2022 Annual Drinking Water Quality Report
(Consumer Confidence Report) for the Town of Mooresville

Public Water System Identification (PWSID) # 01-49-015
March 1, 2023

The Town of Mooresville is committed to delivering high quality services to your household, including your drinking water. In order to ensure your tap water is safe to drink, the Town conducts regular in-house testing as well as third party testing. These tests ensure residents are receiving a quality product they can rely on.

Our Town water supply, which comes from Lake Norman, is routinely monitored for more than 150 potential contaminants before it is distributed to our customers. More than 50 samples from our distribution system are taken per month to check for any presence of contaminants.

The 2022 annual Drinking Water Quality Report for the Town of Mooresville shows there have been **no significant detections** of monitored contaminants set forth by both state and federal regulations. Included in this report are details about your source of water, what it contains, and how it compares to standards set by regulatory agencies. We want you to understand the efforts the Town makes to continually improve the water treatment process and protect our water resources, as we are committed to ensuring the quality of your water.

If you have any questions about this report or concerning your water, please contact Mike Fulbright, Water Treatment Plant Manager, at 704-662-3186. We want our customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled Town Board meetings on the first Monday of each month at 6 p.m. at Town Hall. Also, you can view this report on our web site at https://www.mooresvillenc.gov/CCR.

What the EPA Wants You to Know

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 Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

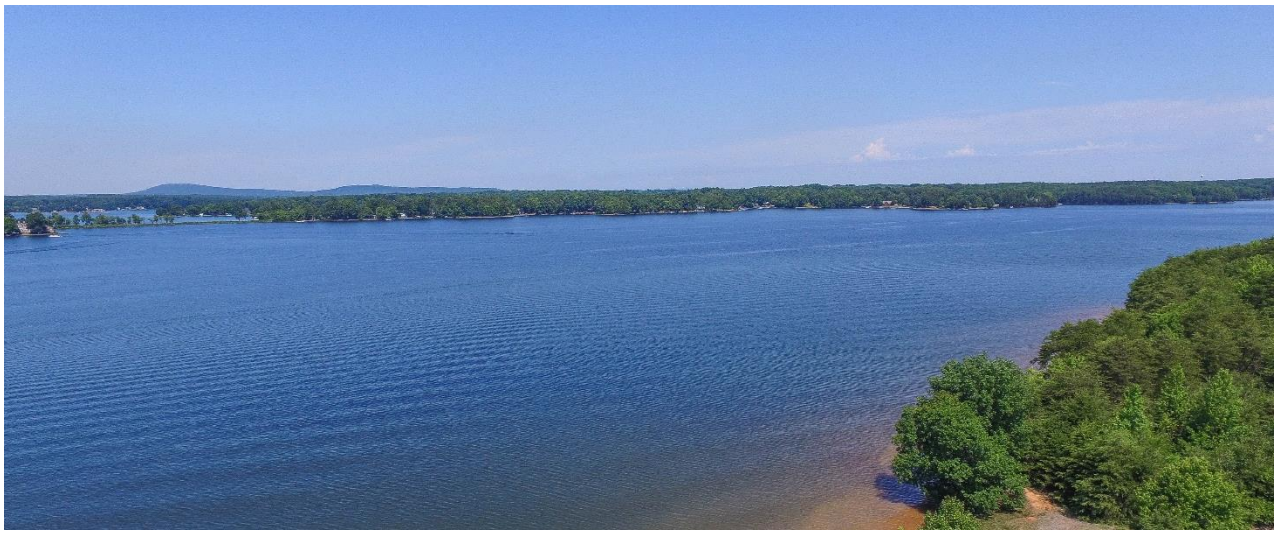
Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

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. The Town of Mooresville 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 or at http://www.epa.gov/safewater/lead.

