



WATER-RIGHT DOCKET

Delaware Water Gap National Recreation Area

Docket No: 1

HIDDEN LAKE AREA WELL

Supporting Hydro Data

00-00-0000: driller's log for well no. 1

GREENING BROTHERS

WELLS AND PUMPS

Phone 4871

MILFORD, PA.



DRILLER'S LOG FOR WELL NO. 1 AT HIDDEN LAKE FOR NATIONAL PARK SERVICE

DEPTH	FORMATION	COMMENTS (Color, Hardness, GPM, Etc.)
0 - 5	Overburden (boulders, gravel, dirt)	Very loose and unconsolidated
5 - 10	Same	Same
10 - 15	Same	Same
15 - 20	Overburden with boulders and gravel	Some water
20 - 21	Same	Same
21 - 25	Solid Rock, grey limestone	Hard rock
25 - 30	Same	Same
30 - 34	Solid rock, set casing @ 34' and cemented	Good case-off
34 - 40	Solid rock, grey limestone	Drilling 6" hole, rock fractures good
40 - 45	Same	Same
45 - 50	Brownish, grey limestone, no water	Rock fractures good
50 - 55	Same	Same
55 - 60	Same	Same
60 - 65	Same	Same
65 - 70	Same	Same
70 - 75	Same	Same
75 - 80	Blue limestone with shale streaks	No water
80 - 85	Same	Same
85 - 90	Same	Same
90 - 95	Same	Same
95 - 100	Same	Same
100 - 105	Same	Same
105 - 108	Dark Grey limestone	2 GPM of water
108 - 110	Same	Same
110 - 115	Same	Same
115 - 120	Same	Same
120 - 125	Dark grey limestone	4 GPM of water, Vein could be cleaning
125 - 128	Dark grey limestone with rotten brown limestone streak	12 GPM of water, water turns brown
128 - 130	Same	Same
130 - 135	Same	Same
135 - 140	Same	Same
140 - 145	Same	Still 12 GPM
145 - 150	Same	Same
150 - 155	Same	Same
155 - 158	Dark grey limestone with shale streak	20 GPM
158 - 160	Same	Same
160 - 165	Same	Same
165 - 170	Same	Same
170 - 175	Same	Same
175 - 180	Same	Same
180 - 185	Same	Same
185 - 186	Dark grey limestone	Water changed color, reddish brown, the back again, no increase in amount of water

GREENING BROTHERS

WELLS AND PUMPS

Phone 4871

MILFORD, PA.



Driller's Log

Page 2

186 - 190	Same	Same
190 - 195	Same	Same
195 - 200	Same	Same
200 - 205	Dark Grey limestone	Same
205 - 210	Same	Same
210 - 215	Same	Same
215 - 220	Dark grey limestone with shale streak	20 GPM
220 - 225	Same	Same
225 - 230	Same	Same
230 - 235	Same	Same
235 - 238	Dark grey limestone with shale streak	Water increased to 30 GPM
238 - 240	Same	Same
240 - 245	Same	Same
245 - 250	Same	Same
250 - 255	Same	Same
255 - 258	Dark grey limestone	Water changed to tan color
258 - 260	Same	Same
260 - 263	Black limestone with brown stain	Soft rock, fractures good
263 - 265	Same	Same
265 - 270	Dark grey limestone	Same
270 - 272	Dark grey limestone with brown streak	50 GPM
272 - 275	Dark grey limestone with brown streak	Same
275 - 280	Dark grey limestone, harder	Same
280 - 285	Dark grey limestone, very hard	60 GPM
285 - 290	Dark grey limestone, very hard	Same
290 - 295	Dark grey limestone, harder	Same
295 - 300	Dark grey limestone, softer with grey shale	Same
300 - 305	Dark grey limestone, softer	Same
305 - 308	Dark grey limestone, harder	60 GPM



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION
100 North Cameron Street
Harrisburg, Pennsylvania 17101

March 21, 1968

Mr. Richard L. Stanton
Chief, Office of Land and Water Rights
Washington Planning and Service Center
National Park Service
1730 North Lynn Street
Arlington, Virginia 22209

Dear Mr. Stanton:

This letter is in reply to your request, L54 WSC-OLW, of March 15, 1968 for information on geohydrologic conditions in the Hidden Lake Area, Monroe County, Pa., on well-drilling techniques used in the area, and on a list of well drillers who might be interested in bidding on a test well in the area.

