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POTENTIOMETRIC SURFACE OF THE TURPENTINE RUN BASIN AQUIFER IN THE TUTU AREA, EASTERN ST. THOMAS, U.S. VIRGIN ISLANDS, SEPTEMBER 11, 1987

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Prepared in cooperation with the
U.S. ENVIRONMENTAL PROTECTION AGENCY

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POTENTIOMETRIC SURFACE OF THE TURPENTINE RUN BASIN AQUIFER IN THE TUTU AREA, EASTERN ST. THOMAS, U.S. VIRGIN ISLANDS, SEPTEMBER 11, 1987

By Robert P. Graves and Ralph González

Ground-water levels in the Turpentine Run basin aquifer, in eastern St. Thomas, were measured in 32 wells on September 11, 1987 and a potentiometric surface map was prepared. The altitude of all wells was referenced to known land surface altitude benchmarks by use of a level survey instrument. The potentiometric surface map was prepared by the U.S. Geological Survey in cooperation with the U.S. Environmental Protection Agency.

Fractured volcanic rocks underlie Turpentine Run basin and are locally overlain by alluvial deposits (Donnelly, 1959). The alluvial deposits can range to 40 feet in thickness. Ground water in the Turpentine Run basin occurs in the fractured volcanic rock and alluvial deposits under water-table conditions (Jordan, 1973). The alluvial deposits are considered to be hydraulically connected with the fractured volcanic rock. Well depths in the basin can range from 55 to 325 feet below land surface.

Several wells were being pumped, or pumping had just terminated, when the water levels were measured (table 1). These water levels reflect a pumping or recovery condition; therefore, static water-level conditions throughout the Turpentine Run basin at the time of measurement cannot be assumed.

Additional information about ground-water levels in the area of study is available from the U.S. Geological Survey, Water Resources Division, Caribbean District office in San Juan, Puerto Rico, Tel. (809) 749-4346.

SELECTED REFERENCES

Donnelly, T.W., 1959, Geology of St. Thomas and St. John, Virgin Islands: Unpublished Ph.D. dissertation, Princeton University, 179 p.

Geraghty & Miller, Inc., 1983, Report on current ground water conditions in the U.S. Virgin Islands: Prepared for the government of the U.S. Virgin Islands Department of Conservation and Cultural Affairs, 80 p.

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Stevens, K.E., Gómez-Gómez, F., and Alicea, J., 1981, Water wells in the U.S. Virgin Islands, Pt. 1, St. Thomas: U.S. Geological Survey Open-File Report 82-82.

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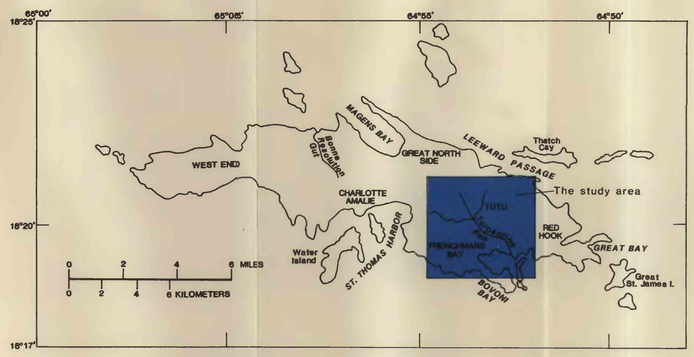
Table 1. Description of wells and September 11, 1987 water-level measurements in Turpentine Run basin, St. Thomas, U.S Virgin Islands

[Datum is mean sea level. Abbreviations: hyphens, data not available; (RL), suspected recovering level; (PL), suspected pumping level]

