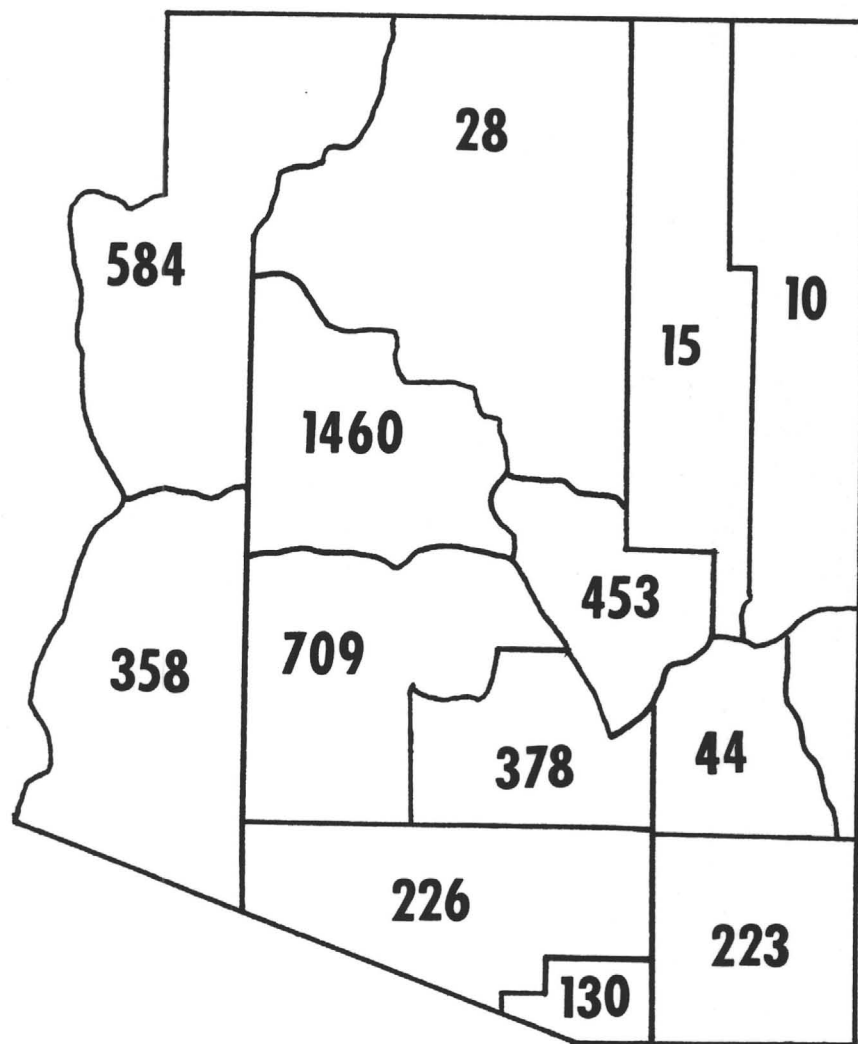


STATE OF ARIZONA
DEPARTMENT OF MINERAL RESOURCES
42ND ANNUAL REPORT
FOR
FISCAL YEAR 1980-1981



JOHN H. JETT
DIRECTOR

The Board of Governors of the Arizona Department of Mineral Resources unanimously adopted the following resolution relating to multiple use of public lands:

R E S O L U T I O N

As a general principal, the Board of Governors of the Department of Mineral Resources supports a multiple usage of any public land. Secondly, a mineral and water inventory must be taken before there are any permanent withdrawals into wilderness areas or any other restricted use areas.

Any proposal for withdrawal of public lands from multiple usage shall be supported by a sociological, economic impact statement, showing an analysis of the cost-benefit factors involved, and taking into account the effect on national security by the withdrawal of any potential strategic mineral resources.



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 Building
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 1980-1981 fiscal year. An abstract of the Director's Quarterly Reports and a financial statement are included. The Arizona Department of Mineral Resources 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

BOARD OF GOVERNORS

Curits 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 Resource Building, Fairgrounds 255-3791

John H. Jett	Director
Ken A. Phillips	Field Engineer
Richard R. Beard	Mining Engineer
Nyal J. Niemuth	Mineral Resources Specialist
Arthur W. Bloyd	Museum Curator
Ann Turney	Administrative Assistant
Aleta Phillips	Secretary/Bookkeeper
Janice Coggin	Secretary/Receptionist
William Hammers	Custodian

Tucson Office - 416 W. Congress Room 161 628-5399

Michael N. Greeley	Mining Engineer
Clifford J. Hicks	Field Engineer
Frances Derrick	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.

