Naval Air Station Corpus Christi
2017
Drinking Water
Consumer Confidence Report

2017 Consumer Confidence Report

NAVAL AIR STATION CORPUS CHRISTI – PWS ID# TX1780017

Annual Water Quality Report for the period of January 1 to December 31, 2017.

This Consumer Confidence Report (CCR) is intended to provide you with important information about your drinking water and the efforts made by NAS Corpus Christi and the City of Corpus Christi to provide safe drinking water.

For more information regarding this report contact:

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Este reporte incluye información importante sobre el agua para tomar. Para asistencia en español, favor de llamar al telefono (361) 961-2108.

Public Participation Opportunities:

City of Corpus Christi:
Annual Public Meeting
09 July 2018
6:00pm-7:30pm
Water Utilities Bldg.
2726 Holly Road
Corpus Christi, TX 78415

NAS Corpus Christi:
None scheduled. Call 361-961-2108 for comments or questions.

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VULNERABLE POPULATIONS

You may be more vulnerable than the general population to certain microbial contaminants, such as Cryptosporidium, in drinking water. Infants, some elderly, or immunocompromised persons such as those undergoing chemotherapy for cancer; persons who have undergone organ transplants; those who are undergoing treatment with steroids; and people with HIV/AIDS or other immune system disorders, can be particularly at risk from infections. You should seek advice about drinking water from your physician or health care providers. Additional guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline (800-426-4791).

LEAD IN DRINKING WATER

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. We are responsible for providing high quality drinking water, but we 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 water for drinking or 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 or at http://www.epa.gov/safewater/lead.

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NAS CORPUS CHRISTI DRINKING WATER SOURCE

Naval Air Station Corpus Christi's (NAS CC's) drinking water system is a Purchased Surface Water System. NAS CC purchases drinking water from the City of Corpus Christi. The City of Corpus Christi's 2017 CCR data is appended to this CCR. The Texas Commission on Environmental Quality (TCEQ) regulates water quality.

TCEQ Source Water Name:	SWP I/C FROM CORPUS CHRISTI - CC FROM TX1780003 CITY OF
Type of Water:	Surface Water
Location:	Nueces County

INFORMATION ABOUT SOURCE WATER ASSESSMENTS

The TCEQ has completed a Source Water Assessment for all drinking water systems that own their sources. The report describes the susceptibility and types of constituents that may come into contact with your drinking water source based on human activities and natural conditions. The system(s) from which we purchase our water received the assessment report. For more information on source water assessments and protection efforts at our system, contact Travis Faris by phone at 361-961-2108, or by email at travis.faris@navy.mil.

For more information about your sources of water, please refer to the Source Water Assessment Viewer available at the following URL: http://www.tceq.texas.gov/gis/swaview.

Further details about sources and source-water assessments are available in Drinking Water Watch at the following URL: http://dww2.tceq.texas.gov/DWW/.

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SOURCES OF DRINKING WATER

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

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 indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPAs Safe Drinking Water Hotline at (800) 426-4791.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health.
Contaminants may be found in drinking water that may cause taste, color, or odor problems. These types of problems are not necessarily causes for health concerns. For more information on taste, odor, or color of drinking water, please contact the system's business office.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from sources such as agriculture, urban storm water runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.
- Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

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DEFINITIONS

The following tables contain scientific terms and measures, some of which may require explanation.