Some common sources of drinking water (both tap water and bottled water) are rivers, lakes, streams, ponds, reservoirs, springs and wells. For Mooresville, our source is Lake Norman. In order to ensure the safe quality of the Town's water, it is tested for contaminants, or impurities, that may be present in our water sources. These contaminants can include microbial ones, such as viruses and bacteria, which could come from places like sewage treatment plants, septic systems, and agricultural livestock operations. Additionally, the water is tested for inorganic, or non-living, contaminants, like salts and metals, and if detected, those can be caused by things like storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming. Pesticides and herbicides can also be a cause of inorganic contaminants, which can stem from sources like agriculture, stormwater runoff, and residential uses. Other tests are run for organic chemical contaminants, including synthetic and volatile organic chemicals (possible by-products of industrial processes and petroleum production), and for organic chemical contaminants that can come from sources like gas stations, stormwater runoff, and septic systems. Tests are also performed for radioactive contaminants, which can be naturally occurring in the area or can be a result of oil and gas production and mining activities.

The EPA has safety regulations in place to ensure your water quality and limits the levels of certain contaminants that can be in water provided by public water systems. There are also FDA regulations to establish limits for contaminants in bottled water, which must provide the same protection for public health.

When You Turn on Your Tap, Consider the Source - We use Lake Norman as our water source in Mooresville, along with several other local water systems.



Source Water Assessment Program (SWAP) Results

All drinking water sources across the state, including the Town of Mooresville's, are assessed by the North Carolina Department of Environment and Natural Resources (DENR), Public Water Supply (PWS) Section, and the Source Water Assessment Program (SWAP). These departments and programs look into the possibility that a drinking water source could be susceptible to any Potential Contaminant Sources (PCSs). The results of that assessment are available in a SWAP Assessment Report, which includes maps and background information, along with a susceptibility rating of Higher, Moderate or Lower.

It is very important to understand that a susceptibility rating of "higher" **does not** imply that there is currently poor water quality in Mooresville. It only states the systems' potential to become contaminated by PCS's in the assessment area.

The relative susceptibility rating of each source for the Town of Mooresville was determined by combining the contaminant rating (number and location of PCSs within the assessment area) and the inherent vulnerability rating (i.e., characteristics or existing conditions of the well or watershed and its delineated assessment area). The assessment findings are summarized in the table below:

Susceptibility of Sources to Potential Contaminant Sources (PCSs)

Source Name	Susceptibility Rating	SWAP Report Date
Lake Norman Intake	High	September 2020

The complete SWAP Assessment report for the Town of Mooresville may be viewed on the Web at https://www.ncwater.org/SWAP_Reports/NC0149015_SWAP_Report-20200909.pdf Please note that because SWAP results and reports are periodically updated by the PWS Section, the results available on this web site may differ from the results that were available at the time this report was prepared. If you are unable to access your SWAP report on the web, you may mail a written request for a printed copy to: Source Water Assessment Program – Report Request, 1634 Mail Service Center, Raleigh, NC 27699-1634 or email requests to swap@ncmail.net. Please indicate your system name, PWSID and provide your name, mailing address and phone number. If you have any questions about the SWAP report, please contact the Source Water Assessment staff by phone at 919-707-9098.

Water Quality Data Table of Detected Contaminants

The Town of Mooresville routinely monitors for more than 150 contaminants in your drinking water, according to Federal and State laws. The table below represents some of the most common contaminants we receive questions about but does not represent the complete contaminant testing performed annually. Any presence of contaminants **does not necessarily indicate that water poses a health risk**. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

As you will see, the tables in this report indicate there was no detection of Coliform Bacteria or E. Coli in the Town of Mooresville distribution system. Additionally, there are no radioactive contaminants, arsenic, lead or nitrate.

The included tables may also contain a list of unregulated contaminants that have been tested. These potential contaminants do not have established drinking water standards set by the EPA. According to the EPA, this type of testing on unregulated contaminants provides them with scientifically valid data on whether there is an occurrence of these contaminants in drinking water, which can be used to develop future regulatory decisions.

Test Results

Microbiological Contaminant Results in Mooresville's Distribution System 2022

This table indicates that there is no detection of Coliform Bacteria or E. Coli in the Town of Mooresville distribution system. 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. E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes.