GENERAL

The Arizona Department of Mineral Resources was created for the purpose of furnishing assistance in the promotion, development and marketing of Arizona mineral resources. Particular emphasis is placed on providing prospectors and small miners with semi-technical and engineering assistance and general economic information. The Department cooperates with but is careful not to encroach upon the field of activity of the private consulting engineer.

An analysis of the powers and duties of the Department as established under ARS 27-102, provided the Department with the following objectives:

1. Provide technical assistance to prospectors, explorationists, developers and operators of small mines.
2. Disseminate comprehensive mining and mineral information to the citizens and government officials of Arizona counties.
3. Study conditions regarding small mine activity and seek solutions to problems.
4. Serve as the State's public bureau of mining and mineral information.
5. Maintain and expand the Department's mine file library.
6. Provide educational services in the field of mineral resources and mining.
7. Analyze proposed Federal and State administrative actions.
8. Develop interagency cooperation between the Department and local State and Federal offices.
9. Collect and disseminate information available on mineral occurrences, prospects, partially developed properties and known mines in the State in order to promote further exploration.
10. Provide publications in the form of mineral reports, annual directories, technical reports, annual mineral industry surveys, information circulars and media articles.
11. Develop an inventory of Arizona minerals.

ARIZONA MINERAL ACTIVITY

At the end of 1980 there were 69 active mines producing minerals. This does not include the exploratory, intermittent operations. There were 31 copper mines, of which 9 were underground mines. In addition to the copper mines there were 38 other mines producing gold, bentonite, hydra frac sand, silver, gypsum, silica coal, perlite, decorative stone, diatomite, dolomite, stone, marble, limestone and uranium. There were numerous properties doing development and exploration work in anticipation of operating in the future.

At the end of the year there were forty-seven known exploration companies working in the state. This list does not include numerous small groups or companies working in the state without official permanent offices.

There were 5,626 visitors to the Department's office seeking information, for the most part on prospecting and exploration. Seven Hundred eighty-one individual properties were discussed and 3,866 mine files were studied by the prospector-explorationist.

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. The front cover of this publication shows a breakdown of the activity by county.

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

Activities involved in meeting these objectives are published in the quarterly reports of the Director to the Board of Governors, the governing and policy making Board of the Department. These reports have been consolidated and summarized for this annual report. Complete copies of the quarterly reports are available on request.

The Board of Governors developed and officially adopted a formal Multiple Use Statement to govern activities of the agency. This was widely circulated and received much favorable recognition. Copies are available upon request.

The Board of Governors started a review of the department's physical plant and its suitability for today's programs and activities. The study revealed that space is inadequate, maintenance is severely lacking, accessibility needs improving and signs are needed. The review is continuing and a start has been made on correcting shortcomings.

The Board established the goal of making the Tucson office a "full-time" rather than a field office. Additional space was acquired and a secretary position was transferred from the Phoenix office. Service to southern Arizona and particularly the Tucson area has increased dramatically with this new arrangement.

The first major step in a true mineral resources inventory is to do a reconnaissance and literature research of areas with potential mineral data. The Department has just completed a major contract with the U. S. Bureau of Mines for the initial study. All occurrences have been mapped, indexed, and cross referenced and are being made available to the public. This was a three year project.

Department Activities
Continued

The staff engineers are having to expand their knowledge of metallurgy. Two engineers attended a symposium on precious metals and then spent time in the metallurgical research laboratories of the U. S. Bureau of Mines. The technology learned will be transferred to the prospector-small miner. This was made necessary by a former State agency eliminating responsibility to assist the prospector-small miner with technical help.

The Department received a new small jaw crusher. It has been put to immediate use crushing material for making teacher kits of minerals, and preparing samples for assaying and panning. It is available, under certain conditions, for public use.

The Tucson office is a depository for the Bureau of Land Management microfiche claim recording files. This is a big asset to the southern part of the state and eliminates the necessity of driving to Phoenix.

The Muggins Mountains area was released for mineral exploration. The Department started working for this release approximately five years ago. Heavy claim staking activity started immediately.