Hidden Lake lies along the south side of a valley filled with glacial debris. Two wells at Shoemakers, about 1 1/2 miles north-east of the lake are reported to have penetrated 90 and 180 feet of glacial sand and "quicksand". In the immediate vicinity of the lake the thickness is probably less than 50 feet, and it is probably less than 10 feet on the steep slopes south of the lake.

The bedrock underlying the lake and the two sites consists of limestone and argillaceous limestone grading downward stratigraphically to argillaceous calcareous siltstone, and silty shale and siltstone. These units are named the Buttermilk Falls Limestone, the Schoharie Formation, and the Esopus Formation, and are grouped on small-scale maps, such as the Geologic Map of Pennsylvania, as the Onondaga Formation. Below the Esopus is the Oriskany Group, consisting of the Ridgeley Sandstone and the Shriver Chert. The Onondaga is about 550 feet thick and Oriskany about 100 feet thick.

The Oriskany crops out about half way between Hidden Lake and the Delaware River. It dips nearly vertically toward the northwest where it is folded in a tight syncline and then is arched over in a broader anticline whose axis probably lies just north of the lake. The Oriskany does not reach the surface in the lake's vicinity and its depth of burial is not known.

*well drilled in
list filed in
Synthron Brown
"List of Well
Drillers"*

Little information on the hydrologic properties of the rocks in this area is available. Such information as we have is on a scattering of domestic wells.

(bid person muk)
Wells completed in lenses of coarse sand and gravel in the glacial deposits should yield large supplies of water. However much of the glacial material is fine-grained so that it must be cased off and the well completed in the underlying bedrock.

The Onondaga Formation has been reported to yield 20 to 30 gallons per minute to wells penetrating solution channels in the limestone units. Much larger yields could possibly be obtained. Drilling is difficult in the Onondaga because of the presence of large flint nodules which deflect the drilling bits.

The Ridgeley Sandstone of the Oriskany Group is highly permeable and should yield large supplies. No local hydrologic information is available, but a well in Saylorsburg about 18 or 20 miles southwest of Hidden Lake, where the Oriskany is somewhat thicker, is reported to yield 150 gallons per minute from weathered beds of the Oriskany.

Techniques of well drilling in the area vary with the driller and with the geologic conditions. Cable-tool rigs, and air and mud rotaries are all used. Some drillers prefer one type, while others use both cable tool and air rotary machines--in some cases for different parts of the same well.

It is difficult to recommend which drillers would be interested in bidding on test wells in the area. Accordingly, we are sending you a copy of the latest list of water well drillers active in Pennsylvania. For bids on a single well probably only a few local drillers need be contacted, but for larger bids drillers as far away as Harrisburg, Philadelphia, New York or farther should be notified.

Sincerely yours,

For the Associate District Chief

Charles W. Poth
Charles W. Poth
Hydrologist

Encl.

GROUND WATER SUPPLY OF DELAWARE WATER GAP
NATIONAL RECREATIONAL AREA,
PENNSYLVANIA

WATER SUPPLY TEST WELL NO. 1
AT HIDDEN LAKE

Page 1 of 1
W.C. Roth

O. B. Lloyd, Jr., and D. J. Growitz, Hydrologists
and
W. C. Roth, Physical Science Technician

Prepared for the National Park Service
by the
Water Resources Division, U. S. Geological Survey

ADMINISTRATIVE REPORT FOR U. S. GOVERNMENT USE ONLY

1968

On November 26, 1968, Greening Brothers Drilling Co. of Milford, Pa. completed drilling a water-supply test well for the National Park Service at the proposed development site just southwest of Hidden Lake, Delaware Gap National Recreational Area. (See fig. 1.) The physical characteristics of the well are as follows:

	<u>Borehole</u>	<u>Casing</u>
Depth:	308 feet	34 feet
Diameter:	12 inches to 34 feet 6 inches from 34 to 308 feet ^{1/}	6 inches (inside)

A time log and a drillers log were kept while the well was being drilled, and a lithologic log was prepared from a study of the rock cuttings that were collected at 5-foot depth intervals. (See table 1.) The lithologic log indicates the well was drilled in the Schoharie and/or Esopus Formations of early Devonian age.

