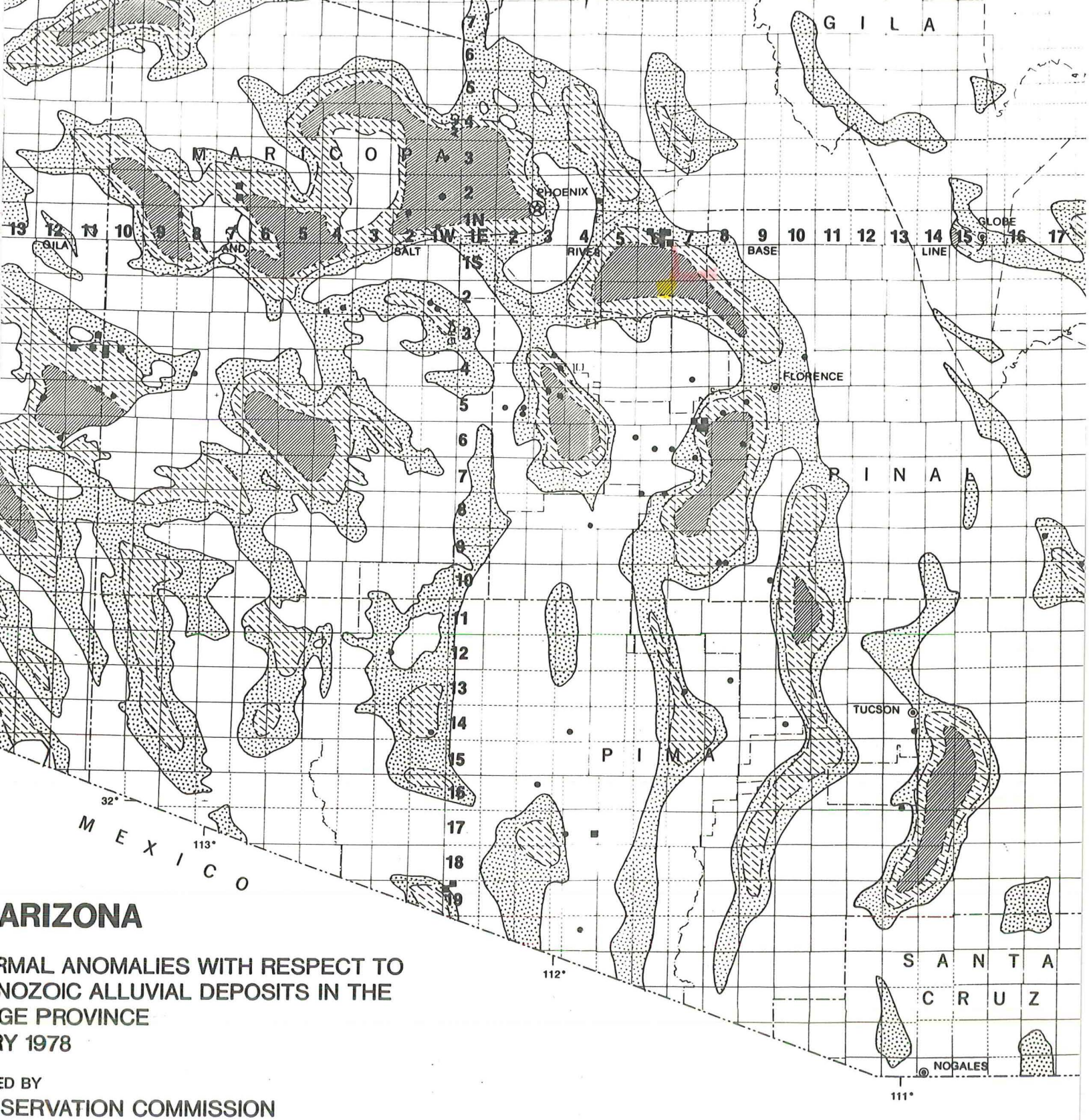


ARIZONA

RMAL ANOMALIES WITH RESPECT TO NOZOIC ALLUVIAL DEPOSITS IN THE GE PROVINCE RY 1978

ED BY
SERVATION COMMISSION

E
20 30 40 MILES

EXPLANATION

Geothermal anomalies — gradients ≥ 60° C/km

