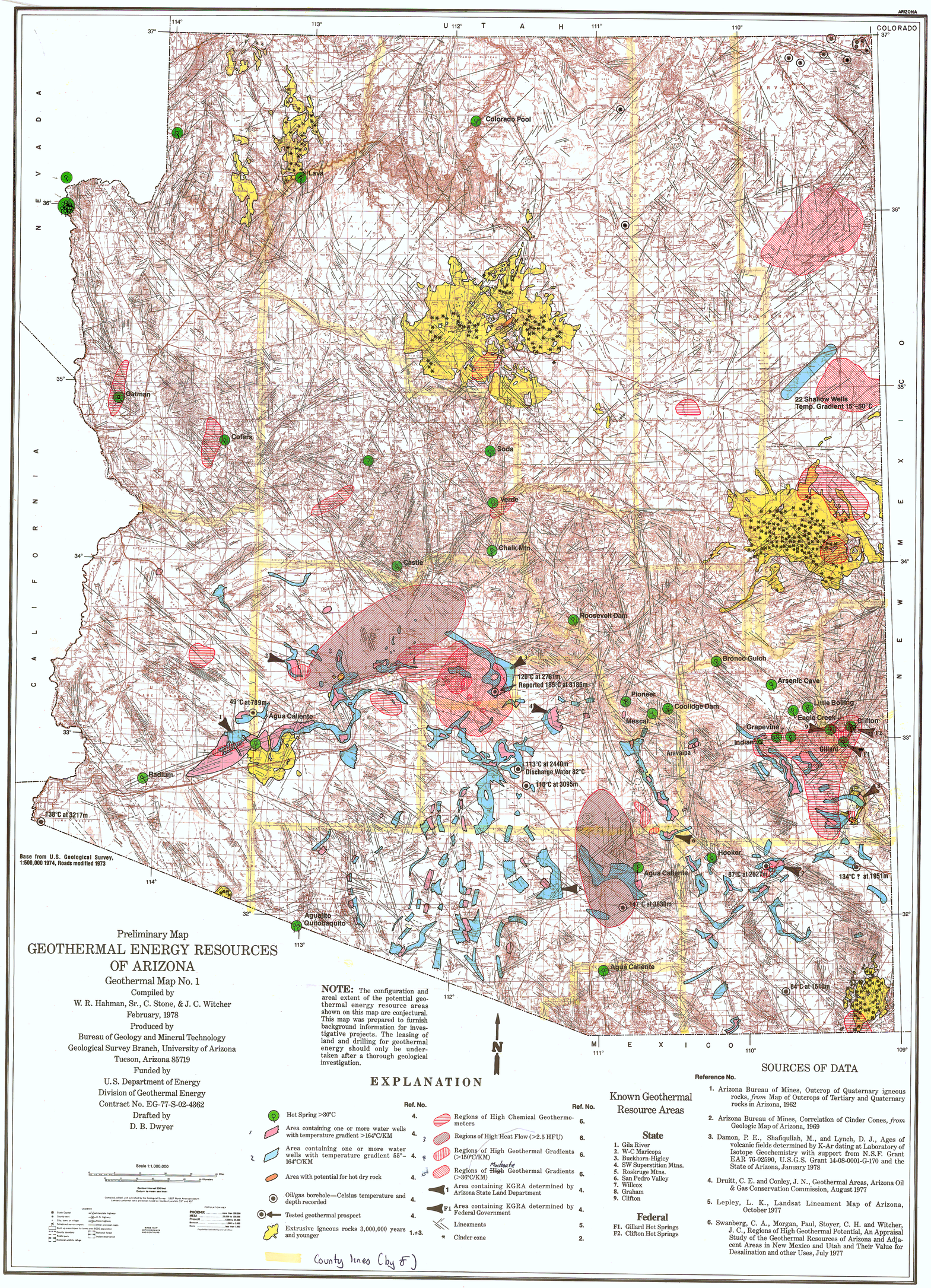

Preliminary Map

GEOTHERMAL ENERGY RESOURCES OF ARIZONA

Geothermal Map No. 1

Compiled by
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February, 1978
Produced by
Bureau of Geology and Mineral Technology
Geological Survey Branch, University of Arizona
Tucson, Arizona 85719