^{1/} Annular space between 12-inch borehole and 6-inch casing is filled with concrete.

Six water-bearing zones were penetrated by the drill. The approximate depths and yields of each zone as they were determined during drilling are as follows:

<u>Zone number</u>	<u>Zone depth in feet below land surface</u>	<u>Zone yield in gallons per minute</u>	<u>Cummulative yield in gallons per minute</u>
1	108	2	2
2	125	2	4
3	128	8	12
4	160	8	20
5	238	10	30
6	272	30	60

On December 4, 1968, an 8-hour step-drawdown test was made on the completed well. The well was pumped at about 40, 60, and 73 gpm (gallons per minute), and the water level was drawn down about 16 feet during the test. (See table 2 and fig. 2.) Extrapolation of the pumping-test data indicate the well can be pumped at about 90 gpm for a 12-hour period, and the water level will be about 125 feet below land surface. Pumping 90 gpm for a longer period of time, or at much higher rates for a shorter period of time, would lower the water level below one or more of the major yielding zones and would cause a sharp decrease in the yield of the well.

The test data indicate also that the specific capacity of the well (gallons per minute per foot of water-level drawdown) decreases significantly as the pumping rate increases. (See fig. 2.) This occurs because the openings through which water enters the well are small, and they begin to inhibit the flow of water into the well at a relatively low pumping rate. This loss of efficiency is referred to as well loss. Well loss amounted to about 32 percent of the total drawdown during the first part of the test and increased, as the pumping rate increased, to about 44 percent of the total drawdown at the end of the test. Well loss may sometimes be reduced by standard well-development techniques (such as surging with a solution of hexametaphosphate) when the water-bearing zones and openings are clogged with residual clay or fine particles produced during drilling. Although no evidence of clogging (such as slugs of turbid water) was apparent during the test, it may be advisable to try to further develop the water-bearing zones if large volumes of water are to be pumped from the well.

Water samples were collected for field determinations of temperature, pH, specific conductance, and hardness during the test. The results are as follows:

<u>Time after pumping began</u>	<u>Specific conductance in micromhos at 25° C</u>	<u>Temperature in degrees Centigrade</u>	<u>Hardness in grains per U.S. gallon</u>	<u>pH</u>
120	175	10	4	6.9
420	175	10	4	---

In addition, a water sample was collected for complete analysis in the laboratory. The results of the analysis (table 3) indicate that water is calcium-bicarbonate in type, moderately hard, and the concentration of iron is below that recommended by the U.S. Public Health Service for water supply.

When a pump is installed, provision should be made to meter pumpage and measure the static and pumping water level so that the performance of the well can be checked periodically..

Table 1.--Time, driller's, and lithologic log for Hidden Lake Test Well #1, Delaware Water Gap National
Recreational Area

Depth interval (in feet)	Drilling time-log (minutes)	Driller's log	Lithologic log
0 - 5		No driller's log kept between 0 and 35 feet.	
5 - 10			Siltstone, shaly, dark gray to tan.
10 - 15			Siltstone, shaly, gray to dark gray.
15 - 20			Siltstone, shaly, buff to gray.
20 - 25			Siltstone, shaly, gray.
25 - 35			Siltstone, shaly, to shale, silty; both gray. 4
35 - 40	4.5	Gray rock.	Siltstone, shaly, to shale, silty; both gray to dark gray.
40 - 45	13	do.	
45 - 50	10	do.	do.
50 - 55	15	Gray rock. More drill pipe added at 53 feet.	do.
55 - 60	6	Gray rock. Soft place at 56 feet.	do.
60 - 65	7	Gray rock.	do.

