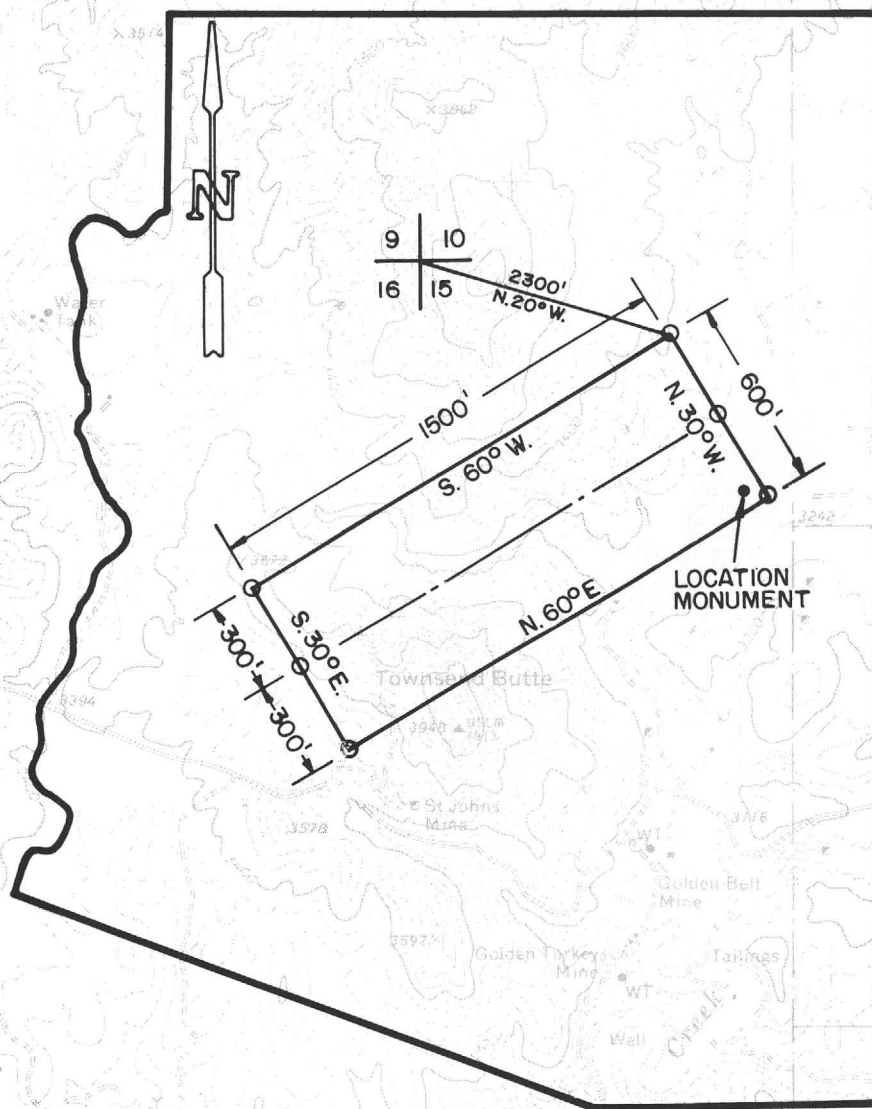


DEPARTMENT OF MINES AND MINERAL RESOURCES

State of Arizona

Phoenix, Arizona

John H. Jett
Director



48th ANNUAL REPORT

FOR YEAR ENDING JUNE 30, 1987



STATE OF ARIZONA

DEPARTMENT OF MINES AND MINERAL RESOURCES

Mineral Building • State Fairgrounds • Phoenix, Arizona 85007

(602) 255-3791

The Honorable Evan Mecham
Governor of Arizona
9th Floor, West Wing Capitol Bldg.
Phoenix, Arizona 85007

Dear Governor Mecham:

In accordance with A.R.S. 27-106, we are pleased to submit the Annual Report of the Department of Mines and Mineral Resources. The Arizona Mineral Museum is a function of the Department and its activities are included.

The Department of Mines and Mineral Resources' objectives are to gather, develop, interpret and disseminate mineral information and provide technical assistance to encourage and promote interest and investment in Arizona's mineral resources. The mineral information also applies to and is used by land use planners and resource management groups.

