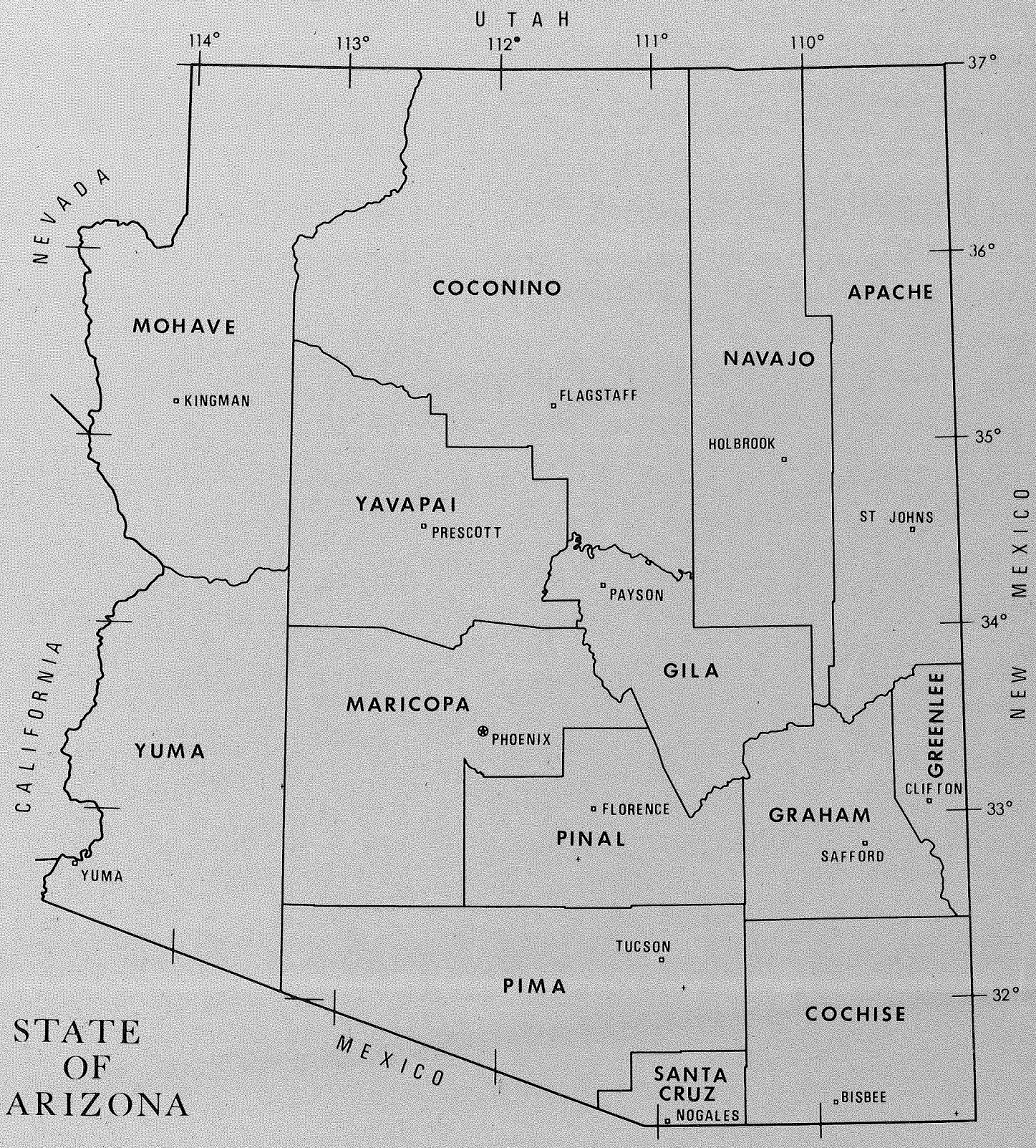
DIRECTORY—
Sources of Information on Exploration for Petroleum and Geothermal Resources in the State of Arizona

ARIZONA OIL AND GAS CONSERVATION COMMISSION
PHOENIX, ARIZONA

BUREAU OF GEOLOGY
AND MINERAL TECHNOLOGY



STATE OF ARIZONA

DIRECTORY—
Sources of Information on Exploration for Petroleum and Geothermal Resources in the State of Arizona

ARIZONA OIL AND GAS CONSERVATION COMMISSION
4515 North 7th Avenue, Phoenix, Arizona 85013 (602) 271-5161

Chairman, Ralph W. Bilby
Executive Secretary, John Bannister

September 1974

FOREWORD

This directory has been prepared to identify for easy reference numerous sources of information relating to exploration for Arizona's petroleum and geothermal resources.

J. N. Conley
Director, Geology Section
Oil and Gas Conservation Commission
Phoenix, Arizona
July 1974

CONTENTS

CONTENTS (Continued)

INDEX

-A-

AMERICAN ASSOCIATION FOR ADVANCEMENT OF SCIENCE
1515 Massachusetts Avenue, N.W.
Washington, D. C. 20005

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS
P. O. Box 979
Tulsa, Oklahoma 74101

AMERICAN GEOLOGICAL INSTITUTE
5205 Leesburg Pike
Falls Church, Virginia 22041
(703) 379-2480

AMERICAN STRATIGRAPHIC COMPANY
6280 East 39th Avenue
Denver, Colorado 80207
(303) 399-2746

AMMANN INTERNATIONAL CORPORATION
1600 Ogden Street
Denver, Colorado 80218
(303) 825-5203

AMUEDO & IVEY
424 Denver Hilton Office Building
Denver, Colorado 80202

ARIZONA GEOLOGICAL SOCIETY
P. O. Box 4484
Tucson, Arizona 85717

ARIZONA MINING ASSOCIATION
111 West Monroe
Phoenix, Arizona 85003
(602) 258-3476

ARIZONA OIL AND GAS ASSOCIATION
P. O. Box 1978
Phoenix, Arizona 85001
Attention: James R. Pickett
(602) 277-4223

ARIZONA STATE GOVERNMENT:

DEPARTMENT OF AERONAUTICS
3000 Sky Harbor Boulevard
Phoenix, Arizona 85034
(602) 271-4049

ARIZONA RESOURCE INVENTORY SYSTEMS
Contact: Office of Environmental Planning Commission
1645 West Jefferson
Phoenix, Arizona 85007
(602) 271-3264

ARIZONA RESOURCES INFORMATION SYSTEM (ARIS)
3500 North Central, Suite 118
Phoenix, Arizona 85012
(602) 271-4061

ATOMIC ENERGY COMMISSION
1st Floor, Commerce Building
1601 West Jefferson
Phoenix, Arizona 85007
(602) 271-4845

CORPORATION COMMISSION
State Capitol Annex
Phoenix, Arizona 85007
(602) 271-4241

OFFICE OF ECONOMIC PLANNING AND DEVELOPMENT
3003 North Central
Phoenix, Arizona 85012
(602) 271-5371

ARIZONA STATE GOVERNMENT (Continued):

GAME AND FISH DEPARTMENT
2222 West Greenway Road
Phoenix, Arizona 85023
(602) 942-3000

Administrative Services & Public Information
HIGHWAYS DIVISION
206 South 17th Avenue
Phoenix, Arizona 85007
(602) 261-7355

Materials Services
HIGHWAYS DIVISION
1745 West Madison
Phoenix, Arizona 85007
(602) 261-7231

Motor Vehicle Services
HIGHWAYS DIVISION
1739 West Jackson
Phoenix, Arizona 85007
(602) 261-7011

Photogrammetry and Mapping Services
HIGHWAYS DIVISION
1739 West Jackson
Phoenix, Arizona 85007
(602) 261-7258

Land Records/Minerals
STATE LAND DEPARTMENT
1624 West Adams
Phoenix, Arizona 85007
(602) 271-4635

LIBRARY, ARCHIVES & PUBLIC RECORDS
3rd Floor, State Capitol Building
Phoenix, Arizona 85007
(602) 271-5031

