1978 is 113,309 bbl of oil and a small amount of gas.

CLARK, GENE, Solar Data Center, Trinity Univ., San Antonio, Tex.

Applications of Solar Energy: What is Practical in the Near Term?

Applications of solar energy to building heating and cooling systems, industrial process heating, and power generation have been examined. Passive heating and cooling of buildings by solar energy are now technically and economically competitive with energy derived from fossil fuels.

CLARK, MURLENE WIGGS, and RAMIL C. WRIGHT, Florida State Univ., Tallahassee, Fla.

Subsurface Neogene Stratigraphy of Bay County, Florida

The Neogene of Bay County, Florida, contains three subsurface units, the Bruce Creek, St. Joe, and Intracoastal Formations which make up the Coastal Group and range in age from middle Miocene to Pliocene. They are overlain by a blanket of Pliocene-Pleistocene sands. The Bruce Creek Formation is the oldest of the three units (middle Miocene) and rests upon the Suwannee Limestone which is generally considered Oligocene in age.

The Bruce Creek, St. Joe, and Intracoastal units thicken southward down the paleoslope and pinch out toward the north. The Coastal Group extends laterally across Bay County and into neighboring counties to the east and west. Their full lateral extent is not known.

The St. Joe and Bruce Creek are fairly fossiliferous micrites which contain some quartz sand. The Intracoastal changes from a micrite in the west to a sandy clay in the east. The Intracoastal contains a large percentage of planktonic and benthic Foraminifera.

Biostratigraphic analysis of the Neogene of Bay County based on planktonic Foraminifera shows the Intracoastal Limestone to be Pliocene in the western part of the county (*Globorotalia margaritae* Zone) whereas it is significantly older in the east (*G. fohsi fohsi* Zone). The Bay County planktonic Foraminifera assemblages are somewhat unusual in that the presence of biostratigraphically useful planktonic Foraminifera assemblages in the nearshore Neogene sediments of the Gulf Coast is rare. The zonation schemes of Blow and Bolli which were developed in tropical sediments can be used only with difficulty in the temperate water sediments of the Florida Panhandle.

DE VOTO, RICHARD H., Colorado School of Mines, Golden, Colo.

Nuclear Power and Geology of Uranium

Nuclear and coal-fueled power plants are the only economically viable large-scale sources of new electrical energy available to man in the next several decades. Even without the ERA-required "best-available technology" of stack-gas scrubbers for coal-fired power plants, the total cost to produce electricity from nuclear power plants is clearly less expensive than from coal-fired power plants at most locations in the United States. Current "economic equivalency" of electrical-generating costs between coal and nuclear would support a nuclear fuel cost of approximately \$100/lb of U_3O_8 (the 1979 price is \$43/lb of U_3O_8).

The present domestic worldwide supply-demand relations indicate a continued strong need for successful uranium exploration and development programs through the next several decades. The economic realities would cause the price of uranium to rise to permit the development of low-grade uranium resources (100 to 500 ppm U_3O_8) competitively with coal should the discoveries of higher grade uranium resources be insufficient to fulfill the increased demand.

Historically (1950s to 1978), the bulk of the world's uranium has been produced from: (1) lower Proterozoic uraninite placer deposits in quartz-pebble conglomerates of braided-river systems, (2) epigenetic uranium deposits in sandstones located at or near groundwater oxidation-reduction interfaces, commonly in close association with organic material in fluvial sandstones, and (3) hydrothermal vein uranium deposits. These three distinctly different geologic environments continue to be important exploration targets in the search for new uranium deposits.

Exploration for economic uranium deposits has expanded to many geologic environments which have generally been overlooked in the past. Most notable among these are: (1) granitic uranium deposits (commonly anatectic), (2) alkalic igneous-hydrothermal uraniferous environments, (3) altered acidic or alkalic volcanic ash, ash flow, or volcaniclastic environments, (4) metamorphic-hosted uranium deposits, variously interpreted as a metamorphic-hydrothermal or unconformity-related environment, (5) calcrete uranium deposits in evaporative, desert groundwater environments, and (6) unconformity-related environments. Significant uranium deposits have been discovered in each of these geologic environments in the 1970s.

The expanded search for economically viable uranium resources and the improved market and technology factors have caused exploration and development efforts to advance far in recent years. Low-grade uranium resources that have been long known and ignored, such as uraniferous, black, organic-rich shales and marine phosphorites are currently being developed for uranium production. In-situ solution-mining activities have permitted economic exploration of uranium deposits that heretofore have been uneconomic because of their small size, low grade, or depth. Exploration drilling and development activities are expanding to greater depths.

ERWIN, CHARLES R., Enserch Exploration, Inc., Houston, Tex., DAVID E. EBY, Univ. Texas at Dallas, Richardson, Tex., and VIRGIL S. WHITESIDES, JR., Enserch Exploration, Inc., Dallas, Tex.

Clasticity Index—Key to Correlating Depositional and Diagenetic Environments of Smackover Reservoirs, Oaks Field, Claiborne Parish, Louisiana

Oaks field is a stratigraphically trapped Smackover field which produces from at least three separate reservoirs. Individual reservoirs are shoaling-upward carbon-