- Multi-well control within a minimum radius of 2½ miles
- Single well control

Key to thickness patterns *(from Cooley, 1967)*

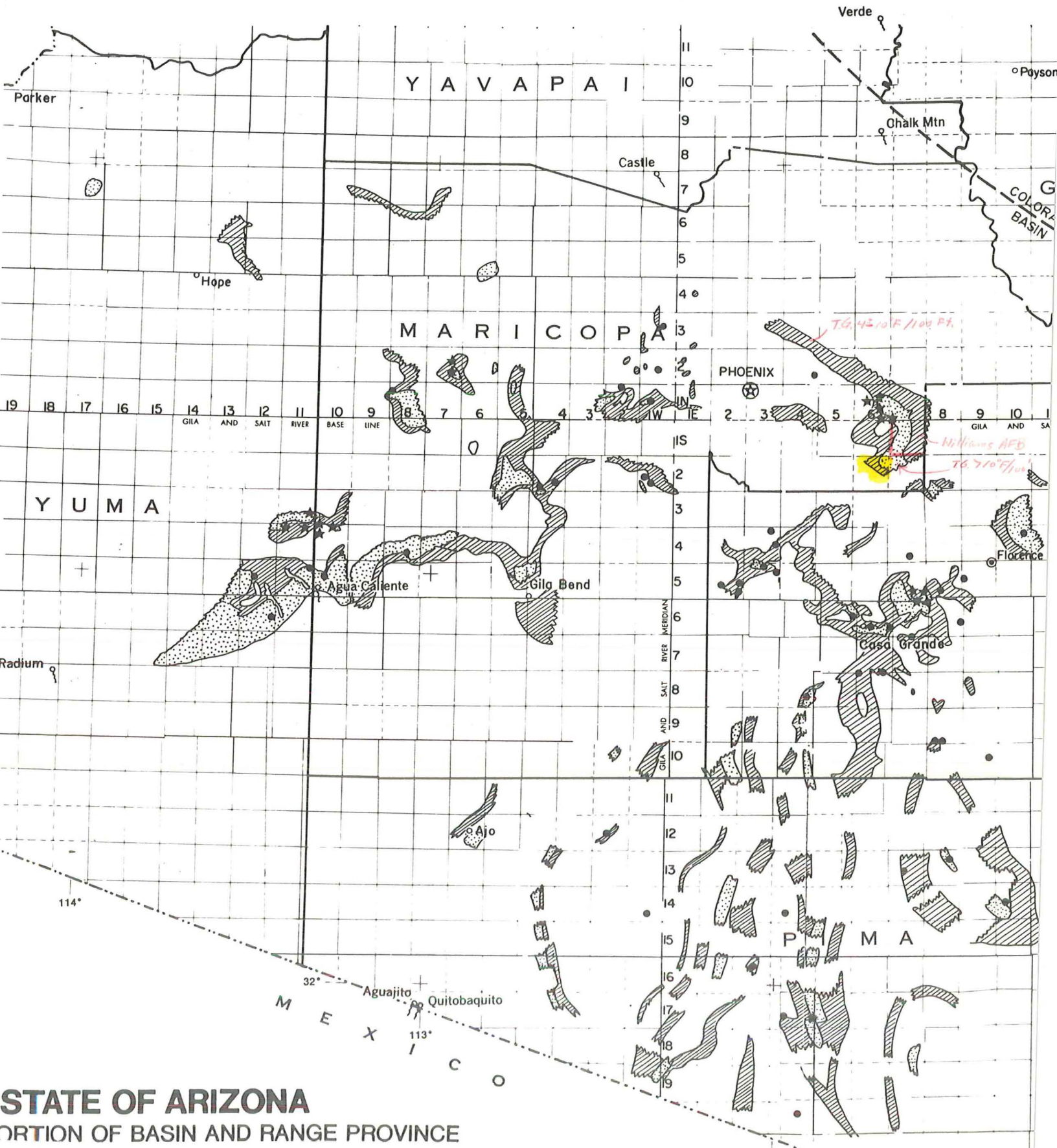
700-ft 1200-ft 2000-ft

GL03010-5of10

Thermal Gradient Anomalies
Southern Arizona