Contaminant (units)	MCLViolation Y/N	Your Water	MCLG	MCL	Likely Source of Contamination
Total Coliform Bacteria (presence or absence)	N	0	0	If a system collecting 40 or more samples per month finds greater than 5% of monthly samples are positive in one month, an assessment is required	Naturally present in the environment
E. coli (presence or absence)	N	0	0	Note: If either an original routine sample and/or its repeat samples(s) are *E. coli* positive, a Tier 1 violation exists.	Human and animal fecal waste

Turbidity* Results 2022

This table indicates that there are no treatment technique violations. A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

Contaminant (units)	Treatment Technique (TT) Violation Y/N	Your Water	Treatment Technique (TT) Violation if:	Likely Source of Contamination
Turbidity (NTU) – Highest single turbidity measurement	No	0.14 NTU	Turbidity > 1 NTU	Soil runoff
Turbidity (NTU) – Lowest monthly percentage (%) of samples meeting turbidity limits	No	100%	Less than 95% of monthly turbidity measurements are ≤ 0.3 NTU	Soil runoff

*Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. The turbidity rule requires that 95% or more of the monthly samples must be less than or equal to 0.3 NTU.

Radioactive Contaminants – December 2017

This table indicates there were no radioactive contaminants detected in our water.

Contaminant (units)	MCL Violation Y/N	Your Water	MCLG	MCL	Likely Source of Contamination
Radium 228 (pCi/L)	No	ND	0	2	Decay of natural and man-made deposits
Gross Alpha (pCi/L)	No	ND	0	15	Erosion of natural deposits

Inorganic Contaminants

This table indicates that there has been no arsenic, lead detected in your water, and that levels of copper and fluoride are within acceptable levels.

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low	Range High	MCLG	MCL	Likely Source of Contamination
Antimony (ppb)	7/13/2023	No	ND	NA		6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Arsenic (ppb)	7/13/2022	No	ND	NA		0	10	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium (ppm)	7/13/2022	No	ND	NA		2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Beryllium (ppb)	7/13/2022	No	ND	NA		4	4	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries
Cadmium (ppb)	7/13/2022	No	ND	NA		5	5	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
Chromium (ppb)	7/13/2022	No	ND	NA		100	100	Discharge from steel and pulp mills; erosion of natural deposits
Cyanide (ppb)	7/13/2022	No	ND	NA		200	200	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
Fluoride (ppm)	7/13/2022	No	.71	.71	-.71	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Mercury (inorganic) (ppb)	7/13/2022	No	ND	NA		2	2	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland
Selenium (ppb)	7/13/2022	No	ND	NA		50	50	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
Thallium (ppb)	7/13/2022	No	ND	NA		0.5	2	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories

Synthetic Organic Chemical (SOC) Contaminants Including Pesticides and Herbicides

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low	Range High	MCLG	MCL	Likely Source of Contamination
2,4-D (ppb)	7-8-2020	No	ND	NA		70	70	Runoff from herbicide used on row crops
2,4,5-TP (Silvex) (ppb)	7-8-2020	No	ND	NA		50	50	Residue of banned herbicide
Alachlor (ppb)	7-8-2020	No	ND	NA		0	2	Runoff from herbicide used on row crops
Atrazine (ppb)	7-8-2020	No	ND	NA		3	3	Runoff from herbicide used on row crops
Benzo(a)pyrene (PAH) (ppt)	7-8-2020	No	ND	NA		0	200	Leaching from linings of water storage tanks and distribution lines
Carbofuran (ppb)	7-8-2020	No	ND	NA		40	40	Leaching of soil fumigant used on rice and alfalfa
Chlordane (ppb)	7-8-2020	No	ND	NA		0	2	Residue of banned termiticide
Dalapon (ppb)	7-8-2020	No	ND	NA		200	200	Runoff from herbicide used on rights of way
Di(2-ethylhexyl) adipate (ppb)	7-8-2020	No	ND	NA		400	400	Discharge from chemical factories
Di(2-ethylhexyl) phthalate (ppb)	7-8-2020	No	ND	NA		0	6	Discharge from rubber and chemical factories
Dinoseb (ppb)	7-8-2020	No	ND	NA		7	7	Runoff from herbicide used on soybeans and vegetables
Endrin (ppb)	7-8-2020	No	ND	NA		2	2	Residue of banned insecticide
EDB [Ethylene dibromide] (ppt)	7-8-2020	No	ND	NA		0	50	Discharge from petroleum refineries
Heptachlor (ppt)	7-8-2020	No	ND	NA		0	400	Residue of banned pesticide
Heptachlor epoxide (ppt)	7-8-2020	No	ND	NA		0	200	Breakdown of heptachlor
Hexachlorobenzene (ppb)	7-8-2020	No	ND	NA		0	1	Discharge from metal refineries and agricultural chemical factories
Hexachlorocyclo-pentadiene (ppb)	7-8-2020	No	ND	NA		50	50	Discharge from chemical factories
Lindane (ppt)	7-8-2020	No	ND	NA		200	200	Runoff/leaching from insecticide used on cattle, lumber, gardens
Methoxychlor (ppb)	7-8-2020	No	ND	NA		40	40	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock

