



WATER-RIGHT DOCKET

Delaware Water Gap National Recreation Area

Docket No: 5

WATERGATE WELL.

Supporting Hydro Data

07-22-1971: letter to garland moore; reply to reference l54 ecs-lw.



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Water Resources Division
420 Federal Building
P. O. Box 1238
Trenton, N. J. 08607

IN-REPLY REFER TO:	
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Moore *atk*

July 22, 1971

Mr. Garland Moore
Acting Supervisory Hydraulic Engineer
Office of Land Acquisition and
Water Resources
National Park Service
Eastern Service Center
4228 Wisconsin Avenue NW.
Washington, D. C. 20242

In reply to your reference L54 ECS-LW

Dear Mr. Moore:

The following is a brief report on the well drilled at Watergate by
D & F Drilling Company in April 1971 and the pumping test on the well
in May.

Log:

0- 90 feet, till.
90-106 feet, cemented fine sand and gravel.
106-300 feet, alternating layers of red, tan, and green
siltstone (High Falls Formation).

Water producing fractures in the rock were encountered at 130, 240, and
270 feet - yield of the well was approximately 10 gpm as measured with
a bucket and stop watch while developing the well by surging and pumping
(air lift). Calgon was injected into the well as it was surged. There
was no notable increase in yield as a result of surging with calgon but
it helped clean the mud off the sides of the well.

The enclosed Neutron log suggests that the well penetrates potential
yielding zones in the bedrock that at present apparently do not produce
water. The zone of cemented sand and gravel between 90 and 106 feet
apparently contains water, but is not considered a potential source for
a large supply because the sand is fine-grained and well cemented.

July 22, 1971

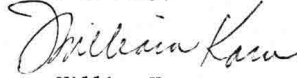
2.

An eight hour pumping test confirmed the yield of the well. The decreasing rate of drawdown shown in the enclosed graph reflects the progressively decreasing pumping rate, a consequence of the increasing depth to water in the well. In all approximately 5,000 gallons of water were pumped during the 8 hour test.

It is hoped that our repay bill can now be cleared for payment.

For the District Chief, John E. McCall:

Sincerely,

A handwritten signature in cursive script, appearing to read "William Kam".

William Kam
Section Chief

Enclosures: Gamma Ray Log
Neutron Log
Graph - showing results of pumping test.

U.S. Geological Survey
Water-Resources Division

Hole no. 1 Date 4-27-71 By L. Carroll

Location _____

Elevation 6 Log M. P. Log T. D. D. W.

Casing I. D. 4.0 From 6 To 116 Dia. From To

Hole Dia. 4 From To Dia. From To

Fluid type H. G. Temp. Res.

Logger no. 331 Tool type _____

Log speed 2.7 ft/min (up) dn Vert. scale 3.6 ft/in

Run no. 2 of 2 Tape no. _____ Begin End

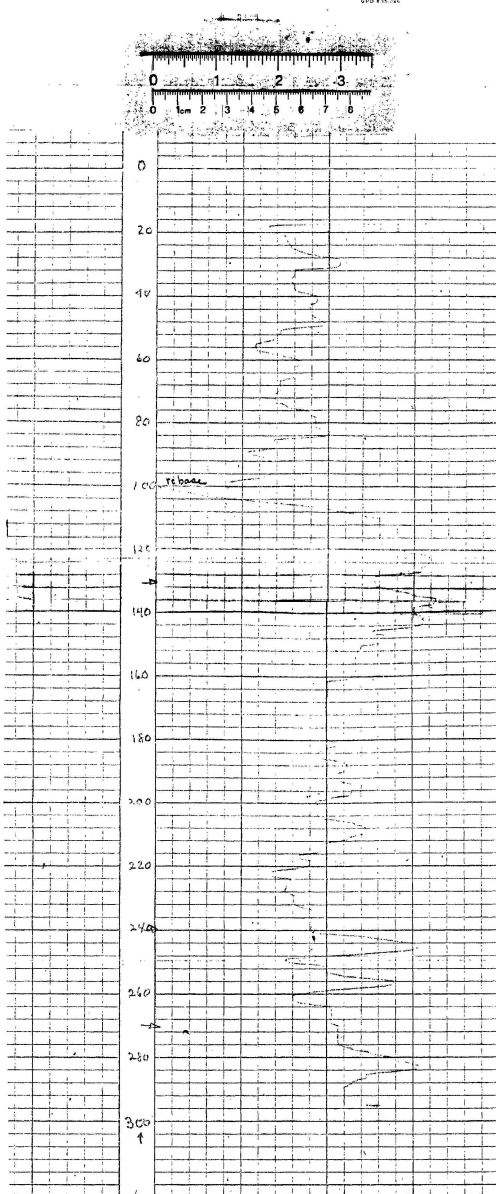
Calibrated-units/in. _____ Standardized _____

Sons. setting 7.50 5.16 11.12 Zero Pos. T. C. 7.52

Detector 1.1 ft Energy Disc. _____ Spacing 50

Source type Fracture Size 3 e Shielding Lead

Remarks: _____



Other Supporting Information

Form 10-194
(Rev. 9/60)UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

Check One:

