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ASSOCIATION ROUND TABLE

25th ANNUAL MEETING
AAPG-SEPM ROCKY MOUNTAIN SECTIONS

Billings, Montana
March 28-31, 1976

NEW CONCEPTS OF EXPLORATION IN THE ROCKIES

Abstracts of Papers

ALDERMAN, WILLIS H., Amoco Production Co., Denver, Colo.

Use of Interactive Computer Graphics for Exploration

The use of the interactive computer terminal for generation of graphic displays is becoming one of the most potentially powerful and interesting newer tools available to the explorationist.

Integrated, user-oriented digital data files are of utmost importance to the oil and gas explorationist. The files must be organized, indexed, cross-referenced and identified more precisely than any other kind of file. The capabilities and usage of an on-line, large computer data base are explained in this paper. Slides show a geologist in a working environment generating maps and cross sections on an interactive terminal Cathode Ray Tube System (CRT).

Computer graphic hardware and software development is progressing at a rapid pace. Many more scientific digital data bases are becoming available. The future looks bright for interactive computer graphics.

APPLEGATE, JAMES K., PAUL R. DONALDSON, and LELAND L. MINK, Boise State Univ., Boise, Ida.

Geologic and Seismic Studies of Boise Front, Idaho, for Geothermal Resource Evaluation

Hot water has been used for space heating since 1890. Consequently, a project to investigate the possibilities of expanding the resource utilization was begun in January 1975.

It is postulated that the best productive zones would be in the areas of increased fracture porosity at the intersection of two or more faults. Thus, an integrated study utilizing remote sensing, field geology, resistivity, ground magnetics, microseismic and active seismic techniques was undertaken. Numerous fault trends have been defined by the investigation. The faults do not appear to be currently active, on the basis of approximately 9 months of microseismic monitoring.

Currently, exploratory holes are being drilled to understand better the geologic relations. However, further investigations need to be undertaken to study a larger area and also to detail the relations among various fault systems. Dipole-bipole resistivity mapping, electromagnetic soundings, and active seismic studies would be particularly beneficial.

The studies have been funded by ERDA.

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Uranium in Plutonic Rocks

Uranium is a strong lithophile and is concentrated in the granitic and in some alkalic rocks on the crust of the earth. In both types of rocks it is concentrated in the late-crystallizing constituents of the magma. In most granitic rocks, most of the uranium is in the essential minerals of the rock, as minute crystals of uraninite or as molecular or ionic disseminations in fractures, crystal defects, or along cleavage planes or grain boundaries. Uranium also enters tantalates, titanates, and niobates, and substitutes in the crystal structure of accessory minerals. In sodium- and potassium-rich alkalic rocks, uranium appears to be concentrated primarily in accessory minerals. Uraninite and molecular and ionic uranium are easily leachable, whereas uranium that substitutes in the crystal structure of minerals is not.

Large bodies of granitic rocks that contain 0.03 to 0.05 percent U_3O_8 can be ore deposits. Possible examples are Rossing, South West Africa; Charlebois Lake, Canada; and certain localities in central Idaho and northeastern Washington. Large bodies of alkalic rocks containing similar amounts of uranium also may be ore deposits but normally have more difficult metallurgic extraction problems. One possible example is the Ilimaussaq intrusion, southern Greenland, and another is the intrusive alkalic suite in the Bearpaw Mountains, Montana.

ASPINALL, WAYNE N., Lawyer-Consultant, Natural Resources Values, Palisade, Colo.

Danger of Federal Withdrawals to Natural Resources Development

The finding, exploration, and development of resources in and on the earth are necessary to modern man's existence. More than one-third of our nation's natural resources belong to the federal government which is directly responsible for what happens to that third. Currently there is widespread thought in our nation either not to develop our natural resources or to make the development of such natural resources so difficult and complicated that in all too many instances the obstacles and delays to development work against our national welfare. A point at issue is a current practice of our national administrative agencies of government to withdraw (either with or without statutory authority) greater and greater amounts of our federal lands from development. The statutorily authorized, as well as the expressed, national policy of multiple use of our natural resources is being disregarded and voided to the extent