Oxamyl [Vydate] (ppb)	7-8-2020	No	ND	NA	200	200	Runoff/leaching from insecticide used on apples, potatoes and tomatoes
Pentachlorophenol (ppb)	7-8-2020	No	ND	NA	0	1	Discharge from wood preserving factories
Picloram (ppb)	7-8-2020	No	ND	NA	500	500	Herbicide runoff
Simazine (ppb)	7-8-2020	No	ND	NA	4	4	Herbicide runoff
Toxaphene (ppb)	7-8-2020	No	ND	NA	0	3	Runoff/leaching from insecticide used on cotton and cattle

Volatile Organic Chemical (VOC) Contaminants

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
Benzene (ppb)	7-13-22	No	ND	NA	0	5	Discharge from factories; leaching from gas storage tanks and landfills
Carbon tetrachloride (ppb)	7-13-22	No	ND	NA	0	5	Discharge from chemical plants and other industrial activities
Chlorobenzene (ppb)	7-13-22	No	ND	NA	100	100	Discharge from chemical and agricultural chemical factories
o-Dichlorobenzene (ppb)	7-13-22	No	ND	NA	600	600	Discharge from industrial chemical factories
p-Dichlorobenzene (ppb)	7-13-22	No	ND	NA	75	75	Discharge from industrial chemical factories
1,2 – Dichloroethane (ppb)	7-13-22	No	ND	NA	0	5	Discharge from industrial chemical factories
1,1 – Dichloroethylene (ppb)	7-13-22	No	ND	NA	7	7	Discharge from industrial chemical factories
cis-1,2-Dichloroethylene (ppb)	7-13-22	No	ND	NA	70	70	Discharge from industrial chemical factories
trans-1,2-Dichloroethylene (ppb)	7-13-22	No	ND	NA	100	100	Discharge from industrial chemical factories
Dichloromethane (ppb)	7-13-22	No	ND	NA	0	5	Discharge from pharmaceutical and chemical factories
1,2-Dichloropropane (ppb)	7-13-22	No	ND	NA	0	5	Discharge from industrial chemical factories
Ethylbenzene (ppb)	7-13-22	No	ND	NA	700	700	Discharge from petroleum refineries
Styrene (ppb)	7-13-22	No	ND	NA	100	100	Discharge from rubber and plastic factories; leaching from landfills
Tetrachloroethylene (ppb)	7-13-22	No	ND	NA	0	5	Discharge from factories and dry cleaners
1,2,4 –Trichlorobenzene (ppb)	7-13-22	No	ND	NA	70	70	Discharge from textile-finishing factories

1,1,1 – Trichloroethane (ppb)	7-13-22	No	ND	NA	200	200	Discharge from metal degreasing sites and other factories
1,1,2 –Trichloroethane (ppb)	7-13-22	No	ND	NA	3	5	Discharge from industrial chemical factories
Trichloroethylene (ppb)	7-13-22	No	ND	NA	0	5	Discharge from metal degreasing sites and other factories
Toluene (ppm)	7-13-22	No	ND	NA	1	1	Discharge from petroleum factories
Vinyl Chloride (ppb)	7-13-22	No	ND	NA	0	2	Leaching from PVC piping; discharge from plastics factories
Xylenes (Total) (ppm)	7-13-22	No	ND	NA	10	10	Discharge from petroleum factories; discharge from chemical factories

