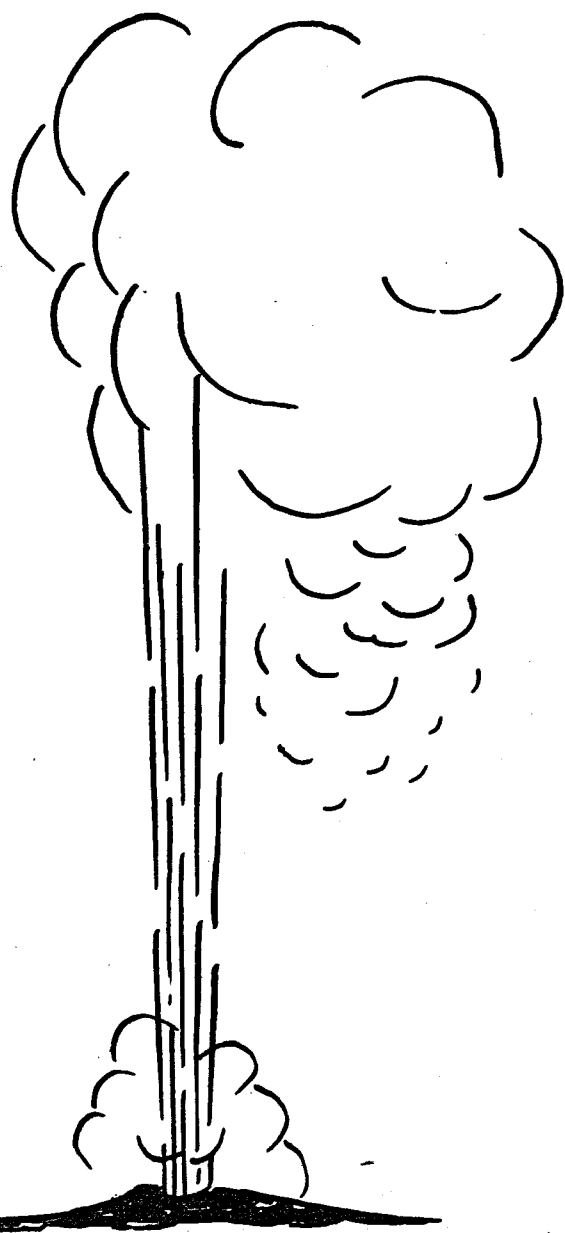


143
8/16/79

Dr. # 3056

VPI-SU-5648-5



**EVALUATION AND TARGETING OF GEOTHERMAL
ENERGY RESOURCES IN THE SOUTHEASTERN
UNITED STATES**

Progress Report, October 1, 1978—March 30, 1979

**By
John K. Costain
Lynn Glover III
A. Krishna Sinha**

Work Performed Under Contract No. ET-78-C-05-5648

**Virginia Polytechnic Institute and State University
Blacksburg, Virginia**



**U. S. DEPARTMENT OF ENERGY
Geothermal Energy**

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

EVALUATION AND TARGETING OF GEOTHERMAL ENERGY RESOURCES
IN THE SOUTHEASTERN UNITED STATES

Progress Report

John K. Costain, Lynn Glover III, and A. Krishna Sinha

Principal Investigators

Department of Geological Sciences

Virginia Polytechnic Institute and State University

Blacksburg, VA 24061

NOTICE

This report was prepared as an account of work sponsored by the United States Government. Neither the United States nor the United States Department of Energy, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately owned rights.

October 1, 1978 - March 30, 1979

PREPARED FOR THE U. S. DEPARTMENT OF ENERGY UNDER

CONTRACT NO. ET-78-C-05-5648

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

EB

Lithologic Analysis of Sediment Samples from the Intermediate Drilling Program

Michael Svetlichny

During the period October 1, 1978 - March 15, 1979, 32 holes were completed as part of the Atlantic Coastal Plain drilling program. In each of the 300 m deep holes, drill cuttings were collected at 3.0 m intervals and sealed in airtight plastic bags to prevent sediments from drying out.