Well number	Well identification number	Well name	Year drilled	Depth of well (feet)	Depth of casing (feet)	Construction	Water level below land surface (feet)	Water level altitude (feet)	Land surface altitude (feet)
01	182024064535800	Mario Bryan Well #1	1978	140	--	-----	--	---	215
02	182026064535800	Mario Bryan Well #2	----	---	--	-----	11	209	220
03	182025064535800	Mario Bryan Well #3	----	---	--	-----	10	208	218
04	182018064535900	Lockhart Well #1	----	---	--	-----	09	183	192
05	182017064535900	Lockhart Well #2	----	---	--	-----	08	184	192
06	182016064535900	Lockhart Well #3	----	---	--	-----	05	183	188
07	182016064540000	Lockhart Well #4	----	---	--	-----	06	183	189
08	182015064540000	Lockhart Well #5	----	---	--	-----	08	---	---
09	182042064533400	Demitry Well	----	---	--	-----	80	151(RL)	231
10	182037064531100	VIHA Well #1	1977	175	41	Open hole	56	175	231
11	182038064531200	VIHA Well #2	1977	150	37	Open hole	60	175	235
12	182048064531400	VIHA Well #3	1978	142	73	Open hole	17	222	239
13	182049064530900	VIHA Well #4	1978	140	69	Open hole	39	239	278
14	182029064531500	Tillets well	----	100	15	Open hole	21	165	186
15	182027064531800	Four Winds Plaza well #1	----	300	--	-----	13	153	166
16	182027064531900	Four Winds Plaza well #2	1981	285	36	Open hole	09	156	165
17	182020064532000	Gene Eglin Well #1	----	225	--	-----	12	132	144
18	182020064531900	Gene Eglin Well #2	----	225	--	-----	37	112(RL)	149
19	182019064531900	Gene Eglin Well #3	----	---	--	-----	66	86(RL)	152
20	182016064532000	E. Steel well	1950's	105	--	-----	76	99(RL)	175
21	182017064532200	Osborn Harvey	1978	160	--	-----	30	108	138
22	182021064532500	Crusher Well	1978	210	--	Open hole	32	108	140
23	182018064532800	Bakery Well	1978	325	36	Open hole	22	108	130
24	182017064533000	Creger Motors Well #1	----	---	--	-----	27	108	135
25	182018064533100	Creger Motors Well #2	----	---	--	-----	26	109	135
26	182018064533200	Creger Motors Well #3	----	---	--	-----	21	116	137
27	182019064533300	Creger Motors Well #4	----	---	--	-----	20	128	148
28	182015064532700	E's & A Corp Well #1	----	---	--	-----	--	---	123
29	182016064532900	E's & A Corp Well #2	----	---	--	-----	18	108	126
30	182015064533000	E's & A Corp Well #3	----	---	--	-----	19	107	126
31	182014064532900	E's & A Corp Well #4	----	---	--	-----	16	109	125
32	182012064531400	Francois La Place	----	---	--	-----	28	83	111
33	182009064531300	L. Smith	1960's	---	--	-----	10	80	90
34	182008064531400	Matthias	1960's	55	--	-----	10	80	90
35	181943064525300	Farrington well	----	---	--	-----	13	30	43
36	181940064525200	Poly Carib/Devcon #1	----	---	--	-----	--	--	---
37	181938064525100	Poly Carib/Devcon #2	----	---	--	-----	--	--	---
38	181938064525000	Poly Carib/Devcon #3	----	---	--	-----	--	--	---
39	181937064524900	Poly Carib/Devcon #4	----	---	--	-----	118	-83(PL)	35
40	181935064524400	Public well/Didi well (Gov. of the Virgin Islands)	----	---	--	-----	26	01	27
41	181921064524100	Dept. of Agriculture Animal Shelter	----	---	--	-----	04	05	9



