



WATER-RIGHT DOCKET

Virgin Islands National Park

Docket No: 3

WELL #3, CRUZ BAY.

Supporting Hydro Data

00-00-0000: table 1 - records of drilled test wells, virgin islands

Table 1.--Records of drilled test wells, Virgin Islands

DESIGNATION				CONSTRUCTION DATA						HYDROLOGIC DATA				SUPPLEMENTARY DATA		
Well number	Location	Date Plotted	com- m-	Depth	Casing record		Finish Depth (feet)	Type of lift	Surface altitude (feet)	Depth below land used (feet)	Water- bearing material	Yield (gpm)	Temp. Of	Remarks		
					Diam- eter	From To									From To	
NPS-2	Cruz Bay	Drilled	1964	99	4	0	20	0	20	99	None					
NPS-3	Cruz Bay	do	1964	54	6	0	25	0	25	54	None					
NPS-4	Lind Point	do	1964	200	6	-	-	0	200	None						
NPS-5	Trunk Bay	do	1964	60	6	0	12	0	12	60	None					
NPS-6	Cinnamon Bay	do	1964	70	6	0	50.7	0	50.7	70	None					
NPS-7	Hawksnest Bay	do	1964	36	6	0	27	0	27	36	None					
NPS-8	Cinnamon Bay	do	1964	50	6	-	-	0	0	50	None					
NPS-9	Cinnamon Bay	do	1964	60	6	0	39	0	60	Sub-						
										</						

Finish: 0 - open hole, S - slotted.

Water-bearing material: Vb, volcanic breccia; Vt, volcanic tuff; V, volcanic undifferentiated.

Use: T, test; O, observation; P, public supply.

National Park, St. John, V. I.

Table 2.--Chemical quality of water from drilled test wells, Virgin Islands National Park, St. John, V. I.

Well Number	Location	Date of collection	PARTS PER MILLION															Discharge (gpm)	
			Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25° C)		pH
															Calcium	Non-alkalinity			
NPS-2	Cruz Bay	5-18-64	31	0.00	66	67	320	-	644	46	470	0.6	4.9	1,400	440	0	2,490	7.9	1
NPS-3	Cruz Bay	6-3-64	34	.00	94	77	377	-	632	45	480	.5	4.4	1,420	551	33	2,270	7.8	5
NPS-4	Cruz Bay housing	Dry hole																	
NPS-5	Trunk Bay	7-17-64	38	.05	80	61	188	-	432	39	300	.0	.0	988	450	55	1,670	7.9	6
NPS-6	Cinnamon Bay	8-2-64	34	.00	46	81	224	-	380	47	400	.3	.4	1,060	448	128	1,900	8.2	8
NPS-7	Hawksnest Bay	8-8-64 ^{1/}	35	.00	68	88	214	-	472	57	505	.1	2.2	1,260	534	308	2,090	7.9	12
NPS-7	Hawksnest Bay	8-8-64 ^{2/}	38	.05	106	577	628	-	430	276	2,425	.0	.4	5,640	2,637	2,342	7,440	7.5	12
NPS-8	Cinnamon Bay	Dry hole																	
NPS-9	Cinnamon Bay		36	.00	58	71	183	-	504	30	275	.5	.0	964	436	23	1,610	8.4	8
NPS-10	Ianeshur Bay		23	.04	70	111	-	-	544	-	1,003	.3	.9	2,380	631	185	4,090	7.8	2

1/ Sample taken at beginning of test, 5 minutes pumping.

2/ Sample taken at end of test, 12 hours pumping.

Other Supporting Information

Virgin Islands Cooperative Water-Resources Investigations

Water Resources Division
U. S. Geological Survey

INFORMATION RELEASE VI-17
St. John, Virgin Islands

Ground Water, V. I. National Park
St. John, V. I.

Annual Summary

The Virgin Islands National Park and the Virgin Islands in general have been experiencing a drouth since late in 1963. Ground-water levels reached a high in September 1963 and since generally have been declining as shown by hydrographs of selected wells, figures 1 and 2. Hydrographs of other wells show similar trends.

Table 1 summarizes well information and table 2 gives data on chemical quality of water from the test wells. Detailed well information on test wells completed in the National Park is given in previous Information Releases and Monthly Reports.

In general, the information gained from the test drilling has been very encouraging. Ground water of fair chemical quality and in significant quantities is available in most areas of the National Park and should be considered as a source of supply for all future development. It is the least expensive and the most reliable of all natural sources in the National Park.

During December 1964, field chloride determinations (table 3) of water samples from NPS-9 at Cinnamon Bay, which was recently placed in operation, show a slight increase in chloride content. The chloride content may stabilize, but if periodic analyses of the water continues to show increasing chloride it will be necessary to rest the well for longer periods and to pump for shorter intervals. In conjunction with this, it would be advisable to put into operation NPS-6 and NPS-12 as noted in Information Release VI-15.

Cinnamon Bay Spring has been dry since February 1964 except for short periods after rains that cause some surface runoff. The flow from the spring at these times is essentially surface flow and near-surface runoff, and not ground water in the true sense. Before ground-water flow is re-established it will be necessary for the ground water reservoir to be recharged from rainfall. Water levels must rise several feet, perhaps as much as 4 feet, judging from ground-water levels in similar areas in the Islands.

During the coming months the program of measuring water levels and stream flow will continue on St. John, and periodic reports summarizing the results will be made.

