

2018 Consumer Confidence Report

Water System Name: **CDFA-Mountain Pass JPOE AIS**

Report Date: **May 15, 2019**

We test the drinking water quality for many constituents as required by state and federal regulations. This report shows the results of our monitoring for the period of January 1 to December 31, 2018 and may include earlier monitoring data.

Este informe contiene información muy importante sobre su agua para beber. Favor de comunicarse CDFA-Mountain Pass JPOE AIS, 101488 Poppy Road, Nipton, CA 95364, Phone: 760-856-1053 para asistirlo en español.

这份报告含有关于您的饮用水的重要讯息。请用以下地址和电话联系 CDFA-Mountain Pass JPOE AIS, 101488 Poppy Road, Nipton, CA 95364, Phone: 760-856-1053 以获得中文的帮助:

Ang pag-uulat na ito ay naglalaman ng mahalagang impormasyon tungkol sa inyong inuming tubig. Mangyaring makipag-ugnayan sa CDFA-Mountain Pass JPOE AIS, 101488 Poppy Road, Nipton, CA 95364, Phone: 760-856-1053 tumawag sa para matulungan sa wikang Tagalog.

Báo cáo này chứa thông tin quan trọng về nước uống của bạn. Xin vui lòng liên hệ CDFA-Mountain Pass JPOE AIS, 101488 Poppy Road, Nipton, CA 95364, Phone: 760-856-1053 để được hỗ trợ giúp bằng tiếng Việt.

Tsab ntawv no muaj cov ntsiab lus tseem ceeb txog koj cov dej haus. Thov hu rau CDFA-Mountain Pass JPOE AIS, ntawm 101488 Poppy Road, Nipton, CA 95364, Phone: 760-856-1053 kev pab hauv lus Askiv.

Type of water source(s) in use: Disinfected ground water

Name & general location of source(s): Well

Drinking Water Source A source assessment was completed in July 2018. The well is a Transient Non-Community Water
Assessment information: System with a well, hydro-pneumatic hold tank & distribution system serving a public visit center.

Time and place of regularly scheduled board meetings for public participation:

N/A

For more information, contact: Carl Baum

Phone: (916) 654-0312

TERMS USED IN THIS REPORT

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

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 are set by the U.S. Environmental Protection Agency (U.S. EPA).

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

Maximum Residual Disinfectant Level (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 (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.

Primary Drinking Water Standards (PDWS): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Secondary Drinking Water Standards (SDWS): MCLs for contaminants that affect taste, odor, or appearance of the drinking water. Contaminants with SDWSs do not affect the health at the MCL levels.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

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

Variances and Exemptions: Permissions from the State Water Resources Control Board (State Board) to exceed an MCL or not comply with a treatment technique under certain conditions.

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.

ND: not detectable at testing limit

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

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

ppt: parts per trillion or nanograms per liter (ng/L)

ppq: parts per quadrillion or picogram per liter (pg/L)

pCi/L: picocuries per liter (a measure of radiation)

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.

Contaminants that may be present in source water include:

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

In order to ensure that tap water is safe to drink, the U.S. EPA and the State Board prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The U.S. Food and Drug Administration regulations and California law also establish limits for contaminants in bottled water that provide the same protection for public health.

Tables 1, 2, 3, 4, 5, and 6 list all of the drinking water contaminants that were detected during the most recent sampling for the constituent. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The State Board allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data, though representative of the water quality, are more than one year old. Any violation of an AL, MCL, MRDL, or TT is asterisked. Additional information regarding the violation is provided later in this report.

TABLE 1 – SAMPLING RESULTS SHOWING THE DETECTION OF COLIFORM BACTERIA

Microbiological Contaminants (complete if bacteria detected)	Highest No. of Detections	No. of Months in Violation	MCL	MCLG	Typical Source of Bacteria
Total Coliform Bacteria (state Total Coliform Rule)	(ND)	0	1 positive monthly sample	0	Naturally present in the environment
Fecal Coliform or <i>E. coli</i> (state Total Coliform Rule)	(ND)	0	A routine sample and a repeat sample are total coliform positive, and one of these is also fecal coliform or <i>E. coli</i> positive		Human and animal fecal waste
<i>E. coli</i> (federal Revised Total Coliform Rule)	(ND)	0	(a)	0	Human and animal fecal waste

(a) Routine and repeat samples are total coliform-positive and either is *E. coli*-positive or system fails to take repeat samples following *E. coli*-positive routine sample or system fails to analyze total coliform-positive repeat sample for *E. coli*.

