2022 Aliamanu Military Reservation Annual Water Quality Report Complete Results

Contaminant Categories for complete data

The following contaminant categories are listed as the subgroups for the complete water quality table, listed on pages 2 through 7. These describe the categories, and when they are sampled.

Bacteriological, contaminants occur naturally from the environment. Bacteriological samples are collected and analyzed for coliform and E. Coli at each installation on a monthly basis. The number of samples taken on each installation is dependent on the population and represents a cross section in each water system.

Carbamate Pesticides occur from runoff of pesticides. The garrison collects two samples each, every three years. Samples are collected from the Aliamanu Military Reservation's water treatment plant in two separate quarters within the same calendar year.

Chlorinated Acids, occur mostly from pesticides. The garrison collects two samples each, every three years from the Aliamanu Military Reservation's water treatment plant in two separate quarters within the same calendar year

Disinfection Byproducts, occur from water additives used to control microbes. The garrison collects one sample for disinfection byproducts annually. Disinfection byproducts include haloacetic acids and trihalomethanes and are created when chlorine interacts with naturally occurring organic material.

Asbestos, occurs from cement decay in water mains. The garrison collects one asbestos sample from each installation every nine years. Samples are taken from locations that are at higher risk for asbestos contamination.

EDB/DBCP/TCP, occur from pesticides and factory runoff. The garrison collects two samples each, every three years. This group is made up of Ethylene Dibromide, 1,2-Dibromo-3-Chloro propane, 1,2,3-Trichloropropane.

Glyphosate, occurs from runoff of pesticides. The garrison collects two samples each, every three years. Samples are collected from the Aliamanu Military Reservation water treatment plant in two separate quarters within the same calendar year.

Inorganic Anions, occur from runoff from fertilizers and natural sources. The garrison collects one nitrate and anions sample annually from the Aliamanu Military Reservation water treatment plant.

Lead and Copper, occurs naturally. Lead and Copper samples are collected from select individual residences every three years. The total number of samples are taken dependent on the size of the installation

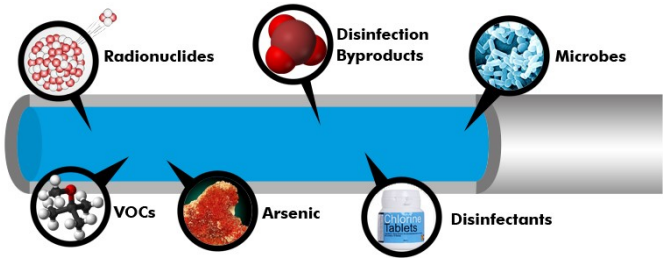
Radionuclides, occur from erosion of natural and man made deposits. The garrison collects one sample for radiological from each installation once every 9 years

Semivolatiles & Cyanide, occur from runoff from herbicide, chemical factories, and other factories. The garrison collects two samples every three years for semivolatiles and 1 routine every 3 years for cyanide. Samples are collected at the Aliamanu Military Reservation's water treatment plant in two separate quarters within the same calendar year

Synthetic Organic Chemicals, occur mainly from pesticides. The garrison collects two samples each, every three years. Samples are collected from each the Aliamanu Military Reservation's water treatment plant in in two separate quarters within the same calendar year

Trace Metals occur naturally. The garrison collects one sample every three years from the Aliamanu Military Reservation's water treatment plant.

Volatile Organic Compounds, occur from discharge of landfills and factories. The garrison collects one volatile organic compound sample from the Aliamanu Military Reservation's water treatment plant.



https://commons.wikimedia.org/wiki/File:Common_Water_Contaminates.jpg

Water Quality Table for Aliamanu Military Reservation including non-detectable results

The tables below show a comprehensive list of all drinking water contaminants sampled during calendar year 2021 unless otherwise indicated. These tables include detectable information that was shown on page 3 of the 2022 Aliamanu Military Reservation Water Quality Report, along with non-detectable data. The EPA allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not vary significantly from year to year, or our system is not considered vulnerable to this type of contamination. Some of our data, though representative, are more than one year old.

