

Virgin Islands Water and Power Authority Water Quality Report 2016



St. Thomas & St. John Districts
January 1, 2016 through December 31, 2016

Dear Water Distributors/Water Customers:

At the Virgin Islands Water and Power Authority (VIWAPA), we are devoted to bringing you clean and reliable drinking water. It is important for our customers to remain informed about the quality of the water that you and your family uses. For that reason, VIWAPA is pleased to share with you the 2016 Water Quality Report or Consumer Confidence Report. This report provides an overview of the source and quality of your drinking water. It includes compliance data, detected contaminants and results from treating and monitoring your water from January 1 through December 31, 2016.

Regulations within the US Environmental Protection Agency and the Virgin Islands Department of Planning and Natural Resources set the guidelines and standards to which VIWAPA strictly adheres. As VIWAPA continues to improve the discoloration that has lingered in some parts of our water systems, rest assured knowing that rigorous safeguards are in place to confirm the water we provide to you meets and even surpasses these increasingly stringent water quality standards. We routinely monitor the drinking water produced through continuous testing. Maintaining and upgrading the infrastructure also ensures that it reliably moves water from the source to your tap.

VIWAPA is truly grateful for your support throughout the year as we continue to make protecting our customers' health and safety our highest priority. Please be encouraged to learn the facts about your water quality by perusing this report. VIWAPA is working constantly for you to guarantee a healthy and reliable quality drinking water supply.

Respectfully,

Noel Hodge

Chief Operating Officer-Water Systems

This report contains very important information about your drinking water. Please translate it or speak with someone who understands it.

Ce rapport contient des informations très importantes au sujet de votre eau potable. S'il vous plaît de le traduire ou de parler avec quelqu'un qui le comprend.

Este informe contiene información muy importante sobre su agua potable. Por favor, traducirlo o hablar con alguien que lo entienda.

WATER QUALITY DATA

DISINFECTANTS-CHLORINE RESIDUAL												
Monthly Ave (ppm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
	0.8	1.0	0.8	1.0	1.0	0.9	1.0	0.8	1.0	1.0	1.0	0.8
Quarterly Running Ave.	0.9			1.0			0.9			0.9		
Running Annual Ave. (RAA)	0.9			0.9			0.9			0.9		
MRDL	MRDLG			VIOLATION			LIKELY SOURCE					
4 as Cl2	4 as Cl2			No			Water additive used to control microbes					

Note: Reported RAA for quarters 1-3 are based on results from previous quarters in 2015 not reported on the disinfectants table. St. John monitoring sites were included in the Disinfectants-Chlorine Residual calculations.

STAGE 2 DISINFECTANTS AND DISINFECTION BY-PRODUCTS RULE (DDBP)

Trihalomethanes and Haloacetic Acids are byproducts of disinfecting water with chlorine. Some people who drink water containing Trihalomethanes in excess of the highest allowed (MCL) over many years may experience problems with their liver, kidneys, or central nervous system and may have an increased risk of getting cancer.

Total Trihalomethanes (TTHM) (ppb)		1 st Quarter 2016	2 nd Quarter 2016	3 rd Quarter 2016	4 th Quarter 2016
Four Winds		2.3	0.94	2.5	2.1
LRAA		2.6	2.4	2.7	1.96
Estate Bovoni		7.5	13.1	42.6	22.3
LRAA		28.8	25.5	24.0	21.4
Pine Peace (STJ)		13.7	28.1	17.5	45.5
LRAA		33.3	28.4	25.1	26.2
Paradise Laundry (STJ)		8.6	4.9	7.0	8.2
LRAA		9.6	9.2	9.0	7.2
RANGE	HIGHEST LRAA	MCL	MCLG	VIOLATION	LIKELY SOURCE
0.94—45.5	33.3	80	N/A	No	Byproduct of drinking water disinfection

Haloacetic Acids (HAA5) (ppb)		1 st Quarter 2016	2 nd Quarter 2016	3 rd Quarter 2016	4 th Quarter 2016
Four Winds		1.1	BDL	3.3	1.2
LRAA		0.46	0.5	1.3	1.4
Estate Bovoni		4.5	1.7	6.7	4.7
LRAA		4.3	4.0	4.1	4.4
Pine Peace (STJ)		3.2	3.7	3.8	6.1
LRAA		4.6	4.2	3.9	4.2
Paradise Laundry (STJ)		1.9	1.1	3.5	2.9
LRAA		2.0	1.9	2.4	2.4
RANGE	HIGHEST LRAA	MCL	MCLG	VIOLATION	LIKELY SOURCE
BDL—6.7	4.6	60	N/A	No	Byproduct of drinking water disinfection

Note: Reported LRAA for quarters 1-3 are based on results from previous quarters in 2015 not reported on these tables.

