

**ADDITIONS TO BIBLIOGRAPHIES FOR  
METALLIC MINERAL DISTRICTS  
IN ARIZONA**

by

John W. Welty

Arizona Geological Survey  
**Open-File Report 89-9**

1989

**Arizona Geological Survey**  
416 W. Congress, Suite #100, Tucson, Arizona 85701

This report is preliminary and has not been edited  
or reviewed for conformity with Arizona Geological Survey standards



## INTRODUCTION

This report is an update to already published county metallic mineral district bibliographies for Cochise, Graham, Greenlee, La Paz, Mohave, Pima, Santa Cruz, and Yuma Counties (Schnabel and Welty, 1986a,b; Schnabel and others, 1986; Welty, 1988), and bibliographies for Apache, Coconino, Gila, Maricopa, Navajo, Pinal, and Yavapai counties that are currently in press (scheduled for release during the first quarter of 1990).

In a mineral district classification, known metallic mineral occurrences are grouped according to geologic and metallogenic criteria rather than the geographic associations used in a traditional mining-district (Keith, Gest and DeWitt, 1983; Keith, Gest, DeWitt and others, 1983). Ideally, a mineral district should consist of mineral occurrences that have a common genesis. A mineral-district classification is especially useful for understanding the geologic setting of mineralization and the distribution of known mineral occurrences with similar geologic settings. A mineral-district map, however, is by no means a statement of mineral potential because future discoveries within and outside established districts will affect boundaries. Although understanding the distribution of known mineral deposits is essential in evaluating mineral potential, many other geologic and technologic factors must also be considered (Fellows, 1984).

Over 175 new citations are listed in this report. As in the previously published bibliographies a list of general county references precedes the specific references for the mineral districts. These citations furnish information that applies to the entire county or pertains to a significant number of mineral districts within that county. The user of this bibliography is reminded to examine carefully the general county reference list when searching for information regarding a specific district. Mineral districts in need of updating are listed alphabetically for each county; those with no reported production are included as well (Keith, Gest, DeWitt, and others, 1983; Welty and others, 1985).

## REFERENCES

- Fellows, L.D., 1984, Mineral and energy resources; assessing Arizona's potential: Arizona Bureau of Geology and Mineral Technology Fieldnotes, v. 14, no. 1, p. 1-9.
- Keith, S.B., Gest, D.E., and DeWitt, Ed, 1983, Metallic mineral districts of Arizona: Arizona Bureau of Geology and Mineral Technology Map 18, scale 1:1,000,000.
- Keith, S.B., Gest, D.E., and DeWitt, Ed, Woode Toll, Netta, and Everson, B.A., 1983, Metallic mineral districts and production in Arizona: Arizona Bureau of Geology and Mineral Technology Bulletin 194, 54 p.
- Schnabel, Lorraine, and Welty, J.W., 1986a, Bibliography for metallic mineral districts in Cochise, Graham, Greenlee Counties, Arizona: Arizona Bureau of Geology and Mineral Technology Circular 24, 38 p.
- \_\_\_\_\_, 1986b, Bibliography for metallic mineral districts in La Paz, Mohave, and Yuma Counties, Arizona: Arizona Bureau of Geology and Mineral Technology Circular 25, 45 p.
- Schnabel, Lorraine, Welty, J.W., Trapp, R.A., and Reynolds, S.J., 1986,

- Bibliography for metallic mineral districts in Pima and Santa Cruz Counties, Arizona: Arizona Bureau of Geology and Mineral Technology Circular 26, 44 p.
- Welty, J.W., Additions to bibliographies for metallic mineral districts in Cochise, Graham, Greenlee, La Paz, Mohave, Pima, Santa Cruz, and Yuma Counties, Arizona: Arizona Geological Survey Open-File Report 88-22, 32 p.

## GENERAL ARIZONA REFERENCES

- Malan, R.C., 1972, Summary report--distribution of uranium and thorium in the Precambrian of the western United States: U.S. Atomic Energy Commission Report AEC-RD-12, 59 p.
- Malan, R.C., and Sterling, D.A., 1969, A geologic study of uranium resources in Precambrian rocks of the western United States: An introduction to the distribution of uranium and thorium in Precambrian rocks including the results of preliminary studies in the southwestern United States: U.S. Atomic Energy Commission Report AEC-RD-9, 54 p.
- Niemuth, N.J., O'Hara, P.F., and Ryberg, G.E., 1989, Metallogenic province zonation in Arizona [abs.]: Geological Society of America Abstracts with Programs, v. 21, p. A250.
- Wright, R.J., 1950a, Reconnaissance of certain uranium deposits in Arizona: U.S. Atomic Energy Commission Raw Materials Operations Report RMO-590, 25 p.
- \_\_\_\_\_ 1950b, Reconnaissance of certain uranium deposits in Arizona: U.S. Atomic Energy Commission Raw Materials Operations Report RMO-679, 21 p.

## APACHE COUNTY

### COUNTY GENERAL REFERENCE

- Chenoweth, W.L., 1989, Leasing and mining of carnotite deposits in the 1920's, Carrizo Mountains, Apache County, Arizona and San Juan County, New Mexico: Arizona Geological Survey Contributed Report CR-89-F, 48 p.

### CANE VALLEY DISTRICT

- Gregg, C.C., and Evensen, C.S., 1989, Maps of the underground workings, Monument No. 2 mine, Apache County, Arizona, with a text by W.L. Chenoweth: Arizona Geological Survey Contributed Report CR-89-D, 35 p.

## COCHISE COUNTY

### GENERAL COUNTY REFERENCES

- Aiken, C.L.V., and Sumner, J.S., 1973, Geophysical investigations in southeastern Arizona valleys: Laboratory of Geophysics, Department of Geosciences, University of Arizona, unpublished manuscript, 60 p., scale 1:500,000.
- Richter, D.H., Houser, B.B., Watts, K.C., Klein, D.P., Sharp, W.N., Drewes, Harald, Hedlund, D.C., Raines, G.L., and Hassemer, J.R., 1988, The conterminous United States Mineral Assessment Program; background information to accompany folio of geologic and mineral resource maps of the Silver City 1<sup>0</sup> x 2<sup>0</sup> quadrangle, New Mexico and Arizona: U.S. Geological Survey Circular 975, 22 p.