DEPARTMENT OF MINERAL RESOURCES
Mineral Building, Fairgrounds
Phoenix, Arizona 85007
(602) 258-6681

ARIZONA STATE GOVERNMENT (Continued):

(Geological Survey Branch)
BUREAU OF MINES
University of Arizona
Tucson, Arizona 85721
(602) 884-2733

OIL AND GAS CONSERVATION COMMISSION
4515 North 7th Avenue
Phoenix, Arizona 85013
(602) 271-5161

Cadastral Mapping
DEPARTMENT OF PROPERTY EVALUATION
4530 North Central
Phoenix, Arizona 85012
(602) 271-4061

Mining and Utilities
DEPARTMENT OF PROPERTY EVALUATION
4530 North Central
Phoenix, Arizona 85012
(602) 271-5226

STATE TAX COMMISSION
House Wing, State Capitol Building
Phoenix, Arizona 85007
(602) 271-4461

Hydrology Department
WATER COMMISSION
222 North Central
Phoenix, Arizona 85004
(602) 258-8175

Department of Geology
ARIZONA STATE UNIVERSITY
Tempe, Arizona 85281
(602) 965-5081

-C-

COLORADO PLATEAU ENVIRONMENTAL ADVISORY COUNCIL
P. O. Box 1389
Flagstaff, Arizona 86001

PETROLEUM INFORMATION CORPORATION
P. O. Box 2612
Denver, Colorado 80201
(303) 825-2181

PETROLEUM OWNERSHIP MAP COMPANY (POMCO)
604 South David
Casper, Wyoming 82601
(307) 234-3513

PETROLEUM OWNERSHIP MAP COMPANY (POMCO)
Suite 401, 1776 Lincoln St.
Denver, Colorado 80203
(303) 623-6415

PETROMOTION
Suite 702, 1730 Glenarm Place
Denver, Colorado 80202
(303) 534-1612

PETRO-WELL LIBRARIES INC.
150 Security Life Building
1616 Glenarm Place
Denver, Colorado 80202
(303) 892-5513

-R-

ROCKY MOUNTAIN ASSOCIATION OF GEOLOGISTS
416 Johnson Building
509 - 17th Street
Denver, Colorado 80202

ROCKY MOUNTAIN WELL LOG SERVICE
600 South David
Casper, Wyoming 82601
(307) 234-7147

ROCKY MOUNTAIN WELL LOG SERVICE
1753 Champa Street
Denver, Colorado 80202
(303) 266-0588

ROCKY MOUNTAIN WELL LOG SERVICE
105 West Wall
Midland, Texas 79701
(915) 682-0591

-S-

SOUTHWESTERN MINERALS EXPLORATION ASSOCIATION
P. O. Box 49026
Tucson, Arizona 85717

-U-

UNITED STATES GOVERNMENT -- SOUTHWEST:

Forest Service Mineral Examiner
DEPARTMENT OF AGRICULTURE
522 North Central
Phoenix, Arizona 85004
(602) 261-4372

Forest Service Regional Forester
DEPARTMENT OF AGRICULTURE
Federal Building
517 Gold Avenue, S.W.
Albuquerque, New Mexico 87101

Soil Conservation Service
DEPARTMENT OF AGRICULTURE
Federal Building
230 North 1st Avenue
Phoenix, Arizona 85025
(602) 261-3271

Williams Air Force Base
DEPARTMENT OF AIR FORCE
Chandler, Arizona 85224
(602) 988-2611

Phoenix Office
Corps of Engineers
DEPARTMENT OF ARMY
2721 North Central
Phoenix, Arizona 85004
(602) 261-3851

Director, National Geodetic Survey
National Oceanic & Atmospheric Adm.
DEPARTMENT OF COMMERCE
6001 Executive Boulevard
Rockville, Maryland 20852

-E-

EXPLORATION SURVEYS, INC.
6400 North Central Expressway
Dallas, Texas 75206
(214) 361-6663

-F-

FOUR CORNERS GEOLOGICAL SOCIETY
P. O. Box 1501
Durango, Colorado 81301

FOUR CORNERS SAMPLE CUT ASSOCIATION
P. O. Box 899
Farmington, New Mexico 87401

-G-

GeoData CORPORATION
Thompson Building
Tulsa, Oklahoma 74103
(918) 584-3366

THE GEOLOGICAL SOCIETY OF AMERICA, INC.
3300 Penrose Place
Boulder, Colorado 80301

GEOPHOTO SERVICES, INC.
P. O. Box 5621
Dallas, Texas 75222
(214) 238-3810

Geosciences Services
GOODYEAR AEROSPACE CORPORATION
Litchfield Park, Arizona 85340
(602) 932-3232

GRAVITY MAP SERVICE
P. O. Box 146
Richmond, Texas 77469

-I-

INTERMOUNTAIN ASSOCIATION OF PETROLEUM GEOLOGISTS
c/o Utah Geological & Mineralogical Survey
200 Mines Building, University of Utah
1400 East 2nd South
Salt Lake City, Utah 84112

INTERNATIONAL OIL SCOUTS ASSOCIATION
P. O. Box 2121
Austin, Texas 78767

INTERSTATE OIL COMPACT COMMISSION
P. O. Box 53127
Oklahoma City, Oklahoma 73105

INTRA-SEARCH, INC.
1600 Ogden Street
Denver, Colorado 80218
(303) 825-5203

-L-

LAUGHLIN-SIMMONS WELL ELEVATION SERVICE
3021 North Oklahoma
Oklahoma City, Oklahoma 73105

-M-

MUSEUM OF NORTHERN ARIZONA
P. O. Box 1389
Flagstaff, Arizona 86001
(602) 774-5211

-N-

Office of Minerals Development
THE NAVAJO TRIBE
P. O. Box 146
Window Rock, Arizona 86515
(602) 871-4941

NEW MEXICO GEOLOGICAL SOCIETY
Campus Station
Socorro, New Mexico 87801

Department of Geology
NORTHERN ARIZONA UNIVERSITY
P. O. Box 6030
Flagstaff, Arizona 86001
(602) 523-4561

-P-

PETROLEUM DEVELOPMENT ASSOCIATION OF ARIZONA
3521 North Central
Phoenix, Arizona 85012
(602) 264-4181

UNITED STATES GOVERNMENT -- SOUTHWEST:

(Continued)

DEPARTMENT OF INTERIOR:

Arizona Regional Ecological Test Site (ARETS)
U. S. GEOLOGICAL SURVEY
5017 Federal Building
230 North 1st Avenue
Phoenix, Arizona 85025
(602) 261-3188

Conservation Division - Western Region
U. S. GEOLOGICAL SURVEY
345 Middlefield Road
Menlo Park, California 94025
(415) 323-2563

Conservation Division
U. S. GEOLOGICAL SURVEY
309 Federal Building
800 Truxton Avenue
Bakersfield, California 93301
(805) 323-7201

Conservation Division
U. S. GEOLOGICAL SURVEY
P. O. Box 959
Farmington, New Mexico 87401
(505) 325-4572

Bureau of Mining Operations
Conservation Division
U. S. GEOLOGICAL SURVEY
522 North Central
Phoenix, Arizona 85004
(602) 261-3766

Data Control Center
Earth Resources Observation Systems (EROS)
U. S. GEOLOGICAL SURVEY
10th and Dakota Avenue
Sioux Falls, South Dakota 57198
(605) 594-6151

DEPARTMENT OF INTERIOR (Continued):

Data Facility
Earth Resources Observation Systems (EROS)
U. S. GEOLOGICAL SURVEY
5017 Federal Building
230 North 1st Avenue
Phoenix, Arizona 85025
(602) 261-3188

Geologic Division - Central Region
U. S. GEOLOGICAL SURVEY
Federal Center, Building 25
Denver, Colorado 80225
(303) 234-3625

Geologic Division - Western Region
U. S. GEOLOGICAL SURVEY
345 Middlefield Road
Menlo Park, California 94025
(415) 323-3624

