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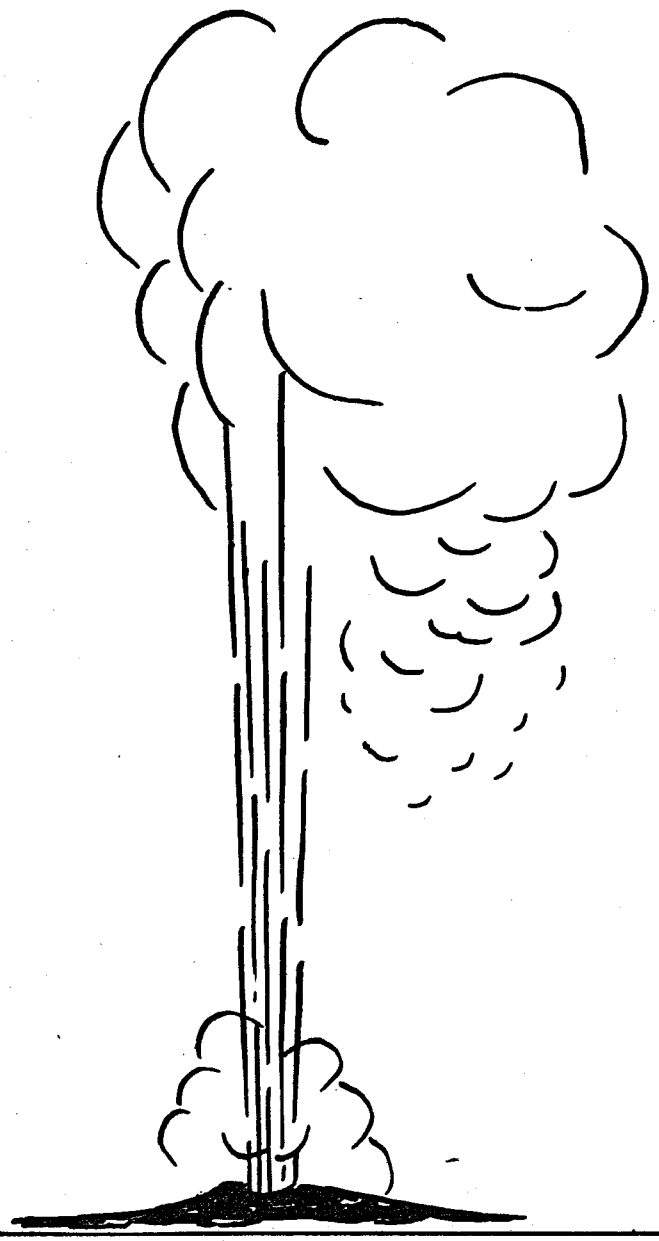


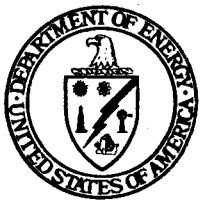
EVALUATION AND TARGETING OF GEOTHERMAL ENERGY RESOURCES IN THE SOUTHEASTERN UNITED STATES

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



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Blacksburg, VA 24061

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PREPARED FOR THE U. S. DEPARTMENT OF ENERGY UNDER

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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. 34E Assawoman Bay, DE

INTERVAL (METERS)	FORMATION-AGE	DESCRIPTION	COMMENTS	SAMPLES SIEVED	RATIO COARSE/FINES	PERCENT FINES
0-42.7			No samples			
42.7-67.1		Fine sand				
67.1-73.2		Fine-medium well rounded sand.Some very coarse sand and gravel	Shells			
73.2-137.2		Very fine-fine sand	Minor shells			
137.2-140.2		Fine-medium sand with organic mud	Shells			
140.2-143.3		Fine-medium sand	Shells			
143.3-158.5		Fine-medium sand with organic mud	Shells			
158.5-164.6		Medium-coarse sand	Shells			
164.6-183.0		Cored	Recovery from 178.9-182.0			
183.0-189.0		Clay				
189.0-192.0		Muddy fine-medium sand				
192.0-213.4		Clay	Shells			
213.4-268.2		Silty clay with some sand and gravel	Shells			
268.2-289.6		Clay and silt	Shells			
289.6-295.7		Sandy clay	Shells			
295.7-301.1		Cored	Recovery from 299.3-301.1			

MARYLAND

NO. 53 Snow hill, MD

INTERVAL (METERS)	FORMATION-AGE	DESCRIPTION	COMMENTS	SAMPLES SIEVED	RATIO COARSE/FINE	PERCENT FINES
0-6.1		Very fine sand				
6.1-9.1		Fine-medium clean				

	sand	
9.1-15.2	Silty fine sand	
15.2-27.	Fine-medium sand	
27.4-36.6	Silty very fine sandy clay	
36.6-45.7	Silty fine sand	Abundant shells
45.7-54.9	Medium-coarse clean sand	Shells
54.9-97.5	Silty fine sandy clay. Glauconitic	Shells are abundant to 76.2, then decrease
97.5-185.9	Mostly clay with silt and sand	Grades downward into clay. Shells
185.9-219.5	Mostly clay with fine sand and silt	Shells
219.5-265.2	Limy clay with fine sand	Shells. Core recovery from 239.6-247.5
265.2-295.7	Clay. Some fine sand	Shells
295.7-304.8	SECOND CORE DRILLED -	Recovery from 296.5-304.5