WATER QUALITY DATA

MICROBIOLOGICAL CONTAMINANTS (TOTAL COLIFORM RULE)

JANUARY -MARCH 2016

CONTAMINANTS	HIGHEST # OF POSITIVE SAMPLES IN ANY ONE MONTH	TOTAL # OF POSITIVE SAMPLES	MCL	VIOLATION	LIKELY SOURCE
Total Coliform (TC)	0	0	5% of samples collected per month are TC positive	No	Naturally occurring in the environment, human & animal fecal waste. Microscopic organisms such as viruses & bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
Fecal Coliform or <i>E. coli</i>	0	0		No	

Note: Fecal Coliform/E. Coli or TC-positive repeat sample following a fecal coliform or E. Coli-positive routine sample, constitutes an acute violation of the MCL for Total Coliforms.

OCCURRENCE OF MICROBIOLOGICAL CONTAMINANTS (REVISED TOTAL COLIFORM RULE)

APRIL – DECEMBER 2016

CONTAMINANTS	HIGHEST # OF POSITIVE SAMPLES IN ANY ONE MONTH	TOTAL # OF POSITIVE SAMPLES FOR 2016
Total Coliform	1	1
<i>E. coli</i>	1	1

MICROBIOLOGICAL CONTAMINANTS (REVISED TOTAL COLIFORM RULE VIOLATIONS)

CONTAMINANTS	MCL	NUMBER	VIOLATION	LIKELY SOURCE
<i>E. coli</i>	E. coli positive repeat following <i>E. coli</i> positive routine	0	0	Naturally present in the environment. Human and Animal waste.
	TC-positive repeat following <i>E. coli</i> positive routine	0	0	
	Failed to take required repeat samples following <i>E. coli</i> positive routine	0	0	
	Failed to test for <i>E. coli</i> when any repeat test positive for TC	0	0	

LEVEL 1 & LEVEL 2 ASSESSMENTS (REVISED TOTAL COLIFORM RULE)

ASSESSMENT	NO. OF REQUIRED ASSESSMENTS	NO. OF COMPLETED ASSESSMENTS	NO. OF CORRECTIVE ACTIONS REQUIRED	NO. OF CORRECTIVE ACTIONS TAKEN
LEVEL 1	0	0	0	0
LEVEL 2	0	0	0	0

WATER QUALITY DATA

NITRATE/NITRITE

Contaminant	Location	Units	Level Detected	MCL	MCLG	Violation	LIKELY SOURCE
Nitrate	St. Thomas Entry	ppm	0.055	10	10	No	Runoff from fertilizer use, leaching from septic tanks, sewage, corrosion of natural products.
Nitrite	St. Thomas Entry	ppm	BDL	1	1	No	Runoff from fertilizer use, leaching from septic tanks, sewage, corrosion of natural products.

Note: VIWAPA-STT/STJ monitored Inorganic Chemicals (IOC) annually for three (3) consecutive years. 2015 was the third year of the three (3) consecutive years therefore monitoring for IOC was not required in 2016.

SYNTHETIC ORGANIC CHEMICALS (SOC)

Contaminant	Location	Units	Level Detected	MCL	MCLG	Violation	LIKELY SOURCE
First Quarter	St. Thomas Entry	ppm	BDL	-	-	No	Naturally occurring in the environment. Byproducts of some agricultural and industrial activities
Second Quarter	St. Thomas Entry	ppm	BDL	-	-	No	Naturally occurring in the environment. Byproducts of some agricultural and industrial activities

Note: VIWAPA-STT/STJ is required to monitor for two (2) quarters for three (3) consecutive years. 2016 began the second of three (3) consecutive years. A total of 29 chemical contaminants were tested under SOC. All results were BDL.

LEAD AND COPPER

MONITORING PERIOD	CONTAMINANT	AL (ppm)	90 th PERCENTILE VALUE	RANGE	VIOLATION	LIKELY SOURCE
Jan – Jun 2016	Lead (Pb)	0.015	0.0017 ppm	1 site over AL	No	Corrosion of household plumbing systems; erosion of natural deposits
	Copper (Cu)	1.3	0.032 ppm	None	No	
Jul – Dec 2016	Lead (Pb)	0.015	0.0016 ppm	None	No	Corrosion of household plumbing systems; erosion of natural deposits
	Copper (Cu)	1.3	0.04 ppm	None	No	

Note: As a result of the change in the water production process in 2012, VIWAPA conducted six (6)-month monitoring in 2016. Based on the population served, 60 samples were collected during each monitoring period (55 on STT and 5 on STJ).

LEAD AND COPPER

Lead- If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Public utilities are responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using the water for drinking and cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (1-800-426-4791) or at <http://water.epa.gov/drink/info/lead/index.cfm>

TERMS DEFINED

90th Percentile Levels – The highest concentration of lead or copper in tap water that is exceeded by 10 percent of the sites sampled during a monitoring period. This value is compared to the lead action level (AL) to determine whether an AL has been exceeded.

Action Level (AL) – the concentration of a contaminant, which if exceeded, triggers treatment or other requirements.

EPA Goal/Maximum Contaminant Level Goal (MCLG) – the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

EPA Limit/ Maximum Contaminant Level (MCL) - the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available technology.

Maximum Residual Disinfection Level (MRDL) - means a level of disinfection added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects.