The Department maintains a Mineral Resource Museum as an aid in teaching prospecting and educating the public on Arizona minerals, emphasizing that all material things must originally come from the earth. Donations and contributions to the Department for Museum use included the following:

1,147 specimens valued at \$33,264.00

Slide show with narrative on Arizona Volcanoes
valued at \$250.00

Building material, carpeting and plastic sheeting,
estimated value \$2,000.00

Fifteen various display cases with a value of \$4,850.00

Cash donation of \$500.00

Department Activities
Continued

Estimated five tons of material for display, lapidary
and mineral kit use, value \$10,450.00

Lapidary equipment and supplies including 18" diamond
saw with value of \$3,250.00

MEETINGS ATTENDED

One Hundred twenty-three meetings were attended by the Director and/or technical staff. They were attended in order to receive and disseminate information critical and pertinent to the promotion of Arizona mineral resources. Technical societies, environmental associations, prospector-small miner groups, Federal and State agencies, and administrative seminars were included.

PROGRAMS PRESENTED

Forty-six (46) technical programs were provided to prospector-small miner groups, technical societies, school, rockhound and lapidary groups and other specialized groups with interest in Arizona minerals. One Hundred fifty-nine (159) school groups involving Five Thousand Two-Hundred eighty-four students were provided lectures and programs in the Museum.

GOVERNMENT AGENCIES ASSISTED

Two of the goals of the Department are to disseminate comprehensive mining and mineral information to government officials and to serve as the state's public bureau of mining and mineral information. Assistance was provided in response to seventy-eight agency requests within Arizona and twenty-five requests from governmental entities from out of Arizona.

NEWS MEDIA

All the Phoenix and Tucson daily newspapers plus other papers from Yuma, Sierra Vista, Tombstone, Prescott, Kingman, and North Phoenix, five television stations, two radio stations, four magazines, two out of state newspapers, United Press, and State News Service from Washington, D. C., requested assistance during the year.

OUT-OF-STATE AND OUT-OF-COUNTRY

Prospectors-small miners, explorationists, investors, salesmen and others with interest in Arizona minerals came from several foreign countries including Canada, England, Mexico, Australia, Norway, Germany and Taiwan. In addition, visitors came to our office from 20 states in each of the first two quarters, 19 states in the third quarter, and 23 states in the fourth quarter.

MINERAL COMMODITIES DISCUSSED

The Department's engineers must have a very broad range of knowledge relating to minerals. Some of the various minerals they were required to discuss included cobalt, fluorite, gold, zeolites, silica, coal, silver, copper, vanadium, molybdenum, perlite, magnetite, tantalum, limestone, marble, tungsten, bentonite, gypsum, sulfur, flagstone, lead, zinc, mica, beryllium, galium, zirconium, uranium, clay, tuff, barite, glaubers salt, foundry sand, gemstones, black sands, iron, hematite, rutile, vermiculite, ilmenite, mercury, rhyolite, scoria, platinum, kaolin and diatomaceous earth.

PROPERTIES DISCUSSED

The engineering technical staff discussed 787 mineral properties with visitors. Accumulative four quarter statistics indicate

Properties Discussed
Continued

these visitors represented twelve foreign countries and 82 states other than Arizona. Some states and countries were repeated in separate quarters.

SMALL MINE AND PROSPECT ACTIVITY

Prospectors, small miners, investors and others with mineral interest came to the Department's offices to talk with the engineers and/or research the mine files. It is interesting to note that most of this activity centered in areas away from the heavily populated urban areas. A county breakdown by activity follows:

<u>County</u>	<u>Mine Files Studied</u>	<u>Discussions with Engineers</u>	<u>Total Activity</u>
Cochise	181	42	223
Coconino	8	-	8
Gila	333	120	453
Graham	36	8	44
Greenlee	10	11	21
Maricopa	646	63	709
Mohave	490	94	584
Navajo	1	-	1
Pima	177	49	226
Pinal	350	28	378
Santa Cruz	100	30	130
Yavapai	1,232	228	1,460
Yuma	282	76	358
Not Identified	<u>20</u>	<u>32</u>	<u>52</u>
TOTAL	3,866	781	4,647

OTHER USES OF DEPARTMENT'S LIBRARY

The Department maintains and is constantly adding to an excellent reference library oriented towards Arizona minerals. It is open to the public and used by all that are interested. Some of the material used included:

- 154 Publications of Arizona Bureau of Geology and Mineral Technology
- 138 Publications of United States Geological Survey - Bulletins and Professional Papers
- 115 Publications of the U. S. Bureau of Mines, Department of Interior
- 30 Arizona Mining Journals
- 224 Miscellaneous geology reports, technical and reference books
- 220 Map uses (est.)
- 130 MILS (est.)