Respectfully yours,

Donald W Hart

Board of Governors
Department of Mines and Mineral Resources

Donald W. Hart, Chairman
Harvey W. Smith, Vice Chairman
Clifford Altfeld, Secretary/Treasurer
Edna Vinck, Member
Larry E. Dietz, Member

BOARD OF GOVERNORS

Donald W. Hart - Phoenix
Chairman
Term Expires 1/31/91

Harvey W. Smith - Phoenix
Vice Chairman
Term Expires 1/31/88

Clifford B. Altfeld - Tucson
Secretary/Treasurer
Term Expires 1/31/90

Edna Vinck - Globe
Member
Term Expires 1/31/89

Larry E. Dietz - Phoenix
Member
Term Expires 1/31/87

STAFF PERSONNEL

Phoenix Office - Mineral Building, Fairgrounds, Phoenix 85007
255-3791

John H. Jett	Director
Ken A. Phillips	Chief Engineer
Richard R. Beard	Mining Engineer
Nyal J. Niemuth	Mineral Resource Specialist
Arthur W. Bloyd	Museum Curator
Ann Turney	Administrative Assistant
Diane Bain	Secretary
Susie Kile	Secretary
Connie Morgan	Maintenance

Tucson Office - 416 W. Congress Room 190, 85701

628-5399

Michael N. Greeley	Mining Engineer
Frances J. Derrick	Secretary

FORWARD

The Department of Mines and Mineral Resources was created to promote the development of the mineral resources of the state of Arizona through technical and educational processes.

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 serves without compensation other than actual expenses incurred when attending board meetings which are required by law to be held quarterly. The Board of Governors formulates the programs and policies of the department and employs the director. The director has control of the work of the department and employs such field and office personnel as is consistent with the appropriation and with the policies of the board.

The Annual Report of the Department is supposed to include a report on the activities of the department and a copy of the quarterly reports of the director to the Board of Governors. The quarterly reports are quite detailed and complete with statistical data. A compilation of these reports would be quite voluminous for an annual report. Therefore, the quarterly statistics have been combined to report an annual total. Complete copies of the quarterly reports will be furnished to any that may request them. A complete financial statement is also attached.

GENERAL

Prospecting in old mining areas can have a significant advantage over similar activity in undeveloped districts where no mineral discoveries are known. The extension of an old district is always possible. New geological interpretation of existing old districts coupled with data developed by new types of highly sophisticated exploration equipment could result in discoveries of new districts as well as extending the existing mineral districts. These activities all start with an intense paper search and technical discussions with professional people who have knowledge of the area. This is why many exploration projects start at the Arizona Department of Mines and Mineral Resources.

Available at the department are thousands of old mine files, a large technical library, and thousands of bulletins and maps containing information about past production, geology, history, mineralogy and possible ownership of old mines. In addition a professional staff with mining engineering, geological and metallurgical expertise is available to discuss potential exploration targets, minerals to prospect for and other technical data.

ADMMR's value in prospecting and exploration was acknowledged by more than 4,000 visitors to the department's offices, who studied over 3,000 mine files, books and maps and discussed more than 400 specific properties with the department's technical staff. There were over 151,000 active mining claims in Arizona at the end of the fiscal year with an estimate of over \$65,000,000 being expended on prospecting and exploration activities.

BOARD OF GOVERNORS

The Board of Governors held four meetings during the year. One was held in Globe, one in Tucson and two in Phoenix. Donald W. Hart, was reappointed to the Board for an additional term to end January 31, 1991. Major discussions centered around attempts to obtain new quarters for the department and the mineral museum. Other items included legislation to amend monumenting mining claims, a study of the department's information storage system, museum store, proposed legislation, re-assignment of staff, and a tour of a building to determine its suitability for the department's new quarters.

ACTIVITIES

Detailed activities of the department are provided in the quarterly reports of the director to the Board of Governors. These reports are too voluminous to include in the annual report. Individual copies are available on request. In order to show the large diversity of activities, a few items have been abstracted from the quarterly reports.