Avg:	Regulatory compliance with some Maximum Contaminant Levels (MCLs) are based on running annual average of monthly samples.
Action Level or AL	The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Level 1 Assessment:	A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.
Level 2 Assessment:	A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.
Action Level Goal (ALG):	The level of a contaminant in drinking water below which there is no known or expected risk to health. ALGs allow for a margin of safety.
Maximum Contaminant Level or 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 treatment technology.
Maximum Contaminant Level Goal or 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.
Maximum residual disinfectant level or MRDL:	The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
Maximum residual disinfectant level goal or MRDLG:	The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
MFL	million fibers per liter (a measure of asbestos)
na:	not applicable.
mrem:	millirems per year (a measure of radiation absorbed by the body)
NTU	nephelometric turbidity units (a measure of turbidity)
pCi/L	picocuries per liter (a measure of radioactivity)
ppb:	micrograms per liter or parts per billion - or one ounce in 7,350,000 gallons of water.
ppm:	milligrams per liter or parts per million - or one ounce in 7,350 gallons of water.
Treatment Technique or TT:	A required process intended to reduce the level of a contaminant in drinking water.
ppt	parts per trillion, or nanograms per liter (ng/L)
ppq	parts per quadrillion, or picograms per liter (pg/L)

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REGULATED CONTAMINANTS DATA

Disinfectant Residual Table

	Collection Date	Average Level	Minimum Level	Maximum Level	Maximum Residual Disinfectant Level	Maximum Residual Disinfectant Level Goal	Unit of Measure	Violation (Y/N)	Likely Source of Contamination
Chloramine Residual	2017	2.76	.70	4.0	4	4	ppm	N	Water additive used to control microbes.

Inorganic Contaminants

Contaminant	Collection Date	Highest Level Detected	Range of Levels Detected	Maximum Contaminant Level Goal	Maximum Contaminant Level	Unit of Measure	Violation (Y/N)	Likely Source of Contamination
Nitrate [measured as Nitrogen]	2017	1	0.66 - 0.66	10	10	ppm	N	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

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REGULATED CONTAMINANTS DATA , CONTINUED

Lead and Copper (3 year periodicity)

Contaminant	Date Sampled	Maximum Contaminant Level Goal	Action Level	90th Percentile	# Sites Over Action Level	Unit of Measure	Violation (Y/N)	Likely Source of Contamination
Copper	06/30/2017	1.3	1.3	0.32	0	ppm	N	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems.
Lead	2017	0	15	6.4	0	ppb	N	Corrosion of household plumbing systems; Erosion of natural deposits.

Total Coliform

Contaminant	Year	Maximum Contaminant Level Goal	Total Coliform Maximum Contaminant Level	Highest No. of Positive	Fecal Coliform or *E. coli* Maximum Contaminant Level	Violation (Y/N)	Likely Source of Contamination
Total Coliform Bacteria	2017	0	0	0	When a routine sample and a repeat sample are total coliform positive, and one is also coliform or *E. coli* positive.	N	Naturally present in the environment

Total coliform bacteria are used as indicators of microbial contamination of drinking water because testing for them is easy. While not disease-causing organisms themselves, they are often found in association with other microbes that are capable of causing disease. Coliform bacteria are hardier than many disease-causing organisms; therefore, their absence from water is a good indication that the water is microbiologically safe for human consumption.

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REGULATED CONTAMINANTS DATA , CONTINUED

Disinfection By-Products

Contaminant	Collection Date	Highest Level Detected	Averaged Range of Levels Detected	Maximum Contaminant Level Goal	Maximum Contaminant Level	Unit of Measure	Violation (Y/N)	Likely Source of Contamination
Haloacetic Acids (HAA5)	2017	28	15.5 - 50.1	No goal for the Total	60	ppb	N	By-product of drinking water disinfection.
Total Trihalomethanes (TTHM)	2017	61	32.7 - 78	No goal for the Total	80	ppb	N	By-product of drinking water disinfection.

Contaminant	Collection Date	Average Level	Minimum Level	Maximum Level	Unit of Measure	Likely Source of Contamination
Bromoform	2017	10.22	6.8	14.6	ppb	Byproduct of drinking water disinfection
Chloroform	2017	8.5	4.6	12.3	ppb	Byproduct of drinking water disinfection
Bromodichloromethane	2017	18.61	10.4	27.6	ppb	Byproduct of drinking water disinfection
Dibromochloromethane	2017	17.4	10.9	25.0	ppb	Byproduct of drinking water disinfection

Bromoform, chloroform, bromodichloromethane, and dibromochloromethane, are disinfection byproducts. There is no maximum contaminant level for these chemicals at the entry point to distribution.