TABLE 2 – SAMPLING RESULTS SHOWING THE DETECTION OF LEAD AND COPPER

Lead and Copper (complete if lead or copper detected in the last sample set)	Sample Date	No. of Samples Collected	90 th Percentile Level Detected	No. Sites Exceeding AL	AL	PHG	No. of Schools Requesting Lead Sampling	Typical Source of Contaminant
Lead (ppb)	9/21/18	5	18.54	1	15	0.2	Not applicable	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits
Copper (ppm)	9/21/18	5	0.337	0	1.3	0.3	Not applicable	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives

TABLE 3 – SAMPLING RESULTS FOR SODIUM AND HARDNESS

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	MCL	PHG (MCLG)	Typical Source of Contaminant
Sodium (ppm)	8/10/18	85	N/A	None	None	Salt present in the water and is generally naturally occurring
Hardness (ppm)	8/10/18 To 12/14/18	See next	130 to 153	None	None	Sum of polyvalent cations present in the water, generally magnesium and calcium, and are usually naturally occurring

TABLE 4 – DETECTION OF CONTAMINANTS WITH A PRIMARY DRINKING WATER STANDARD

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	MCL [MRDL]	PHG (MCLG) [MRDLG]	Typical Source of Contaminant
None						

TABLE 5 – DETECTION OF CONTAMINANTS WITH A SECONDARY DRINKING WATER STANDARD

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	SMCL	PHG (MCLG)	Typical Source of Contaminant
None						

TABLE 6 – DETECTION OF UNREGULATED CONTAMINANTS

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	Notification Level	Health Effects Language
None					

Additional General Information on Drinking Water

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 the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be 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 from infections. These people should seek advice about drinking water from their health care providers. U.S. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

Lead-Specific Language: 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. CDEA-Mountain Pass JPOE AIS is 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 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 (1-800-426-4791) or at <http://www.epa.gov/lead>.

Summary Information for Violation of a MCL, MRDL, AL, TT, or Monitoring and Reporting Requirement

VIOLATION OF A MCL, MRDL, AL, TT, OR MONITORING AND REPORTING REQUIREMENT				
Violation	Explanation	Duration	Actions Taken to Correct the Violation	Health Effects Language
Monitoring	One 1,2,3, Trihloropropane water sample was taken in distribution system instead of well head.	One year	Re-take sample in December 2019	Unknown

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During the calendar year 2018, we did not monitor for 1,2,3-trichloropropane from the Domestic Water Well during the fourth calendar quarter and therefore, cannot be sure of the quality of your drinking water during that time.

For Water Systems Providing Groundwater as a Source of Drinking Water

TABLE 7 – SAMPLING RESULTS SHOWING FECAL INDICATOR-POSITIVE GROUNDWATER SOURCE SAMPLES					
Microbiological Contaminants (complete if fecal-indicator detected)	Total No. of Detections	Sample Dates	MCL [MRDL]	PHG (MCLG) [MRDLG]	Typical Source of Contaminant
<i>E. coli</i>	(0)	Monthly	0	(0)	Human and animal fecal waste
Enterococci	N/A		TT	N/A	Human and animal fecal waste
Coliphage	N/A		TT	N/A	Human and animal fecal waste

Summary Information for Fecal Indicator-Positive Groundwater Source Samples, Uncorrected Significant Deficiencies, or Groundwater TT

SPECIAL NOTICE OF FECAL INDICATOR-POSITIVE GROUNDWATER SOURCE SAMPLE				
None				
SPECIAL NOTICE FOR UNCORRECTED SIGNIFICANT DEFICIENCIES				
None				
VIOLATION OF GROUNDWATER TT				
TT Violation	Explanation	Duration	Actions Taken to Correct the Violation	Health Effects Language
None				

For Systems Providing Surface Water as a Source of Drinking Water

TABLE 8 - SAMPLING RESULTS SHOWING TREATMENT OF SURFACE WATER SOURCES

Treatment Technique ^(a) (Type of approved filtration technology used)	
Turbidity Performance Standards ^(b) (that must be met through the water treatment process)	Turbidity of the filtered water must: 1 – Be less than or equal to ____ NTU in 95% of measurements in a month. 2 – Not exceed ____ NTU for more than eight consecutive hours. 3 – Not exceed ____ NTU at any time.
Lowest monthly percentage of samples that met Turbidity Performance Standard No. 1.	
Highest single turbidity measurement during the year	
Number of violations of any surface water treatment requirements	

(a) A required process intended to reduce the level of a contaminant in drinking water.

(b) Turbidity (measured in NTU) is a measurement of the cloudiness of water and is a good indicator of water quality and filtration performance. Turbidity results which meet performance standards are considered to be in compliance with filtration requirements.

Summary Information for Violation of a Surface Water TT

VIOLATION OF A SURFACE WATER TT				
TT Violation	Explanation	Duration	Actions Taken to Correct the Violation	Health Effects Language
N/A				

Summary Information for Operating Under a Variance or Exemption

None

Summary Information for Federal Revised Total Coliform Rule Level 1 and Level 2 Assessment Requirements

Level 1 or Level 2 Assessment Requirement not Due to an *E. coli* MCL Violation

Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.

During the past year, we were not required to conduct Level 1 assessment(s). In addition, we were not required to take any corrective actions and we completed none of these actions.