The information contained in this release is preliminary and is subject to revision. It may be used internally by the cooperating agencies and their representatives, but may not be published.

January 15, 1965

San Juan, Puerto Rico

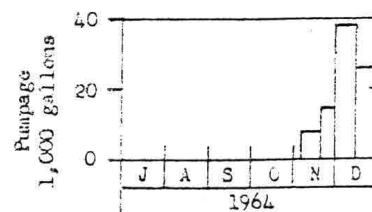
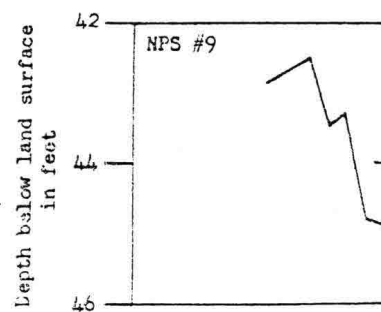
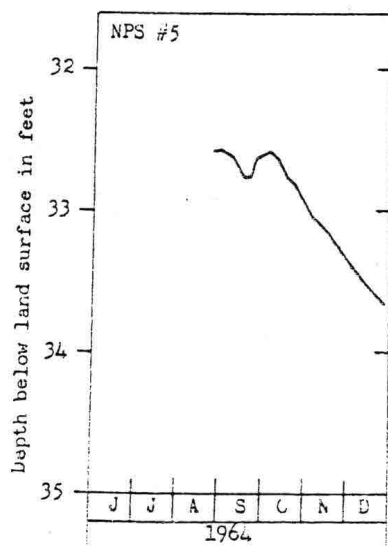
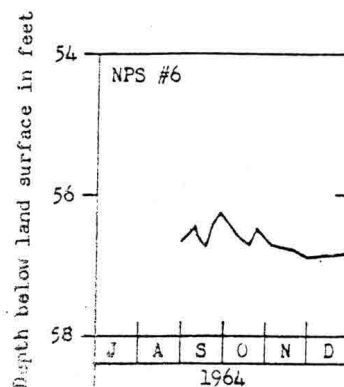
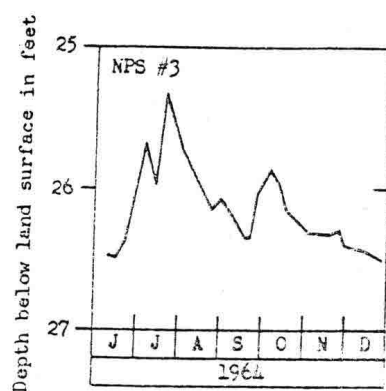


Figure 2.— Water levels in selected wells, St. John, V. I.

12 Arroyo Street
Hato Rey, Puerto Rico 00918

January 12, 1965

Mr. Frank R. Givens, Superintendent
National Park Service
Virgin Islands National Park
P. O. Box 1707 Charlotte Amalie
St. Thomas, V. I. 00802

Dear Mr. Givens:

A tabulation is enclosed of funds spent on test-well drilling for the National Park Service in St. John, Virgin Islands. The funds were assigned in FY-1964, but the drilling contract carried over into FY-1965.

If you have any questions about the data shown, Mr. Donald G. Jordan, our resident engineer in St. Thomas, is in the best position to provide answers. Sufficient copies of the tabulation have been provided for your possible transmittal to appropriate other NPS offices.

Exploring for and finding water for some of your needs was an interesting technical problem. The second phase of observing how the well supplies stand up under regular use also will be interesting. Pivotal in this phase is knowing how much water is pumped. I believe Mr. Jordan has made recommendations on what information is needed.

Cordially yours,


Dean B. Bogart
Chief, Caribbean District, NRD

In triplicate

cc: D. G. Jordan, St. Thomas, V. I.

Area Hydrologist, Arlington, Va.

DBB/gap

Water-Supply Project for National Park Service
in Virgin Islands National Park, St. John

Summary of costs of test-well drilling, FY-1964 funds

Funds assigned to drilling	\$15,000
Less: 12 3/4% Washington Office Technical Service Charge	<u>1,912</u>
Net funds available for drilling	<u>\$13,088</u>

Well number	Depth drilled, ft 14.75/ft	Casing installed, ft 5.00/ft	Casing pulled, ft 1.25/ft	Experimental time, hr \$11.00/hr	Pumping and bailing tests, hr \$11.00/hr	Cost
NPS-2	98	-	10	-	2 1/2	\$ 1,495.50
3	54	25	-	-	13 1/2	1,070.00
4	200	-	13	-	0	2,966.25
5	60	13	-	-	17	1,137.00
6	70	54	-	-	10 1/2	1,418.00
7	36	28	-	-	15 1/2	841.50
8	50	-	21	-	0	763.75
9	60	45 <u>1/</u>	-	1	9	1,220.00
10	<u>66</u>	<u>53 <u>1/</u></u>	<u>-</u>	<u>-</u>	<u>8</u>	<u>1,326.50</u>
Total	694	218	52	1	73	\$12,238.50
Bulldozing 2/						<u>810.00</u>
						<u>\$13,048.50</u>

1/ 4-inch diameter plastic liner was installed, in addition to steel casing.

2/ Bulldozing drilling sites.

December 31, 1964

U. S. Geological Survey
San Juan, Puerto Rico

Docket Information

Number of Documents in Docket 7

Documents Dated from 12/31/1964 to 1/15/1965

Docket Compiled: 7/28/2011