Table 1.--Time, driller's, and lithologic log for Hidden Lake Test Well #1, Delaware Water Gap National
Recreational Area--Continued

Depth interval (in feet)	Drilling time-log (minutes)	Driller's log	Lithologic log
5 - 120	14	Dark gray.	Shale, silty, to siltstone, shaly; both calcareous, and dark gray.
120 - 125	13	Darker gray rock. Water 4 gpm.	Shale, silty, to siltstone, shaly; both calcareous, dark gray.
125 - 130	22	Dark gray rock; more drill pipe added at 128 feet; water brown colored instead of gray. Water 12 gpm.	do.
130 - 135	9	Dark gray rock.	do.
135 - 140	10	do.	do.
140 - 145		Dark gray rock. More drill pipe added at 143 feet.	Shale, silty, to siltstone, shaly; both dark gray.
145 - 150	12	Dark gray rock. Water 12 gpm.	Shale, silty, to siltstone, shaly; both calcareous, dark gray.
150 - 155	10	Dark gray rock.	Shale, silty, calcareous, dark gray.
155 - 160	28	Dark gray rock. At 158 feet water level 94.24 feet below top of casing following over- night rest.	do.
160 - 165	11	Dark gray rock. Water 20 gpm.	Shale, silty, calcareous, greenish gray.
165 - 170	20	do.	Shale, silty, calcareous, dark gray.

Table 1.--Time, driller's, and lithologic log for Hidden Lake Test Well #1, Delaware Water Gap National
Recreational Area--Continued

Depth interval (in feet)	Drilling time-log (minutes)	Driller's log	Lithologic log
5 - 120	14	Dark gray.	Shale, silty, to siltstone, shaly; both calcareous, and dark gray.
120 - 125	13	Darker gray rock. Water 4 gpm.	Shale, silty, to siltstone, shaly; both calcareous, dark gray.
125 - 130	22	Dark gray rock; more drill pipe added at 128 feet; water brown colored instead of gray. Water 12 gpm.	do.
130 - 135	9	Dark gray rock.	do.
135 - 140	10	do.	do.
140 - 145		Dark gray rock. More drill pipe added at 143 feet.	Shale, silty, to siltstone, shaly; both dark gray.
145 - 150	12	Dark gray rock. Water 12 gpm.	Shale, silty, to siltstone, shaly; both calcareous, dark gray.
150 - 155	10	Dark gray rock.	Shale, silty, calcareous, dark gray.
155 - 160	28	Dark gray rock. At 158 feet water level 94.24 feet below top of casing following over- night rest.	do.
160 - 165	11	Dark gray rock. Water 20 gpm.	Shale, silty, calcareous, greenish gray.
165 - 170	20	do.	Shale, silty, calcareous, dark gray.

Table 1.--Time, driller's, and lithologic log for Hidden Lake Test Well #1, Delaware Water Gap National
Recreational Area--Continued

Depth interval (in feet)	Drilling time-log (minutes)	Driller's log	Lithologic log
170 - 175	25	Dark gray rock. More drill pipe added at 173 feet.	Shale, silty, calcareous, gray to dark gray.
175 - 180	19	Dark gray rock.	Shale, silty, calcareous, gray to dark gray.
180 - 185	16	do.	do.
185 - 190	21	Lith gray rock. Water color changes from gray to brown and back to gray.	do.
190 - 195	21	Lighter gray rock. Specific conductance = 180. Water temp. 47° F.	Shale, silty, calcareous, dark gray, to siltstone, shaly; greenish gray
195 - 200	22	Lighter gray rock.	Shale, silty, calcareous, dark gray.
200 - 205	13	Lighter gray rock. Water 20 gpm; More drill pipe added at 203 feet.	do.
205 - 210	16	Lighter gray rock.	do.
210 - 215	17	do.	Shale, silty, to siltstone, shaly; both calcareous, gray to dark gray.
215 - 220	19	do.	Siltstone, shaly, calcareous, dark gray.