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NAS CC purchases drinking water from the City of Corpus Christi (Public Water System ID# TX1780003). The following page provide data for contaminants monitored by the City of Corpus Christi.

2017 DRINKING WATER QUALITY REPORT

Our drinking water is regulated by the Texas Commission on Environmental Quality (TCEQ). The information that follows lists all of the federally regulated or monitored contaminants which have been found in our drinking water. The U.S. EPA requires water systems to test for up to 97 contaminants.

INORGANIC CONTAMINANTS

Year	Constituent (Unit of Measure)	Highest Average	Highest Single Measurement	Range	MCL	MCLG	Likely Source of Contaminant
2017	Arsenic (ppb)	2.2	2.2	0.0 – 2.2	10	NA	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
2017	Barium (ppm)	0.10	0.10	0.09 – 0.10	2	2	Discharge of drilling waste; discharge from metal refineries; erosion of natural deposits
2017	Chlorite (ppm)	0.71	0.74	0.0037 – 0.74	1	0.80	Byproduct of drinking water disinfection
2017	Cyanide (total) (ppb)	140	140	0 – 140	200	200	Discharge from plastic and fertilizer factories; discharge from steel/metal factories
2017	Fluoride (ppm)	0.57	0.57	0.54 – 0.57	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
2017	Nitrate (ppm)	0.44	0.59	0.23 – 0.59	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
2017	Selenium (ppb)	3.9	3.9	3.4 – 3.9	50	50	Discharge from petroleum and metal refineries, erosion of natural deposits, discharge from mines
2017	Total Chromium (ppb)	<10	<10	NA	100	100	Discharge from steel and pulp mills; erosion of natural deposits

ORGANIC CONTAMINANTS

Year	Constituent (Unit of Measure)	Highest Average	Highest Single Measurement	Range	MCL	MCLG	Likely Source of Contaminant
2017	Atrazine (ppb)	0.15	0.33	0 – 0.33	3.0	3.0	Runoff from herbicide used on row crops

SYNTHETIC ORGANIC CONTAMINANTS

Year	Constituent (Unit of Measure)	Highest Average	Range	MCL	MCLG	Likely Source of Contaminant
2017	Di(2-Ethylhexyl) Phthalate (ppb)	2.0	0 – 2.0	6.0	0	Discharge from rubber chemical factories
2017	Metolachlor (ppb)	0.42	0.14 – 0.56	NA	NA	Runoff from herbicide use

DISINFECTION BYPRODUCTS

Year	Constituent (Unit of Measure)	Highest Yearly Average	Range	MCL	MCLG	Likely Source of Contaminant
2017	Total Trihalomethanes (ppb)	50.3	23.0 – 68.9	80	NA	Byproduct of drinking water disinfection
2017	Total Haloacetic Acids (ppb)	25.6	15.1 – 34.5	60	NA	Byproduct of drinking water disinfection

The locational running annual average is a health concern at levels above the the MCL. Some people who drink water containing TTHMs in excess of the MCL over many years may experience problems with their liver, kidney, or central nervous systems, and may have an increased risk of getting cancer.

TOTAL ORGANIC CARBON

Year	Constituent (Unit of Measure)	Average	Range	TT	MCLG	Likely Source of Contaminant
2017	Source Water (ppm)	6.9	6.25 – 7.70	NA	NA	Naturally present in the environment
2017	Plant 1 (ppm)	4.8	4.44 – 5.40	NA	NA	Naturally present in the environment
2017	Plant 2 (ppm)	4.5	4.22 – 4.98	NA	NA	Naturally present in the environment
2017	Plant 1 Removal Ratio (% removal*)	1.2	0.72 – 1.43	≥1.0	NA	Naturally present in the environment
2017	Plant 2 Removal Ratio (% removal*)	1.3	0.97 – 1.55	≥1.0	NA	Naturally present in the environment

Total Organic Carbon (TOC) has no health effects. The disinfectant can combine with TOC to form disinfection by-products. Disinfection is necessary to ensure that water does not have unacceptable levels of pathogens. Byproducts of disinfection include trihalomethanes (THM) and haloacetic acids (HAA5) which are reported elsewhere in this report. *Removal ratio is the percent of TOC removed by the treatment process divided by the percent of TOC required by TCEQ to be removed.