### BLUE ROCK DISTRICT

- Miller, R.A., 1958, Reconnaissance geology of the Blue Rock area, Pima-Cochise Counties, Arizona: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2077, 20 p.
- Puttuck, H.E., 1954, Preliminary report of the Blue Rock claims, Pima County, Arizona: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2075(rev), 5 p.

### COCHISE DISTRICT

- Hinkle, M.E., 1986, Using volatile constituents of soils and soil gases to determine copper-zinc ore bodies at Johnson Camp, Arizona: Journal of Geophysical Research, v. 91, no. B12, p. 12359-12365.

### RUCKER CANYON DISTRICT

- Drewes, Harald, and Brooks, W.E., 1988, Geologic map and cross sections of the Pedregosa Mountains, Cochise County, Arizona: U.S. Geological Survey Miscellaneous Investigations Series Map I-1827, scale 1:48,000.

### TOMBSTONE DISTRICT

- Lang, J.R., Ruiz, Joaquin, and Titley, S.R., 1989, Comparative trace element geochemistry of Cu/Mo-productive and non-productive igneous systems of Laramide age, Arizona [abs.]: Geological Society of America Abstracts with Programs, v. 21, p. A151.

### WARREN DISTRICT

- Bain, G.W., 1950, A microscopic study of the ores of Bisbee, Arizona: U.S. Atomic Energy Commission Raw Materials Operations Report RMO-575, 17 p.

## COCONINO COUNTY

### GENERAL REFERENCES

Blank, H.R., and Kucks, R.P., 1989, Preliminary aeromagnetic, gravity, and generalized geologic maps of the USGS Basin and Range-Colorado Plateau transition zone study area in southwestern Utah, southeastern Nevada, and northwestern Arizona (the "BARCO" project): U.S. Geological Survey Open-File Report 89-432, 16 p., scale 1:250,000, 3 sheets.

### GENERAL BRECCIA PIPE REFERENCES

Been, J.M., and Szarzi, S.L., 1989, Helium and radon soil-gas surveys of collapse features on the Hualapai Indian Reservation: U.S. Geological Survey Open-File Report 89-486, 29 p.

Roller, J.A., 1989, Fracture history of the Redwall Limestone, lower Supai Group, and Tertiary units on the Hualapai Indian Reservation, northwestern Arizona: Additional data to Open-File Report 87-359: U.S. Geological Survey Open-File Report 89-463, 42 p.

### WARM SPRINGS DISTRICT

Tourtelot, E.B., and Vine, J.D., 1976, Copper deposits in sedimentary and volcanogenic rocks: U.S. Geological Survey Professional Paper 907-C, 34 p.

### WHITE MESA DISTRICT

Tourtelot, E.B., and Vine, J.D., 1976, Copper deposits in sedimentary and volcanogenic rocks: U.S. Geological Survey Professional Paper 907-C, 34 p.

## GILA COUNTY

### GENERAL COUNTY REFERENCES

- Magleby, D.N., 1956, Airborne radiometric surveys of the Mogollon Rim and Mazatzal Wilderness areas, Gila, Yavapai, and Pinal Counties, Arizona: U.S. Atomic Energy Commission Technical Memorandum TM-294, 5 p.
- Magleby, D.N., and Mead, W.E., 1955, Airborne reconnaissance project, Dripping Spring Quartzite, Arizona: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2023, 22 p.
- Schwartz, R.J., and Magleby, D.N., 1955, Final report, airborne reconnaissance project, Dripping Spring Quartzite, Arizona: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2081, 19 p.

### MIAMI-INSPIRATION DISTRICT

- Titley, S.R., Anzalone, S.A., and Anthony, E.Y., 1989, Porphyry copper deposits in the American Southwest: International Geological Congress, 28th, Washington, D.C., 1989, Field Trip Guidebook T338: Washington, D.C., American Geophysical Union, 26 p.

### SIERRA ANCHA DISTRICT

- Schwartz, R.J., 1957, Diamond drilling in the Sierra Ancha area, Gila County, Arizona: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2084, 101 p.
- Sharp, B.J., 1956, Preliminary report on a uranium occurrence and regional geology in the Cherry Creek area, Gila County, Arizona: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2036(rev.), 16 p.
- U.S. Atomic Energy Commission, 1955, Generalized description of Dripping Spring Quartzite and associated uranium deposits, Sierra Ancha mining district, Gila County, Arizona: Technical Memorandum TM-260, 4 p.

## GRAHAM COUNTY

### GENERAL COUNTY REFERENCES

- Aiken, C.L.V., and Sumner, J.S., 1973, Geophysical investigations in southeastern Arizona valleys: Laboratory of Geophysics, Department of Geosciences, University of Arizona, unpublished manuscript, 60 p., scale 1:500,000.
- Richter, D.H., Houser, B.B., Watts, K.C., Klein, D.P., Sharp, W.N., Drewes, Harald, Hedlund, D.C., Raines, G.L., and Hassemer, J.R., 1988, The conterminous United States Mineral Assessment Program; background information to accompany folio of geologic and mineral resource maps of the Silver City 1<sup>0</sup> x 2<sup>0</sup> quadrangle, New Mexico and Arizona: U.S. Geological Survey Circular 975, 22 p.

### DOS POBRES DISTRICT

- Lowell, J.D., 1988a, Gold mineralization in porphyry copper deposits: Society of Mining Engineers Preprint 88-117, 17 p.
- \_\_\_\_\_ 1988b, Gold mineralization in porphyry copper deposits discussed: Mining Engineering, v. 41, p. 227-231.

### RATTLESNAKE DISTRICT

- Schreiner, R.A., 1988, Mineral investigation of the Muleshoe Study Area, Cochise and Graham Counties, Arizona: U.S. Bureau of Mines Mineral Land Assessment Report MLA 43-88, 24 p., scale 1:62,500.

## GREENLEE COUNTY

### GENERAL COUNTY REFERENCES

- Aiken, C.L.V., and Sumner, J.S., 1973, Geophysical investigations in southeastern Arizona valleys: Laboratory of Geophysics, Department of Geosciences, University of Arizona, unpublished manuscript, 60 p., scale 1:500,000.
- Richter, D.H., Houser, B.B., Watts, K.C., Klein, D.P., Sharp, W.N., Drewes, Harald, Hedlund, D.C., Raines, G.L., and Hassemer, J.R., 1988, The conterminous United States Mineral Assessment Program; background information to accompany folio of geologic and mineral resource maps of the Silver City 1<sup>0</sup> x 2<sup>0</sup> quadrangle, New Mexico and Arizona: U.S. Geological Survey Circular 975, 22 p.