Geologic Division - Arizona District
Center of Astrogeology
U. S. GEOLOGICAL SURVEY
601 East Cedar Avenue
Flagstaff, Arizona 86001
(602) 774-5261

Branch of Distribution - Central Region
Publications Division
U. S. GEOLOGICAL SURVEY
Federal Center, Building 41
Denver, Colorado 80225
(303) 234-3832

Public Inquiries Office
Publications Division
U. S. GEOLOGICAL SURVEY
Room 1 C 45, 1100 Commerce Street
Dallas, Texas 75202
(214) 749-3230

Public Inquiries Office
Publications Division
U. S. GEOLOGICAL SURVEY
1012 Federal Building
1961 Stout Street
Denver, Colorado 80202
(303) 837-4169

UNITED STATES GOVERNMENT -- SOUTHWEST:

(Continued)

DEPARTMENT OF INTERIOR (Continued):

Public Inquiries Office
Publications Division
U. S. GEOLOGICAL SURVEY
7638 Federal Building
300 North Los Angeles Street
Los Angeles, California 90012
(213) 688-2850

Public Inquiries Office
Publication Division
U. S. GEOLOGICAL SURVEY
8102 Federal Building
125 South State Street
Salt Lake City, Utah 84138
(801) 524-5652

Public Inquiries Office
Publications Division
U. S. GEOLOGICAL SURVEY
504 Custom House
555 Battery Street
San Francisco, California 94111
(415) 556-5627

Public Inquiries Office
Publications Division
U. S. GEOLOGICAL SURVEY
678 U. S. Court House
920 Riverside Avenue West
Spokane, Washington 99201
(509) 456-2524

Topographic Division - Western Region
U. S. GEOLOGICAL SURVEY
345 Middlefield Road
Menlo Park, California 94025
(415) 323-2411

Water Resources Division - Western Region
U. S. GEOLOGICAL SURVEY
345 Middlefield Road
Menlo Park, California 94025
(415) 323-2337

DEPARTMENT OF INTERIOR (Continued):

Water Resources Division
U. S. GEOLOGICAL SURVEY
P. O. Box 253
Flagstaff, Arizona 86001
(602) 774-5261

Water Resources Division
U. S. GEOLOGICAL SURVEY
5017 Federal Building
230 North 1st Avenue
Phoenix, Arizona 85025
(602) 261-3188

Water Resources Division
U. S. GEOLOGICAL SURVEY
P. O. Box 4070
Tucson, Arizona 85717
(602) 792-6391

Water Resources Division
U. S. GEOLOGICAL SURVEY
P. O. Box 831
Yuma, Arizona 85364

U. S. GEOLOGICAL SURVEY
National Center
12201 Sunrise Valley Drive
Reston, Virginia 22092
(703) 860-7000

Administrative Office
BUREAU OF INDIAN AFFAIRS
124 West Thomas Road
Phoenix, Arizona 85013
(602) 261-4102

Tribal Operations
BUREAU OF INDIAN AFFAIRS
124 West Thomas Road
Phoenix, Arizona 85013
(602) 261-4112

Land Records
BUREAU OF LAND MANAGEMENT
Federal Building
230 North 1st Avenue
Phoenix, Arizona 85025
(602) 261-3706

UNITED STATES GOVERNMENT -- SOUTHWEST:
(Continued)

DEPARTMENT OF INTERIOR (Continued):

Resources
BUREAU OF LAND MANAGEMENT
Federal Building
230 North 1st Avenue
Phoenix, Arizona 85025
(602) 261-3141

Liaison Officer - Arizona
BUREAU OF MINES
2721 North Central
Phoenix, Arizona 85004
(602) 261-3357

State Director
NATIONAL PARK SERVICE
1115 North 1st Street
Phoenix, Arizona 85004
(602) 261-3111

Arizona Projects Office
BUREAU OF RECLAMATION
135 North 2nd Avenue
Phoenix, Arizona 85003
(602) 261-3281

Division of River Basin Studies
U. S. FISH AND WILDLIFE SERVICE
522 North Central Avenue
Phoenix, Arizona 85004
(602) 261-3603

Superintendent of Documents
U. S. GOVERNMENT PRINTING OFFICE
Washington, D. C. 20402

UNIVERSITY MICROFILMS
300 North Zeeb Road
Ann Arbor, Michigan 84103

Office of Arid Lands Studies
UNIVERSITY OF ARIZONA
1201 East Speedway Boulevard
Tucson, Arizona 85719
(602) 884-1955

Department of Geosciences
UNIVERSITY OF ARIZONA
Tucson, Arizona 85721
(602) 884-1819

Laboratory of Geophysics
Department of Geosciences
UNIVERSITY OF ARIZONA
Tucson, Arizona 85721
(602) 884-2417

-W-

J. A. WAATTI MAP COMPANY
426 South Center Street
Casper, Wyoming 82601
(307) 237-3733

WESTERN OIL REPORTER
P. O. Box 1917
Denver, Colorado 80201

GENERAL GEOLOGICAL AND GEOPHYSICAL INFORMATION

The four principal sources of general geological and geophysical information in Arizona are:

Arizona Bureau of Mines

Arizona State University, Department of Geology

Northern Arizona University, Department of Geology

University of Arizona, Department of Geosciences and Office of Arid Lands Studies

The three principal sources of subsurface geological information are:

Arizona Bureau of Mines

Arizona Oil and Gas Conservation Commission

Water Resources Division, U. S. Geological Survey (Arizona offices)

Theses and dissertations may be obtained on an Inter-Library Loan arranged through local libraries and directed to the proper university library.

Specific questions regarding oil, natural gas, helium, and geothermal resources of the State and requests for price lists of individual agency publications may be sent to:

Arizona Oil and Gas Conservation Commission

Arizona Bureau of Mines

Specific questions regarding geological aspects of the State should be sent to:

Geological Survey Branch, Arizona Bureau of Mines

SUBSURFACE GEOLOGY

Samples and Cores

Repositories for drill-bit cuttings and core samples are maintained by:

Arizona Bureau of Mines

Arizona Oil and Gas Conservation Commission

The Commission's samples must be examined at their offices. In the case of duplicate sets, however, arrangements may be made for off-premises examination. The Bureau of Mines permits off-premises examination of samples. An index of available samples of drill-bit cuttings and cores from wells drilled for oil, natural gas, helium, and geothermal resources, and from many wells drilled for water and stratigraphic information, may be purchased from the Commission.

Other sample libraries containing the drill-bit cuttings of numerous wildcat wells drilled for oil and gas in Arizona are maintained by:

American Stratigraphic Company

Four Corners Sample Cut Association

These sets of samples may be rented for a small fee.

Sample Logs (Graphic or Manuscript)

Lithologic or driller's logs submitted by the operator may be examined* in the offices of:

Arizona Oil and Gas Conservation Commission

Copies are available* for a small reproduction fee.

These logs have been microfilmed. Print-outs may be purchased from:

Petro-Well Libraries Inc.

An extensive collection of lithologic and driller's logs of wells drilled for water in the northern part of the State may be inspected at:

Museum of Northern Arizona

Graphic lithologic logs of approximately 250 wells drilled in Arizona may be purchased from:

American Stratigraphic Company

Wire-Line Logs

Complete sets of electric and other wire-line surveys made of wells drilled for oil, natural gas, helium, and earth-heat resources, and of many wells drilled for water and stratigraphic information are maintained by:

Arizona Oil and Gas Conservation Commission

Commercial copies of logs at reduced scales are available from:

Rocky Mountain Well Log Service

(* Not applicable to wells during the period of confidentiality of up to six months after completion granted operators upon request.)

1. Special Publication 1, Review of the Development of Oil and Gas Resources of Northern Arizona
2. Chart 1, Oil and Natural Gas Occurrence in Arizona
3. Report of Investigation 3, A Geophysical and Geological Investigation of Potentially Favorable Areas for Petroleum Exploration in Southeastern Arizona

These three publications present some statistical data pertaining to the number of wells drilled, footage figures, and some production statistics.