Contaminants in the Distribution System (units of measurement)	MCL	MCLG	Average Level Detected	Range of Detection (multiple samples)	Likely Source of Contaminant	Violation	Category
Bacteriological							
Total Coliform	5%[1]	0	0	No Range	Naturally present in the environment	NO	Bacteriological and Water Quality Readings
Disinfectant & Disinfection Byproducts							
Residual Chlorine (ppm)	MRDL=4	MRDLG =4	0.59	0.21-0.85	Water additive used to control microbes	NO	Bacteriological and Water Quality Readings
Total Trihalomethane (ppb)	**80**	**N/A**	**6.8**	**No Range**	Byproduct of drinking water disinfection	NO	Disinfection Byproducts
Chloroform	N/A	70	ND	No Range			
Bromodichloromethane	N/A	0	ND	No Range			
Dibromochloromethane	N/A	60	1.2	No Range			
Bromoform	N/A	0	5.6	No Range			
Total Haloacetic Acids (ppb)	**60**	**N/A**	**ND**	**No Range**	Byproduct of drinking water disinfection	NO	
Monochloroacetic acid	N/A	70	ND	No Range			
Monobromoacetic acid	N/A	N/A	ND	No Range			
Dichloroacetic acid	N/A	0	ND	No Range			
Trichloroacetic acid	N/A	20	ND	No Range			
Dibromoacetic acid	N/A	N/A	ND	No Range			
Inorganic							
Copper (ppm)	AL=1.3	1.3	ND[2,3] (2019)	0 [4]	Corrosion of household plumbing systems; Erosion of natural deposits	NO	Lead and Copper
Lead(ppb)	AL=15	0	ND[2,3] (2019)	0 [4]	Corrosion of household plumbing systems; Erosion of natural deposits	NO	
Fluoride (ppm)	4	4	0.65[5]	0.29-1.06	Erosion of natural deposits; water additive to promote strong teeth	NO	Bacteriological and Water Quality Readings
Asbestos							
Asbestos (MFL)	7	7	ND[8]	ND	Decay of asbestos cement in water mains; erosion of natural deposits	NO	Asbestos

Contaminants in the Plant Water (units of measurement)	MCL	MCLG	Average Level Detected	Range of Detection (multiple samples)	Likely Source of Contaminant	Violation	Category
Volatile Organic Chemcials (VOC) (ppb)							
Vinyl Chloride	2	0	ND[2] (2020)	No Range	Leaching from PVC pipes; discharge from plastic factories	NO	VOC
1,1 - Dichloro ethylene	7	7	ND[2] (2020)	No Range	Discharge from industrial chemical factories	NO	
Benzene	5	0	ND[2] (2020)	No Range	Discharge from factories; leaching from gas storage tanks and landfills	NO	
1,2 - Dichloro ethane (EDC)	5	0	ND[2] (2020)	No Range	Discharge from industrial chemical factories	NO	
Trichloro ethylene (TCE)	5	0	ND[2] (2020)	No Range	Discharge from industrial chemical factories	NO	
p-Dichloro benzene	75	75	ND[2] (2020)	No Range	Discharge from industrial chemical factories	NO	
trans-1,2-Di chloroethylene	100	100	ND[2] (2020)	No Range	Discharge from industrial chemical factories	NO	
cis-1,2-Di chloroethylene	70	70	ND[2] (2020)	No Range	Discharge from industrial chemical factories	NO	
1,2-Dichloro propane (DCP)	5	0	ND[2] (2020)	No Range	Discharge from industrial chemical factories	NO	
Toluene	1000	1000	ND[2] (2020)	No Range	Discharge from factories; leaching from gas storage tanks and landfills	NO	
Ethylbenzene	700	700	ND[2] (2020)	No Range	Discharge from factories; leaching from gas storage tanks and landfills	NO	
Chlorobenzene	100	100	ND[2] (2020)	No Range	Discharge from chemical and agricultural chemical factories	NO	
o-Dichlorobenzene	600	600	ND[2] (2020)	No Range	Discharge from industrial chemical factories	NO	
Styrene	100	100	ND[2] (2020)	No Range	Discharge from rubber and plastic factories; leaching from landfills	NO	
Total Xylenes	10000	10000	ND[2] (2020)	No Range	Discharge from petroleum factories; discharge from chemical factories	NO	
Tetrachloroethylene (PCE)	5	0	ND[2] (2020)	No Range	Discharge from factories and dry cleaners	NO	
Dichloromethane	5	0	ND[2] (2020)	No Range	Discharge from drug and chemical factories	NO	
1,1,2-Trichloroethane	5	3	ND[2] (2020)	No Range	Discharge from industrial chemical factories	NO	
1,2,4-Trichlorobenzene	70	70	ND[2] (2020)	No Range	Discharge from textile finishing factories	NO	

