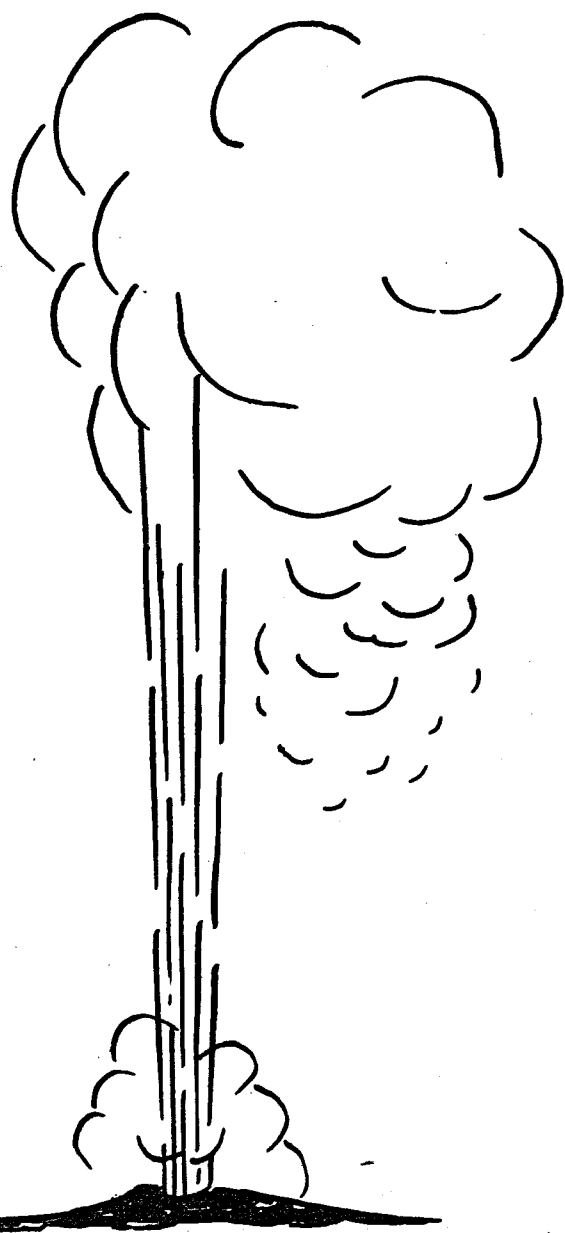


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**EVALUATION AND TARGETING OF GEOTHERMAL  
ENERGY RESOURCES IN THE SOUTHEASTERN  
UNITED STATES**

**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. 30A Ocean City Airport, MD

INTERVAL (METERS)	FORMATION-AGE	DESCRIPTION	COMMENTS	SAMPLES SIEVED	RATIO COARSE/FINE	PERCENT FINES
0-54.9	Columbia Gr.		No samples			
54.9-61.0	Columbia Gr.	Very fine sandy silt				
61.0-64.0	Yorktown	Silty fine-medium sand				
64.0-67.1	Yorktown	Silty fine-medium sand				
67.1-70.1	Yorktown	Medium sand and granules				
70.1-73.2	Yorktown	Very well sorted medium quartz sand				
73.2-76.2	Yorktown	Medium quartz sand				
76.2-85.3	Yorktown	Very well sorted medium quartz sand				
85.3-88.4	Yorktown	Silty fine-medium sand and granules				
88.4-91.4	Yorktown	Silty fine-medium sand				
91.4-94.5	Yorktown	Silty fine sand				
94.5-97.5	Yorktown	Clayey-silty fine sand with granules				
97.5-100.6	Yorktown	Medium sand with granules				
100.6-103.6	Yorktown	Fine-medium sand with granules				
103.6-106.7	Yorktown	Fine-medium sand with granules				
106.7-115.8	Yorktown	Silty fine sand				
115.8-118.9	Yorktown	Silt				
118.9-121.9	Yorktown	Poorly sorted silty sand with granules	Minor shells			
121.9-124.9	Yorktown	Silty fine sand,				

