McNitt 11/85

# COMMENTS ON RESULTS OF GRADIENT HOLES 55-2 AND 35-1

# SUPPLEMENT TO GEOTHERMEX REPORT:

# GEOLOGIC ASSESSMENT OF THE FISH LAKE GEOTHERMAL FIELD, NEVADA

MAY, 1985

for

STEAM RESERVE CORPORATION

DENVER, COLORADO

by

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# COMMENTS ON RESULTS OF GRADIENT HOLES 55-2 AND 35-1

We have reviewed the data obtained from gradient holes 35-1 and 55-2, which have been drilled since our May 1985 report "Geologic Assessment of the Fish Lake Geothermal Field, Nevada". As recommended in our report, these holes were drilled on the structural high north of discovery wells 88-11 and 88-11A (figure 1). The following conclusions are based on the data obtained from these two new holes:

1. The high gradients found in these wells confirm our earlier conclusion that the Fish Lake temperature anomaly is associated with the structural high located north of wells 88-11 and 88-11A.

2. Based on the temperature data from these holes, our map of temperature distribution at +3,800 feet elevation (figure 41 of the May 1985 report) has been updated (figure 1, this report). Temperature contours can now be closed to the north, showing that the Fish Lake anomaly covers an area of about 3 square miles.

3. Because temperatures found at +4,800 feet msl in holes 35-1 and 55-2 (120°F and 111°F, respectively) are lower than temperatures inferred to exist at this elevation in holes 40 and 41 located further to the N (140°F and 145°F, respectively, see Table 1 of May 1985 report), it is possible that another, yet undefined anomaly exists further to the N on the structural high.

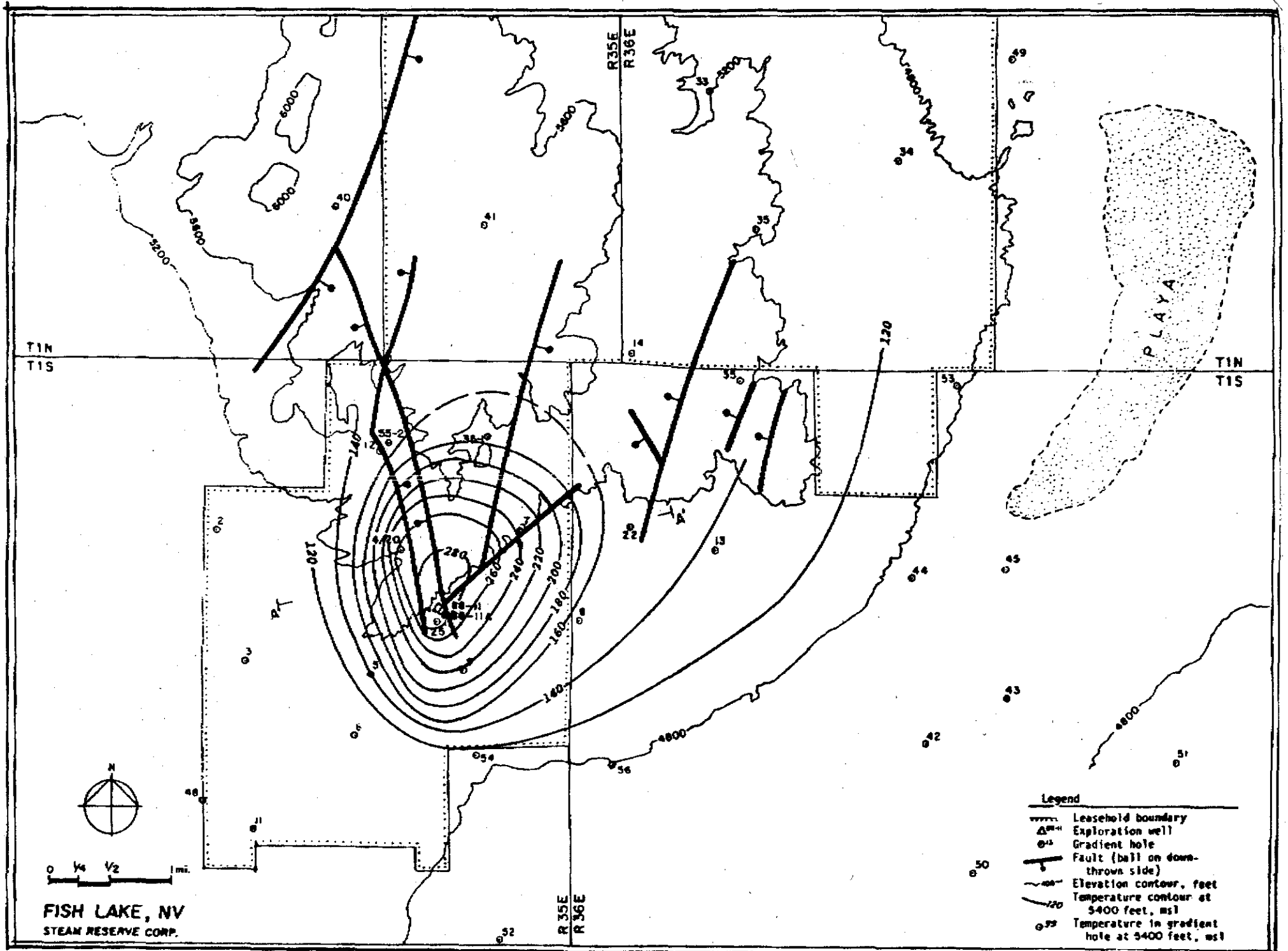
4. The conductive temperature gradient measured in hole 35-1 (6.2°F/100 feet) is similar to the gradient in Tertiary cover rocks inferred from temperature measurements in well 88-11. Assuming that the temperature at the top of the basement is 330-340°F, as in wells 88-11 and 88-11A, it is concluded that basement beneath hole 35-1 is at an elevation of about +750 feet msl (figure 2).