MAXIMUM RESIDUAL DISINFECTANT LEVEL

Year	Constituent (Unit of Measure)	Highest Average	Highest Single Measurement	Range	MRDL	MRDLG	Likely Source of Contaminant
2017	Chloramines (ppm)	2.9	NA	2.17 – 3.35	4.0	4.0	Disinfectant used to control microbes
2017	Chlorine (ppm)	2.2	NA	2.18 – 2.22	4.0	4.0	Alternate disinfectant used to control microbes
2017	Chlorine Dioxide (ppb)	290	560	20 – 560	800	800	Water additive used to control microbes

UNREGULATED CONTAMINANTS

Year	Constituent (Unit of Measure)	Highest Average	Range	MCL	MCLG	Likely Source of Contaminant
2017	Bromodichloromethane (ppb)	14.5	6.9 – 49	NA	NA	Byproduct of drinking water disinfection
2017	Bromoform (ppb)	6.3	1.7 – 15.2	NA	NA	Byproduct of drinking water disinfection
2017	Chloroform (ppb)	8.1	2.8 – 52	NA	NA	Byproduct of drinking water disinfection
2017	Dibromochloromethane (ppb)	13.1	6.1 – 39	NA	NA	Byproduct of drinking water disinfection

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted.

TURBIDITY

Year	Constituent (Unit of Measure)	Highest Single Measurement	Lowest % of Samples Meeting Limits	Entry Point Limit (TT)	Single Measurement Limit (TT)	Likely Source of Contaminant
2017	Plant 1 (NTU)	0.36	99.5	≤0.3	1.0	Soil runoff
2017	Plant 2 (NTU)	0.94	99.5	≤0.3	1.0	Soil runoff

Turbidity has no health effects; however, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.

CRYPTOSPORIDIUM MONITORING

Year	Constituent (Unit of Measure)	Highest Monthly % of Positive Samples	Unit of Measurement	MCLG	Likely Source of Contaminant
2017	*Cryptosporidium*	0	Total (Oo)cycts/L	0	Naturally present in the environment

Cryptosporidium is of great concern in public water systems that treat surface water for drinking water sources. Resistant to disinfectants, *Cryptosporidium* can cause gastrointestinal illness in individuals who consume contaminated water. The Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) is required by Congress in order to increase protection from microbial contaminants such as *Cryptosporidium*. Under this rule, water systems must conduct monthly *Cryptosporidium* sampling over a two year span. The City of Corpus Christi began sampling in April 2015.

MICROBIOLOGICAL CONTAMINANTS

Year	Constituent (Unit of Measure)	Highest Monthly % of Positive Samples	Unit of Measurement	MCL	Likely Source of Contaminant
2017	Total Coliform Bacteria	1.0	Presence	**	Naturally present in the environment

Total coliform bacteria occur naturally in the environment and are used as an indicator for other, potentially harmful, bacteria that could also be present. **Presence of coliform bacteria in 5% or more of the monthly samples.

Year	Constituent (Unit of Measure)	Total Number of Positive Samples	Unit of Measurement	MCL	Likely Source of Contaminant
2017	Fecal Coliform and *E. coli*	0	Presence	***	Human and animal fecal waste

Fecal coliform bacteria, in particular *E. coli,* are members of the coliform bacteria group originating in the intestinal tract of warm-blooded animals and are passed into the environment through feces. The presence of fecal coliform bacteria (*E. coli*) in drinking water may indicate recent contamination of the drinking water with fecal material. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, and other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems. ***A routine sample and a repeat sample are total coliform positive, and one is also fecal coliform or *E. coli* positive.