Table 1.--Time, driller's, and lithologic log for Hidden Lake Test Well #1, Delaware Water Gap National
Recreational Area--Continued

Depth interval (in feet)	Drilling time-log (minutes)	Driller's log	Lithologic log
220 - 225	16	Lighter gray rock. Water 20 gpm.	Siltstone, shaly, calcareous, dark gray.
225 - 230	18	Lighter gray rock.	Siltstone, shaly, calcareous, to shale, silty; both dark gray.
230 - 235	21	Lighter gray rock. More drill pipe added at 233 feet; piston broke.	Siltstone, shaly, calcareous, dark gray.
235 - 240	28	Gray rock. Water level 95.05 feet after overnight rest. Water 30 gpm.	Shale, silty to siltstone, shaly, calcareous, dark gray.
240 - 245	30	Gray rock. Specific conductance 160; temp. 49° F; 3 grains hardness.	Siltstone, shaly to shale, silty; calcareous, dark gray.
245 - 250	31	Gray rock. Water color changed from gray to light tan, then back to gray. More drill pipe added at 248 feet.	Shale, silty, calcareous, gray.
250 - 255	11	Gray rock.	Siltstone, shaly, calcareous, gray.
255 - 260	26	Gray rock. Soft place at 259 feet.	Siltstone, shaly, calcareous to shale, silty; gray to dark gray.

Table 1.--Time, driller's, and lithologic log for Hidden Lake Test Well #1, Delaware Water Gap National
Recreational Area--Continued

Depth interval (feet)	Drilling time-log (minutes)	Driller's log	Lithologic log
260 - 265	21	Gray rock with some brown stain. More drill pipe added at 263 feet.	Siltstone, shaly, greenish gray.
265 - 270	28	Gray rock with brown stain.	Shale, silty, light to dark gray to siltstone, shaly; dark gray; calcareous.
270 - 275	29	Gray rock. Water 60 gpm; water color changes to brown.	Shale, silty, calcareous, light to dark gray.
275 - 280	38	Gray rock. More drill pipe added at 278 feet.	Shale, silty, dark gray.
280 - 285	51	Gray rock. Water 60 gpm; rock seems harder.	Siltstone, shaly, calcareous, light to dark gray.
285 - 290	52	Gray rock.	Shale, silty, siltstone, shaly; light gray to dark gray; calcareous.
290 - 295	58	Gray rock. More drill pipe added at 293 feet.	Siltstone, shaly, calcareous, dark gray.
295 - 300	30	Gray rock. Soft streak at 300 feet.	Shale, silty to siltstone, shaly, calcareous, dark gray.
300 - 305	19	Gray rock.	Shale, calcareous, dark gray.
305 - 308	19	do.	Shale, dark gray.

Table 2.--Data collected during step-drawdown test made on Hidden Lake
 Test Well #1, Delaware Water Gap National Recreational
 Area; December 4, 1968

Pump on: 8:42 a.m.

Pump off: 4:42 p.m.

Static water level: 96.6 feet below measuring point.

Measuring point: 1.5 feet above land surface.

Time in minutes since pumping began	Water level in feet below measuring point	Drawdown in feet	Yield in gallons per minute	Remarks
1	101.7	5.1	-----	
2	-----	-----	-----	
3	102.4	5.8	46.5	
4	103.1	6.5	-----	
5	103.4	6.8	-----	
6	103.4	6.8	-----	
7	103.7	7.1	-----	
8	103.6	7.0	47.8	
9	103.7	7.1	-----	
10	103.7	7.1	-----	
11	103.5	6.9	-----	
12	104.0	7.4	-----	
15	104.0	7.4	44.6	
18	103.7	7.1	-----	
25	102.6	6.0	39.8	Cutback on discharge at 20 minutes.
30	102.8	6.2	-----	
40	102.4	5.8	37.1	
46	102.5	5.9	37.1	
55	103.0	6.4	-----	
60	102.9	6.3	-----	
75	103.1	6.5	39.8	
92	103.0	6.4	39.8	
105	102.9	6.3	39.3	
120	103.1	6.5	38.8	Clear water sample taken: T= 10°C; SC= 175; Hard: 4 gr.; pH= 6.9.
135	103.2	6.6	37.9	
150	103.1	6.5	39.3	
182	103.1	6.5	38.4	
184.5	104.5	7.9	-----	Pumping rate increased at 184 minutes.
186	105.2	8.6	-----	
192	106.2	9.6	55.0	
194	106.4	9.8	-----	
195	106.4	9.8	56.9	
200	106.7	10.1	56.9	