by

Salvatore Grardina, Jr., and J. N. Conley
Ariz. Oil & Gas Commission; Phoenix, Ariz
Report of Investigation 6

Feb 1976



STATE OF ARIZONA

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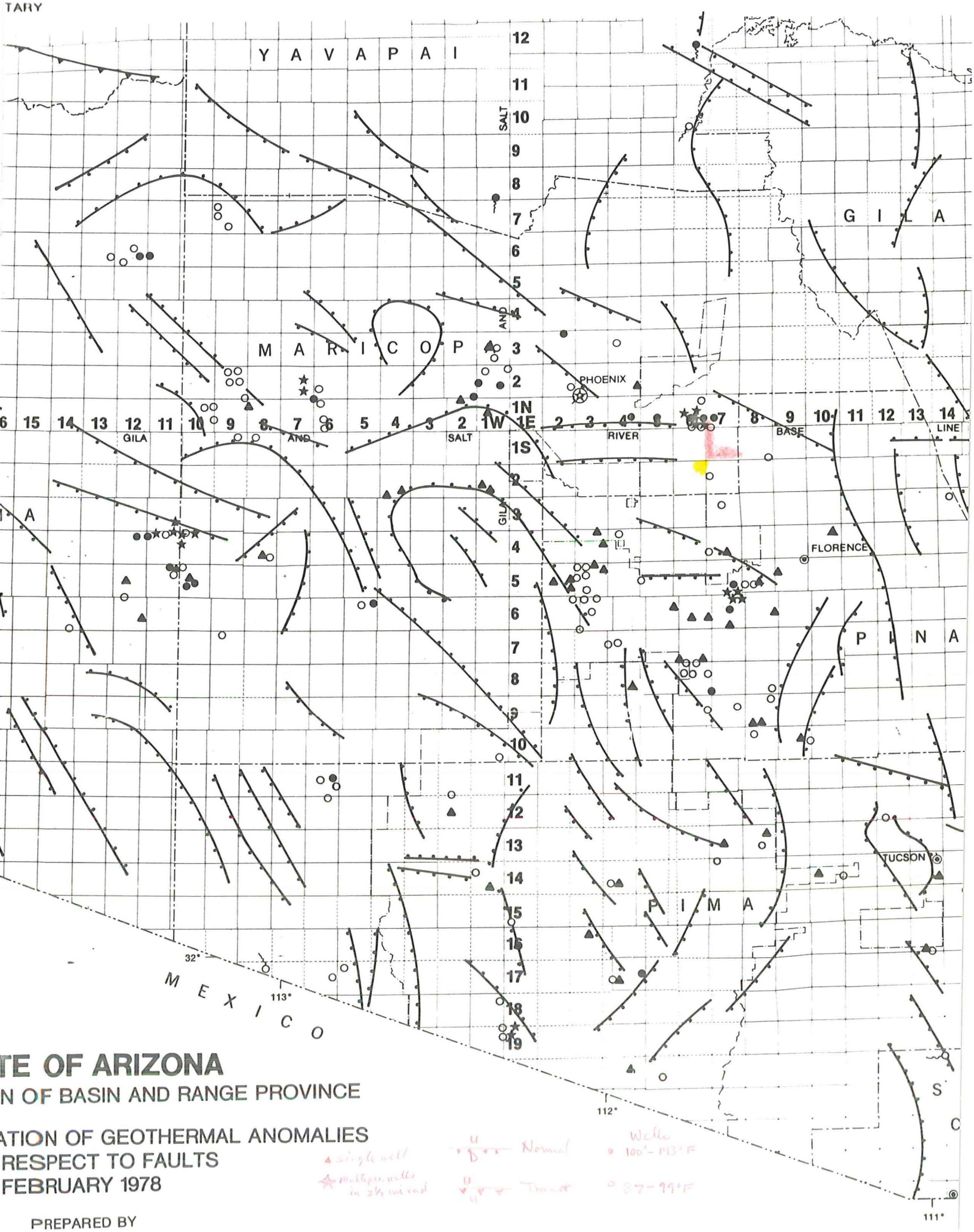