During the past year, none of the Level 2 assessments were required to be completed for our water system. In addition, we were not required to take any corrective actions and we completed none of these actions.

Level 2 Assessment Requirement Due to an *E. coli* MCL Violation

E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely-compromised immune systems. We found *E. coli* bacteria, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) identify problems and to correct any problems that were found during these assessments.

We were not required to complete a Level 2 assessment because we found no *E. coli* in our water system. In addition, we were not required to take any corrective actions and we completed none of these actions.

Additional Tables: Regulated Contaminants with Secondary Drinking Water Standards

Monitoring Required by Section 64449, Chapter 15, Title 22, California Code of Regulations

Contaminant	Result & Unit Measurement	MCL	Typical Source of Contaminant
Aluminum	ND µg/L	200	Erosion of natural deposits; residual from some surface water treatment processes
Color	ND Units	15	Naturally-occurring organic materials
Copper	0.47 mg/L	1.0	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Foaming Agents (MBAS)	N/A µg/L	500	Municipal and industrial waste discharges
Iron	240 µg/L	300	Leaching from natural deposits; industrial wastes
Manganese	ND µg/L	50	Leaching from natural deposits
Methyl-tert-butyl ether (MTBE)	N/A µg/L	5	Leaking underground storage tanks; discharge from petroleum and chemical factories
Odor--Threshold	ND TON	3	Naturally-occurring organic materials
Silver	ND µg/L	100	Industrial discharges
Thiobencarb	N/A µg/L	1	Runoff/leaching from rice herbicide
Turbidity	1.0 NTU	5	Soil runoff
Zinc	0.1 mg/L	5.0	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (TDS)	N/A mg/L	1,000	Runoff/leaching from natural deposits
Specific Conductance	699 µS/cm	1,600	Substances that form ions when in water; seawater influence
Chloride	85 mg/L	500	Runoff/leaching from natural deposits; seawater influence
Sulfate	55.3 mg/L	500	Runoff/leaching from natural deposits; industrial wastes

There are no PHGs, MCLGs, or mandatory standard health effects language for these constituents because secondary MCLs are set on the basis of aesthetics.

Additional Tables: Regulated Contaminants with Primary Drinking Water Standards

Microbiological Contaminants

Contaminant	Results & Unit Measure -ment	MCL TT, as noted	PHG (MCLG)	Major Sources of Contamination	Health Effects Language
Total Coliform Bacteria (state Total Coliform Rule)	MCL: Systems that collect 40 or more samples per month: 5.0% of monthly samples are positive Systems that collect less than 40 samples per month: 1 positive monthly sample		(0)	Naturally present in the environment	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.
Fecal coliform and <i>E. coli</i> (state Total Coliform Rule)	MCL: A routine sample and a repeat sample are total coliform positive, and one of these is also fecal coliform or <i>E. coli</i> positive		(0)	Human and animal fecal waste	Fecal coliforms and <i>E. coli</i> 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. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
Total Coliform Bacteria (federal Revised Total Coliform Rule)		TT	N/A	Naturally present in the environment	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.

Contaminant	Results & Unit Measure-ment	MCL TT, as noted	PHG (MCLG)	Major Sources of Contamination	Health Effects Language
<i>E. coli</i> (federal Revised Total Coliform Rule)	(0)	Footnote ¹	(0)	Human and animal fecal waste	<i>E. coli</i> are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely-compromised immune systems. <i>For the consumer confidence report, if a water system detects E. coli and has violated the E. coli MCL, the water system shall include the following statements, as appropriate.</i> • We had an <i>E. coli</i>-positive repeat sample following a total coliform-positive routine sample. • We had a total coliform-positive repeat sample following an <i>E. coli</i>-positive routine sample. • We failed to take all required repeat samples following an <i>E. coli</i>-positive routine sample. • We failed to test for <i>E. coli</i> when any re repeat sample tests positive for total coliform. <i>If the E. coli MCL was not violated, the water system may include a statement that explains that although E. coli was detected, the water system is not in violation of the E. coli MCL.</i>
<i>E. coli</i> (federal Revised Total Coliform Rule)	(0)	TT	N/A	Human and animal fecal waste	<i>E. coli</i> are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely-compromised immune systems.
Fecal Indicator (<i>E. coli</i>) (Ground Water Rule)	(0)	0	(0)	Human and animal fecal waste	Fecal coliforms and <i>E. coli</i> 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. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

¹ Routine and repeat samples are total coliform-positive and either is *E. coli*-positive or system fails to take repeat samples following *E. coli*-positive routine sample or system fails to analyze total coliform-positive repeat sample for *E. coli*.