   The lower part of the gradient in hole 55-2 is disturbed by fluid movement and has not been extrapolated to depth.

5. Assuming that the temperature gradient in basement rock decreases to 0.6°F/100 feet, as in wells 88-11 and 88-11A, and the same permeable horizon exists at the same depth beneath the 35-1 well as in the deep exploration wells, then fluid temperature should be about 370°F in the 35-1 area, that is, comparable to fluid temperature in the production wells.

In summary, the new data from holes 55-2 and 35-1 have confirmed the model proposed in our May 1985 report, and have defined the extent of the Fish Lake anomaly. Based on these new data, we can refine the drilling recommendation made in our May 1985 report (page 19). As the new data have not provided additional information pertaining to permeability on the N-trending fault zones relative to the NE-trending zones, we now recommend that two deep tests be drilled. One should be collared about 1/2 mile NE of well 88-11 and drilled directionally to the NW so as to penetrate the NE-trending fault at about +1,000 feet msl, to look for fault permeability at the top of the basement. The hole should then be continued to the NE into the basement high, to an elevation of -3,000 feet msl, to test for

stratigraphic permeability. The other hole should be collared about 1/2 mile N 20 W from well 88-11 and drilled directionally N 70 E to test for fault permeability on the N-trending fault zone and stratigraphic permeability within the structural high.


