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NOAA PROGRESS REPORT ON GEOTHERMAL MAPPING FOR STATE COUPLED PROGRAM

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We have with us at this meeting map color proofs for the states of Idaho, New Mexico, Colorado, and Utah. Idaho has been reviewed thoroughly and will go to press, essentially as it is, within the next several weeks. The other three maps are still preliminary in nature, and there will be changes made before sending them to the printers. These are all "public" maps.

The approach in making these maps has been to work directly with the state teams with considerable coordination and help from the Earth Science Laboratory/University of Utah Research Institute, the Department of Energy, and the U.S. Geological Survey. We cooperate very closely with USGS both in obtaining data and sending data to their GEOTHERM file.

The production of each map is supervised by one individual within our map-making group. That person is responsible for taking care of all details in the production of the map. For example, Ron Smith has the responsibility for the Idaho map, Joy Ikelman for New Mexico, Skip Theberge for Utah, and Dave Clark for Colorado.

It should be emphasized, however, that the maps are being made for the states; and when credit is given in the literature for a map, individuals from the state teams, not NOAA personnel, will be cited.

The maps made may be "stand alone" or they may be part of a state publication such as the map for Idaho. This is a decision that is made by the state team.

The maps we are now producing are "public" maps. As the name implies these are designed to be useful to a very wide audience including energy industry, entrepreneurs, developers, lawmakers, ranchers, farmers, city planners, students, teachers, etc. However, the data on the maps are also expected to be of use to geothermal specialists. One of the major goals of these maps is to present the data in a clear and uncluttered manner.

The format for the public maps is now fairly well standardized, as outlined in a recent memorandum from Gerry Brophy to the state teams. Wells will be shown by circles and springs by diamonds. Red will indicate wells or springs with temperatures over 50°C and blue those with temperatures equal to or less than 50°C. Areas generally considered favorable for finding low temperature geothermal waters (as determined mainly by the state teams) will be shown by a gray shading. KGRAs will be indicated by a relatively dark red color and state GRAs (where they exist) will be shown by a lighter

shade of red. For base data we have tried to stay with the color scheme of the USGS 1:500,000 maps. There are some deviations from this such as showing areas off-limits to geothermal exploitation (wilderness areas, national and state parks, etc.) as a dark green, and in the designation of DOE and military reservations.

In addition, important parameters, such as temperature, flow, total dissolved solids, and depth are being shown, where practicable, next to a given well or spring by means of a slash bar symbol. This symbol appears on the map as follows:

$$\frac{\text{Temp.} \quad \text{Flow}}{\text{TDS} \quad \text{Depth}}$$

All units are metric.

We will shortly be starting on the production of the scientific maps. It is important for the state teams to get their comments on desired content and format of these scientific maps to the Department of Energy. The scientific maps are intended for the geothermal specialist and not the general public as in the case of the public map.

In general, both the public and scientific maps will be made at a scale of 1:500,000. However, there are some states which will have different scales because of the size of the state.

Besides the four states already mentioned, we have had meetings or phone discussions with individuals in Washington, California, Arizona, and Montana. In addition we have talked to different state representatives at this meeting about making maps for their states.

The maps, as stated above, are made for the states and when printed most of these maps will be mailed to the state teams for distribution. NGSDC/NOAA will not take part in the general distribution of these maps. Present plans call for the printing of 5,000 copies of each map, except for California, which will have 10,000 copies.

One of the important sets of data that has gone into the public maps (and will also be shown in the scientific maps) is the thermal springs. Our group (mainly George Berry) has been working on a spring list for all 50 states for about three years, and we are about to publish this computerized list of approximately 1600 springs. The listing will include name of the spring, temperature, and the names of the 1:250,000 scale USGS map and the largest scale 7.5- or 15-minute quadrangle map on which the spring is located. It is important to emphasize that many of these data have come from state publications, and these will be properly acknowledged in the NOAA publication.

Also available as a result of this spring compilation will be transparent overlays with spring names and numbers (referring to the listing). The overlays will fit exactly over 1:250,000 "AMS" USGS maps.