## LA PAZ COUNTY

### GENERAL COUNTY REFERENCES

- Larkin, S.P., McCarthy, Jill, and Fuis, G.S., 1988, Data report for the PACE 1987 seismic refraction survey, west-central Arizona: U.S. Geological Survey Open-File Report 88-694, 95 p.
- Laubach, S.E., Reynolds, S.J., and Raney, J., 1989, Normal fault geometry: Examples from above the Buckskin detachment fault, Arizona [abs.]: Geological Society of America Abstracts with Programs, v. 21, p. A202.
- Mariano, John, and Grauch, V.J.S., 1988, Aeromagnetic maps of the Colorado River region including the Kingman, Needles, Salton Sea, and El Centro 1<sup>0</sup> by 2<sup>0</sup> quadrangles, California, Arizona, and Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-2023, scale 1:250,000.
- Spencer, J.E., and Reynolds, S.J., 1989, Tertiary structure, stratigraphy, and tectonics of the Buckskin Mountains, in Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 103-167.
- Spencer, J.E., and Reynolds, S.J., ed., 1989, Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, 280 p., scale 1:24,000, 1:42,850, and 1:100,00, 3 sheets.
- Spencer, J.E., and Welty, J.W., 1989, Geology of mineral deposits in the Buckskin and Rawhide Mountains, in Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 223-254.

### ALAMO DISTRICT

- Tuffin, S.E., 1989, Mineral resources of a part of the Rawhide Mountains Wilderness Study Area (AZ-020-058A), La Paz and Mohave Counties, Arizona: U.S. Bureau of Mines Mineral Land Assessment Open-File Report 13-89, 50 p.

### ARTILLERY DISTRICT

- Koski, R.A., Bouse, R.M., Hein, J.R., and DeRosa, M.L., 1988, Composition and geologic setting of stratiform manganese deposits in the southern Basin and Range Province, Arizona and Nevada, [abs.], in Schindler, K.S., ed., USGS research on mineral resources -- 1989; Fifth annual V.E. McKelvey forum on mineral and energy resources: U.S. Geological Survey Circular 1035, p. 41-42.

#### CIENEGA DISTRICT

- Reynolds, S.J., and Spencer, J.E., 1989, Pre-Tertiary rocks and structures in the upper plate of the Buckskin detachment fault, west-central Arizona, in Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 67-102.
- Scott, D.C., 1989, Mineral investigation of a part of the Gibraltar Mountain Wilderness Study Area (AZ-050-012), La Paz County, Arizona: U.S. Bureau of Mines Mineral Land Assessment Open-File Report MLA 18-89, 17 p.

#### ELLSWORTH DISTRICT

- Laubach, S.E., Reynolds, S.J., Spencer, J.E., and Marshal, Stephen, 1989, Progressive deformation and superposed fabrics related to Cretaceous underthrusting in western Arizona, U.S.A.: Journal of Structural Geology, v. 11, p. 735-749.
- Richard, S.M., 1989, Bedrock geology of the Harquahala Mountains, west-central Arizona: Mesozoic shear zones, cooling and Tertiary unroofing: Santa Barbara, University of California, unpublished Ph.D. dissertation, 277 p.

#### GRAND CENTRAL DISTRICT

- Bullock, J.H., Jr., Vaughn, R.B., Smith, D.B., Welsch, E., and Fey, D.L., 1989, Analytical results and sample locality map of stream-sediment, heavy-mineral-concentrate, and rock samples from the Trigo Mountains Wilderness Study Area (AZ-50--23B), La Paz County, Arizona: U.S. Geological Survey Open-File Report 89-472, 26 p.

#### HARQUAHALA DISTRICT

- Richard, S.M., 1989, Bedrock geology of the Harquahala Mountains, west-central Arizona: Mesozoic shear zones, cooling and Tertiary unroofing: Santa Barbara, University of California, unpublished Ph.D. dissertation, 277 p.

#### LINCOLN RANCH DISTRICT

- Tuftin, S.E., 1989, Mineral resources of a part of the Rawhide Mountains Wilderness Study Area (AZ-020-058A), La Paz and Mohave Counties, Arizona: U.S. Bureau of Mines Mineral Land Assessment Open-File Report 13-89, 50 p.

#### LITTLE HARQUAHALA DISTRICT

- Richard, S.M., 1989, Bedrock geology of the Harquahala Mountains, west-central Arizona: Mesozoic shear zones, cooling and Tertiary unroofing: Santa Barbara, University of California, unpublished Ph.D. dissertation, 277 p.

#### MAMMON DISTRICT

Scott, D.C., 1989, Mineral investigation of a part of the Gibraltar Mountain Wilderness Study Area (AZ-050-012), La Paz County, Arizona: U.S. Bureau of Mines Mineral Land Assessment Open-File Report MLA 18-89, 17 p.

#### MIDWAY DISTRICT

Kreidler, T.J., 1987, Mineral Investigation of the East Cactus Plain Wilderness Study Area (AZ-050-017), La Paz County, Arizona: U.S. Bureau of Mines Mineral Land Assessment Report MLA 81-87, 10 p. scale 1:62,500.

Marshak, Stephen, and Vander Meulen, Marc, 1989, Geology of the Battleship Peak area, southern Buckskin Mountains Arizona: Structural style below the Buckskin detachment fault, in Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 51-66.

#### MOON MOUNTAINS DISTRICT

Knapp, J.H., 1989, Structural development, thermal evolution, and tectonic significance of a Cordilleran basement thrust terrane, Maria fold and thrust belt, west-central Arizona: Cambridge, Massachusetts Institute of Technology, unpublished Ph.D. dissertation, 262 p.

#### NEW WATER DISTRICT

Sherrod, D.R., Smith, D.B., Koch, R.D., Hanna, W.F., Pitkin, J.A., and Lane, M.E., 1989, Mineral resources of the New Water Mountains Wilderness Study Area, La Paz County, Arizona: U.S. Geological Survey Bulletin 1702-B, 18 p.

#### PLANET DISTRICT

Kreidler, T.J., 1989, Mineral investigation of a part of the Planet Peak Wilderness Study Area (AZ-050-013), La Paz County, Arizona: U.S. Bureau of Mines Mineral Land Assessment Open-File Report 9-89, 78 p., scale 1:48,000.