TE OF ARIZONA

N OF BASIN AND RANGE PROVINCE

ATION OF GEOTHERMAL ANOMALIES
RESPECT TO FAULTS
FEBRUARY 1978

PREPARED BY

b. Summary

The location of Ellsworth AFB, and its relation to hot springs in the area, lead to the conclusion that there is definite potential for geothermal resource utilization at the base. This conclusion is further augmented by the fact that in Midland, South Dakota, some 100 miles to the east, a small school is currently being heated by geothermal water.

c. Recommendations

A thorough study should be performed of wells in the area to get temperatures, water chemistry, heat flow, thermal gradients, and total depths. It is felt that this data, in combination with published geophysical and geological data would provide adequate information for selection of a drilling target. A relatively deep test hole should be drilled to approximately 1850m (6000 feet) to study gradients at this depth as well as analyze aquifiers and provide material for geochemical water analysis.

3. WILLIAMS AIR FORCE BASE

Williams AFB Chandler, Arizona, has definite potential for geothermal heating. The potential for water-dominated systems suitable for power generation is unknown, but looks interesting.

a. Source of Heat

The geologic source of the geothermal gradient anomalies is not known at this time. However, an area known as the NOMAD geothermal field is located adjacent to and probably under Williams AFB.

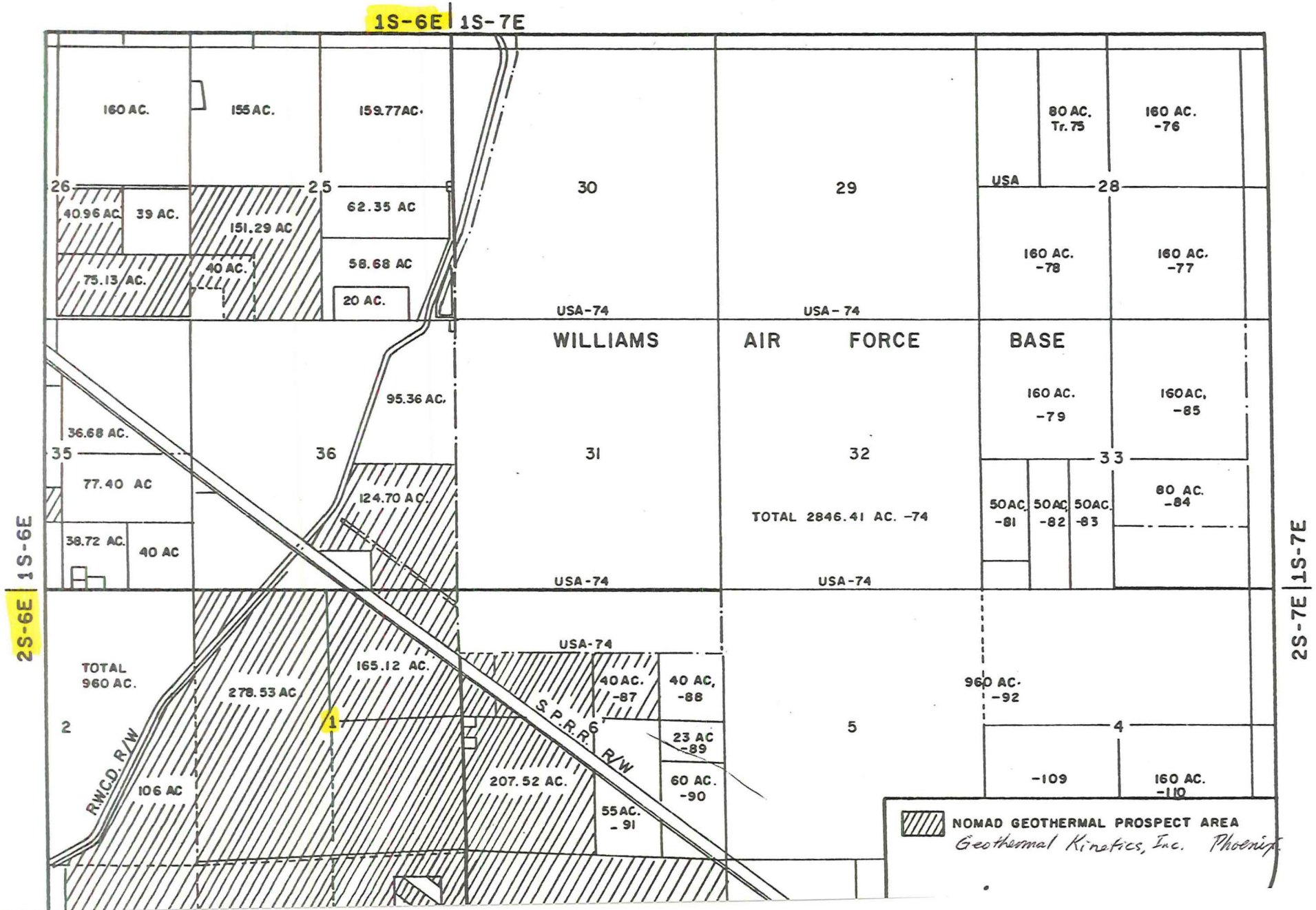