Contaminant	Results & Unit Measure-ment	MCL TT, as noted	PHG (MCLG)	Major Sources of Contamination	Health Effects Language
Fecal Indicators (enterococci or coliphage) (Ground Water Rule)	N/A	TT	N/A	Human and animal fecal waste	Fecal indicators are microbes 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. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
Turbidity	1.0	TT	N/A	Soil runoff	Turbidity has no health effects. However, high levels of 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.
<i>Giardia lamblia</i> , Viruses, Heterotrophic Plate Count Bacteria, <i>Legionella</i> , <i>Cryptosporidium</i>	N/A	TT	HPC = N/A; Others = (0)	Naturally present in the environment	Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

Radioactive Contaminants

Contaminant	Result & Unit Measure-ment	MCL TT, as noted	PHG (MCLG)	Major Sources of Contamination	Health Effects Language
Gross Beta Particle Activity	N/A pCi/L	50 ²	(0)	Decay of natural and man-made deposits	Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Strontium-90	N/A pCi/L	8	0.35	Decay of natural and man-made deposit	Some people who drink water containing strontium-90 in excess of the MCL over many years may have an increased risk of getting cancer.
Tritium	N/A pCi/L	20,000	400	Decay of natural and man-made deposits	Some people who drink water containing tritium in excess of the MCL over many years may have an increased risk of getting cancer.
Gross Alpha Particle Activity Well Kitchen Sink	3.34 pCi/L 7.62 ± 1.29 pCi/L	15	(0)	Erosion of natural deposits	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.

² Effective June 11, 2006, the gross beta particle activity MCL is 4 millirems/year annual dose equivalent to the total body or any internal organ. 50 pCi/L is used as a screening level.

Contaminant	Result & Unit Measure-ment	MCL TT, as noted	PHG (MCLG)	Major Sources of Contamination	Health Effects Language
Combined Radium 228	0.246 pCi/L	2	(0) ³	Erosion of natural deposits	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.
Total Radium (for nontransient-noncommunity water systems)	N/A pCi/L	5	N/A	Erosion of natural deposits	Some people who drink water containing radium 223, 224, or 226 in excess of the MCL over many years may have an increased risk of getting cancer.
Uranium	1.75 pCi/L	20	0.43	Erosion of natural deposits	Some people who drink water containing uranium in excess of the MCL over many years may have kidney problems or an increased risk of getting cancer.

Inorganic Contaminants

Contaminant	Result Unit Measure-ment	MCL (AL) TT, as noted	PHG (MCLG)	Major Sources of Contamination	Health Effects Language
Aluminum	ND mg/L	1	0.6	Erosion of natural deposits; residue from some surface water treatment processes	Some people who drink water containing aluminum in excess of the MCL over many years may experience short-term gastrointestinal tract effects.
Antimony	ND µg/L	6	1	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder	Some people who drink water containing antimony in excess of the MCL over many years may experience increases in blood cholesterol and decreases in blood sugar.
Arsenic	2.0 µg/L	10	0.004	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes	Some people who drink water containing arsenic in excess of the MCL over many years may experience skin damage or circulatory system problems, and may have an increased risk of getting cancer.
Asbestos	N/A MFL	7	7	Internal corrosion of asbestos cement water mains; erosion of natural deposits	Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.
Barium	ND mg/L	1	2	Discharge of oil drilling wastes and from metal refineries; erosion of natural deposits	Some people who drink water containing barium in excess of the MCL over many years may experience an increase in blood pressure.
Beryllium	ND µg/L	4	1	Discharge from metal refineries, coal-burning factories, and electrical, aerospace, and defense industries	Some people who drink water containing beryllium in excess of the MCL over many years may develop intestinal lesions.

³ If reporting results for Ra-226 and Ra-228 as individual constituents, the PHG is 0.05 pCi/L for Ra-226 and 0.019 pCi/L for Ra-228.

Contaminant	Result Unit Measure-ment	MCL (AL) TT, as noted	PHG (MCLG)	Major Sources of Contamination	Health Effects Language
Cadmium	ND µg/L	5	0.04	Internal corrosion of galvanized pipes; erosion of natural deposits; discharge from electroplating and industrial chemical factories, and metal refineries; runoff from waste batteries and paints	Some people who drink water containing cadmium in excess of the MCL over many years may experience kidney damage.
Chromium (Total)	ND µg/L	50	(100)	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits	Some people who use water containing chromium in excess of the MCL over many years may experience allergic dermatitis.
Copper	0.47 mg/L	(AL=1.3)	0.3	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time may experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years may suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.
Cyanide	ND µg/L	150	150	Discharge from steel/metal, plastic and fertilizer factories	Some people who drink water containing cyanide in excess of the MCL over many years may experience nerve damage or thyroid problems.
Fluoride	0.8 mg/L	2.0	1	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories	Some people who drink water containing fluoride in excess of the federal MCL of 4 mg/L over many years may get bone disease, including pain and tenderness of the bones. Children who drink water containing fluoride in excess of the state MCL of 2 mg/L may get mottled teeth.
Lead	ND µg/L	(AL=15)	0.2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits	Infants and children who drink water containing lead in excess of the action level may experience delays in their physical or mental development. Children may show slight deficits in attention span and learning abilities. Adults who drink this water over many years may develop kidney problems or high blood pressure.
Mercury (Inorganic)	ND µg/L	2	1.2	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and cropland	Some people who drink water containing mercury in excess of the MCL over many years may experience mental disturbances, or impaired physical coordination, speech and hearing.
Nickel	ND µg/L	100	12	Erosion of natural deposits; discharge from metal factories	Some people who drink water containing nickel in excess of the MCL over many years may experience liver and heart effects.