For Indian lands, statistical data are also available from:

Conservation Division, U. S. Geological Survey
(Bakersfield and Farmington offices)

Some general drilling and production statistics are available from:

International Oil Scouts Association

Interstate Oil Compact Commission

Western Oil Reporter

Production Statistics (Other Minerals)

The most complete sources of statistical data are:

Arizona Department of Mineral Resources

U. S. Bureau of Mines

SURFACE GEOLOGY

A wide variety of publications on the surface geology of Arizona are available from:

Geological Survey Branch, Arizona Bureau of Mines

Department of Geology, Arizona State University

Museum of Northern Arizona

Department of Geology, Northern Arizona University

Geologic Division, U. S. Geological Survey, Denver

Department of Geosciences, University of Arizona

Office of Arid Lands Studies, University of Arizona

Well Records

Records of most of the wells drilled in Arizona for oil, natural gas, helium, and geothermal resources, and of many wells drilled for stratigraphic information and water are available* for inspection and reproduction at the offices of:

Arizona Oil and Gas Conservation Commission

Petro-Well Libraries Inc.

Records of wells drilled on Federal and Indian lands are also maintained by:

Conservation Division, U. S. Geological Survey, Bakersfield

Records of wells drilled for water are available in the Arizona offices of:

Water Resources Division, U. S. Geological Survey

Well Completion Cards

Commercial completion cards of test holes drilled for oil, natural gas, helium, and geothermal resources are available from:

Petroleum Information Corporation

Well Elevations

An elevation survey is required on all permitted drill holes. This information is recorded on the permits and records of State and Federal agencies, and on completion cards maintained by Petroleum Information Corp. In most instances, the elevation is also recorded on the electric logs and completion cards available from commercial firms. The best source is:

Arizona Oil and Gas Conservation Commission

Some elevations in the northeast part of Arizona are also available commercially from:

Laughlin-Simmons Well Elevation Service

MINERAL RESOURCES

Production Statistics (Oil, Natural Gas, and Helium)

The most complete source of statistical data is:

Arizona Oil and Gas Conservation Commission

The Commission publishes monthly a compilation of oil, natural gas, and helium production figures. This publication is available at no charge at the Commission's offices. Other publications purchasable from the Commission are:

Topographic Maps

Topographic maps of Arizona* are prepared and sold by the U. S. Geological Survey. A current Index to Topographic Mapping in Arizona is available upon request from:

Branch of Distribution - Central Region, U. S. Geological Survey, Denver

(* The Arizona Oil and Gas Conservation Commission has a complete set of these maps which may be inspected on the premises.)

Advance material from current topographic mapping in Arizona is available from:

Topographic Division, U. S. Geological Survey, Menlo Park

Topographic maps are also available from sport shops, reproduction companies, and other commercial businesses throughout the State.

Land-Grid Base Maps

The U. S. Geological Survey and several commercial firms have Arizona base maps of different kinds. For information, contact:

Petroleum Information Corporation

Petroleum Ownership Map Company (POMCO)

Branch of Distribution - Central Region, U. S. Geological Survey, Denver

Available in November or December, 1974, from:

Arizona Oil and Gas Conservation Commission

a base map of the State of Arizona at a scale of 1:500,000 (1" = 8 miles). The map will show: 1) wells drilled for petroleum, helium, potash, halite, and stratigraphic information; 2) selected geologically significant wells drilled for water; 3) surveyed townships and ranges; 4) the Bureau of Land Management's protraction diagrams of unsurveyed areas; and 5) the 15-minute quadrangle and district land-net system used by the U. S. Bureau of Indian Affairs, the Navajo Tribe, and the Water Resources Division of the U. S. Geological Survey on lands within the Navajo and Hopi Indian Reservations.

A positive film of this map, without wells, and with or without the Indian Reservation land-net system, may be obtained at private reproduction expense through the Commission.

Oil, Natural Gas, Helium, and Geothermal Activity Maps

Currently, the Arizona Oil and Gas Conservation Commission is the only source for a series of county maps showing all wells drilled for oil, natural gas, helium, potash, and halite resources; stratigraphic information; and selected geologically significant water wells. It is also the only source for a state-wide map showing energy distribution systems (oil, gas and coal slurry pipelines, coal-hauling railways, and major electricity transmission lines), and pool maps (oil, gas, and helium).

MAPS

Geologic Maps (Surface and Subsurface)

The two principal sources for various surface geological maps designed for different purposes and printed at different scales are:

Geological Survey Branch, Arizona Bureau of Mines

Branch of Distribution - Central Region, U. S. Geological Survey, Denver

Other sources (bulletins, reports, guidebooks, digests, and special publications), surface and subsurface, are:

American Association of Petroleum Geologists

Arizona Geological Society

Materials Services, Arizona Highways Division

Arizona Oil and Gas Conservation Commission

Four Corners Geological Society

Museum of Northern Arizona

New Mexico Geological Society

A subsurface structure contour map of a large area in the northeast part of Arizona is available commercially through:

Petroleum Ownership Map Company (POMCO), Casper

Geophysical Maps

Contour maps showing interpretation of gravity and magnetic surveys, state-wide and local areas, are available from:

Laboratory of Geophysics, Department of Geosciences, University of Arizona

Survey data is also available.

Local area maps only:

Branch of Distribution - Central Region, U. S. Geological Survey, Denver

Some geophysical maps and data in local areas are available from libraries maintained by commercial companies, such as:

Exploration Surveys, Inc.

GeoData Corporation

Gravity Map Service

A state-wide oil and gas activity map, which also shows holes drilled for potash, halite, and stratigraphic information, and geologically significant water wells, is available from:

J. A. Waatti Map Company

The following companies have oil and gas activity maps covering portions of Arizona:

Ammann International Corporation

Petroleum Information Corporation

Petroleum Ownership Map Company (POMCO)

Regional maps of several types showing all or a portion of Arizona are available from:

Petromotion

Photogeologic Maps

Photogeologic maps of portions of Arizona are available from:

Amuedo & Ivey

Geophoto Services, Inc.

Intra-Search, Inc.

Aircraft Photography and Space Imagery

For information concerning the availability of aerial photography, NASA aircraft photography and imagery, ERTS imagery, and Skylab imagery and photography of Arizona, contact:

Arizona Resources Information System (ARIS)

ARIS is a project of Arizona Government to apply the latest technologies of remote sensing to inventorying and classifying the State's natural and man-made resources and its environment. It is being developed under a Policy Advisory Committee representing a number of State agencies, the primary purpose being to centralize as much land related information as is feasible with reference to source for additional detail.

Under agreements with the National Aeronautics and Space Administration and the Department of the Interior, photo coverage, orthophotoquad coverage, and space imagery are being obtained for a variety of uses in Arizona.

The State has been completely photographed at an altitude of 65,000 feet by NASA within the past two years. The following cameras and film were used:

Camera	Filter	Film	Nominal Scale
Wild RC-10, 6" Focal Length		Kodak 2402	1:120,000
Vinten 70 mm., 1 3/4" F.L.	Green	2402	1:410,000
Vinten 70 mm., 1 3/4" F.L.	Red	2402	1:410,000
Vinten 70 mm., 1 3/4" F.L.	Infrared	2424	1:410,000
Vinten 70 mm., 1 3/4" F.L.		Color SO242	1:410,000

Copies of the above photo coverage can be viewed at the ARIS office. Copies may be ordered from:

Earth Resources Observation Systems Data Control Center, U. S. Geological Survey, Sioux Falls

Additional Arizona coverage by NASA from high altitude aircraft and from space can be viewed in the office of:

Arizona Regional Ecological Test Site (ARETS), U. S. Geological Survey, Phoenix

The office of Arid Lands Studies of the University of Arizona operates the Tucson, Arizona, Ecological Test Site (ARETS) data center that houses selected NASA aircraft and satellite imagery of Arizona.