Time in minutes since pumping began	Water level in feet below measuring point	Drawdown in feet	Yield in gallons per minute	Remarks
205	107.2	10.6	58.9	
210	107.2	10.6	-----	
215	107.4	10.8	60.0	
225	107.6	11.0	60.0	
240	107.7	11.1	60.0	
255	107.9	11.3	60.0	
270	107.8	11.2	58.9	
285	107.9	11.3	60.0	
300	108.0	11.4	58.9	
315	108.1	11.5	60.0	
330	108.3	11.7	58.9	
360	108.3	11.7	58.9	
374	111.2	14.6	73.3	Pumping rate increased at 373 minutes.
375	111.3	14.7	-----	
376	111.1	14.5	-----	
377	111.1	14.5	-----	
378	111.0	14.4	73.3	
380	111.0	14.4	-----	
385	111.2	14.6	73.3	
390	111.4	14.8	-----	
405	111.7	15.1	73.3	
422	111.8	15.2	73.3	Clear water sample taken: T= 10°C; SC= 175; Hard: 4 gr.
437	112.0	15.4	-----	
455	112.0	15.4	73.3	
465	112.2	15.6	-----	
480	112.3	15.7	73.3	

Table 3.--Analysis of water from Hidden Lake Test Well #1, DelawareWater Gap National Recreational Area

(Results in parts per million except as indicated)

Date of collection: December 4, 1969

Silica (SiO ₂)	10
Iron (Fe)	0.27
Manganese (Mn)	.01
Calcium (Ca)	21
Magnesium (Mg)	3.9
Sodium (Na)	5.2
Potassium (K)	.8
Bicarbonate (HCO ₃)	72
Sulfate (SO ₄)	20
Chloride (Cl)	1.4
Fluoride (F)	0.0
Nitrate (NO ₃)	0.0
Dissolved solids (sum)	98
Hardness (as CaCO ₃) ^{1/}	
Total	69
Noncarbonate	10

Specific conductance: 162 (micromhos at 25°C)

^{1/} USGS hardness classification:

0 - 60 ppm	Soft
61 - 120	Moderately hard
121 - 180	Hard
above 180	Very hard

Map taken from 7½' Bushkill Quadrangle,
a topographic map of the United States
Geological Survey.



Figure 1. Map showing location of Hidden Lake Test Well #1 (drilled Nov. 1968), Delaware Water Gap National Recreational Area.