Geothermal Kinetics, Incorporated (GKI), a private corporation, has leased and drilled 2 wells in Section 1 of Township 2 South, Range 6 East. Well number 1 has a total depth of 9,207 with the depth to water of 421 feet. The temperature of the water is 301°F. Well number 2 has a total depth of 10,450 feet with similar findings. Well number 1 has a flow rate of 6000 gallons per minute and is considered "producible." Figure 5 illustrates the portion of the NOMAD geothermal field originally leased by GKI in relation to base property. It is on the GKI lease that two test wells have been drilled by industry.

b. Summary

The area of Williams AFB adjacent to the NOMAD geothermal field has a definite potential for supplying geothermal water for the base needs.

c. Recommendations

Wells in existence should be logged to obtain temperatures, water chemistry, heat flow, thermal gradients, and total depths. This data, in conjunction with published geophysical and geologic data will provide the necessary information to select an optimum drilling site for base utilization of the underlying geothermal water.


1S-6E
1S-7E
160 AC.
155 AC.
159.77AC.
80 AC.
Tr. 75
160 AC.
-76
26
25
30
29
USA
28
40.96 AC.
39 AC.
151.29 AC
62.35 AC
58.68 AC
75.13 AC.
40 AC.
20 AC.
160 AC.
-78
160 AC.
-77
USA-74
USA-74
WILLIAMS
AIR
FORCE
BASE
95.36 AC.
160 AC.
-79
160AC.
-85
36.68 AC.
35
36
31
32
33
77.40 AC
124.70 AC.
50AC.
-81
50AC.
-82
50AC.
-83
80 AC.
-84
TOTAL 2846.41 AC. -74
38.72 AC.
40 AC
USA-74
USA-74
USA-74
TOTAL
960 AC.
165.12 AC.
40AC.
-87
40 AC.
-88
960 AC.
-92
278.53 AC
1
6
S.P.R.R.
R/W
2
5
4
23 AC
-89
RW.C.D. R/W
106 AC
207.52 AC.
60 AC.
-90
-109
160 AC.
-110
55AC.
-91
NOMAD GEOTHERMAL PROSPECT AREA
Geothermal Kinetics, Inc. Phoenix
20
2S-6E
1S-6E
2S-7E
1S-7E