Contaminants in the Plant Water (units of measurement)	MCL	MCLG	Average Level Detected	Range of Detection (multiple samples)	Likely Source of Contaminant	Violation	Category
Synthetic Organic Chemicals (ppb)							
Hexachlorocyclopenta-diene	50	50	ND[2] (2017)	ND	Discharge from chemical factories	NO	Synthetic Organic Chemicals
Hexachlorobenzene	1	0	ND[2] (2017)	ND	Discharge from metal refineries and agricultur-al chemical factories	NO	
Lindane	0.2	0.2	ND[2] (2017)	ND	Runoff/leaching from insecticide used on cattle, lumber, gardens	NO	
Heptachlor	0.4	0	ND[2] (2017)	ND	Residue of banned termiticide	NO	
Heptachlor epoxide	0.2	0	0.02 (2017)	ND	Breakdown of heptachlor	NO	
Endrin	2	2	ND[2] (2017)	ND	Residue of banned insecticide	NO	
Methoxychlor	40	40	ND[2] (2017)	ND	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock	NO	
Alachlor	2	0	ND[2] (2017)	ND	Runoff from herbicide used on row crops	NO	
Chlordane	2	0	0.355[2] (2017)	0.35-0.36	Residue of banned termiticide	NO	
Toxaphene	3	0	ND[2] (2017)	ND	Runoff/leaching from insecticide used on cotton and cattle	NO	
Aroclor 1016	0.5	0	ND[2] (2017)	ND	Leaching/Runoff from pesticide	NO	
Aroclor 1221	0.5	0	ND[2] (2017)	ND	Leaching/Runoff from pesticide	NO	
Aroclor 1232	0.5	0	ND[2] (2017)	ND	Leaching/Runoff from pesticide	NO	
Aroclor 1242	0.5	0	ND[2] (2017)	ND	Leaching/Runoff from pesticide	NO	
Aroclor 1248	0.5	0	ND[2] (2017)	ND	Leaching/Runoff from pesticide	NO	
Aroclor 1254	0.5	0	ND[2] (2017)	ND	Leaching/Runoff from pesticide	NO	
Aroclor 1260	0.5	0	ND[2] (2017)	ND	Leaching/Runoff from pesticide	NO	
Simazine	4	4	ND[2] (2017)	ND	Leaching/Runoff from pesticide	NO	
Atrazine	3	3	ND[2] (2017)	ND	Runoff from herbicide used on row crops	NO	
Metribuzin	UNREGU-LATED[6]	N/A	ND[2] (2017)	ND	Leaching/Runoff from pesticide	N/A	
Aldrin	UNREGU-LATED[6]	N/A	ND[2] (2017)	ND	Leaching/Runoff from pesticide	N/A	
Butachlor	UNREGU-LATED[6]	N/A	ND[2] (2017)	ND	Leaching/Runoff from pesticide	N/A	
Dieldrin	UNREGU-LATED[6]	N/A	.033[2] (2017)	0.01-0.05	Leaching/Runoff from pesticide	N/A	
Metolachlor	UNREGU-LATED[6]	N/A	ND[2] (2017)	ND	Leaching/Runoff from pesticide	N/A	
Propachlor	UNREGU-LATED[6]	N/A	ND[2] (2017)	ND	Leaching/Runoff from pesticide	N/A	