Contaminant	Result Unit Measure-ment	MCL (AL) TT, as noted	PHG (MCLG)	Major Sources of Contamination	Health Effects Language
Nitrate (as Nitrogen, N)	2.5 mg/L	10	10	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits	Infants below the age of six months who drink water containing nitrate in excess of the MCL may quickly become seriously ill and, if untreated, may die because high nitrate levels can interfere with the capacity of the infant's blood to carry oxygen. Symptoms include shortness of breath and blueness of the skin. High nitrate levels may also affect the oxygen-carrying ability of the blood of pregnant women.
Nitrite (as nitrogen, N)	ND mg/L	1	1	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits	Infants below the age of six months who drink water containing nitrite in excess of the MCL may quickly become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blueness of the skin.
Perchlorate	ND µg/L	6	1	Perchlorate is an inorganic chemical used in solid rocket propellant, fireworks, explosives, flares, matches, and a variety of industries. It usually gets into drinking water as a result of environmental contamination from historic aerospace or other industrial operations that used or use, store, or dispose of perchlorate and its salts.	Perchlorate has been shown to interfere with uptake of iodide by the thyroid gland, and to thereby reduce the production of thyroid hormones, leading to adverse affects associated with inadequate hormone levels. Thyroid hormones are needed for normal prenatal growth and development of the fetus, as well as for normal growth and development in the infant and child. In adults, thyroid hormones are needed for normal metabolism and mental function.
Selenium	7 µg/L	50	30	Discharge from petroleum, glass, and metal refineries; erosion of natural deposits; discharge from mines and chemical manufacturers; runoff from livestock lots (feed additive)	Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years may experience hair or fingernail losses, numbness in fingers or toes, or circulation system problems.
Thallium	ND µg/L	2	0.1	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories	Some people who drink water containing thallium in excess of the MCL over many years may experience hair loss, changes in their blood, or kidney, intestinal, or liver problems.

Synthetic Organic Contaminants including Pesticides and Herbicides

Contaminant	Result & Unit Measure -ment	MCL TT, as noted	PHG (MCLG)	Major Sources of Contamination	Health Effects Language
2,4-D	N/A µg/L	70	20	Runoff from herbicide used on row crops, range land, lawns, and aquatic weeds	Some people who use water containing the weed killer 2,4-D in excess of the MCL over many years may experience kidney, liver, or adrenal gland problems.
2,4,5-TP (Silvex)	N/A µg/L	50	3	Residue of banned herbicide	Some people who drink water containing Silvex in excess of the MCL over many years may experience liver problems.
Acrylamide		TT	(0)	Added to water during sewage/wastewater treatment	Some people who drink water containing high levels of acrylamide over a long period of time may experience nervous system or blood problems, and may have an increased risk of getting cancer.
Alachlor	N/A µg/L	2	4	Runoff from herbicide used on row crops	Some people who use water containing alachlor in excess of the MCL over many years may experience eye, liver, kidney, or spleen problems, or experience anemia, and may have an increased risk of getting cancer.
Atrazine	N/A µg/L	1	0.15	Runoff from herbicide used on row crops and along railroad and highway right-of-ways	Some people who use water containing atrazine in excess of the MCL over many years may experience cardiovascular system problems or reproductive difficulties.
Bentazon	N/A µg/L	18	200	Runoff/leaching from herbicide used on beans, peppers, corn, peanuts, rice, and ornamental grasses	Some people who drink water containing bentazon in excess of the MCL over many year may experience prostate and gastrointestinal effects.
Benzo(a)pyrene (PAH)	N/A µg/L	200	7	Leaching from linings of water storage tanks and distribution mains	Some people who use water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
Carbofuran	N/A µg/L	18	0.7	Leaching of soil fumigant used on rice and alfalfa, and grape vineyards	Some people who use water containing carbofuran in excess of the MCL over many years may experience problems with their blood, or nervous or reproductive system problems.
Chlordane	N/A µg/L	100	30	Residue of banned insecticide	Some people who use water containing chlordane in excess of the MCL over many years may experience liver or nervous system problems, and may have an increased risk of getting cancer.
Dalapon	N/A µg/L	200	790	Runoff from herbicide used on rights-of-ways, and crops and landscape maintenance	Some people who drink water containing dalapon in excess of the MCL over many years may experience minor kidney changes.