Radar Imagery, Side-Looking

For information concerning the availability of side-looking radar imagery in Arizona, contact:

Geosciences Services, Goodyear Aerospace Corp.

County and State Highway Maps

Administrative Services, Arizona Highways Division

Forest Service Maps

Forest Service Regional Forester, U. S. Department of Agriculture

Land Ownership Maps

For maps showing current State land ownership, contact:

Land Records/Minerals, Arizona State Land Department

Oil, Helium, and Geothermal Lease and Mineral Ownership Maps

Currently there are no commercial maps available showing lease and mineral ownership. For information concerning mineral ownership and natural resources leases on State and Federal lands, contact:

Land Records/Minerals, Arizona State Land Department

Land Records, Bureau of Land Management, U. S. Dept. of Interior

Vegetative Communities Map

Arizona Resources Information System

Soils Map

Soil Conservation Service, U. S. Department of Agriculture

Orthophoto 7½-Minute Quadrangle (See page 15)

Arizona Resources Information System

Aeronautical Charts and Geodetic Data

For charts, scale 1:500,000:

National Oceanic and Atmospheric Division, U. S. Department of Commerce

For geodetic data:

National Geodetic Survey, U. S. Department of Commerce

For Arizona aeronautical chart, scale 1:1,000,000:

Arizona Department of Aeronautics

GEOLOGIC REPORTS

Reference Sources - General

A few references index governmental, academic, and professional geologic reports:

Bibliography of North American Geology -- published annually by the U. S. Geological Survey for the years through 1970

Abstracts of North American Geology -- published monthly by the U. S. Geological Survey through 1971

Both of the above are available from:

Superintendent of Documents, U. S. Government Printing Office

For non-indexed geologic reports of the U. S. Geological Survey since 1971, consult:

New Publications of the Geological Survey -- published monthly

Journal of Research of the U. S. Geological Survey -- published bi-monthly

Both of the above are available from:

Superintendent of Documents, U. S. Government Printing Office

The Bibliography and Index of Geology, includes North American geology since 1966, published annually by:

Geological Society of America, Inc.

The Colorado Plateau Environmental Advisory Council publishes a newsletter, C.P.E.A.C., listing current and completed environmental studies in Arizona by academic and governmental agencies. Some of the studies directly or indirectly deal with Arizona's geology.

A complete listing of Completed Reports and Current Studies since the first issue in September 1970 through December 1972 is available from:

Colorado Plateau Environmental Advisory Council

Governmental, Federal

The principal source of geologic reports pertaining to Arizona is the U. S. Geological Survey. Book reports of the Survey may be purchased from:

Superintendent of Documents, U. S. Government Printing Office

or from Public Inquiries offices of the U. S. Geological Survey in the following cities:

Dallas
Denver
Los Angeles
Salt Lake City
San Francisco
Spokane

Another source is the U. S. Bureau of Mines. A list of this bureau's publications and articles may be purchased from:

Superintendent of Documents, U. S. Government Printing Office

Governmental, State

Arizona Oil and Gas Conservation Commission

Although small, this Commission has a library containing many publications pertaining to the geology of Arizona, particularly those with reference to oil and gas. It is fairly complete with respect to geologic maps, geophysical investigations maps, mineral investigations field studies maps, oil and gas investigations charts, and professional papers published by the U. S. Geological Survey. These may be inspected on the premises.

Field Notes, a periodical publication pertaining to earth science and mineral resources in Arizona, is available from:

Arizona Bureau of Mines

An excellent library containing current and many old out-of-print publications pertaining to the geology of mining districts is maintained by:

Arizona Department of Mineral Resources

Copies of all publications of State agencies and academic institutions are kept by:

Arizona Library Archives and Public Records

Academic

Lists of theses and dissertations of graduate students are available from:

Department of Geology, Arizona State University
Department of Geology, Northern Arizona University
Department of Geosciences, University of Arizona

Current lists may also be obtained from Dissertation Abstracts, published monthly by:

University Microfilms, Ann Arbor

or from Bibliography of Theses in Geology, published annually by:

American Geological Institute

Professional

American Association for Advancement of Science
American Association of Petroleum Geologists
Arizona Geological Society
Four Corners Geological Society
Geological Society of America, Inc.
Intermountain Association of Petroleum Geologists
New Mexico Geological Society
Rocky Mountain Association of Geologists

Other

Museum of Northern Arizona

LEASES

Petroleum, Helium, and Geothermal

For information on availability and acquisition of petroleum, helium, and geothermal leases on State and Federal lands, contact:

Arizona State Land Department

Land Records, Bureau of Land Management, U. S. Dept. of Interior

For information on availability and acquisition of petroleum, helium, and geothermal leases on all Indian reservation lands, excepting the Navajo Tribe lands, contact:

Bureau of Indian Affairs, U. S. Department of Interior

or contact directly the chairmen of the tribal councils. Tribes, council chairmen, and addresses are listed in the appendix of this directory.

For the Navajo Tribe lands, contact:

Office of Minerals Development, The Navajo Tribe

DRILLING

The Arizona Oil and Gas Conservation Commission, by virtue of ARS 27-575 and ARS 27-652 et seq. has juristiction and authority over such persons and property deemed necessary to administer and enforce the provisions of the statutes, rules, and regulations relating to the exploration for and exploitation of oil, natural gas, helium, and geothermal resources. Rules and Regulations -- Oil, Natural Gas, and Helium, Rules and Regulations -- Geothermal Resources, and a Directory of Services are available from the Commission. The directory was prepared to inform operators planning to drill for oil, natural gas, helium, and geothermal resources in Arizona of the nearest available sources of the many specialized services required.

MINERAL ASSOCIATIONS

Arizona Mining Association

Arizona Oil and Gas Association

Petroleum Development Association of Arizona

Southwestern Minerals Exploration Association

APPENDIX

AVAILABLE PUBLICATIONS

ARIZONA OIL AND GAS CONSERVATION COMMISSION

REPORT OF INVESTIGATION

3. A geophysical and geological investigation of potentially favorable areas for petroleum exploration in Southeastern Arizona, by Carlos L. V. Aiken and John S. Sumner, 1974; 39 pages, 17 figures, 4 tables, 3 plates in envelope. Plates available as separates; see Publications A-2, GG-3, and GG-4 for descriptions.

4. Selected Paleozoic stratigraphic sections in Arizona, by Edward A. Koester, 1974; 24 pages, index map. Map scale: 1:1,000,000 (1" = 16 mi.). Size: 24" x 32".

5. Arizona well information, supplement 1 -- records of wells drilled for oil, natural gas, helium, and stratigraphic information since publication of Arizona Well Information, Bull. 185, 1972, by the Arizona Bureau of Mines, by James R. Scurlock, 1973; 28 pages.

6. THERMAL GRADIENT ANOMALIES, SOUTHERN ARIZONA, Report of Investigation 6, 1978, by Salvatore Giardina, Jr., and J. N. Conley, Arizona Oil and Gas Conservation Commission, 1645 W. Jefferson, Suite 420, Phoenix, Arizona 85007, 49 pages, 3 plates, $2.00, a report based on a study of temperature data abstracted from the records of numerous wells drilled for water and other Earth resources in Arizona. The study was undertaken to: 1) process and present the data in a format suitable for use by other workers, 2) identify thermal gradient anomalies potentially prospective for geothermal energy resources in southern Arizona, and 3) present graphically the spatial relationship of identified thermal gradient anomalies to the thickness of middle and late Cenozoic alluvial deposits, faults, and geothermally anomalous localities and regions determined by previous studies.