Lehman, N.E., and Spencer, J.E., 1989, Mineralization in the central part of the Planet mineral district, northwestern Buckskin Mountains, in Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 215-222.

Reynolds, S.J., and Spencer, J.E., 1989, Pre-Tertiary rocks and structures in the upper plate of the Buckskin detachment fault, west-central Arizona, in Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 67-102.

## PRIDE DISTRICT

Kreidler, T.J., 1989, Mineral investigation of a part of the Planet Peak Wilderness Study Area (AZ-050-013), La Paz County, Arizona: U.S. Bureau of Mines Mineral Land Assessment Open-File Report 9-89, 78 p., scale 1:48,000.

## SOUTHERN PLOMOSA DISTRICT

Davis, G.M., 1985, Geology of the southern Plomosa Mountains: Tempe, Arizona State University, unpublished M.S. thesis, 158 p.

## SWANSEA DISTRICT

Halfkenny, R.D., Jr., Kerrich, Robert, and Rehrig, W.A., 1989, Fluid regimes and geochemical mass transport in the development of mylonites and chloritic breccias at Copper Penny, Buckskin Mountains in Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 190-202.

Kerrich, Robert, Rehrig, W.A., and McLarty, Elisabeth, 1989, Volcanic rocks in the suprastructure of metamorphic core complexes, southwest Arizona: Geochemical and isotopic evidence for primary magma types and secondary hydrothermal regimes, in Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 203-214.

Lucchitta, Ivo, and Suneson, Neil, 1988, Geologic map of the Planet 2 SW quadrangle, Mohave [and La Paz] County, Arizona: U.S. Geological Survey Open-File Report 88-547, scale 1:24,000.

Reynolds, S.J., and Spencer, J.E., 1989, Pre-Tertiary rocks and structures in the upper plate of the Buckskin detachment fault, west-central Arizona, in Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 67-102.

## TRIGO MOUNTAINS DISTRICT

Bullock, J.H., Jr., Vaughn, R.B., Smith, D.B., Welsch, E., and Fey, D.L., 1989, Analytical results and sample locality map of stream-sediment, heavy-mineral-concentrate, and rock samples from the Trigo Mountains Wilderness Study Area (AZ-050-023B), La Paz County, Arizona: U.S. Geological Survey Open-File Report 89-472, 24 p., scale 1:50,000.

## MARICOPA COUNTY

### GENERAL COUNTY REFERENCE

Ashwill, W.R., and Magleby, D.N., 1958, Compilation of radioactive occurrences, Maricopa and Pinal Counties, Arizona: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2078, 41 p.

### AGUILA DISTRICT

Harder, J.O., and Wyant, D.G., 1944, Preliminary report on a trace element reconnaissance in western states: U.S. Geological Survey Raw Materials Operations Report RMO-15, 48 p. (Open-filed by U.S. Atomic Energy Commission).

### CAVE CREEK DISTRICT

Doorn, P.L., 1989, Geologic and gravimetric investigations of the Carefree Basin, Maricopa County, Arizona: Tempe, Arizona State University, unpublished M.S. thesis, 307 p.

### DUSHEY CANYON DISTRICT

Richard, S.M., 1989, Bedrock geology of the Harquahala Mountains, west-central Arizona: Mesozoic shear zones, cooling and Tertiary unroofing: Santa Barbara, University of California, unpublished Ph.D. dissertation, 277 p.

### OSBORNE DISTRICT

Allen, G.B., and Hunt, William, 1988, The Tonopah-Belmont mine, Maricopa County, Arizona: The Mineralogical Record, v. 19, p. 139-144.

### PAINTED ROCK DISTRICT

Peterson, J.A., Hassemer, J.R., Knepper, D.H., Jr., Pitkin, J.A., Hanna, W.F., and McDonnell, J.R., Jr., 1989, Mineral resources of the Woolsey Peak Wilderness Study Area, Maricopa County, Arizona: U.S. Geological Survey Bulletin 1702-F, 16 p.

### VULTURE DISTRICT

Harder, J.O., and Wyant, D.G., 1944, Preliminary report on a trace element reconnaissance in western states: U.S. Geological Survey Raw Materials Operations Report RMO-15, 48 p. (Open-filed by U.S. Atomic Energy Commission).

Hassenohr, E.J., and Dummett, H.T., 1989, Geology and fluid inclusion analysis of the Newsboy deposit, Maricopa County, Arizona [abs.]: Geological Society of America Abstracts with Programs, v. 21, p. A295.

Spencer, J.E., Reynolds, S.J., Grubensky, M.J., Duncan, J.T., and White, D.C., 1989, Geology of the Vulture gold mine: Arizona Geology, v. 19, no. 4, p. 1-4.

White, D.C., 1989, Geology of the Vulture mine: Mining Engineering, v. 41, p. 1119-1122.

**WEBB DISTRICT**

Peterson, J.A., Hassemer, J.R., Knepper, D.H., Jr., Pitkin, J.A., Hanna, W.F., and McDonnell, J.R., Jr., 1989, Mineral resources of the Woolsey Peak Wilderness Study Area, Maricopa County, Arizona: U.S. Geological Survey Bulletin 1702-F, 16 p.

## MOHAVE COUNTY

### GENERAL COUNTY REFERENCES

- Blank, H.R., and Kucks, R.P., 1989, Preliminary aeromagnetic, gravity, and generalized geologic maps of the USGS Basin and Range-Colorado Plateau transition zone study area in southwestern Utah, southeastern Nevada, and northwestern Arizona (the "BARCO" project): U.S. Geological Survey Open-File Report 89-432, 16 p., scale 1:250,000, 3 sheets.
- Hart, O.M., 1955, Uranium investigations in Mohave County, Arizona: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2029, 18 p.
- Larkin, S.P., McCarthy, Jill, and Fuis, G.S., 1988, Data report for the PACE 1987 seismic refraction survey, west-central Arizona: U.S. Geological Survey Open-File Report 88-694, 95 p.
- Mariano, John, and Grauch, V.J.S., 1988, Aeromagnetic maps of the Colorado River region including the Kingman, Needles, Salton Sea, and El Centro 1<sup>0</sup> by 2<sup>0</sup> quadrangles, California, Arizona, and Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-2023, scale 1:250,000.