PUBLIC CONTACTS

Telephone contacts	12,320
Office Visitors	<u>5,626</u>
TOTAL	17,946

MUSEUM ATTENDANCE

	<u>No. Groups</u>	<u>Visitors</u>
School Groups	159	3,275
Other Groups	51	879
Others	<u>-</u>	<u>33,001</u>
TOTAL VISITORS	210	39,164

MINERAL IDENTIFICATION

Includes visual, chemical, spectroscope, scintillometer, and fluorescent tests.

1,474

MISCELLANEOUS STATISTICS

Educators Kits	161
Mineral Cards	9
Field Trip Information	884
Programs Provided	46
Meetings Attended	123
Mine Visits	270
Mine Reports Written	141
Field Interviews	187
Conferences & APSMOA	14
New Mine Files Developed	104
Publications Printed	40
Pages Mimeographed	135,942
Photocopies Sold	3,856
Publications Sold	2,291

FUTURE ACTIVITIES

Consistent with a good, forward planning process, a long-term view must be maintained. Therefore, additional objectives have been established for future activities. However, they may be modified as industry needs, technology or regulations change. They have not been placed in a specific planning cycle at this time.

These future activities include:

1. Establish a mineral exploration program data depository and maintain a composite map of location and type of exploration activity.
2. Develop a mineral property sampling capability, including equipment to collect and analyze samples with emphasis on non-metallic minerals. Necessary equipment will include hand-sampling tools, a core drill, and a bulk sample analytical and processing plant such as a small portable mill.

Future Activities
Continued

3. Develop a regional mineral resources evaluation program to study groups of old properties for suitability for cooperative development (custom mill-type studies) or as a mineral exploration target.
4. Develop an active "abandoned mines" safety and environmental hazard program to:
 - a. Locate and map abandoned shafts, adits, open pits, and caved areas.
 - b. Evaluate them for mineral potential or as anchor points for sophisticated mineral exploration programs.
 - c. Propose solutions to the safety hazard presented by abandoned shafts, adits, open pits and caved areas
 - d. Assist in environment clean-up programs by filling excavations found to be of no value with waste and tailings.
5. Function as an administering agency for Federal and State mineral lands reclamation plans.
6. Establish a touring Mineral Museum to provide statewide programs, lectures, and displays.
7. Establish a position of Public Information Officer in the Department's Phoenix office.
8. Prepare an inter-library cross-reference index of publications on Arizona's mineral resources and mines.

RECEIPTS AND EXPENDITURES

A Statement of Expenditures is attached. Personal Services and Employee Related Funds returned to the state were in the amount of \$15,874.97. 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. \$1,899.37 was deposited to the General Fund of the State. These funds were related to sale of publications and file reproduction charges. Seven Hundred thirty dollars were donated to the Museum.

	<u>Appropriation 1980-1981</u>	<u>Claims Paid Thru June 1981</u>	<u>**Outstanding Encumbrances Thru June 1981</u>	<u>Balance</u>
Personal Services	\$258,700.00	\$247,424.99	-	\$11,275.01
Employee Related	\$ 51,600.00	\$ 47,000.04	-	\$ 4,599.96
Travel - In State	\$ 11,000.00	\$ 10,989.78	-	\$ 10.22
Travel - Out of State	\$ 1,300.00	\$ 1,299.47	-	\$.53
Operating Expenditures	*\$ 27,200.00			\$ 16.85
Rent - Tucson Office		\$ 2,200.00		
Utilities		5,522.85		
Other Occupancy		530.34		
Maintenance & Repairs		718.33		
Office & Library Supplies		2,494.31	\$ 37.09	
Office & Institutional Supplies		665.58		
Maintenance & Field Supplies		1,511.18		
Equipment Rental		1,854.63	29.94	
Other Equipment Rental		225.00	49.64	
Insurance		1,700.00		
Other Operating		1,479.73		
Printing & Photos		1,551.15		
Postage & Mailing		1,379.00		
Telephone Service		4,455.00		
Communication & Shipping		749.38	30.00	
Total Operating Expenses		\$ 27,036.48	\$146.67	
Capital Outlay	\$ 3,400.00	\$ 3,400.00	-	-
Totals	*\$353,200.00	\$337,150.76	\$146.67	\$15,902.57

* The appropriation for Other Operating & Total appropriation has been increased \$300.00 due to refund from Mountain Bell.

** Outstanding Encumbrances and resultant claims paid may differ due to the required method of accounting by State procedures.

ARIZONA DEPARTMENT OF MINERAL RESOURCES

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

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

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