SPECI

SP-1

SP-2

SP-3

netic, structure, measured Paleozoic stratigraphic [illegible], and oil and gas development maps commonly used by geologists. The maps indexed graphically are keyed to tables of bibliographic references.

x In preparation

MAPS

Well Location -- State

WELL LOCATION MAP FOUR, STATE OF ARIZONA
Sheet 1, State of Arizona: Wells drilled for oil, natural gas, helium, and geothermal resources; selected wells drilled for stratigraphic or mineral information; and oil and natural gas pipelines.
Sheet 2, Oil, natural gas, and helium pools in northeastern Arizona.
Companion text contains supplementary well data, keyed to maps, pertaining to public land survey location, operator, elevation, completion date, total depth, and stratigraphic unit or geologic system at total depth.
Cost: $8:00, including postage and handling charges.
May be ordered from Oil and Gas Conservation Commission at 1645 W. Jefferson St., Suite 420, Phoenix, Ariz. 85007

Well

, and
l,
e
or
m,

and geothermal resources, most of the wells drilled for stratigraphic, structural, halite, potash, and acquifer information; and geologically significant wells drilled for water. A tabulation printed on the map, or on a separate sheet, presents: the Commission's identification number, location, name, completion date, type of well, ground level elevation, total depth, geologic age or lithology of rock at total depth, and availability of geologic data, sucn as electric/radioactivity logs, lithologic logs, drillers' logs, and samples of drill-bit cuttings. Black line prints. Scale: 1:500,000 (1" = 8 mi.).

1. Maricopa, 1972; two sheets
2. Yuma, 1972
3. Pinal, 1972
4. Cochise, 1972
5. Yavapai, 1973
6. Mohave, 1973
7. Pima-Santa Cruz, 1974
8. Graham-Greenlee, 1974

The remaining counties in the State (Apache, Coconino, Gila, and Navajo) will be published as county series map 9.

Well Location -- Area Series

A-1. East Mogollon Slope region, w/tabulation, 1976

Map covering portions of Apache, Coconino, Gila, and Navajo Counties; Latitude 34°00'00" - 35°22'30" North, Longitude 109°07'30" - 111°24'00" West (Townships 7 - 23 North, Ranges 10 - 30 East). Map shows the location of all wells drilled for oil, natural gas, and helium resources; wells drilled for stratigraphic, structural, potash and halite, and aquifer information; and selected wells drilled for water; townships and sections; towns; boundaries of counties, Indian Reservations, national forests and monuments; and U. S. Coast & Geodetic Survey triangulation stations. Blue or brown line print. Scale: 1:250,000 (1" = 4 mi.). Size: 39" x 34".

~~Sheet 2 - Tabulation listing, for each well shown on the map: file identification numbers of the Commission and the Arizona Bureau of Mines; sequential number in Arizona Well Information, Arizona Bureau of Mines Bull. 185; location, name, total depth, and geologic age of rock at total depth. Map and tabulation are up-dated periodically.~~

Note: Mylar autopositive film of map available at private reproduction cost.

A-2. Southeastern Arizona, 1974; two sheets (Pl. 3 from R. I. 3)

Sheet 1 - Map of Cochise County and portions of adjacent counties; northwest corner, Latitude 33° North, Longitude 112° West. Map shows the location of all holes drilled for petroleum and stratigraphic information, and of selected wells drilled for water; plus information pertaining to shows of oil and gas and geologic age of rock at total depth. Black line print. Scale: 1:500,000 (1" = 8 mi.). Size: 26" x 22½".

Sheet 2 - Tabulation presenting same information shown on map plus name of drill hole and known information as to depth and geologic age (or lithology) of the rock encountered beneath the valley fill.

Well Location -- Pool Series

P-1. Pinta Dome-Navajo Springs-East Navajo Springs helium pools, Apache County, Arizona, 1974. Scale: 1:63,360 (1" = 1 mi.). Size: 17" x 11". Tabulation on reverse side presents additional data for all wells shown on map.

Out of print

P-2. Dineh-bi-Keyah oil field, Apache County, Arizona, 1974. Scale: 1:63,360 (1" = 1 mi.).

~~P-3. x Black Rock-East Boundary Butte-Dry Mesa-North Toh-Atin oil and gas pools, Apache County, Arizona, 1974. Scale: 1:63,360 (1" = 1 mi.)~~

Never published

~~P-4. x Teec Nos Pos oil pool area, Apache County, Arizona, 1974. Map will also show 3 nearby one-well abandoned pools. Scale: 1:63,360 (1" = 1 mi.).~~

Geological

G-6. Structure map--Top of Permian Coconino Sandstone, by J. N. Conley and J. R. Scurlock, 1976; contour interval 100 feet; scale 1:250,000 (1 in. = approx. 4 mi.).

G-6A, G-7, G-8. Set of three structure maps (also available as separates); scale 1:500,000 (1 in. = approx. 8 mi.):

G-6A. Top of Permian Coconino Sandstone (reduction of G-6).

G-7. Base of Permian Fort Apache Member of Permian Supai Formation, by J. N. Conley, 1977; contour interval 200 feet.

G-8. Top of basement, by J. N. Conley, 1977; contour interval 200 feet.

MAPS - TEMPERATURE

GT-2. Mean annual temperature map, State of Arizona, by Charles E. Druitt, 1976; isotherm interval 5° Fahrenheit; scale 1:2,000,000 (1 in. = approx. 32 mi.).

GT-3. Tabulation of temperature measurement data, State of Arizona, with maps:

GT-3A. Map showing location of wells penetrating subsurface basement rocks

GT-3B. Map showing location of wells penetrating subsurface suprabasement rocks

GEOLOGIC STRUCTURE/CORRELATION SECTIONS

GXS-1. Set of 4 sections across portions of the eastern Mogollon Slope region in east-central Arizona, by J. N. Conley, 1977.

Scale: 1:500,000 (1" = 8 mi.). Size: 23¼" x 28½".

GG-2. + Residual aeromagnetic map of Holbrook area, Arizona, by William A. Sauck and John S. Sumner, 1970. Contour interval: 25 Gammas. Scale: 1:500,000 (1" = 8 mi.). Size: 23" x 24½".

GG-3. Bouguer gravity anomaly map of Southeastern Arizona, by Robert E. West, John S. Sumner, and Carlos L. V. Aiken; Plate 1 from Report of Investigation 3, 1974. Map shows valley areas covered with Cenozoic sedimentary deposits; pre-Cenozoic sedimentary, volcanic, and intrusive bedrock; land-grid; and drill holes discussed in text. Northwest corner of image area, Latitude 33°15' North, Longitude 111°00' West. Printed in 4 colors. Contour interval: 5 Milligals. Scale: 1:500,000 (1" = 8 mi.). Size: 18¼" x 28½".

GG-4. Residual aeromagnetic map of Southeastern Arizona, by William A. Sauck and John S. Sumner, 1970; Plate 2 from Report of Investigation 3, 1974. Northwest corner of image area, Latitude 33° North, Longitude 112° West. Black line print. Contour interval: 25 Gammas. Scale: 1:500,000 (1" = 8 mi.). Size: 24" x 25".

Miscellaneous

M-1. Energy distribution systems of Arizona, by James R. Scurlock, 1973. Map shows principal fossil fuel pipelines, electricity transmission lines, power plants, and petroleum storage terminals. Printed in 3 colors. Scale: 1:1,000,000 (1" = 16 mi.). Size: 24" x 32".

CHARTS AND CROSS SECTIONS

C-1. Oil and natural gas occurrence in Arizona, by J. N. Conley, 1973 (Updated April, 1974).

A composite chart showing: 1) the geologic age of rocks in which shows of hydrocarbons have been noted, and 2) oil and gas pool data relative to geologic age of productive reservoirs, deepest stratigraphic penetration and depth in each pool, discovery dates, number and status of wells drilled, and cumulative production through December, 1973. Size: 21" x 11".

+ Open-file. Copy may be made at private expense.

CATALOGS

1. Index of samples of drill-bit cuttings and cores of wells drilled in Arizona, by J. N. Conley, 1971.

1-A. Supplement to above, April 1971-Sept. 1975

2. Index of samples of drill-bit cuttings and cores of wells drilled in southwestern Colorado, northwestern New Mexico, and southeastern Utah, by J. N. Conley, 1971.