### ARTILLERY DISTRICT

- Gray, Floyd, Miller, R.J., Pitkin, J.A., Bagby, W.C., Hassemer, J.R., McCarthy, J.H., Hanna, W.F., Callas, M.L.C., and Lane, M.E., 1989, Mineral resources of the Arrastra Mountain/Peoples Canyon Wilderness Study Area, La Paz, Mohave, and Yavapai Counties, Arizona: U.S. Geological Survey Bulletin, 1701-E, 28 p.
- Koski, R.A., Bouse, R.M., Hein, J.R., and DeRosa, M.L., 1988, Composition and geologic setting of stratiform manganese deposits in the southern Basin and Range Province, Arizona and Nevada, [abs.], in Schindler, K.S., ed., USGS research on mineral resources -- 1989; Fifth annual V.E. McKelvey forum on mineral and energy resources: U.S. Geological Survey Circular 1035, p. 41-42.
- Spencer, J.E., GRubensky, M.J., Duncan, J.T., Shenk, J.D., Yarnold, J.C., and Lombard, J.P., 1989, Geology and mineral deposits of the central Artillery Mountains, in Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 168-183.

### ARTILLERY PEAK DISTRICT

- Gray, Floyd, Miller, R.J., Pitkin, J.A., Bagby, W.C., Hassemer, J.R., McCarthy, J.H., Hanna, W.F., Callas, M.L.C., and Lane, M.E., 1989, Mineral resources of the Arrastra Mountain/Peoples Canyon Wilderness Study Area, La Paz, Mohave, and Yavapai Counties, Arizona: U.S. Geological Survey Bulletin, 1701-E, 28 p.

### BENTLEY DISTRICT

- Meehan, R.J., and Lovejoy, E.M.P., 1954, Airborne reconnaissance survey of northwestern Arizona (Arizona Strip) and southwestern Utah: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2017,

26 p.

#### BLACK BURRO DISTRICT

- Shackelford, T.J., 1989, Structural geology of the Rawhide Mountains, Mohave County, Arizona, in Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 15-46.
- Spencer, J.E., and Reynolds, S.J., ed., 1989, Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, 280 p., scale 1:24,000, 1:42,850, and 1:100,00, 3 sheets.
- Spencer, J.E., and Welty, J.W., 1989, Geology of mineral deposits in the Buckskin and Rawhide Mountains, in Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 223-254.

#### BORIANA DISTRICT

- Chatman, M.L., 1988, Mineral resources of the Wabayuma Peak Wilderness Study Area (AZ-020-037/043), Mohave County, Arizona: U.S. Bureau of Mines Mineral Land Assessment Report 5-88, 63 p.

#### CHAPEL DISTRICT

- Chenoweth, W.L., 1988, The production history and geology of the Hacks, Ridenour, Riverview and Chapel breccia pipes, northwestern Arizona: U.S. Geological Survey Open-File Report 88-648, 60 p.
- Meehan, R.J., and Lovejoy, E.M.P., 1954, Airborne reconnaissance survey of northwestern Arizona (Arizona Strip) and southwestern Utah: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2017, 26 p.

#### CLEOPATRA DISTRICT

- Shackelford, T.J., 1989, Structural geology of the Rawhide Mountains, Mohave County, Arizona, in Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 15-46.
- Spencer, J.E., and Reynolds, S.J., ed., 1989, Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, 280 p., scale 1:24,000, 1:42,850, and 1:100,00, 3 sheets.
- Spencer, J.E., and Welty, J.W., 1989, Geology of mineral deposits in the Buckskin and Rawhide Mountains, in Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 223-254.
- Tuftin, S.E., 1989, Mineral resources of a part of the Rawhide Mountains Wilderness Study Area (AZ-020-058A), La Paz and Mohave Counties, Arizona: U.S. Bureau of Mines Mineral Land Assessment Open-File

Report 13-89, 50 p.

#### COPPER MOUNTAIN DISTRICT

Meehan, R.J., and Lovejoy, E.M.P., 1954, Airborne reconnaissance survey of northwestern Arizona (Arizona Strip) and southwestern Utah: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2017, 26 p.

#### HACKS CANYON DISTRICT

Chenoweth, W.L., 1988, The production history and geology of the Hacks, Ridenour, Riverview and Chapel breccia pipes, northwestern Arizona: U.S. Geological Survey Open-File Report 88-648, 60 p.

Hoffman, M.E., 1977, Origin and mineralization of breccia pipes, Grand Canyon district, Arizona: Laramie, University of Wyoming, unpublished M.S. thesis, 51 p.

Meehan, R.J., and Lovejoy, E.M.P., 1954, Airborne reconnaissance survey of northwestern Arizona (Arizona Strip) and southwestern Utah: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2017, 26 p.

#### HUALAPAI DISTRICT

Chatman, M.L., 1988, Mineral resources of the Wabayuma Peak Wilderness Study Area (AZ-020-037/043), Mohave County, Arizona: U.S. Bureau of Mines Mineral Land Assessment Report 5-88, 63 p.

#### LEAD PILL DISTRICT

Spencer, J.E., and Reynolds, S.J., ed., 1989, Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, 280 p., scale 1:24,000, 1:42,850, and 1:100,00, 3 sheets.

Spencer, J.E., and Welty, J.W., 1989, Geology of mineral deposits in the Buckskin and Rawhide Mountains, in Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 223-254.

#### MADRIL PEAK DISTRICT

Gray, Floyd, Miller, R.J., Pitkin, J.A., Bagby, W.C., Hassemer, J.R., McCarthy, J.H., Hanna, W.F., Callas, M.L.C., and Lane, M.E., 1989, Mineral resources of the Arrastra Mountain/Peoples Canyon Wilderness Study Area, La Paz, Mohave, and Yavapai Counties, Arizona: U.S. Geological Survey Bulletin, 1701-E, 28 p.

## MESA DISTRICT

- Ryan, G.S., 1989, Mineral investigation of a part of the Swansea Wilderness Study Area (AZ-050-015A), La Paz and Mohave Counties, Arizona: U.S. Bureau of Mines Mineral Land Assessment Open-File Report 12-89, 19 p.
- Shackelford, T.J., 1989, Structural geology of the Rawhide Mountains, Mohave County, Arizona, *in* Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 15-46.
- Spencer, J.E., and Reynolds, S.J., ed., 1989, Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, 280 p., scale 1:24,000, 1:42,850, and 1:100,000, 3 sheets.
- Spencer, J.E., and Welty, J.W., 1989, Geology of mineral deposits in the Buckskin and Rawhide Mountains, *in* Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 223-254.

