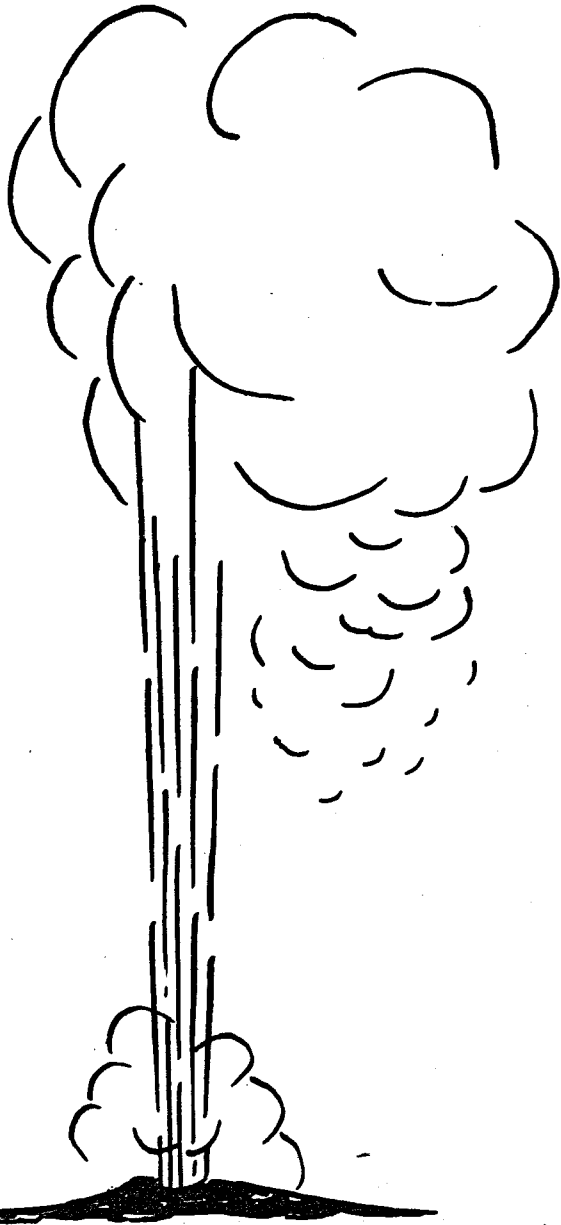


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**EVALUATION AND TARGETING OF GEOTHERMAL
ENERGY RESOURCES IN THE SOUTHEASTERN
UNITED STATES**

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

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IN THE SOUTHEASTERN UNITED STATES**

Progress Report

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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. 22 Creeds, VA

INTERVAL (METERS)	FORMATION-AGE	DESCRIPTION	COMMENTS	SAMPLES SIEVED	RATIO COARSE/FINE	PERCENT FINES
0-12.2		Grey and tan silty fine sand with pebbles. Silt increases toward end of interval	Minor shells at end of interval			
12.2-27.4		Fine-medium sand with some silt in mid-interval	Minor shells at end of interval			
27.4-30.5		Fine sandy grey and tan mud with some pebbles				
30.5-33.5			No samples			
33.5-39.6		Fine sandy grey and tan clay with some pebbles and silt				
39.6-42.7		Shell hash with granules and coarse sand				
42.7-76.2		Fine sandy silty clay with some pebbles	Minor shells			
76.2-79.2		Silty shell hash with fine black sand				
79.2-82.3		Sandy silty shell hash				
82.3-88.4		Silty shell hash with small amount of fine black sand				
88.4-106.7		Fine sandy silt. Shell hash and clay increase toward end of interval				
106.7-118.9		Silty fine-medium sand. Shell hash.				
118.9-131.1		Fine sandy silt	Sand decreases over interval. More clay			

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			than silt at end of interval
131.1-134.1		Silty fine sandy shell hash	
134.1-146.3		Fine sandy silt	Minor shells. Sand increases throughout interval
146.3-149.4		Silty fine-medium sand	
149.4-198.1		Fine sandy clayey silt with some gravel	Minor shells
198.1-204.8		Cored	Recovery from 198.4-204.8
204.8-210.3		Slightly fine sandy clayey silt. Slightly gravelly	Shells
210.3-213.4			No samples
213.4-231.6		Fine sandy clayey silt, slightly gravelly	Minor shells. More clayey toward end of interval
231.6-249.9		Fine sandy mud	
249.9-277.4		Silty fine black sand with some granules	Minor shells. Silt increases over inter- val
277.4-292.6		Fine black sandy silt with some granules	Becoming less sandy and more clayey over interval
292.6-294.1		Clayey silt with fine black sand	
294.1-301.7		Cored	Recovery from 294.1-298.1

NORTH CAROLINA

NO. 21 Bellcross, NC

INTERVAL (METERS)	FORMATION-AGE	DESCRIPTION	COMMENTS	SAMPLES SIEVED	RATIO COARSE/FINES	PERCENT FINES
0-24.4			No samples			
24.4-39.6		Fine sand	Shells			