- * Many discussions were held with banks and possible investors, both in-state and out of state regarding data on stock promotions on Arizona mineral properties.

- * Discussions were held with U. S. Bureau of Mines on possibilities of a joint venture project on Arizona strategic mineral deposits.

- * Assisted Bureau of Indian Affairs to evaluate sand and gravel deposits of Yavapai Indian Reservation.

- * Worked with representatives of the Internal Revenue Service and Federal Bureau of Investigation on mine investment and write-off's in mining.

- * Researched micaceous hematite properties for use as special paint pigment.

- * Discussed marketing of high purity calcite, bauxite, limestone and gypsum.

- * Discussed putting mines into production with numerous out-of-state people.

- * Worked with prospectors and small miner groups to amend very restrictive proposed legislation for State lands.

- * Discussed economics of mining and marketing coal discovered in clay deposit.

- * Discussed mercury detection methods of prospecting for gold ores, use of copper slag as an abrasive and layout of lode claims on placer claims.

- * Worked with State Land Department to determine leasing value of lands held in air force base withdrawal.

- * Assisted small miner in getting limestone claim classified as metallurgical grade rather than ordinary grade so mineral would be locatable.

Many general discussions were held relating to tailings dam construction, extra lateral rights, gold and platinum recovery, amalgamation, mineral rights exchange, methods of concentrating ores, prospecting methods,

marketing non metallics, underground mining, permitting procedure, iron product substituting for tin cans, and many other items relating to mineral development.

County reports on direct value of mining to each county were prepared for each county and distributed. Other publications and some field activities are listed further in this report.

OFFICE VISITOR ACTIVITY

There were 4,299 visitors to the department's offices this year. These visitors researched and/or discussed 2,305 mineral occurrences. In addition they studied 1,923 library books and circulars, and made use of the MILS maps 1,497 times.

ARIZONA MINERAL DISCUSSIONS

Interest in Arizona's minerals is considerably more broad than the few base and precious metals. The staff discussed and provided information on tungsten, copper, uranium, mica, perlite, limestone, zeolites, lead, zinc, abrasives, clay, sand, magnetite, gypsum, marble, salt, bentonite, gallium, gold, silver, platinum, pegmatites, talc, asbestos, optical calcite, iron, coal and light weight aggregate.

It is interesting to note that 17 of these 28 minerals discussed are already being produced in Arizona, some on a limited basis.

GOVERNMENT AGENCIES ASSISTED

Assistance was provided to 146 other governmental entities, including state, county and local agencies in Arizona and agencies from Virginia, Colorado, Washington, D. C., Indiana, California, New Mexico, Texas, Mexico and Canada. Some Arizona agencies assisted were Santa Cruz Sheriff's Department, Securities Division of Corporation Commission, Yavapai Community College, Central Arizona College, Department of Health Services, Phoenix Public Library, Cochise County Library, Gila Valley Economic Development Board, Department of Revenue, Department of Water Resources, several legislators and research staff, State Land Department, Congressman Udall's office, Salt River Project, Pima County Parks and Recreation, Tucson Public Library and Department of Environmental Quality.

MEETINGS

The professional staff and director attended 73 meetings. Some of these meetings were to assist the staff and director maintain their professional status and for technology transfer of data. Also included were meetings such as a National Resources Forum, JLBC Finance Committee, Department of Commerce, Commission on Arizona Environment, BLM Land Management Planning, and American Mining Congress.

PROGRAMS

One of the duties of the department is to provide seminars and programs to those interested in Arizona's minerals and their development. Twenty-three programs were provided to prospector and small miner groups in Mesa, Congress, Kingman, Tucson and Phoenix. In addition mineral programs were provided to 192 school and other groups involving 6,744 people.

OUT-OF-STATE REQUESTS FOR ASSISTANCE

Interest in Arizona minerals goes beyond the borders of Arizona. There were 295 requests for assistance and advice on Arizona minerals from 38 states plus Washington, D. C. Most inquiries and visitors were from Colorado (56), followed by California (40), Texas (32), New Mexico (16), Washington (15), New York (11) and other states making up the balance.