BOOKS, DIRECTORIES, AND PRODUCTION REPORTS

Directory -- Sources of information on exploration for petroleum and geothermal resources in the State of Arizona (completely revised and expanded edition).

Commission Rules and Regulations

Oil, gas, and helium, 1971

Geothermal resources, 1972

Directory of Services -- Summary of service companies and contractors available to operators within the State.

Monthly production reports -- oil, gas, and helium

x Production summary -- annual

ARIZONA GEOLOGIC LITERATURE

For a very comprehensive list of references to the geology and natural resources of Arizona, see "Literature Cited," pages 147-159 in Peirce, H. W., Keith, S. B., and Wilt, J. C., 1970, Coal, Oil, Natural Gas, Helium, and Uranium: Ariz. Bur. of Mines Bull. 182.

Selected Supplementary References

Aiken, C. L. V., and Sumner, J. S., 1974, A geophysical and geological investigation of potentially favorable areas for petroleum exploration in southeastern Arizona: Ariz. Oil and Gas Conserv. Comm. Rept. of Inv. 3.

Arizona District, Water-Resources Division, U. S. Geological Survey, 1965, Bibliography of U. S. Geological Survey Water-Resources Reports for Arizona, 1891 to 1965: Ariz. State Land Dept. Water-Resources Rept. no. 22.

_____, 1972, Bibliography of U. S. Geological Survey Water-Resources Reports for Arizona, May 1965 through June 1971: Ariz. Water Comm. Bull. 2.

Balk, C. L., 1967, Lexicon of stratigraphic names used in northwest New Mexico and adjacent states, in Guidebook of Defiance-Zuni-Mt. Taylor region, Arizona and New Mexico: N. Mex. Geol. Soc., 18th Field Conf.

Barwin, John, 1969, Oil possibilities in Arizona: Oil & Gas Jour., Sept. 1, 1969, p. 186-187.

Bell, P. M., and Roy, R. F., 1967, Heat flow and gravity measurements at Ajo, Arizona: Carnegie Inst. Washington Year Book, no. 65, p. 414-415.

Beus, S. S., 1973, Devonian stratigraphy and paleogeography along the Mogollon Rim, Arizona: Mus. of Northern Ariz. Bull. no. 49.

Brown, S. C., and Lauth, R. E., 1961, Northeastern Arizona: Its oil, gas and helium prospects, in Oil, Gas and Helium in Arizona, Its Occurrence and Potential: Ariz. Oil and Gas Conserv. Comm., p. 7-21.

Buck, L. I., 1961, Oil and gas possibilities in southeast Arizona, in Oil, Gas and Helium in Arizona, Its Occurrence and Potential: Ariz. Oil and Gas Conserv. Comm., p. 22-29.

Conley, J. N., 1974, Review of the development of oil and gas resources of northern Arizona: Ariz. Oil and Gas Conserv. Comm. Special Pub. 1.

Conley, J. N., and Scurlock, J. R., 1972, Subsurface temperature map of Arizona (preliminary): Ariz. Oil and Gas Conserv. Comm.

Cooley, M. E., Harshbarger, J. W., Akers, J. P., and Hardt, W. F., 1969, Regional hydrogeology of the Navajo and Hopi Indian Reservations, Arizona, New Mexico, and Utah: USGS Prof. Paper 521-A.

Davis, R. W., 1971, The analysis of gravity data from the Tucson basin, Arizona: Ariz. Geol. Soc. Digest, v. IX, p. 103-121.

Drewes, Harald, 1971, Mesozoic stratigraphy of the Santa Rita Mountains, southeast of Tucson, Arizona: USGS Prof. Paper 658-C.

_____, 1972, Structural geology of the Santa Rita Mountains, southeast of Tucson, Arizona: USGS Prof. Paper 748.

Eaton, G. P., 1972, Deformation of Quaternary deposits in two intermontane basins of southern Arizona, U.S.A., in Report of Section 3, Tectonics: 24th Internat. Geol. Cong., p. 607-616.

Eaton, G. P., Peterson, D. L., and Schumann, H. H., 1972, Geophysical, geohydrological, and geochemical reconnaissance of the Luke salt body, central Arizona: USGS Prof. Paper 753.

Greenwood, Eugene, 1969, Oil and gas in the Pedregosa basin: Oil & Gas Jour., Oct. 6, 1969.

Haigler, L. B., 1969, Geothermal resources, in Mineral and Water Resources of Arizona: Ariz. Bur. of Mines Bull. 180, p. 575-580.

Hayes, P. T., 1970, Mesozoic stratigraphy of the Mule and Huachuca Mountains, Arizona: USGS Prof. Paper 658-A.

_____, 1970, Cretaceous paleogeography of southeastern Arizona and adjacent areas: USGS Prof. Paper 658-B.

_____, 1972, Stratigraphic nomenclature of Cambrian and Lower Ordovician rocks of easternmost southern Arizona and adjacent westernmost New Mexico: USGS Bull. 1372-B.

Heindl, L. A., 1958, Cenozoic alluvial deposits of the upper Gila River area, New Mexico and Arizona: Ph.D. Dissert., Univ. of Ariz.; Univ. Microfilms, Ann Arbor, Mich., Order #58-2,063.

_____, 1962, Cenozoic geology of Arizona--a 1960 résumé: Ariz. Geol. Soc. Digest, v. V, p. 9-22.

Hills, J. M., 1972, Late Paleozoic sedimentation in West Texas Permian basin: Am. Assoc. Petroleum Geologists Bull., v. 56, no. 12.

Holm, D. A., 1938, The oil possibilities of Arizona: Ariz. State Land Dept.

Irwin, J. H., Stevens, P. R., and Cooley, M. E., 1971, Geology of the Paleozoic rocks, Navajo and Hopi Indian Reservations, Arizona, New Mexico, and Utah: USGS Prof. Paper 521-C.

Johnson, P. W., 1962, Water in the Coconino sandstone for the Snowflake-Hay Hollow area, Navajo County, Arizona: USGS Water Supply Paper 1539-S.

Kelley, V. C., 1967, Tectonics of the Zuni-Defiance region, New Mexico and Arizona in Guidebook of Defiance-Zuni-Mt. Taylor region, Arizona and New Mexico: N. Mex. Geol. Soc., 18th Field Conf.

Koester, E. A., 1974, Selected Paleozoic stratigraphic sections in Arizona: Ariz. Oil and Gas Conserv. Comm. Rept. of Inv. 4.

Kottlowski, F. E., 1971, Petroleum potential of southwest New Mexico and southeast Arizona, in Future Petroleum Provinces: Am. Assoc. of Petroleum Geologists Mem. 15, p. 431-448.

Krieger, M. H., Cornwall, H. R., and Banks, N. G., 1972, Big Dome Formation and revised Tertiary stratigraphy in the Ray-San Manuel area, Arizona, in Changes in Stratigraphic Nomenclature: USGS Bull. 1394-A, p. 54-62.

Lucchitta, Ivo, 1974, Structural evolution of northwest Arizona and its relation to adjacent Basin and Range structures, in Geology of Northern Arizona, Part I: Univ. of Northern Ariz., p. 336-354.

McCarthy, D. P., 1961, Geological evaluation of oil and gas possibilities of southwestern Arizona, in Oil, Gas and Helium in Arizona, Its Occurrence and Potential: Ariz. Oil and Gas Conserv. Comm., p. 30-34.

McKee, E. D., and Breed, W. J., 1969, The Toroweap Formation and Kaibab Limestone, in The San Andres Limestone Symposium: N. Mex. Geol. Soc. Special Pub. no. 3.

McKee, E. D., and Gutschick, R. C., 1969, History of the Redwall Limestone of northern Arizona: Geol. Soc. of America Mem. 114.

McKee, E. D., Teichert, Curt, and Hayes, P. T., 1967, Devonian of the southwestern United States, in Internat. Symposium of the Devonian System, v. 1, Alberta Soc. of Petroleum Geologists.