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		slightly micaceous	
124.9-128.0	Yorktown	Silty fine-medium sand	
128.0-131.1	Yorktown	Silty fine sand and granules	Shells
131.1-134.1	Yorktown	Fine sandy silt	
134.1-137.2	Yorktown	Silty fine sand with some coarse grains	
137.2-140.2	Yorktown	Silty fine sand	
140.2-143.3	Yorktown	Clay	
143.3-146.3	Yorktown	Poorly sorted silty sand	
146.3-149.3	Yorktown	Very fine sandy silt	
149.3-152.4	Yorktown	Silty very fine sand with granules	
152.4-163.1	Yorktown	No samples	
163.1-170.7		Cored	Recovery from 163.1-167.0
170.7-192.0	Yorktown	Silt	
192.0-195.1	Yorktown	No samples	
195.1-204.2	St. Mary's	Silt	
204.2-207.3	St. Mary's	Silt and coarse sand	
207.3-234.7	St. Mary's	Silt	Choptank Formation extends from 219.5-234.7
234.7-237.7	Calvert	Calcareous fine sandstone with silt, granules, and black shale	
237.7-240.8	Calvert	Calcareous fine sandstone with silt, granules, black shale	Shells
240.8-246.9	Calvert	Calcareous silty very fine sandstone	Shells

with some coarser  
grains and black  
shale

246.9-249.	Calvert	Calcareous silty-very fine sandstone with black shale	Shells
249.9-253.0	Calvert	Calcareous fine sandstone	Abundant shells
253.0-256.0	Calvert	Calcareous fine sandstone	Abundant shells
256.0-259.1	Calvert	Calcareous fine sandstone	Abundant shells
259.1-262.1	Calvert	Calcareous fine sandstone	Abundant shells
262.1-265.2	Calvert	Slightly calcareous fine-medium sand with silt and granules	Weakly cemented. Shells
265.2-271.3	Calvert	Calcareous fine sand with silt and heavy minerals. Some granules	Weakly cemented
271.3-274.3	Calvert	Calcareous fine sand with clay and silt	Weakly cemented. Shells
274.3-277.4	Calvert	Calcareous fine sand with silt	Weakly cemented
277.4-280.4	Calvert	Calcareous fine-medium sand with silt	Weakly cemented. Shells
280.4-283.5	Calvert	Calcareous fine sand with silt, granules, and heavy minerals	Weakly cemented
283.5-286.5	Calvert	Slightly calcareous fine sand and silt	Weakly cemented
286.5-289.6	Calvert	Calcareous fine-medium sand with heavy minerals	Weakly cemented
289.6-292.6	Calvert	Calcareous fine-	Weakly cemented

medium sand with  
heavy minerals

292.6-295.7	Calvert	Calcareous fine sand	Weakly cemented. Shells
295.7-298.7	Calvert	Calcareous fine sand	Weakly cemented. Shells
298.7-301.8	Calvert	Calcareous fine sand and granules	Weakly cemented. Shells
301.8-304.8	Calvert	Calcareous fine sand	Weakly cemented
304.8-307.2		No samples	
307.2-314.9		Cored	Recovery from 307.2-314.9

VIRGINIA

NO. 60 Hampton, VA

INTERVAL (METERS)	FORMATION-AGE	DESCRIPTION	COMMENTS	SAMPLES SIEVED	RATIO COARSE/FINE	PERCENT FINES
0-6.1		Clay with some silt				
6.1-48.8		Fine sandy silt and some clay	Increasing amounts of shells			
48.8-88.4		Silty shell hash				
88.4-91.4		Silty shell hash with some clay				
91.4-134.1		Clayey silt	Shells			
134.1-161.5		Clay with some silt in upper part of interval				
161.5-164.6		Missing				
164.6-170.7		Clay with silt				
170.7-173.7		Fine sandy silt with some clay	Shells			
173.7-176.8		Clay with some silt				
176.8-179.8		Missing				
179.8-279.8		Limy clay with	Shells throughout			

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