OUT-OF-COUNTRY REQUESTS FOR ASSISTANCE

Interest in Arizona minerals extended beyond the borders of the 50 states. Representatives from Canada, West Germany, England, Japan, Australia and Mexico called on the staff for assistance.

MINERAL DEVELOPMENT INTEREST BY COUNTY

Mineral interest developed in all 15 counties. Individual mineral deposits researched and/or discussed with the department's engineers totaled 2,308 occurrences. Yavapai county was the most active followed by Mohave, Maricopa and Pinal counties.

ADDITIONAL DEPARTMENT STATISTICS

Mineral Specimens Identified for Public	1,553
Office Visitors	4,299
Mine Files and/or Mineral Occurrences Studied or Discussed	2,305
Technical Library Used by Public	1,923
MILS Maps Researched by Public	1,497
New Mine Files Developed	261
Technical Publications Prepared	13
Mine Reports Developed	40
Mine Visits	64
Field Interviews	37
Mineral Conferences & APSMOA Meetings Attended	18
Museum Programs	243
Total Attendance	42,794
Educator's Mineral Kits Provided	105
Field Trip Information for Rock Collecting	527

SUMMATION OF MINING AND EXPLORATION ACTIVITY

Active Mines

The Directory of Active Mines published by the department in mid-fiscal year lists 59 different companies operating 89 separate mines. One hundred thirty-seven additional sand and gravel operations are also listed. Mining operations are active in 13 of Arizona counties.

Exploration Offices

In a directory published shortly after the end of the fiscal year, sixty-seven (67) companies are listed that have exploration offices in Arizona or offices elsewhere with activity or interests in Arizona. Most of the companies exploration targets are gold and silver. However, some are looking for industrial minerals, uranium, beryllium, rare earths, ferro alloys or sulfur.

Mineral Development

The department's publication titled Arizona Mineral Development 1984-1986, published at the end of the fiscal year reviews and discusses over 180 individual properties that were trying in some way during the period to develop a mine. These operations are not active on a continuing basis so were not included in the Directory of Active Mines.

Active Mining Claims

In 1976 the Bureau of Land Management started mandatory recordation of mining claims on Federal lands. Since that time through June 1987, there have been 270,989 claims recorded. Some of these claims were maintained by performance of assessment work, some dropped. Some new claims were located each year. As of June 1987, there were 143,405 mining claims considered active by the BLM. The department's county mining reports detail the importance of this activity to each county.

PUBLICATIONS

One of the duties of the department is to "publish and disseminate information and data necessary or advisable to attain its objective". The department can charge fees for publications which go into a revolving fund for other printing. Some publications are information circulars for which there are no charges. Some publications of the Arizona Bureau of Geology and Mineral Technology are stocked and sold as a service to the customer. The department has ten (10) separate reports and directories for sale. There are twenty (20) information circulars which are distributed at no cost. Sales of publications for fiscal year 1987 totaled \$13,365.

MINERAL MUSEUM STORE

The department's mineral museum operates a museum store. This is a trial operation to determine if the museum should maintain a store. Sales of minerals and other mineral related items totaled \$28,400 for the fiscal year.

DEPARTMENT OF MINES AND MINERAL RESOURCES

Financial Statement

Fiscal Year 1986-87

	<u>Appropriation</u>	<u>Claims Paid</u> <u>Through 7/31/87</u>	<u>Balance</u>
Personal Services	\$330,600	\$318,529.53	\$12,070.47
Employee Related Expenses	71,600	65,038.94	6,561.06
Professional & Outside	0	0	0
Travel (In State)	7,200	5,346.62	1,853.38
Travel (Out of State)	0	0	0
Operating	33,000	33,386.22	(386.22)
∞ Communication	6219.29		
Rent	8375.00		
Insurance	3386.00		
Lease/Rental Other Machine	0		
Lease/Rental Other	300.77		
Printing & Photography	360.14		
Repair/Maint.Non Contract	686.17		
Repair/Main. Contract	1073.66		
Operating Supplies	1395.13		
Repair & Maint Supplies	646.66		
Utilities	7792.86		
Computer Software	0		
Miscellaneous	3150.54		
Total	33386.22		
Equipment	0	572.98	(572.98)
TOTALS	\$442,400	\$422,874.29	\$19,525.71