At least two attempts were made to recover core in each hole. A minimum of 15 m was cored. Recovery of unconsolidated, clean sand frequently was poor because material tends to be washed away by the coring process, and sediments were not always retained in the core barrel by the core catcher. In an effort to maximize core recovery and minimize drilling costs, one coring interval was selected to be within a thick (15 m) sequence of clayey, silty, or consolidated sediments, and the other coring attempt was made near the maximum depth of 300 m. Detailed analyses of the cores has begun, but there are no results to report as yet.

Lithologic descriptions of the drill cuttings have been completed for each hole; the results are presented as a table following this text. The descriptions are based on Folk's (1974) classification. Each category reflects the proportion of gravel, sand, and silt plus clay in that sample. In cases where well-sorted gravel was present, a distinction was made between granules, pebbles, and cobbles. Similarly, the sand fraction was subdivided into very fine, fine, medium, coarse, and very coarse sand. If silt and clay occurred in equal proportion, they were collectively referred to as mud. Whole and fragmented macrofossils were reported as shells.

Selected samples from each hole are being wet sieved with a number 230 U.S. standard sieve to determine the proportion of sediment that is finer than 4.0 phi. This work began recently so that the data set is incomplete. The results to date are included in the table that follows this text.

ACKNOWLEDGEMENT

The following Gruy Federal Personnel assisted in sample descriptions and sieving: Kenneth Hurst, Ronald Herzick, Paul Caprio, Michael Hoffman, and Donald Hostvedt.

NO. 28A Cheriton, VA

INTERVAL (METERS)	FORMATION-AGE	DESCRIPTION	COMMENTS	SAMPLES SIEVED	RATIO COARSE/FINE	PERCENT FINES
0-33.5		No samples.	Surface casing set by Mayhew 1000			
33.5-36.6	Yorktown Miocene	Very fine sandy silt	Shells			
36.6-39.6	Yorktown Miocene	Silt	Shells			
39.6-42.7	Yorktown Miocene	Very fine sandy silt	Shells			
42.7-45.7	Yorktown Miocene	Very fine sandy silt, slightly granular	Shells			
45.7-48.8	Yorktown Miocene	Very fine sandy silt with some coarse sand	Shells			
48.8-54.9			Missing			
54.9-64.0	St. Mary's Miocene	Very fine sandy silt	Shells			
64.0-67.1	St. Mary's Miocene	Slightly granular very fine sandy silt	Shells			
67.1-73.2	St. Mary's Miocene	Silty fine sand	Shells			
73.2-76.2	St. Mary's Miocene	Very fine sandy silt, slightly granular. Some lignite	Shells			
76.2-79.2	St. Mary's	Very fine sandy silt, slightly granular	Shells			
79.2-82.3	St. Mary's	Silty very fine sand	Shells			
82.3-97.5	St. Mary's	Very fine sandy silt	Shells throughout. (91.4-94.5-slightly granular).			
97.5-106.7	Choptank	Very fine sandy				

C-102

		silt	
106.7-109.7	Choptank	Silt	Shells
109.7-115.8	Choptank	Very fine sandy silt	Shells
115.8-125.0	Choptank	Silt and clay	Shells
125.0-143.3	Choptank	Silty clay	Shells throughout. (140.2-143.3-slightly shelly)
143.3-146.3	Calvert	Silty clay with limestone fragments	Shells
146.3-204.2	Calvert	Silt and clay	146.3-152.4 slightly shelly 152.4-204.2 no shells
204.2-207.3	Calvert	Clay with limestone fragments	
207.3-213.4	Calvert	Clay and silt	
213.4-222.5	Calvert	Cored	Recovery from 212.1-221.0
222.5-280.4	Calvert	Clay and silt	No shells throughout except for: 240.8-243.8-slightly shelly and 243.8-246.9-shells
280.4-295.7	Chickahominy	Clay and silt	
295.7-304.8		Cored	Recovery from 297.2-304.8