Contaminants in the Plant Water (units of measurement)	MCL	MCLG	Average Level Detected	Range of Detection (multiple samples)	Likely Source of Contaminant	Violation	Category
Synthetic Organic Chemicals (ppb)							
Carbofuran	40	40	ND	ND	Leaching of soil fumigant used on rice and alfalfa	NO	Carbamate Pesticides
Oxamyl (Vydate)	200	200	ND	ND	Runoff/leaching from insecticide used on apples, potatoes, and tomatoes	NO	
Aldicarb	UNREGULATED[6]	N/A	ND	ND	Leaching/Runoff from pesticide	N/A	
Aldicarb Sulfone	UNREGULATED[6]	N/A	ND	ND	Leaching/Runoff from pesticide	N/A	
Aldicarb Sulfoxide	UNREGULATED[6]	N/A	ND	ND	Leaching/Runoff from pesticide	N/A	
Carbaryl	UNREGULATED[6]	N/A	ND	ND	Leaching/Runoff from pesticide	N/A	
3-Hydroxycarbofuran	UNREGULATED[6]	N/A	ND	ND	Leaching/Runoff from pesticide	N/A	
Methomyl	UNREGULATED[6]	N/A	ND	ND	Leaching/Runoff from pesticide	N/A	
Propoxur	UNREGULATED[6]	N/A	ND	ND	Leaching/Runoff from pesticide	N/A	
Methiocarb	UNREGULATED[6]	N/A	ND	ND	Leaching/Runoff from pesticide	N/A	
Benzo (a) pyrene	0.20	0	ND[2] (2020)	ND	Leaching from linings of water storage tanks and distribution lines	NO	Semivolatiles and Cyanide
Di (2-ethylhexyl) adipate	400	400	ND[2] (2020)	ND	Discharge from chemical factories	NO	
Di (2-2ethylhexyl) phthalate	6	0	ND[2] (2020)	ND	Discharge from rubber and chemical factories	NO	
Dioxin	30	0	ND	ND	Emissions from waste incineration and other combustion; discharge from chemical factories	NO	
Diquat	20	20	ND[2] (2020)	ND	Runoff from herbicide use	NO	
Endothall	100	100	ND[2] (2020)	ND	Runoff from herbicide use	NO	
Cyanide (ppb)	200	200	ND[2] (2020)	ND	Discharge from steel/metal factories; discharge from plastic and fertilizer factories	NO	
Dalapon	200	200	ND[2] (2017)	ND	Runoff from herbicide used on rights of way	NO	Chlorinated Acids
2,4-D	70	70	ND[2] (2017)	ND	Runoff from herbicide used on row crops	NO	
Pentachlorophenol	1	0	ND[2] (2017)	ND	Discharge from wood preserving factories	NO	
2,4,5-TP	50	50	ND[2] (2017)	ND	Residue of banned herbicide	NO	
Dinoseb	7	7	ND[2] (2017)	ND	Runoff from herbicide used on soybeans and vegetables	NO	
Picloram	500	500	ND[2] (2017)	ND	Leaching/Runoff from pesticide	NO	
Dicamba	UNREGULATED[6]	N/A	ND[2] (2017)	ND	Leaching/Runoff from pesticide	N/A	