Contaminant	Result & Unit Measure -ment	MCL TT, as noted	PHG (MCLG)	Major Sources of Contamination	Health Effects Language
Di(2-ethylhexyl) adipate	N/A µg/L	400	200	Discharge from chemical factories	Some people who drink water containing di(2-ethylhexyl) adipate in excess of the MCL over many years may experience weight loss, liver enlargement, or possible reproductive difficulties.
Di(2-ethylhexyl) phthalate	N/A µg/L	4	12	Discharge from rubber and chemical factories; inert ingredient in pesticides	Some people who use water containing di(2-ethylhexyl) phthalate in excess of the MCL over many years may experience liver problems or reproductive difficulties, and may have an increased risk of getting cancer.
Dibromochloropropane (DBCP)	ND µg/L	200	1.7	Banned nematocide that may still be present in soils due to runoff/leaching from former use on soybeans, cotton, vineyards, tomatoes, and tree fruit	Some people who use water containing DBCP in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
Dinoseb	N/A µg/L	7	14	Runoff from herbicide used on soybeans, vegetables, and fruits	Some people who drink water containing dinoseb in excess of the MCL over many years may experience reproductive difficulties.
Dioxin (2,3,7,8-TCDD)	N/A µg/L	30	0.05	Emissions from waste incineration and other combustion; discharge from chemical factories	Some people who use water containing dioxin in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
Diquat	N/A µg/L	20	6	Runoff from herbicide use for terrestrial and aquatic weeds	Some people who drink water containing diquat in excess of the MCL over many years may get cataracts.
Endothall	N/A µg/L	100	94	Runoff from herbicide use for terrestrial and aquatic weeds; defoliant	Some people who drink water containing endothall in excess of the MCL over many years may experience stomach or intestinal problems.
Endrin	N/A µg/L	2	0.3	Residue of banned insecticide and rodenticide	Some people who drink water containing endrin in excess of the MCL over many years may experience liver problems.
Epichlorohydrin		TT	(0)	Discharge from industrial chemical factories; impurity of some water treatment chemicals	Some people who drink water containing high levels of epichlorohydrin over a long period of time may experience stomach problems, and may have an increased risk of getting cancer.
Ethylene dibromide (EDB)	ND ng/L	50	10	Discharge from petroleum refineries; underground gas tank leaks; banned nematocide that may still be present in soils due to runoff and leaching from grain and fruit crops	Some people who use water containing ethylene dibromide in excess of the MCL over many years may experience liver, stomach, reproductive system, or kidney problems, and may have an increased risk of getting cancer.

Contaminant	Result & Unit Measure -ment	MCL TT, as noted	PHG (MCLG)	Major Sources of Contamination	Health Effects Language
Glyphosate	N/A µg/L	700	900	Runoff from herbicide use	Some people who drink water containing glyphosate in excess of the MCL over many years may experience kidney problems or reproductive difficulties.
Heptachlor	N/A µg/L	10	8	Residue of banned insecticide	Some people who use water containing heptachlor in excess of the MCL over many years may experience liver damage and may have an increased risk of getting cancer.
Heptachlor epoxide	N/A µg/L	10	6	Breakdown of heptachlor	Some people who use water containing heptachlor epoxide in excess of the MCL over many years may experience liver damage, and may have an increased risk of getting cancer.
Hexachlorobenzene	N/A µg/L	1	0.03	Discharge from metal refineries and agricultural chemical factories; byproduct of chlorination reactions in wastewater	Some people who drink water containing hexachlorobenzene in excess of the MCL over many years may experience liver or kidney problems, or adverse reproductive effects, and may have an increased risk of getting cancer.
Hexachlorocyclopentadiene	ND µg/L	50	2	Discharge from chemical factories	Some people who use water containing hexachlorocyclopentadiene in excess of the MCL over many years may experience kidney or stomach problems.
Lindane	N/A µg/L	200	32	Runoff/leaching from insecticide used on cattle, lumber, and gardens	Some people who drink water containing lindane in excess of the MCL over many years may experience kidney or liver problems.
Methoxychlor	N/A µg/L	30	0.09	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, and livestock	Some people who drink water containing methoxychlor in excess of the MCL over many years may experience reproductive difficulties.
Molinate (Ordram)	N/A µg/L	20	1	Runoff/leaching from herbicide used on rice	Some people who use water containing molinate in excess of the MCL over many years may experience reproductive effects.
Oxamyl (Vydate)	N/A µg/L	50	26	Runoff/leaching from insecticide used on field crops, fruits and ornamentals, especially apples, potatoes, and tomatoes	Some people who drink water containing oxamyl in excess of the MCL over many years may experience slight nervous system effects.
PCBs (Polychlorinated biphenyls)	N/A µg/L	500	90	Runoff from landfills; discharge of waste chemicals	Some people who drink water containing PCBs in excess of the MCL over many years may experience changes in their skin, thymus gland problems, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.

