing 46 States plus 17 Foreign Countries)	
Minerals Discussed	80
Field Trip Information for Rock Collecting	1,103

RECEIPTS AND EXPENDITURES

A Statement of Expenditures is attached. Personal Services and Employee Related Funds returned to the State were in the amount of \$13,300. These funds were surplus due to resignation of employees and new hires at lower pay scale. Other accounts were expended as near as possible to zero. Since funds were short for use in all of these categories, travel was restricted, office operated without air conditioning for 30 days, the stamp supply was exhausted for several weeks and publications were delayed until a new Fiscal Year. Personal Services funds cannot be used for operating expenses. \$1,689.55 were deposited to the General Fund of the State. These funds were related to sale of publications and file reproduction charges. Two hundred fifty-three dollars and thirty one cents were donated to the Museum.

STATEMENT OF EXPENDITURES - FISCAL YEAR 1979-1980

	1979-1980 Appropriation	Encumbered Thru June 1980	Unencumbered Balance 1st, 2nd, 3rd, & 4th Quarter Allotment	Unencumbered Balance 1979-1980 Budget Year
Personal Services	\$ 227,900.00	\$218,690.50	\$ 9,209.50	\$ 9,209.50
Employee Related	\$ 44,200.00	\$ 40,143.63	\$ 4,056.37	\$ 4,056.37
Travel - In State	\$ 11,000.00	\$ 10,996.92	\$ 3.08	\$ 3.08
Travel - Out of State	\$ 1,300.00	\$ 1,256.14	\$ 43.86	\$ 43.86
Operating Expenditures	\$ 19,700.00		\$ 6.37	\$ 6.37
RENT - TUCSON OFFICE		\$ 1,496.00		
UTILITIES		\$ 5,421.07		
OTHER OCCUPANCY		\$ 598.12		
MAINTENANCE & REPAIRS		\$ 676.24		
OFFICE & LIBRARY SUPPLIES		\$ 2,152.80		
OFFICE & INSTITUTIONAL SUPPLIES		\$ 654.62		
MAINTENANCE & FIELD SUPPLIES		\$ 343.61		
PRINTSHOP MATERIALS & SUPPLIES		\$ 443.93		
EQUIPMENT RENTAL		\$ 20.00		
ORGANIZATIONAL DUES		\$ 20.00		
OTHER OPERATING		\$ 955.68		
PRINTING & PHOTOS		\$ 1,188.91		
POSTAGE & MAILING		\$ 1,063.50		
TELEPHONE SERVICE		\$ 3,806.63		
COMMUNICATION & SHIPPING		\$ 852.52		
TOTAL OPERATING EXPENSES		\$ 19,693.63		
Capital Outlay - Equipment	\$ 5,400.00	\$ 5,376.21	\$ 23.79	\$ 23.79
TOTALS	\$ 309,500.00	\$296,157.03	\$ 13,342.97	\$ 13,342.97