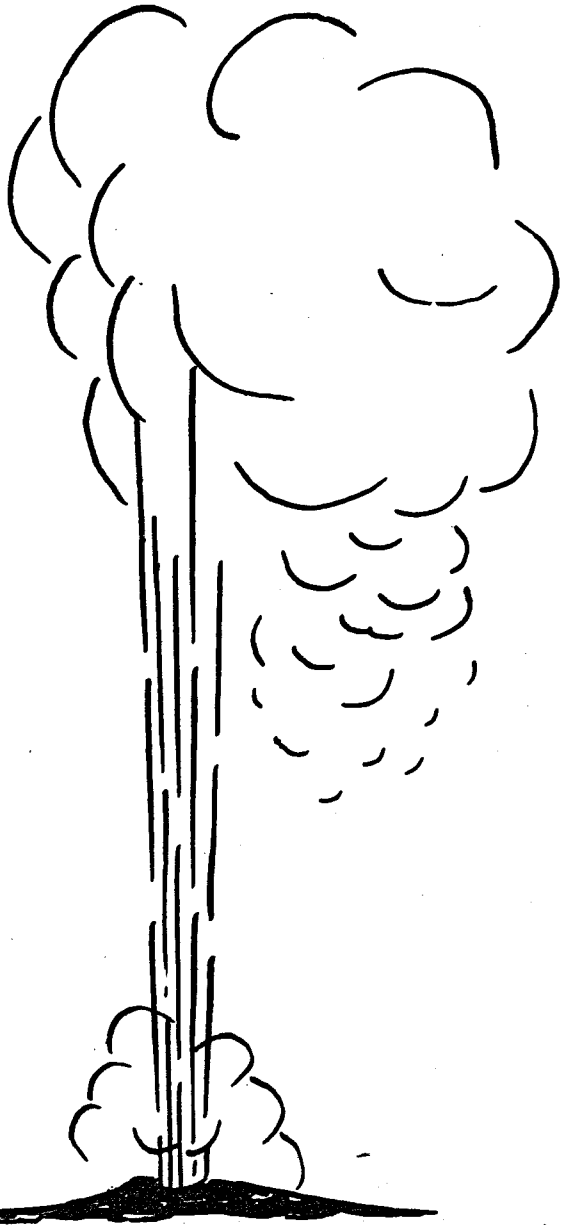


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**EVALUATION AND TARGETING OF GEOTHERMAL
ENERGY RESOURCES IN THE SOUTHEASTERN
UNITED STATES**

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.

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Tasley, VA

INTERVAL (METERS)	FORMATION-AGE	DESCRIPTION	COMMENTS	SAMPLES SIEVED	RATIO COARSE/FINE	PERCENT FINES
0-3.0		Yellow silty sand				
3.0-9.1		Silty fine sandy clay				
9.1-27.4		Clean fine yellow sand				
27.4-30.5		Clean fine-medium grey sand	Shells			
30.5-33.5		Fine sand				
33.5-36.6		Fine-medium sand				
36.6-45.7		Muddy fine sand				
45.7-51.8		Silty fine sand	Shells			
51.8-54.9		Muddy fine sand				
54.9-100.6		Fine sand grading into medium sand from 85.3-91.4	Abundant shells			
100.6-146.3		Very coarse sand becoming silty fine to coarse near center of interval	Abundant shells			
146.3-161.5		Clay with fine sand and gravel	Minor shells			
161.5-166.1		Fine sandy clay with minor gravel	Shells			
166.1-173.7		Cored	Recovery from 166.1-172.8			
173.7-179.8		Limy clay with some fine sand and gravel	Shells			
179.8-189.0		Clay with sand and gravel	Shells			
189.0-195.1		Clay and fine sand				

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195.1-222.5

Clay and gravel

Shells

222.5-283.5

Limy clay with
varying amounts
of gravel, fine
sand, and silt
throughout
interval

Shells

283.5-297.5

Cored

Recoveries from
287.7-289.9 and
295.4-297.5