## MINNESOTA DISTRICT

- Adrian, B.M., Hassemer, J.R., Eppinger, R.G., and Tippitt, F.W., 1989, Analytical results and sample locality map of stream-sediment, heavy-mineral-concentrate, and rock samples from in and around the Mount Wilson Wilderness Study Area, Mohave County, Arizona: U.S. Geological Survey Open-File Report 89-23, 31 p.

## OATMAN DISTRICT

- Heald, Pamela, Foley, N.K., and Hayba, D.O., 1987, Comparative anatomy of volcanic-hosted epithermal deposits; acid sulphate and adularia-sericitic types: *Economic Geology*, v. 82, p.1-26.

## OWENS DISTRICT

- Ryan, G.S., 1989, Mineral investigation of a part of the Swansea Wilderness Study Area (AZ-050-015A), La Paz and Mohave Counties, Arizona: U.S. Bureau of Mines Mineral Land Assessment Open-File Report 12-89, 19 p.
- Shackelford, T.J., 1989, Structural geology of the Rawhide Mountains, Mohave County, Arizona, *in* Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 15-46.
- Spencer, J.E., and Reynolds, S.J., ed., 1989, Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, 280 p., scale 1:24,000, 1:42,850, and 1:100,000, 3 sheets.
- Spencer, J.E., and Welty, J.W., 1989, Geology of mineral deposits in the Buckskin and Rawhide Mountains, *in* Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 223-254.

#### PILGRIM DISTRICT

Neubert, J.T., 1989, Mineral resources of the Black Mountains North (AZ-020-009) and Burns Spring (AZ-020-010) Wilderness Study Area, Mohave County, Arizona: U.S. Bureau of Mines Mineral Land Assessment Open-File Report 1-89, 78 p., scale 1:62,500.

#### RAWHIDE DISTRICT

Shackelford, T.J., 1989, Structural geology of the Rawhide Mountains, Mohave County, Arizona, *in* Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 15-46.

Spencer, J.E., and Reynolds, S.J., ed., 1989, Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, 280 p., scale 1:24,000, 1:42,850, and 1:100,00, 3 sheets.

Spencer, J.E., and Welty, J.W., 1989, Geology of mineral deposits in the Buckskin and Rawhide Mountains, *in* Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 223-254.

#### TRIPLE H DISTRICT

McDonnell, J.R., Jr., 1989, Mineral resources of the Mohave Wash Wilderness Study Area (AZ-050-077c/-48/020-052), Mohave County, Arizona: U.S. Bureau of Mines Mineral Land Assessment Open-File Report 2-89, 40 p.

Sherrod, D.R., 1988, Preliminary geologic map of the Monkeys Head quadrangle, Mohave and La Paz Counties, Arizona: U.S. Geological Survey Open-File Report 88-597, 7 p., scale 1:24,000.

#### UNION PASS DISTRICT

Neubert, J.T., 1989, Mineral resources of the Black Mountains North (AZ-020-009) and Burns Spring (AZ-020-010) Wilderness Study Area, Mohave County, Arizona: U.S. Bureau of Mines Mineral Land Assessment Open-File Report 1-89, 78 p., scale 1:62,500.

#### VIRGINIA DISTRICT

Neubert, J.T., 1989, Mineral resources of the Black Mountains North (AZ-020-009) and Burns Spring (AZ-020-010) Wilderness Study Area, Mohave County, Arizona: U.S. Bureau of Mines Mineral Land Assessment Open-File Report 1-89, 78 p., scale 1:62,500.

#### WALLAPAI DISTRICT

Eaton, L.G., 1980, Geology of the Chloride mining district, Mohave County, Arizona: Socorro, New Mexico Inst. Mining Technology, unpublished M.S. thesis, 133 p.

- Lang, J.R., and Eastoe, C.J., 1988, Relationships between a porphyry Cu-Mo deposit, base and precious metal veins, and Laramide intrusions, Mineral Park, Arizona: *Economic Geology*, v. 83, p. 551-567.
- Lang, J.R., Guan, Yin, and Eastoe, C.J., 1989, Stable isotope studies of sulfates and sulfides in the Mineral Park porphyry Cu-Mo system, Arizona: *Economic Geology*, v. 84, p. 650-662.

#### WILLOW BEACH DISTRICT

- Adrian, B.M., Hassemer, J.R., Eppinger, R.G., and Tippitt, F.W., 1989, Analytical results and sample locality map of stream-sediment, heavy-mineral-concentrate, and rock samples from in and around the Mount Wilson Wilderness Study Area, Mohave County, Arizona: U.S. Geological Survey Open-File Report 89-23, 31 p.

### NAVAJO COUNTY

#### MONUMENT VALLEY DISTRICT

- Ciesiel, Robert, and Gray, I.B., 1989, Geologic map of the underground workings of the Harve Black No. 2 mine, Navajo County, Arizona, with a text by W.L. Chenoweth: Arizona Geological Survey Contributed Report CR-89-E, 7 p., scale 1:120.

## PIMA COUNTY

### GENERAL COUNTY REFERENCES

- Aiken, C.L.V., and Sumner, J.S., 1973, Geophysical investigations in southeastern Arizona valleys: Laboratory of Geophysics, Department of Geosciences, University of Arizona, unpublished manuscript, 60 p., scale 1:500,000.
- Barton, Harlan, and Theobald, P.K., 1988, Regional geochemical studies of the Ajo and Lukeville 1<sup>0</sup> x 2<sup>0</sup> quadrangles, Arizona, [abs.], in Schindler, K.S., ed., USGS research on mineral resources -- 1989; Fifth annual V.E. McKelvey forum on mineral and energy resources: U.S. Geological Survey Circular 1035, p. 2-4.
- Gray, Floyd, Miller, R.J., Grubensky, M.J., Tosdal, R.M., Haxel, G.B., Peterson, D.W., May, D.J., and Silver, L.T., 1987, Geologic map of the Ajo and Lukeville 1<sup>0</sup> x 2<sup>0</sup> quadrangles, southwest Arizona: U.S. Geological Survey Open-File Report 87-347, 23 p., scale 1:250,000.
- Hill, J.M., 1944, Report on reconnaissance survey for S-37 in nine mountain ranges in the vicinity of Tucson, Arizona: U.S. Atomic Energy Commission Raw Materials Operations Report RMO-27, 5 p.
- Magleby, D.N., 1956, Airborne radiometric surveys of the Mogollon Rim and Mazatzal Wilderness areas, Gila, Yavapai, and Pinal Counties, Arizona: U.S. Atomic Energy Commission Technical Memorandum TM-294, 5 p.