Maximum Residual Disinfection Level Goal (MRDLG) - means a level of disinfectant added for water treatment that may not be exceeded at the consumer tap.

Total Coliform Bacteria – Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially harmful, bacteria may be present.

Fecal Coliform Bacteria/E. coli – Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short term effects such as diarrhea, cramps, nausea, headaches or other symptoms.

Non-applicable (N/A) - Not applicable.

Non-detected (N/D) - Not detected

BDL – Below detection limit.

Parts per billion (ppb) – one part per billion (micrograms per liter) corresponds to one minute in 2,000 years, or one penny in \$10 million.

Parts per million (ppm) – one part per million (milligrams per liter) corresponds to one minute in two years, or a single penny in \$10,000.

Curie - the curie (symbol Ci) is a non SI unit of radioactivity, defined as $1 \text{ Ci} = 3.7 \times 10^{10}$ decays per second.

PicoCurie – (pCi) 0.000,000,000,001 (one trillionth) of a Curie, an international measurement unit of radioactivity.

Million Fibers per Liter (mfl) - million fibers per liter is a measure of the presence of asbestos fibers that are longer than 10 micrometers.

Treatment Technique (TT) – a treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

VIWAPA

The Virgin Islands Water and Power Authority (VIWAPA) is a publicly owned utility company, which produces and distributes electricity and potable water to the residents of the United States Virgin Islands. Operation of the Authority's water distribution systems and standpipes are done on St. Thomas, St. John and St. Croix.

VIWAPA obtains water produced by Seven Seas Water from one source, seawater. As water travels over the land and into the sea or filters through the ground settling in aquifers, it dissolves naturally occurring minerals and can pick up contaminants resulting from the presence of animals or human activity.

REGULATING AGENCIES

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily mean that the water poses a health risk.

The Virgin Islands Department of Planning and Natural Resources (VIDPNR) and the United States Environmental Protection Agency (USEPA) ensures that potable water is safe to drink. Both agencies have prescribed limits on the contaminants in water provided by public water systems. VIDPNR has established the same criteria for contaminants in bottled water.

USEPA defines a water contaminant as any physical, chemical, biological, or radiological substance or matter in water. USEPA sets legal limits on the levels of certain contaminants in drinking water. The legal limits reflect both the level that protects human health and the level that water systems can achieve using the best available technology. Besides prescribing these legal limits, USEPA rules set water testing schedules and methods that water systems must follow. The rules also list acceptable techniques for treating contaminated water.

The Safe Drinking Water Act gives individual territories the opportunity to set and enforce their own drinking water standards if the standards are at least as strong as USEPA's national standards. Most territories directly oversee the water systems within their borders.

SPECIAL PRECAUTIONS

Some people are more vulnerable to contaminants in drinking water than the general population.

Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly and infants can be particularly at risk for infections.

These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available for USEPA's Safe Drinking Water Hotline (1-800-426-4791) or EPA's website at www.epa.gov/safewater. More information about contaminants and potential health effects can also be obtained from the hotline or EPA's website.

Nitrate and Nitrite are nitrogen-oxygen chemical units which combine with various organic and inorganic compounds. Once taken into the body, nitrates are converted to nitrites. USEPA has set a MCL because the possible presence can pose a health risk for infants of less than six months of age. The MCL for nitrates has been set at 10ppm, and for nitrites at 1ppm. Excessive nitrate levels in drinking water can cause methemoglobinemia also called blue baby syndrome. If you are caring for an infant, you should ask for advice from your health care provider.

VIWAPA WATER FACTS

St. Thomas and St. John

Roughly about 45.7 miles of distribution mains and 16.5 miles of transmission lines throughout.

There are about 416 valves, 198 hydrants, 21 fixed Automatic Flushing Devices (AFD) and 10 mobile AFD on both islands.

Thirteen (13) pump stations to assist with delivering water.

Serves a combined population of about 38,000 people.

Consist of 88 sample stations for water quality testing.

Daily monitoring of all water quality parameters like chlorine residual, pH, conductivity, turbidity, temperature and orthophosphate residual.

Approximately 300 bacteriological test performed every month.



WATER FUN FACTS

Roughly 70% of the human body is made up of water.

Water makes up 83% of our blood, 70% of our brain, and 90% of our lungs.

Drinking too much water too quickly can lead to water intoxication. Water intoxication occurs when water dilutes the sodium level in the bloodstream and causes an imbalance of water in the brain.

By the time a person is feeling thirsty, his or her body has already lost over 1% of its total water amount.

The weight a person loses directly after intense physical activity is weight from water, not fat.

Pure water (solely hydrogen and oxygen atoms) has a neutral pH of 7, which is neither acidic nor basic.

Flushing toilets represent the largest portion of indoor water use.

VI Water and Power Authority

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**Please contact VIWAPA's Communications Division
at 340-774-3552 Extension 2147 if you have any
questions about this Potable Water Quality Report for
VI0000443 (St. Thomas)
and
VI0000554 (St. John)**