Lead and Copper Contaminants

Contaminant (Units)	Sample Date	MCL Violation Y/N	Your Water	Number of Sites found Above the AL	MCLG	AL	Likely Source of Contamination
Copper (ppm) (90^{th} percentile)	7/20/2021	No	.10	0	1.3	1.3ppm	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb) (90^{th} percentile)	7/20/2021	No	ND	0	0	15ppb	Corrosion of household plumbing systems; erosion of natural deposits

Nitrate/Nitrite Contaminants

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
Nitrate (as Nitrogen) (ppm)	1-13-2022	No	ND	N/A	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite (as Nitrogen) (ppm)	1-13-2022	No	ND	N/A	1	1	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits

Nitrate: Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome.

Disinfectant Residuals Summary

	Year Sampled	MRDL Violation Y/N	Your Water (Highest RAA)	Range High Low	MRDLG	MRDL	Likely Source of Contamination
Chlorine (ppm)	2022	N	1.28	1.88/0.26	4	4.0	Water additive used to control microbes

Stage 2 Disinfection Byproduct Results - Locational Running Annual Average 2022

This table indicates that the annual averages for the Stage 2 Disinfection Byproduct Results are within acceptable levels.

Contaminant (units)	MCL Violation Y/N	Your Water (highest LRAA)	Range Low - High	MCLG	MCL	Likely Source of Contamination
TTHM - Total Trihalomethanes (ppb)				N/A	80	By-product of drinking water chlorination
BO1	N	46	37-63			
BO2	N	42	33-55			
BO3	N	38	30-46			
BO4	N	39	28-56			
HAA5 - Haloacetic Acids (ppb)				N/A	60	By-product of drinking water chlorination
BO1	N	29	22-43			
BO2	N	23	22-26			
BO3	N	24	18-35			
BO4	N	23	19-25			

Note: (*range from low to high, # average of test results)

Total Organic Carbon (TOC) 2022

This table indicates there is no violation in treatment technique. A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

Contaminant (units)	TT Violation Y/N	Your Water Running Annual Average Level	Range Detected Low/High	MCLG	TT	Likely Source of Contamination	Compliance Method
Total Organic Carbon (TOC) – RAW ppm	No	1.96	1.90-2.14	N/A	TT	Naturally present in the environment	ALTERNATIVE
Total Organic Carbon (TOC) – TREATED ppm	No	1.40	1.19-1.91	N/A	TT	Naturally present in the environment	ALTERNATIVE

Note: Depending on the TOC in our source water, the system MUST have a certain % removal of TOC or must achieve alternative compliance criteria. If we do not achieve that % removal, there is an alternative % removal. If we fail to meet the alternative % removal, we are in violation of a Treatment Technique.

Drinking Water Definitions:

Not-Applicable (N/A) – This information is not applicable or not required for that particular water system or for that particular rule.

Non-Detects (ND) - Laboratory analysis indicates that the contaminant is not present at the level of detection set for the particular methodology used.

Parts per million (ppm) or Milligrams per liter (mg/L) - One part per million corresponds to one minute in two years or a single penny in $10,000.

Drinking Water Definitions Continued:

Parts per billion (ppb) or Micrograms per liter (ug/L) - One part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.

Parts per trillion (ppt) or Nanograms per liter (nanograms/L) - One part per trillion corresponds to one minute in 2,000,000 years, or a single penny in $10,000,000,000.

Parts per quadrillion (ppq) or Picograms per liter (picograms/L) - One part per quadrillion corresponds to one minute in 2,000,000,000 years or one penny in $10,000,000,000,000.

Picocuries per liter (pCi/L) - Picocuries per liter is a measure of the radioactivity in water.

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

Nephelometric Turbidity Unit (NTU) - Nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

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

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

Maximum Residual Disinfection 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.

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

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

Locational Running Annual Average (LRAA) – The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters under the Stage 2 Disinfectants and Disinfection Byproducts Rule.

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