### AJO DISTRICT

- Cox, D.P., 1988, Geochemistry of Laramide and Middle Tertiary plutons in the Ajo mining district, Pima County, Arizona: U.S. Geological Survey Open-File Report 88-672, 13 p.

### AMOLE DISTRICT

- Lipman, P.W., 1989, Field guide to the Cretaceous Tucson Mountain caldera, Arizona: Anatomy of an asymmetrical trap-door subsidence structure: Arizona Geological Society Spring Filed Trip Guidebook, 1989, 23 p.
- Sawyer, D.A., and Nowlan, G.A., 1988, Hypogene remobilization origin of mid-Tertiary Au-base metal deposits in southern Arizona: Geological Society of America Abstracts with Programs, v. 20, no. 7, p. A276.

### BLUE ROCK DISTRICT

- Miller, R.A., 1958, Reconnaissance geology of the Blue Rock area, Pima-Cochise Counties, Arizona: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2077, 20 p.
- Puttuck, H.E., 1954, Preliminary report of the Blue Rock claims, Pima County, Arizona: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2075(rev), 5 p.

## MILDRED PEAK DISTRICT

Miller, R.A., 1956, The occurrence of uranium in the Diamond Head group, Sierrita Mountains, Pima County, Arizona: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2076, 12 p.

## PAPAGO DISTRICT

Wells, R.L., and Puttuck, H.E., 1954, Geology of the Black Dyke prospect, Sierrita Mountains, Pima County, Arizona: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2019, 13 p.

## PIMA DISTRICT

Anthony, E.Y., and Titley, S.R., 1988, Trace-element (including REE) mobility during hydrothermal alteration of the Sierrita porphyry copper deposit, Arizona: Geological Society of America Abstracts with Programs, v. 20, no. 7, p. A94.

Lang, J.R., Ruiz, Joaquin, and Titley, S.R., 1989, Comparative trace element geochemistry of Cu/Mo-productive and non-productive igneous systems of Laramide age, Arizona [abs.]: Geological Society of America Abstracts with Programs, v. 21, p. A151.

Slaughter, A.L., and Clabaugh, S.E., 1945, Preliminary report on a trace elements reconnaissance in central and southwestern states: U.S. Geological Survey Trace Elements Investigations Report TEI-9, 83 p.

Titley, S.R., Anzalone, S.A., and Anthony, E.Y., 1989, Porphyry copper deposits in the American Southwest: International Geological Congress, 28th, Washington, D.C., 1989, Field Trip Guidebook T338: Washington, D.C., American Geophysical Union, 26 p.

## SILVER BELL DISTRICT

Eastoe, C.J., Guilbert, J.M., and Kaufmann, R.S., 1988, Preliminary evidence for fractionation of stable chlorine isotopes in Mississippi Valley-type and porphyry copper hydrothermal systems: Geological Society of America Abstracts with Programs, v. 20, no. 7, p. A97.

\_\_\_\_\_ 1989, Preliminary evidence for fractionation of stable chlorine isotopes in ore-forming hydrothermal systems: *Geology*, v. 17, p. 285-288.

Filipek, L.H., and Theobald, P.K., Jr., 1981, Sequential extraction techniques applied to a porphyry copper deposit in the Basin and Range Province: *Journal of Geochemical Exploration*, v. 14, no. 2-3, p. 155-174.

Titley, S.R., Anzalone, S.A., and Anthony, E.Y., 1989, Porphyry copper deposits in the American Southwest: International Geological Congress, 28th, Washington, D.C., 1989, Field Trip Guidebook T338: Washington, D.C., American Geophysical Union, 26 p.

## PINAL COUNTY

### GENERAL COUNTY REFERENCE

Ashwill, W.R., and Magleby, D.N., 1958, Compilation of radioactive occurrences, Maricopa and Pinal Counties, Arizona: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2078, 41 p.

### BUNKER HILL DISTRICT

Slaughter, A.L., and Clabaugh, S.E., 1945, Preliminary report on a trace elements reconnaissance in central and southwestern states: U.S. Geological Survey Trace Elements Investigations Report TEI-9, 83 p.

### COPPER BUTTE DISTRICT

Scott, D.C., and McDonnell, J.R., Jr., 1989, Mineral investigation of the White Canyon study area (AZ-2-187), Pinal County, Arizona: U.S. Bureau of Mines Mineral Land Assessment Open-File Report MLA-23-89, 21 p.

### FRANCISCO GRANDE DISTRICT

Dahl, L.J., 1989, Joint orientations determined using oriented and unoriented drill core and a side-viewing borehole color video system [abs.]: Geological Society of America Abstracts with Programs, v. 21, p. A249.

Earley, Drummond, III, 1989, Copper bearing biotite from the Santa Cruz supergene porphyry copper deposit, Pinal County, Arizona [abs.]: Geological Society of America Abstracts with Programs, v. 21, p. A249.

### LAKESHORE DISTRICT

Ristich, A.M., and Huyck, H.L.O., 1989, Chloritization of biotite associated with porphyry copper systems [abs.]: Geological Society of America Abstracts with Programs, v. 21, p. A44.

### MAMMOTH DISTRICT

Harder, J.O., and Wyant, D.G., 1944, Preliminary report on a trace element reconnaissance in western states: U.S. Geological Survey Raw Materials Operations Report RMO-15, 48 p. (Open-filed by U.S. Atomic Energy Commission).

### MINERAL CREEK DISTRICT

Lang, J.R., Ruiz, Joaquin, and Titley, S.R., 1989, Comparative trace element geochemistry of Cu/Mo-productive and non-productive igneous systems of Laramide age, Arizona [abs.]: Geological Society of America Abstracts with Programs, v. 21, p. A151.

Titley, S.R., Anzalone, S.A., and Anthony, E.Y., 1989, Porphyry copper deposits in the American Southwest: International Geological Congress, 28th, Washington, D.C., 1989, Field Trip Guidebook T338: Washington,

D.C., American Geophysical Union, 26 p.