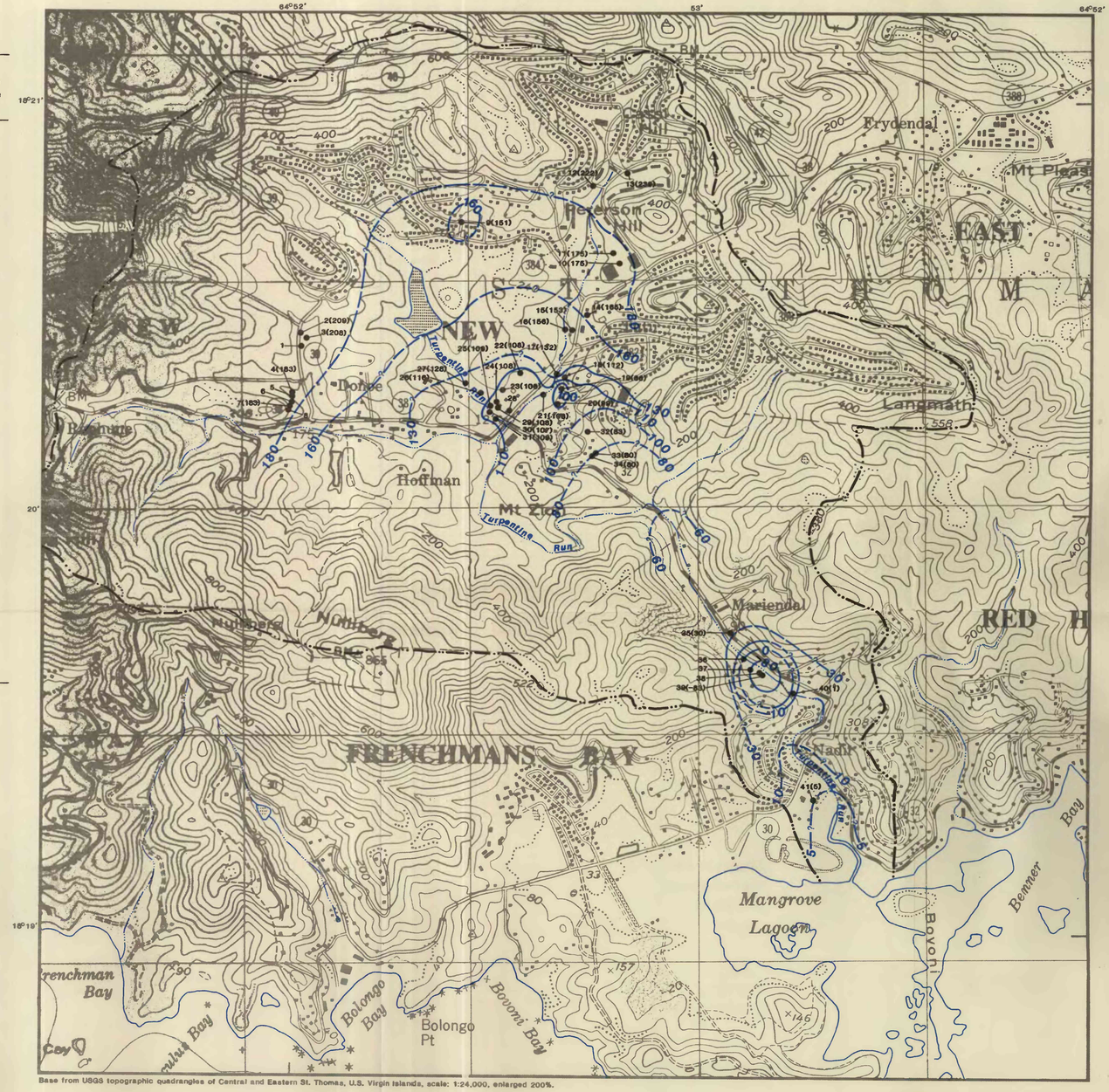
Map of St. Thomas showing the study area.

EXPLANATION

—?— —130— POTENTIOMETRIC CONTOUR – Shows altitude of water table in feet. Dashed where approximately located. Queried (?) where location is uncertain. Contour interval variable. Datum is mean sea level.

3(208) WATER-LEVEL DATA CONTROL POINT – Open number is the well number shown on table 1. Number in parentheses is the altitude of water level in feet. Datum is mean sea level.

BASIN BOUNDARY



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