Contaminants in the Plant Water (units of measurement)	MCL	MCLG	Average Level Detected	Range of Detection (multiple samples)	Likely Source of Contaminant	Violation	Category
Synthetic Organic Chemicals (ppb)							
Glyphosate	700	700	ND	ND	Runoff from herbicide use	NO	Glyphosate
Ethylene Dibromide	0.05	0	ND	ND	Discharge from petroleum refineries	NO	EDB/DBCP/TCP
1,2-Dibromo-3-Chloro propane	0.2	0	ND	ND	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards	NO	
1,2,3-Trichloropropane	UNREGU-LATED[6]	N/A	ND	ND	Discharge from industrial chemical factories and pesticides	N/A	
Inorganics							
Nitrate (as N) (ppm)	10	10	1.073	0.51-2.1	Runoff from fertilizer use; leaking from septic tanks, sewage; erosion of natural deposits	NO	Inorganic Anions
Nitrite (as N) (ppm)	1	1	ND	No Range	Runoff from fertilizer use; leaking from septic tanks, sewage; erosion of natural deposits	NO	
Fluoride (ppm)	4	4	0.42	0.23-0.58	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories	NO	
Sulfate (ppm)	250[7]	N/A	33	ND-47	Naturally occurs; affects taste	NO	
Trace Metals (ppb)							
Antimony	6	6	ND[2] (2017)	No Range	Naturally occurs	NO	Trace Metals
Arsenic	10	0	ND[2] (2017)	No Range	Naturally occurs	NO	
Barium	2000	2000	15.97 [2] (2017)	No Range	Naturally occurs	NO	
Beryllium	4	4	ND[2] (2017)	No Range	Naturally occurs	NO	
Cadmium	5	5	ND[2] (2017)	No Range	Naturally occurs	NO	
Chromium	100	100	2.08 [2] (2017)	No Range	Naturally occurs	NO	
Copper	1300	1300	75.94[2] (2019)	50-129	Naturally occurs	NO	
Lead	15	0	10.1[2] (2019)	No Range	Naturally occurs	NO	
Mercury	2	2	ND[2] (2017)	No Range	Naturally occurs	NO	
Nickel	UNREGU-LATED[6]	N/A	ND[2] (2017)	No Range	Naturally occurs	N/A	
Selenium	50	50	ND[2] (2017)	No Range	Naturally occurs	NO	
Sodium	UNREGU-LATED[6]	N/A	66 (2017)[2]	26-124	Naturally occurs	N/A	
Thallium	2	0.5	ND[2] (2017)	No Range	Naturally occurs	NO	

Contaminants in the Plant Water (units of measurement)	MCL	MCLG	Average Level Detected	Range of Detection (multiple samples)	Likely Source of Contaminant	Viola-tion	Category
Radionuclides							
Gross Alpha (pCi/L)	15 pCi/L	0	ND[2,8] (2018)	No Range	Decay of natural and man-made deposits	NO	Radionuclides
Gross Beta (pCi/L)	50	0	ND[2,8,9] (2018)	No Range	Decay of natural and man-made deposits	NO	
Radium-228 (pCi/L)	5	0	ND[2,8] (2018)	No Range	Erosion of natural deposits	NO	
Radium-226 (pCi/L)	5	0	ND[2,8] (2018)	No Range	Erosion of natural deposits	NO	
Combined Radium (pCi/L)	5	0	ND[2,8] (2018)	No Range	Erosion of natural deposits	NO	
Uranium ppb	30	0	ND[2,8] (2018)	No Range	Erosion of natural deposits	NO	

Table Definitions, Notes, and Abbreviations

Table Definitions:

MCL - Maximum Contaminant Level - 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.

MCLG - Maximum Contaminant Level Goal - 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.

MRDL - Maximum Residual Disinfectant Level - 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.

MRDLG - Maximum Residual Disinfectant Level Goal - 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 contamination.

AL (Action Level) - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Table Notes:

1. No more than 5.0 % positive in a month
2. The state and EPA require water systems to monitor certain contaminants less than once per year because the concentration is not expected to vary significantly from year to year. The date of the last sample collected is as indicated.
3. In accordance with EPA and State regulations, this number represents the 90th percentile value of the sample collected.
4. Number of samples above the action level.
5. Fluoride is added to the water system to help promote healthy teeth in children. The target level is 0.7 ppm.
6. Unregulated contaminant monitoring helps EPA to determine where certain contaminants occur and whether the Agency should consider regulating those contaminants in the future.
7. This is a Secondary Maximum Contaminant Level (SMCL). It is not enforced by the EPA and is not considered a risk to human health at SMCL.
8. This sampling is done every 9 years
9. The MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles.

Table Abbreviations:

ppb - parts per billion or micrograms per liter (µg/L)

ppm - parts per million or milligrams per liter (mg/L)

pCi/L - picocurie per liter

ND - non-detect