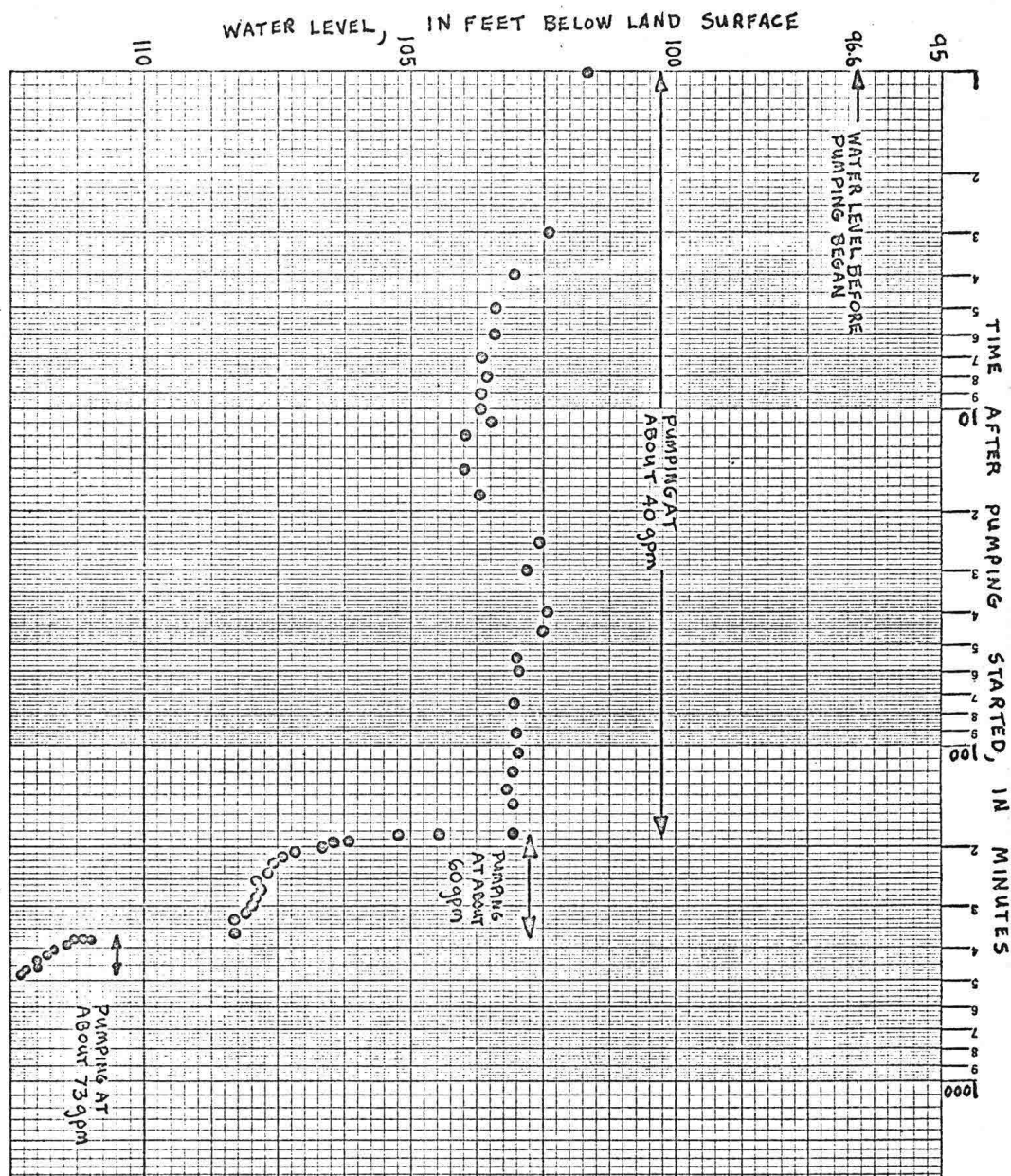


Figure 2. Graph showing water level decline during a step-drawdown test made on Hidden Lake Test Well #1, December 4, 1968.

(Continued)

Delaware Water Gap National Recreation Area
265 South Courtland Street
East Stroudsburg, Pennsylvania 18301

D52

January 8, 1969

LETTER OF ACCEPTANCE

Mr. Allen J. Greening, Sr.
300 West Ann Street
Milford, Pennsylvania 18337

Dear Mr. Greening:

In accordance with the specifications for Contract No. 14-10-7-993-307,
Drilling of Test Wells at Delaware Water Gap National Recreation Area,
a final inspection was made on December 5, 1968. This inspection and
periodic checks during the progress of the drilling by designated per-
sonnel of the U. S. Geological Survey reveal that the work was completed
in accordance with the plans and specifications and is entirely acceptable.

Sincerely yours,

James L. Isenogle
Acting Superintendent

cc:
Chief, Office of Land and Water Rights ✓
Finance Office, NCR
Chief, Branch of Water Resources, WASO
NERO
Chief, D&C, PPSC

*Continued
P. 2*

RELEASE OF CLAIMS

For and in consideration of the receipt of final payment in the amount of One Thousand One Hundred Twenty Dollars and Forty Cents (\$1,120.40) from the United States of America (hereinafter called the Government) under and pursuant to Contract No. 14-10-7-993-307, Drilling of Test Wells at Delaware Water Gap National Recreation Area, the undersigned does hereby 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 13 day of June, 1969.