#### PICACHO DISTRICT

Kerrick, Robert, Rehrig, W.A., and McLarty, Elisabeth, 1989, Volcanic rocks in the suprastructure of metamorphic core complexes, southwest Arizona: Geochemical and isotopic evidence for primary magma types and secondary hydrothermal regimes, in Spencer, J.E., and Reynolds, S.J., ed., Geology and mineral resources of the Buckskin and Rawhide Mountains, west-central Arizona: Arizona Geological Survey Bulletin 198, p. 203-214.

#### PIONEER-ALABAMA DISTRICT

Scott, D.C., and McDonnell, J.R., Jr., 1989, Mineral investigation of the White Canyon study area (AZ-2-187), Pinal County, Arizona: U.S. Bureau of Mines Mineral Land Assessment Open-File Report MLA-23-89, 21 p.

#### SAN MANUEL DISTRICT

Guilbert, J.M., and Schafer, R.W., 1979, Preliminary geochemical characterization of muscovites in porphyry base-metal alteration assemblages, in Ridge, J.D., ed., Papers on mineral deposits of western North America: Nevada Bureau of Mines and Geology Report 33, p. 57-68.

## SANTA CRUZ COUNTY

### GENERAL COUNTY REFERENCE

Hill, J.M., 1944, Report on reconnaissance survey for S-37 in nine mountain ranges in the vicinity of Tucson, Arizona: U.S. Atomic Energy Commission Raw Materials Operations Report RMO-27, 5 p.

### HARSHAW DISTRICT

Chaffee, M.A., 1987, Chemical zoning of mineral deposits as an exploration technique -- the Red Mountain, Arizona, porphyry copper system [abs.], in Sachs, J.S., ed., USGS research on mineral resources --1987, Program and Abstracts; Third annual V.E. McKelvey forum on mineral and energy resources: U.S. Geological Survey Circular 995, p. 10-11.

Guilbert, J.M., and Schafer, R.W., 1979, Preliminary geochemical characterization of muscovites in porphyry base-metal alteration assemblages, in Ridge, J.D., ed., Papers on mineral deposits of western North America: Nevada Bureau of Mines and Geology Report 33, p. 57-68.

Titely, S.R., Anzalone, S.A., and Anthony, E.Y., 1989, Porphyry copper deposits in the American Southwest: International Geological Congress, 28th, Washington, D.C., 1989, Field Trip Guidebook T338: Washington, D.C., American Geophysical Union, 26 p.

### ORO BLANCO DISTRICT

Webb, B.P., and Coryell, K.C., 1954, Preliminary regional mapping in the Ruby quadrangle, Arizona: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2009, 13 p.

Wright, R.J., 1951a, Annie Laurie prospect, Santa Cruz County, Arizona: U.S. Atomic Energy Commission Raw Materials Operations Report RMO-589, 8 p.

\_\_\_\_\_ 1951b, Annie Laurie prospect, Santa Cruz County, Arizona: U.S. Atomic Energy Commission Raw Materials Operations Report RMO-677, 8 p.

## YAVAPAI COUNTY

### GENERAL COUNTY REFERENCE

Lease, L.W., 1981, Summary geologic report on drilling in western Prescott and Williams quadrangles, Mohave, Yavapai, and Yuma [La Paz] Counties, Arizona: U.S. Department of Energy Open-File Report GJBX-293(81), 36 p.

### DATE CREEK DISTRICT

Davis, D.L., and Sharp, B.J., 1957, Uranium west of the Colorado Plateau, in Advances in nuclear engineering: New York, Pergamon Press, v. 2, p. 324-331.

Gray, Floyd, Miller, R.J., Pitkin, J.A., Bagby, W.C., Hassemer, J.R., McCarthy, J.H., Hanna, W.F., Callas, M.L.C., and Lane, M.E., 1989, Mineral resources of the Arrastra Mountain/Peoples Canyon Wilderness Study Area, La Paz, Mohave, and Yavapai Counties, Arizona: U.S. Geological Survey Bulletin, 1701-E, 28 p.

### EUREKA DISTRICT

Harder, J.O., and Wyant, D.G., 1944, Preliminary report on a trace element reconnaissance in western states: U.S. Geological Survey Raw Materials Operations Report RMO-15, 48 p. (Open-filed by U.S. Atomic Energy Commission).

Lang, J.R., Ruiz, Joaquin, and Titley, S.R., 1989, Comparative trace element geochemistry of Cu/Mo-productive and non-productive igneous systems of Laramide age, Arizona [abs.]: Geological Society of America Abstracts with Programs, v. 21, p. A151.

Slaughter, A.L., and Clabaugh, S.E., 1945, Preliminary report on a trace elements reconnaissance in central and southwestern states: U.S. Geological Survey Trace Elements Investigations Report TEI-9, 83 p.

## YUMA COUNTY

### GENERAL COUNTY REFERENCES

- Barton, Harlan, and Theobald, P.K., 1988, Regional geochemical studies of the Ajo and Lukeville 1<sup>0</sup> x 2<sup>0</sup> quadrangles, Arizona, [abs.], in Schindler, K.S., ed., USGS research on mineral resources -- 1989; Fifth annual V.E. McKelvey forum on mineral and energy resources: U.S. Geological Survey Circular 1035, p. 2-4.
- Gray, Floyd, Miller, R.J., Grubensky, M.J., Tosdal, R.M., Haxel, G.B., Peterson, D.W., May, D.J., and Silver, L.T., 1987, Geologic map of the Ajo and Lukeville 1<sup>0</sup> x 2<sup>0</sup> quadrangles, southwest Arizona: U.S. Geological Survey Open-File Report 87-347, 23 p., scale 1:250,000.
- Mariano, John, and Grauch, V.J.S., 1988, Aeromagnetic maps of the Colorado River region including the Kingman, Needles, Salton Sea, and El Centro 1<sup>0</sup> by 2<sup>0</sup> quadrangles, California, Arizona, and Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-2023, scale 1:250,000.
- Peterson, A.M., 1956, Summary of the airborne radiometric survey of the southern California project, southeastern California and southwestern Arizona: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2080, 10 p.

### MUGGINS DISTRICT

- Reyner, M.L., and Ashwill, W.R., 1955, Preliminary report on uranium occurrences on the Yuma Test Station, Yuma County, Arizona: U.S. Atomic Energy Commission Raw Materials Exploration Report RME-2037, 17 p.
- \_\_\_\_\_, 1958, Reconnaissance geology of the southern Muggins Mountains, Yuma County, Arizona: U.S. Atomic Energy Commission Technical Memorandum TM-277, 5 p.