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Drafted by
D. B. Dwyer

Scale 1:1,000,000

Miles 0 10 20 30 40 50
Kilometers 0 10 20 30 40 50 60 70 80

Contour interval 500 feet
Datum is mean sea level

Compiled, edited, and published by the Geological Survey. 1927 North American datum
Lambert conformal conic projection based on standard parallels 33° and 45°

LEGEND

- State Capital
- County seat
- City, town, or village
- Interstate highway
- U.S. highway
- State highway
- Scheduled service airport
- Other principal roads
- Ferry on area shown for towns over 5000 population
- County boundary
- Public park
- National wildlife refuge
- National forest
- Indian reservation

BASE MAP WITH HIGHWAYS AND CONTOURS

POPULATION KEY

	more than
PHOENIX	100,000
MESA	25,000 to 100,000
Prescott	5,000 to 25,000
Prescott	1,000 to 5,000
Bowie	100 to 1,000

Population indicated by size of letters

NOTE: The configuration and areal extent of the potential geothermal energy resource areas shown on this map are conjectural. This map was prepared to furnish background information for investigative projects. The leasing of land and drilling for geothermal energy should only be undertaken after a thorough geological investigation.

EXPLANATION

	Ref. No.
Hot Spring >30°C	4.
Area containing one or more water wells with temperature gradient >164°C/KM	4.
Area containing one or more water wells with temperature gradient 55°–164°C/KM	4.
Area with potential for hot dry rock	4.
Oil/gas borehole—Celsius temperature and depth recorded	4.
Tested geothermal prospect	4.
Extrusive igneous rocks 3,000,000 years and younger	1.+3.
Regions of High Chemical Geothermometers	6.
Regions of High Heat Flow (>2.5 HFU)	6.
Regions of High Geothermal Gradients (>150°C/KM)	6.
Regions of ~~High~~ Moderate Geothermal Gradients (>36°C/KM)	6.
Area containing KGRA determined by Arizona State Land Department	4.
Area containing KGRA determined by Federal Government	4.
Lineaments	5.
Cinder cone	2.

County lines (by F)

Known Geothermal Resource Areas

State

1. Gila River
2. W-C Maricopa
3. Buckhorn-Higley
4. SW Superstition Mtns.
5. Roskruge Mtns.
6. San Pedro Valley
7. Willcox
8. Graham
9. Clifton

Federal

F1. Gillard Hot Springs
F2. Clifton Hot Springs

SOURCES OF DATA

Reference No.

1. Arizona Bureau of Mines, Outcrop of Quaternary igneous rocks, *from* Map of Outcrops of Tertiary and Quaternary rocks in Arizona, 1962
2. Arizona Bureau of Mines, Correlation of Cinder Cones, *from* Geologic Map of Arizona, 1969
3. Damon, P. E., Shafiqullah, M., and Lynch, D. J., Ages of volcanic fields determined by K-Ar dating at Laboratory of Isotope Geochemistry with support from N.S.F. Grant EAR 76-02590, U.S.G.S. Grant 14-08-0001-G-170 and the State of Arizona, January 1978
4. Druitt, C. E. and Conley, J. N., Geothermal Areas, Arizona Oil & Gas Conservation Commission, August 1977
5. Lepley, L. K., Landsat Lineament Map of Arizona, October 1977
6. Swanberg, C. A., Morgan, Paul, Stoyer, C. H. and Witcher, J. C., Regions of High Geothermal Potential, An Appraisal Study of the Geothermal Resources of Arizona and Adjacent Areas in New Mexico and Utah and Their Value for Desalination and other Uses, July 1977