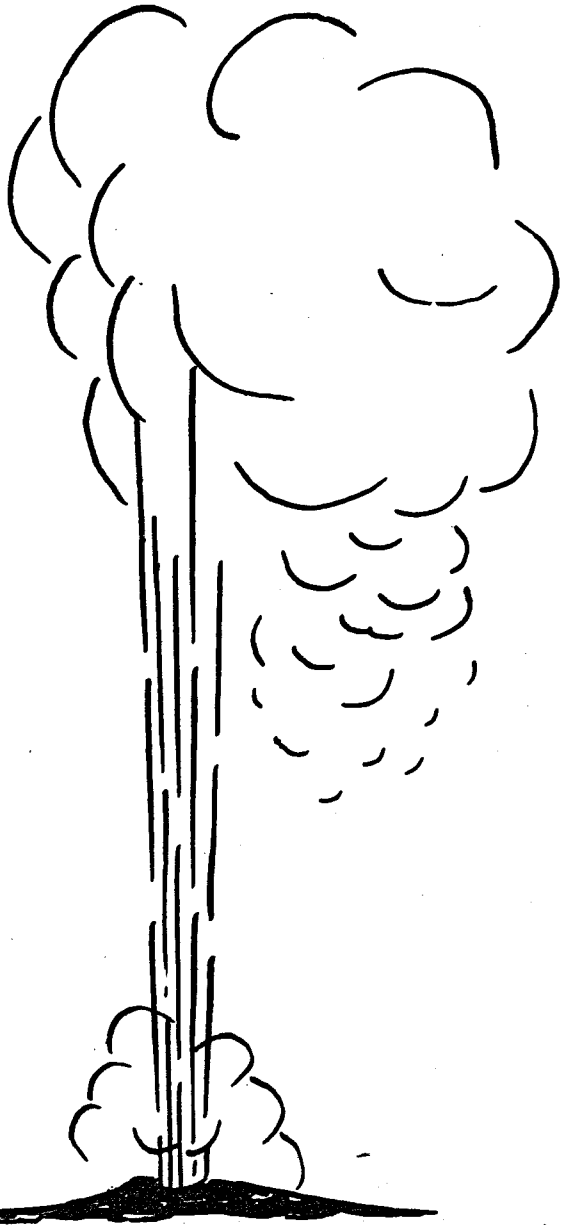


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**EVALUATION AND TARGETING OF GEOTHERMAL
ENERGY RESOURCES IN THE SOUTHEASTERN
UNITED STATES**

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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Principal Investigators

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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. 29 Wallops Island, VA

INTERVAL (METERS)	FORMATION-AGE	DESCRIPTION	COMMENTS	SAMPLES SIEVED	RATIO COARSE/FINE	PERCENT FINES
0-6..		Sand				
6.1-12.2		Clay				
12.2-30.5		Fine sand	Shells	30.5-31.6	2.47	28.8
30.5-33.5		Silty fine sand	Minor shells			
33.5-36.6		Fine sandy silt				
36.6-42.7		Clay	Shells			
42.7-57.9		Mostly silt with some clay and gravel	Shells	48.8-51.8	0.56	64.0
57.9-64.0		Clay with fine sand	Abundant shells			
64.0-73.2		Fine sand with some silt	Abundant shells	79.2-82.3	5.23	16.1
73.2-97.5		Silty fine-medium sand	Abundant shells			
97.5-118.9		Silty clay	Shells	97.5-100.6 109.7-112.8	1.33 1.36	42.9 42.4
118.9-134.1		Clay	Shells	124.9-128.0	.13	88.6
134.1-155.4		Clay	Minor shells	134.1-137.2 149.3-152.4	.19 .16	84.3 86.4
155.4-158.5		Clay	Abundant shells	155.4-158.5	1.62	38.2
158.5-164.6		Clay	Shells	158.5-161.6	.23	81.3
164.6-167.7			Missing			
167.7-182.9		Cored	Recovery from 178.0-182.9			
182.9-198.1		Clay	Shells. Minor shells from 195.1-198.1	195.1-198.1	.28	78.1
198.1-201.2		Clay with chalk	Shells			
201.2-207.3		Clay	Shells			
207.3-210.3		Clay	Shells	207.3-210.3	.56	64.2

C-100

210.3-213.4	Clay	Abundant shells			
213.4-216.4	Clay	Minor shells			
216.4-219.5	Slightly fine sandy clay	Minor shells			
219.5-231.6	Clay	Minor shells	219.5-222.5	1.68	37.3
231.6-234.7	Silty fine sandy gravel		231.6-234.7	.88	53.1
234.7-246.9	Clay				
246.9-249.9		No samples			
249.9-253.0	Clay				
253.0-265.2	Clay	Shells. No shells from 256.0-259.1	259.1-262.1	.69	59.2
265.2-268.2	Clay	Minor shells			
268.2-286.5	Clay		283.5-286.5	.92	52.0
286.5-289.6	Clay	Minor shells			
289.6-298.7	Clay		295.7-298.7	.22	81.8
298.7-304.8	Cored	Recovery from 299.3-304.8			