Contaminant	Result & Unit Measure-ment	MCL TT, as noted	PHG (MCLG)	Major Sources of Contamination	Health Effects Language
Pentachlorophenol	N/A µg/L	1	0.3	Discharge from wood preserving factories, cotton and other insecticidal/herbicidal uses	Some people who use water containing pentachlorophenol in excess of the MCL over many years may experience liver or kidney problems, and may have an increased risk of getting cancer.
Picloram	N/A µg/L	500	166	Herbicide runoff	Some people who drink water containing picloram in excess of the MCL over many years may experience liver problems.
Simazine	N/A µg/L	4	4	Herbicide runoff	Some people who use water containing simazine in excess of the MCL over many years may experience blood problems.
Thiobencarb	N/A µg/L	70	42	Runoff/leaching from herbicide used on rice	Some people who use water containing thiobencarb in excess of the MCL over many years may experience body weight and blood effects.
Toxaphene	N/A µg/L	3	0.03	Runoff/leaching from insecticide used on cotton and cattle	Some people who use water containing toxaphene in excess of the MCL over many years may experience kidney, liver, or thyroid problems, and may have an increased risk of getting cancer.
1,2,3-Trichloropropane	ND µg/L	5	0.7	Discharge from industrial and agricultural chemical factories; leaching from hazardous waste sites; used as cleaning and maintenance solvent, paint and varnish remover, and cleaning and degreasing agent; byproduct during the production of other compounds and pesticides.	Some people who drink water containing 1,2,3-trichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.

Volatile Organic Contaminants

Contaminant	Result & Unit Measure-ment	MCL TT, as noted	PHG (MCLG)	Major Sources of Contamination	Health Effects Language
Benzene	ND µg/L	1	0.15	Discharge from plastics, dyes and nylon factories; leaching from gas storage tanks and landfills	Some people who use water containing benzene in excess of the MCL over many years may experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.

Contaminant	Result & Unit Measure-ment	MCL TT, as noted	PHG (MCLG)	Major Sources of Contamination	Health Effects Language
Carbon tetrachloride	ND ng/L	500	100	Discharge from chemical plants and other industrial activities	Some people who use water containing carbon tetrachloride in excess of the MCL over many years may experience liver problems and may have an increased risk of getting cancer.
1,2-Dichlorobenzene	ND µg/L	600	600	Discharge from industrial chemical factories	Some people who drink water containing 1,2-dichlorobenzene in excess of the MCL over many years may experience liver, kidney, or circulatory system problems.
1,4-Dichlorobenzene	ND µg/L	5	6	Discharge from industrial chemical factories	Some people who use water containing 1,4-dichlorobenzene in excess of the MCL over many years may experience anemia, liver, kidney, or spleen damage, or changes in their blood.
1,1-Dichloroethane	ND µg/L	5	3	Extraction and degreasing solvent; used in the manufacture of pharmaceuticals, stone, clay, and glass products; fumigant	Some people who use water containing 1,1-dichloroethane in excess of the MCL over many years may experience nervous system or respiratory problems.
1,2-Dichloroethane	ND ng/L	500	400	Discharge from industrial chemical factories	Some people who use water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.
1,1-Dichloroethylene	ND µg/L	6	10	Discharge from industrial chemical factories	Some people who use water containing 1,1-dichloroethylene in excess of the MCL over many years may experience liver problems.
cis-1,2-Dichloroethylene	ND µg/L	6	100	Discharge from industrial chemical factories; major biodegradation byproduct of TCE and PCE groundwater contamination	Some people who use water containing cis-1,2-dichloroethylene in excess of the MCL over many years may experience liver problems.
trans-1,2-Dichloroethylene	ND µg/L	10	60	Discharge from industrial chemical factories; minor biodegradation byproduct of TCE and PCE groundwater contamination	Some people who drink water containing trans-1,2-dichloroethylene in excess of the MCL over many years may experience liver problems.
Dichloromethane	ND µg/L	5	4	Discharge from pharmaceutical and chemical factories; insecticide	Some people who drink water containing dichloromethane in excess of the MCL over many years may experience liver problems and may have an increased risk of getting cancer.
1,2-Dichloropropane	ND µg/L	5	0.5	Discharge from industrial chemical factories; primary component of some fumigants	Some people who use water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant	Result & Unit Measure-ment	MCL TT, as noted	PHG (MCLG)	Major Sources of Contamination	Health Effects Language
1,3-Dichloropropene	ND ng/L	500	200	Runoff/leaching from nematocide used on croplands	Some people who use water containing 1,3-dichloropropene in excess of the MCL over many years may have an increased risk of getting cancer.
Ethylbenzene	1.3 µg/L	300	300	Discharge from petroleum refineries; industrial chemical factories	Some people who use water containing ethylbenzene in excess of the MCL over many years may experience liver or kidney problems.
Methyl- <i>tert</i> -butyl ether	ND µg/L	13	13	Leaking underground storage tanks; discharges from petroleum and chemical factories	Some people who use water containing methyl- <i>tert</i> -butyl ether in excess of the MCL over many years may have an increased risk of getting cancer.
Monochlorobenzene	ND µg/L	70	70	Discharge from industrial and agricultural chemical factories and drycleaning facilities	Some people who use water containing monochlorobenzene in excess of the MCL over many years may experience liver or kidney problems.
Styrene	ND µg/L	100	0.5	Discharge from rubber and plastic factories; leaching from landfills	Some people who drink water containing styrene in excess of the MCL over many years may experience liver, kidney, or circulatory system problems.
1,1,2,2-Tetrachloroethane	ND µg/L	1	0.1	Discharge from industrial and agricultural chemical factories; solvent used in production of TCE, pesticides, varnish and lacquers	Some people who drink water containing 1,1,2,2-tetrachloroethane in excess of the MCL over many years may experience liver or nervous system problems.
Tetrachloroethylene (PCE)	ND µg/L	5	0.06	Discharge from factories, dry cleaners, and auto shops (metal degreaser)	Some people who use water containing tetrachloroethylene in excess of the MCL over many years may experience liver problems, and may have an increased risk of getting cancer.
1,2,4-Trichlorobenzene	ND µg/L	5	5	Discharge from textile-finishing factories	Some people who use water containing 1,2,4-trichlorobenzene in excess of the MCL over many years may experience adrenal gland changes.
1,1,1-Trichloroethane	ND µg/L	200	1000	Discharge from metal degreasing sites and other factories; manufacture of food wrappings	Some people who use water containing 1,1,1-trichloroethane in excess of the MCL over many years may experience liver, nervous system, or circulatory system problems.
1,1,2-Trichloroethane	ND µg/L	5	0.3	Discharge from industrial chemical factories	Some people who use water containing 1,1,2-trichloroethane in excess of the MCL over many years may experience liver, kidney, or immune system problems.
Trichloroethylene (TCE)	ND µg/L	5	1.7	Discharge from metal degreasing sites and other factories	Some people who use water containing trichloroethylene in excess of the MCL over many years may experience liver problems and may have an increased risk of getting cancer.