R35E
R36E
T1N
T1S
PLAYA
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5800
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120
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FISH LAKE, NV
STEAM RESERVE CORP.
Legend
Leasehold boundary
Exploration well
Gradient hole
Fault (ball on down-thrown side)
Elevation contour, feet
Temperature contour at 5400 feet, msl
Temperature in gradient hole at 5400 feet, msl

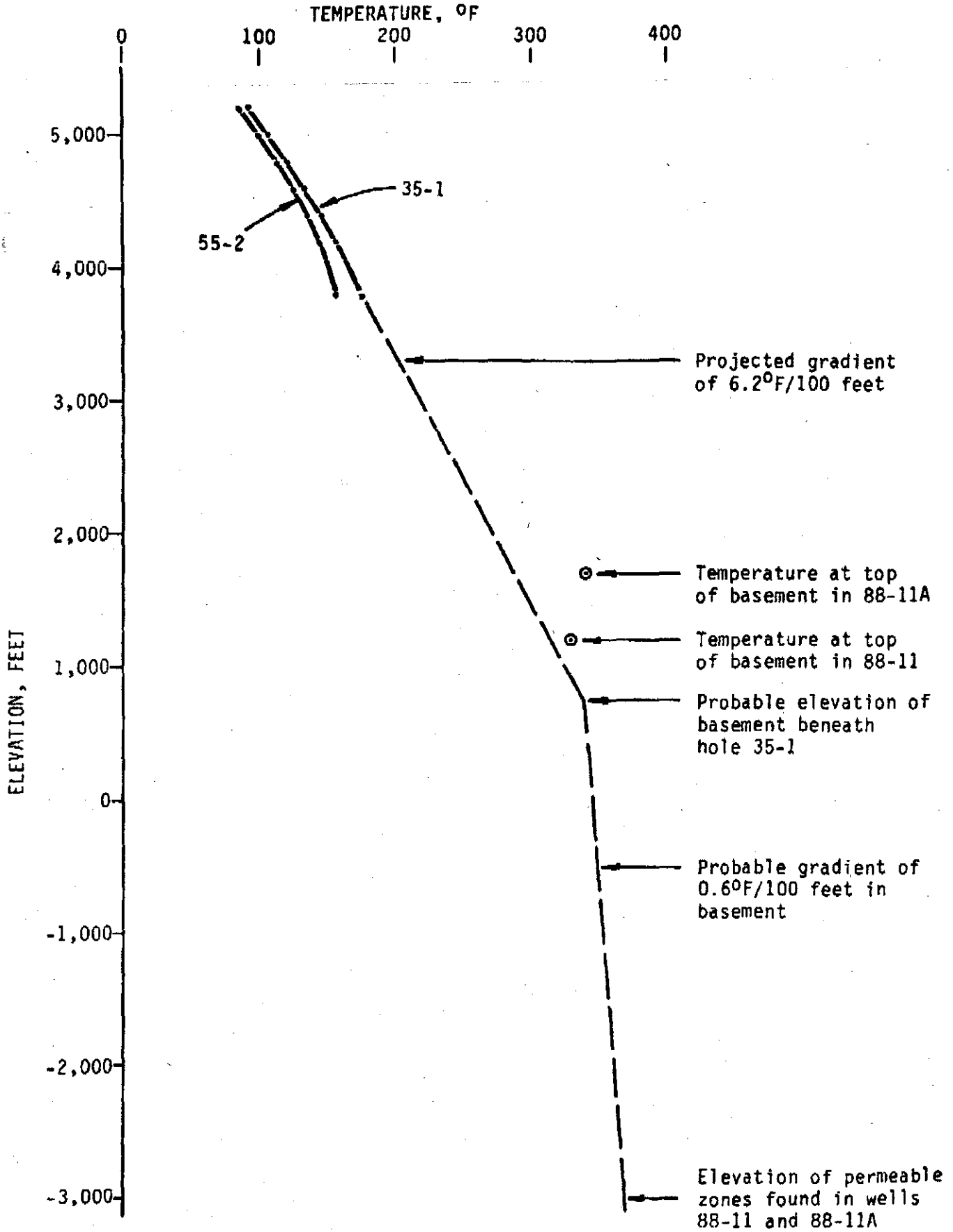


Figure 2. Measured and projected temperature profiles, holes 55-2 and 35-1, Fish Lake, Nevada.