Marvin, R. F., Stern, T. W., Creasey, S. C., and Mehnert, H. H., 1973, Radiometric ages of igneous rocks from Pima, Santa Cruz, and Cochise Counties, southeastern Arizona: USGS Bull. 1379.

Mattick, R. E., Olmsted, F. H., and Zohdy, A. A. R., 1973, Geophysical studies of the Yuma area, Arizona and California: USGS Prof. Paper 726-D.

O'Sullivan, R. B., and Craig, L. C., 1973, Jurassic rocks of northeast Arizona and adjacent areas, in Guidebook of Monument Valley and Vicinity, Arizona and Utah: N. Mex. Geol. Soc., 24th Field Conf.

O'Sullivan, R. B., and Green, M. W., 1973, Triassic rocks of northeast Arizona and adjacent areas, in Guidebook of Monument Valley and Vicinity, Arizona and Utah: N. Mex. Geol. Soc., 24th Field Conf.

Peirce, H. W., 1967, Permian stratigraphy of the Defiance Plateau, Arizona, in Guidebook of Defiance-Zuni-Mt. Taylor region, Arizona and New Mexico: N. Mex. Geol. Soc., 18th Field Conf.

_____, 1973, Halite masses in Basin and Range province in Arizona, in Fourth Annual Symposium on Salt, April 9, 1973: Northern Ohio Geol. Soc., Inc.

Peirce, H. W., and Scurlock, J. R., 1973, Arizona well information: Ariz. Bur. of Mines Bull. 185.

Peterson, D. L., 1968, Bouguer gravity of parts of Pima, Pinal, and Yuma Counties, Arizona: USGS GP-615.

Pohlmann, H. F., 1967, The Navajo Indian nation and Dineh-bi-Keyah, in Guidebook of Defiance-Zuni-Mt. Taylor region, Arizona and New Mexico: N. Mex. Geol. Soc., 18th Field Conf.

Pye, W. D., 1967, How unique Arizona syenite oil reservoir formed: World Oil, v. 165, no. 1, p. 81-83.

_____, 1967, A new exploration frontier: Oil & Gas Jour., v. 65, no. 19, p. 168-172.

Rawson, R. R., and Turner, C. E., 1974, The Toroweap Formation, in Geology of Northern Arizona, Part I: Univ. of Northern Ariz., p. 155-190.

Ross, C. A., 1973, Pennsylvanian and Early Permian depositional history, southeastern Arizona: Am. Assoc. Petroleum Geologists Bull., v. 57, p. 882-912.

Repenning, C. A., Cooley, M. E., and Akers, J. P., 1969, Stratigraphy of the Chinle and Moenkopi Formations, Navajo and Hopi Indian Reservations, Arizona, New Mexico, and Utah: USGS Prof. Paper 521-B.

Sauck, W. A., and Sumner, J. S., 1970, Residual aeromagnetic map of Arizona: Laboratory of Geophysics, Dept. of Geosciences, Univ. of Ariz.

Sauck, W. A., Sumner, J. S., and Christensen, J. P., 1971, Aeromagnetic map of northern part of the Tucson basin, Pima County, Arizona: Ariz. Geol. Soc. Digest, v. IX, p. 123-135.

Scurlock, J. R., 1973, Arizona well information, Supplement 1 - Records of wells drilled for oil, natural gas, helium, and stratigraphic information since publication of Arizona Well Information, Bull. 185, 1972, by Arizona Bureau of Mines: Ariz. Oil and Gas Conserv. Comm. Rept. of Inv. 5.

Shoemaker, E. M., Squires, R. L., and Abrams, M. J., 1974, The Bright Angel and Mesa Butte fault systems of northern Arizona, in Geology of Northern Arizona, Part I: Univ. of Northern Ariz., p. 355-391.

Simons, F. S., 1972, Mesozoic stratigraphy of the Patagonia Mountains and adjoining areas, Santa Cruz County, Arizona: USGS Prof. Paper 658-E.

Swapp, C. W., 1961, The geology and oil and gas possibilities of northwestern Arizona, in Oil, Gas and Helium in Arizona, Its Occurrence and Potential: Ariz. Oil and Gas Conserv. Comm., p. 35-41.

Trauger, F. D., 1967, Nomenclature chart, in Guidebook of Defiance-Zuni-Mt. Taylor region, Arizona and New Mexico: N. Mex. Geol. Soc., 18th Field Conf.

Wengert, S. A., 1973, Regional stratigraphic control of the search for Pennsylvanian petroleum, southern Monument upwarp, southeastern Utah, in Guidebook of Monument Valley and Vicinity, Arizona and Utah: N. Mex. Geol. Soc., 24th Field Conf.

West, R. E., and Sumner, J. S., 1973, Bouguer gravity anomaly map of southeastern Arizona: Laboratory of Geophysics, Dept. of Geosciences, Univ. of Ariz.

Woodward, L. A., 1973, Structural framework and tectonic evolution of the Four Corners region, in Guidebook of Monument Valley and Vicinity, Arizona and Utah: N. Mex. Geol. Soc., 24th Field Conf.

Wright, J. J., 1971, The occurrence of thermal ground-water in the Basin and Range province of Arizona, hydrology and water resources in Arizona and the southwest, in Proceedings of 1971 Meeting: Ariz. Sec. Am. Water Res. Assoc. and Hydrology Sec. of Ariz. Acad. of Sci., v. 1, p. 269-290.

Young, R. G., 1973, Cretaceous stratigraphy of the Four Corners area, in Guidebook of Monument Valley and Vicinity, Arizona and Utah: N. Mex. Geol. Soc., 24th Field Conf.

INDIAN RESERVATIONS

CAMP VERDE: (602) 567-3649
Yavapai-Apache Community Council
P. O. Box 236
Clarkdale, Arizona 86324

COCOPAH: (602) 627-2102
Cocopah Tribal Council
Bin G
Somerton, Arizona 85350

COLORADO RIVER: (602) 669-2293
Colorado River Tribal Council
Route 1, Box 23-B
Parker, Arizona 85344

FORTE APACHE: (602) 338-4371
White Mountain Apache Council
P. O. Box 708
Whiteriver, Arizona 85941

FORT McDOWELL: (602) 837-9831
Ft. McDowell Mohave-Apache
Community Council
Route 1, Box 700
Scottsdale, Arizona 85256

FORT MOHAVE: (714) 326-3844
Fort Mohave Tribal Council
P. O. Box 798
Needles, California 92363

GILA RIVER: (602) 562-3311
Gila River Indian Community
P. O. Box 97
Sacaton, Arizona 85247

HAVASUPAI: (602) 448-2881
Havasupai Tribal Council
General Delivery
Supai, Arizona 86435

HOPI: (602) 734-2457
Hopi Tribal Council
P. O. Box 123
Oraibi, Arizona 86039

HUALAPAI: (602) 769-2216
Hualapai Tribal Council
P. O. Box 168
Peach Springs, Arizona 86434

KAIBAB-PAIUTE: (602) 643-5545
Kaibab Band of Paiute Indians
P. O. Box 302
Fredonia, Arizona 86022

MARICOPA: (602) 568-2379
Ak-Chin Indian Community
Route 1, Box 12
Maricopa, Arizona 85239

NAVAJO: (602) 871-4941
Office of Minerals Development
The Navajo Tribe
P. O. Box 146
Window Rock, Arizona 86515

PAPAGO: (602) 383-2221
Papago Tribal Council
P. O. Box 837
Sells, Arizona 85634

SALT RIVER: (602) 261-3081
Salt River Pima-Maricopa
Community Council
Route 1, Box 120
Scottsdale, Arizona 85256

SAN CARLOS: (602) 475-2373
San Carlos Tribal Council
P. O. Box O
San Carlos, Arizona 85550

YAVAPAI-PRESCOTT: (602) 445-8790
Yavapai-Prescott Indian Community
P. O. Box 348
Prescott, Arizona 86301

YAVAPAI-TONTO APACHE:
Yavapai-Tonto Apache Indian
Tribal Council
P. O. Box 184
Payson, Arizona 85541