Contaminant	Result & Unit Measure -ment	MCL TT, as noted	PHG (MCLG)	Major Sources of Contamination	Health Effects Language
Toluene	ND µg/L	150	150	Discharge from petroleum and chemical factories; underground gas tank leaks	Some people who use water containing toluene in excess of the MCL over many years may experience nervous system, kidney, or liver problems.
Trichlorofluoromethane	ND µg/L	150	1300	Discharge from industrial factories; degreasing solvent; propellant and refrigerant	Some people who use water containing trichlorofluoromethane in excess of the MCL over many years may experience liver problems.
1,1,2-Trichloro-1,2,2-trifluoroethane	ND mg/L	1.2	4	Discharge from metal degreasing sites and other factories; drycleaning solvent; refrigerant	Some people who use water containing 1,1,2-trichloro-1,2,2-trifluoroethane in excess of the MCL over many years may experience liver problems.
Vinyl chloride	ND µg/L	500	50	Leaching from PVC piping; discharge from plastics factories; biodegradation byproduct of TCE and PCE groundwater contamination	Some people who use water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.
Xylenes	2.2 µg/L	1750	1.8	Discharge from petroleum and chemical factories; fuel solvent	Some people who use water containing xylenes in excess of the MCL over many years may experience nervous system damage.

Disinfection Byproducts, Disinfectant Residuals, and Disinfection Byproduct Precursors

Contaminant	Result Unit Measure -ment	MCL [MRDL] TT, as noted	PHG (MCLG) [MRDLG]	Major Sources of Contamination	Health Effects Language
TTHMs (Total Trihalomethanes)	42 µg/L	80	N/A	Byproduct of drinking water disinfection	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience liver, kidney, or central nervous system problems, and may have an increased risk of getting cancer.
HAA5 (Sum of 5 Haloacetic Acids)	N/A µg/L	60	N/A	Byproduct of drinking water disinfection	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
Bromate	N/A µg/L	10	0.1	Byproduct of drinking water disinfection	Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant	Result Unit Measure-ment	MCL [MRDL] TT, as noted	PHG (MCLG) [MRDLG]	Major Sources of Contamination	Health Effects Language
Chloramines	N/A mg/L	[MRDL = 4.0 (as Cl ₂)]	[MRDLG = 4 (as Cl ₂)]	Drinking water disinfectant added for treatment	Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.
Chlorine	N/A mg/L	[MRDL = 4.0 (as Cl ₂)]	[MRDLG = 4 (as Cl ₂)]	Drinking water disinfectant added for treatment	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
Chlorite	N/A mg/L	1.0	0.05	Byproduct of drinking water disinfection	Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.
Chlorine Dioxide	N/A µg/L	[MRDL = 800 (as ClO ₂)]	[MRDLG = 800 (as ClO ₂)]	Drinking water disinfectant added for treatment	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia.
Control of DBP precursors (TOC)		TT	N/A	Various natural and man-made sources	Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of cancer.