Monthly
Estimate☐

EASTERN SERVICE CENTER

(Park)

Release of Claims
Executed 6/14/71

UNIT PRICE CONTRACT

Final
Estimate☒

ESTIMATE NO. 1	FOR (Period) 4/28/71 to 6/1/71	DATE 6/17/71
CONTRACT NO. 14-10-6-990-365	COMPLETION DATE 6/1/71	EXTENDED DATE
CONTRACTOR D.F. Well Drilling Co., Inc. Rt. 206, Netcong, N.J. 07859		ORIGINAL CONTRACT \$6,206.00
PROJECT Drilling of Test Wells		CHANGE ORDERS* \$ 340.00
LOCATION Watergate, Wallpack Peninsula		TOTAL CONTRACT \$6,546.00

ITEM NO.	CONTRACT QUANTITY	DESCRIPTION	QUANTITY TO DATE	UNIT PRICE	AMOUNT TO DATE
<u>WATERGATE</u>					
1	50LF	Drill hole to receive 6"	0	13.10	---
2	job		0	60.00	---
3	250LF		186	6.00	1,116.00
4	8HRS	Pump test	8	37.25	298.00
5	4HRS	Develop	4	40.00	160.00
6	8HRS	Stand by time	0	20.00	---
7	job	Abandonment	0	190.00	---
<u>Change order #1</u>					
1.	114 LF		114	12.10	1,379.40
<u>WALLPACK TEST HOLE #2</u>					
1	50LF		50	13.10	655.00
2	job		0	60.00	---
3	250LF		197	6.00	582.00
4	8HRS	Pump test	8	37.25	298.00
5	4HRS	Develop	4	40.00	160.00
6	8HRS	Stand by time	0	20.00	---
7	job	Abandonment	0	190.00	---

RECOMMENDED (Project Supervisor) <i>Garland Moore</i> Garland Moore	SUMMARY TOTAL TO DATE \$ 4,648.40 LESS RETAINED AMOUNT..... NET..... 4,648.40 LESS PREVIOUS PAYMENTS..... LESS LIQUIDATED DAMAGES..... DUE THIS ESTIMATE..... 4,648.40 % COMPLETED TO DATE: 100
APPROVED (Contracting Officer) <i>Ray G. Martinez</i> Ray G. Martinez Chief, Procurement and Contracting Officer	DATE 6/17/71

*Show Breakdown on Reverse

(See Reverse for Distribution)

Me

RECEIVED

JUN 16 8 47 AM '71 RELEASE OF CLAIMS

EASTERN SERVICE
CENT.

For and in consideration of the receipt of final payment in the amount of \$ 24,643.40 from the United States of America (hereinafter called the Government) under and pursuant to Contract No. 14-10-6-990-365 for Drilling Test Wells, Delaware Water Gap, National Recreational Area Delaware,

the undersigned hereby does remise, release, and discharge the Government, its officers, agents, and employees of and from any and all claims and demands whatsoever under or arising from the said contract, except specified claims in stated amounts listed as follows:

No exceptions
This release has been executed this 14 day of June 1971.

D F WELL DRILLING COMPANY, INC

BY

H. J. Schuchman

TITLE

Gen Mgr.

EASTERN SERVICE CENTER	
☐	D
☐	A
☐	AO
☐	ACA
☐	CSM
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Phone 663-1202

LAKELAND LABORATORIES

18 Nautical Terr.

Lake Hopatcong, N. J. 07849

WATER ANALYSIS (In Milligrams per Liter)

Laboratory No. 71-140Examined 5/21/71FROM D.F. Hall Drilling Co.National Park Service 11-11 # 1 N.J.
Watergate N.J.

CHEMICAL

Color <u>0</u>	Nitrite <u>0</u>	Phosphates <u>0</u>	Manganese <u> </u>
Turbidity <u>10</u>	Chloride <u>6</u>	Odor <u>0</u>	Sulfate <u> </u>
Ph <u>8.1</u>	Hardness <u>103</u>	Detergents <u> </u>	Cyanides <u> </u>
Chlorine <u>0</u>	Iron <u>.15</u>	CO ₂ <u> </u>	Chromium <u> </u>
Nitrate <u>6</u>	Copper <u>0</u>	Alkalinity <u> </u>	D. C. <u> </u>

B. O. D.

BACTERIAL

MEMBRANE TECHNIQUE.