LEAD AND COPPER MONITORING RULE

Year	Constituent (Unit of Measure)	90th Percentile	Number of Sites Exceeding AL	Action Level	Likely Source of Contaminant
2017	Lead (ppb)	2.9	0	15.0	Corrosion of household plumbing systems, erosion of natural deposits
2017	Copper (ppm)	0.067	0	1.3	Corrosion of household plumbing systems, erosion of natural deposits

RADIOACTIVE CONTAMINANTS

Year	Constituent (Unit of Measure)	Highest Average	Range	MCL	MCLG	Likely Source of Contaminant
2017	Combined Uranium (ppb)	<1.0	NA	30.0	0	Erosion of natural deposits
2017	Gross Alpha, excluding Radon and Uranium (pCi/L)	<3.0	NA	15.0	0	Erosion of natural deposits
2017	Gross Alpha, including Radon and Uranium (pCi/L)	<3.0	NA	15.0	0	Erosion of natural deposits
2017	Gross Beta Particle Activity (pCi/L)	8.1	6.6 – 8.1	50.0	0	Naturally occurring, byproduct of oil/gas production and mining
2017	Radium-228 (pCi/L)	<1.0	NA	5.0	0	Erosion of natural deposits

UNREGULATED CONTAMINANT MONITORING RULE 3 (UCMR3)

Year	Screening Survey List (Unit of Measure)	Average	Range	MRL
2014	Chlorate (ppb)	124	20 – 210	20
2014	Chromium-Hexavalent (ppb)	0.05	0.03 – 0.08	0.03
2014	Molybdenum (ppb)	1.2	1.2 – 1.3	1
2014	Strontium (ppb)	339	280 – 390	0.3
2014	Vanadium (ppb)	6.3	5.5 – 7.0	0.2

SECONDARY AND OTHER CONSTITUENTS – NOT ASSOCIATED WITH ADVERSE HEALTH EFFECTS

Many constituents, such as calcium, sodium, or irons, which are often found in drinking water, can cause taste, color and odor problems. The taste and odor constituents are called secondary constituents and are regulated by the State of Texas, not the USEPA. These constituents are not causes for health concern. Therefore, secondaries are not required to be reported in this document, but they may greatly affect the appearance and taste of your water.

Year	Constituent (Unit of Measure)	Highest Average	Range	MCL	Likely Source of Contaminant
2017	Aluminum (ppm)	0.17	0.14 – 0.17	0.2	Abundant naturally occurring element
2017	Bicarbonate (ppm)	155	146 – 155	NA	Corrosion of carbonate rocks such as limestone
2017	Calcium (ppm)	53.2	49 – 53.2	NA	Abundant naturally occurring element
2017	Chloride (ppm)	94	91 – 94	300	Abundant naturally occurring element, used in water purification
2017	Hardness as $CaCO_3$ (ppm)	162	150 – 162	NA	Naturally occurring calcium and magnesium
2017	Magnesium (ppm)	7.11	6.73 – 7.11	NA	Abundant naturally occurring element
2017	Manganese (ppm)	0.0025	NA	0.05	Abundant naturally occurring element
2017	Nickel (ppm)	0.0019	0.0015 – 0.0019	NA	Erosion of natural deposits
2017	Potassium (ppm)	8.45	8.40 – 8.45	NA	Abundant naturally occurring element
2017	Sodium (ppm)	66	62.5 – 66	NA	Erosion of natural deposits, oil field byproduct
2017	Sulfate (ppm)	62	52 – 62	300	Naturally occurring, oil field by-product
2017	Total Alkalinity (ppm)	133	120 – 152	NA	Naturally occurring soluble mineral salts
2017	Total Dissolved Solids (ppm)	393	379 – 393	1,000	Total dissolved mineral constituents in water