(Contractor)

BY

Allen S. Shuning Sr.
Owner

(Title)

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

Delaware Water Gap National Recreation Area

(Park)

UNIT PRICE CONTRACT

Check One:

Monthly
Estimate☒Final
Estimate☐

ESTIMATE NO. 1	FOR (Period) November 6 thru 25, 1968		DATE November 26, 1968		
CONTRACT NO. 14-10-7-993-307		COMPLETION DATE December 5, 1968	EXTENDED DATE --		
CONTRACTOR Allen J. Greening, Sr.			ORIGINAL CONTRACT \$ 4,155.00		
PROJECT Drilling of Test Wells at Delaware Water Gap National Rec. Area			CHANGE ORDERS* \$ --		
LOCATION Hidden Lake, Monroe County, Pennsylvania			TOTAL CONTRACT \$ 4,155.00		
ITEM NO.	CONTRACT QUANTITY	DESCRIPTION	QUANTITY TO DATE	UNIT PRICE	AMOUNT TO DATE
1.	50 L.F.	Drill hole to receive six-inch (6") inside diameter casing and two-inch (2") minimum grout ring and install casing and grout	34 L.F.	\$21.70	\$ 737.80 ✓
2.	250 L.F.	Drill six-inch (6") diameter open hole	235 L.F.	6.36	1,494.60 ✓

RECOMMENDED (Project Supervisor)		SUMMARY	
[S] FRANK MONTGOMERY		TOTAL TO DATE \$ 2,232.40	
Frank Montgomery, Administrative Officer		LESS RETAINED AMOUNT... 10% - 223.24	
APPROVED (Contracting Officer)		NET..... 2,009.16	
(SGO) PETER DeGELLEKE		LESS PREVIOUS PAYMENTS..... --	
Peter DeGelleke, Superintendent		LESS LIQUIDATED DAMAGES..... --	
DATE 11-26-68		DUE THIS ESTIMATE..... 2,009.16	
		% COMPLETED TO DATE: 75%	

*Show Breakdown on Reverse

(See Reverse for Distribution)

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

Check One:

Monthly
Estimate ☐Final
Estimate ☒

Delaware Water Gap National Recreation Area

(Park)

UNIT PRICE CONTRACT

ESTIMATE NO. 2	FOR (Period) November 6, 1968, through December 5, 1968	DATE JAN 15 1968
CONTRACT NO. 14-10-7-213-247	COMPLETION DATE December 5, 1968	EXTENDED DATE --
CONTRACTOR Allan J. Greening, Jr.		ORIGINAL CONTRACT \$ 4,155.00
PROJECT Drilling of Test Wells at Delaware Water Gap National Rec. Area		CHANGE ORDERS* \$ 4,155.00
LOCATION Hidden Lake, Monroe County, Pennsylvania		TOTAL CONTRACT \$ 4,155.00

ITEM NO.	CONTRACT QUANTITY	DESCRIPTION	QUANTITY TO DATE	UNIT PRICE	AMOUNT TO DATE
1.	50 L.F.	Drill hole to receive six-inch (6") inside diameter casing and two-inch (2") minimum grout ring and install casing and grout	34 L.F.	21.70	\$ 737.80
2.	250 L.F.	Drill six-inch (6") diameter open hole	266 L.F.	6.36	1,691.76
3.	8 hours	Pump testing for yield, drawdown, and recovery of well, including installation of 1" pipe for measuring water level	8 hours	87.50	700.00

RECOMMENDED (Project Supervisor) [S] FRANK MONTGOMERY Frank Montgomery, Administrative Officer		SUMMARY	
APPROVED (Contracting Officer) (SGD) PETER DeGELLEKE Peter DeGelleke, Superintendent		DATE JAN 15 1968	
		TOTAL TO DATE \$ 3,129.56	
		LESS RETAINED AMOUNT.....	
		NET..... 3,129.56	
		LESS PREVIOUS PAYMENTS..... 2,000.16	
		LESS LIQUIDATED DAMAGES.....	
		DUE THIS ESTIMATE..... 3,129.56	
		% COMPLETED TO DATE: 100%	

*Show Breakdown on Reverse

(See Reverse for Distribution)

Docket Information

Number of Documents in Docket 24

Documents Dated from 1/15/1968 to 1/8/1969

Docket Compiled: 2/23/2011