(Total) Coliform Per 100 MI's 0 With / M-Endo Media. @ 35 Degrees Centigrade(Total) Fecal Coliform Per 100 MI's With / M-FC Media. @ 44.5 Degrees Centigrade

FERMENTATION TUBE TECHNIQUE

<u> </u> 10cc Tubes Positive	Presumptive <u> </u> 10cc Tubes Positive <u> </u>
<u> </u> 1cc Tubes Positive	<u> </u> 1cc Tubes Positive <u> </u>
<u> </u> 1cc Tubes Positive	Confirmed <u> </u> 10cc Tubes Positive <u> </u>
<u> </u> 0.01cc Tubes Positive	<u> </u> 1cc Tubes Positive <u> </u>

Most Probable Number Per 100 ml. Standard Plate Count @ 35 DegreesThis water (does not) meet State requirements bacterially.
does

REMARKS

R. Stoll
R. STOLL, Director
N. J. Licenses S-579-T-415, W-405

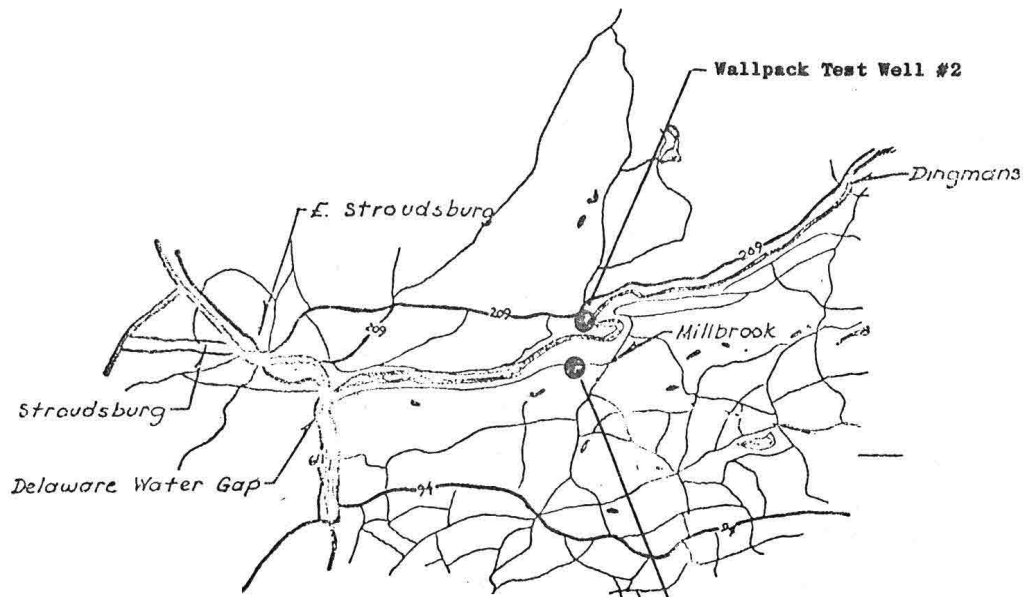


FIGURE 1 LOCATION MAP
No. Scale

6 copies

Ground-Water Supply for Watergate and Beulah Lands,
Delaware Water Gap National Recreation Area, New Jersey

Harold Meisler, Supervisory Hydrologist
U.S. Geological Survey
Trenton, New Jersey
October 1968

The purpose of this report is to: (1) identify the available aquifer at two locations (Watergate and Beulah Lands) in the Delaware Water Gap National Recreation Area, and to describe the capacity of the aquifers to yield water to wells; and (2) to select well-drilling sites at each of these locations. This investigation was made at the request of the National Park Service.

Beulah Lands and Watergate, located in Warren County, New Jersey, are underlain by the High Falls Formation of Silurian age. In the vicinity of the Delaware Water Gap the High Falls Formation is approximately 1,350 feet thick and consists of red, green, and olive colored sandstone and shale.

Reported yields (compiled by the New Jersey Bureau of Geology and Topography) of 101 wells tapping the High Falls Formation in Warren (5 wells) and Sussex (96 wells) Counties, New Jersey range from 1/2 gpm (gallons per minute) to 60 gpm. The average yield is 17 gpm. Reported specific capacity of 47 of these wells (3 are in Warren County) average approximately 0.6 gpm per foot of drawdown.

Overlying the High Falls Formation in at least part of the Watergate area are deposits of glacial till of Pleistocene age. The areal extent or thickness of the till is unknown. The till is relatively impermeable and does not yield appreciable quantities of water to wells. Sand and gravel deposits of glacio-fluvial origin may occur in the Watergate area. Such materials, if thick enough and within the zone of saturation, would yield significant quantities of water to wells. The occurrence and suitability of such deposits in the Watergate area would have to be established by test drilling.

On October 2, 1968 the writer accompanied by James L. Isenogle of the Delaware Water Gap National Recreation Area located and marked five well-drilling sites. These sites, three at Beulah Lands and two at Watergate, are shown on the accompanying maps. The order in which the sites should be drilled is also indicated on the maps. Obviously, if an adequate water supply is obtained from the first drilled well, drilling at site 2 or 3 should not be undertaken.

The selection of these sites is based on (1) the possible occurrence of joint systems in the underlying rocks as inferred from the topography at the two locations; (2) the probable pattern of ground-water movement as interpreted from the geology and topography; and (3) the possible occurrence of permeable sand and gravel deposits.

Wells at Beulah Lands should be drilled to depths of 350 feet unless adequate water is obtained at shallower depths. At Watergate the maximum drilling depth should be 300 feet.

- 2 -

Docket Information

Number of Documents in Docket 11

Documents Dated from 10/15/1968 to 7/22/1971

Docket Compiled: 3/1/2011