



EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (888) 831-1083/ (856) 829-3129
<http://www.EMSL.com> / pwta@emsl.com

EMSL Order ID: 011906XXX
EMSL Sample ID: 011906XXX-0001
Customer ID: MISCPWTA
Customer PO: Not Available

Attn: Valued EMSL Analytical Customer
200 Route 130 North
Cinnaminson, NJ 08077
Proj: Example Report - 123 Mockingbird Lane, Whitehouse Station, NJ 08889
Phone: Not Available
Fax: Not Available
Date/Time Collected: 5/23/2019 10:19
Date/Time Received: 5/24/2019 10:00

New Jersey Private Well Testing

Certificate of Analysis

NJDEP Certification ID: 03036

Sampling Location: Well (Raw) Lot #: XX.XX Block #: XX

| Analyte | Sample Date/Time Analyzed | Method | Reporting Limit | Units | MCL | Results | Indicator |
|--------------------------------|---------------------------|------------------|-----------------|-------|---------|---------|-----------|
| Microorganisms | | | | | | | |
| Total Coliform | 05/24/19 14:50 | SM 9223 B | N/A | - | Absent | Absent | |
| <i>E. coli</i> | 05/24/19 14:50 | SM 9223 B | N/A | - | Absent | Absent | |
| Metals | | | | | | | |
| Arsenic | 05/29/19 14:24 | EPA 200.8 | 1.00 | µg/L | 5.0 | 9.00 | |
| Lead | 05/29/19 14:24 | EPA 200.8 | 1.0 | µg/L | 5.00 | <1.0 | |
| Iron | 05/29/19 18:59 | EPA 200.7 | 0.10 | mg/L | 0.30 | <0.10 | |
| Manganese | 05/29/19 14:24 | EPA 200.8 | 1.00 | µg/L | 50 | <1.00 | |
| General Chemistry | | | | | | | |
| Nitrate | 05/24/19 13:51 | EPA 300.0 | 500 | µg/L | 10,000 | 3,100.0 | |
| Field-pH | 05/23/19 10:19 | SM 4500-H B | N/A | pH | 6.5-8.5 | 7.40 | |
| Radiological Parameters | | | | | | | |
| Gross Alpha (initial) | 05/25/19 08:04 | ECLS-R-GA Rev. 8 | 1.384 | pCi/L | 5 | 6.027 | |
| Gross Alpha (final) | 05/26/19 08:00 | ECLS-R-GA Rev. 8 | 1.679 | pCi/L | 15 | 7.888 | |
| Uranium | 05/29/19 14.24 | EPA 200.8 | 1.00 | µg/L | 30.0 | 2.80 | |



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| Analyte | Sample Date/Time Analyzed | Method | Reporting Limit | Units | MCL | Results | Indicator |
|-----------------------------------|---------------------------|-----------|-----------------|-------|------|---------|-------------------------------------|
| Volatile Organic Compounds | | | | | | | |
| Benzene | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 1.0 | <0.50 | <input checked="" type="checkbox"/> |
| Carbon Tetrachloride | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 2.0 | <0.50 | <input checked="" type="checkbox"/> |
| Chlorobenzene | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 50 | <0.50 | <input checked="" type="checkbox"/> |
| Dichlorobenzene (1,2-) | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 600 | <0.50 | <input checked="" type="checkbox"/> |
| Dichlorobenzene (1,3-) | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 600 | <0.50 | <input checked="" type="checkbox"/> |
| Dichlorobenzene (1,4-) | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 600 | <0.50 | <input checked="" type="checkbox"/> |
| Dichloroethane (1,1-) | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 50 | <0.50 | <input checked="" type="checkbox"/> |
| Dichloroethane (1,2-) | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 2.0 | <0.50 | <input checked="" type="checkbox"/> |
| Dichloroethene (1,1-) | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 2.0 | <0.50 | <input checked="" type="checkbox"/> |
| Dichloroethene (cis 1,2-) | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 70 | <0.50 | <input checked="" type="checkbox"/> |
| Dichloroethene (trans 1,2-) | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 100 | <0.50 | <input checked="" type="checkbox"/> |
| Methylene Chloride | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 3.0 | <0.50 | <input checked="" type="checkbox"/> |
| Dichloropropane ¹ | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 5.0 | <0.50 | <input checked="" type="checkbox"/> |
| Ethylbenzene | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 700 | <0.50 | <input checked="" type="checkbox"/> |
| Methyl tertiary-butyl ether | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 70 | <0.50 | <input checked="" type="checkbox"/> |
| Naphthalene | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 300 | <0.50 | <input checked="" type="checkbox"/> |
| Styrene | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 100 | <0.50 | <input checked="" type="checkbox"/> |
| Tetrachloroethane (1,1,2,2-) | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 1.0 | <0.50 | <input checked="" type="checkbox"/> |
| Tetrachloroethene | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 1.0 | <0.50 | <input checked="" type="checkbox"/> |
| Toluene | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 1000 | <0.50 | <input checked="" type="checkbox"/> |
| Trichlorobenzene (1,2,4-) | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 9.0 | <0.50 | <input checked="" type="checkbox"/> |
| Trichloroethane (1,1,1-) | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 30 | <0.50 | <input checked="" type="checkbox"/> |
| Trichloroethane (1,1,2-) | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 3.0 | <0.50 | <input checked="" type="checkbox"/> |
| Trichloroethene | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 1.0 | <0.50 | <input checked="" type="checkbox"/> |
| Vinyl Chloride | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 2.0 | <0.50 | <input checked="" type="checkbox"/> |
| Xylenes (total) ² | 05/29/19 21:11 | EPA 524.2 | 0.50 | µg/L | 1000 | <0.50 | <input checked="" type="checkbox"/> |

¹ Reported as 1,2-Dichloropropane

² Sum total of p,m, and o- Xylene isomers



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New Jersey Private Well Testing

Certificate of Analysis

NJDEP Certification ID: 03036

Sampling Location: Well (Raw) Lot #: XX.XX Block #: XX

| Analyte | Sample Date/Time Analyzed | Method | Detection Limit | Units | MCL | Results | Indicator |
|------------------------------------|---------------------------|-----------|-----------------|-------|------|---------|-------------------------------------|
| Synthetic Organic Compounds | | | | | | | |
| Dibromo-3-Chloropropane (1,2,-) | 05/24/19 17:29 | EPA 504.1 | 0.02 | µg/L | 0.20 | <0.02 | <input checked="" type="checkbox"/> |
| Ethylene Dibromide | 05/24/19 17:29 | EPA 504.1 | 0.01 | µg/L | 0.05 | <0.01 | <input checked="" type="checkbox"/> |
| Trichloropropane (1,2,3,-) | 05/24/19 17:29 | EPA 504.1 | 0.01 | µg/L | 0.03 | <0.01 | <input checked="" type="checkbox"/> |

Legends and Definitions

| | | |
|---|---|---|
| Result detected at, above, or outside MCL. | If the initial Gross Alpha particle count exceeds 5 pCi/L a second count is required according to the method. | Result not detected at or above the MCL |
| MCL: Applicable Standard (Maximum Contaminant Level, Action Level or Recommended Limit) | ND: Not Detected N/A: Not Applicable <: Less Than | mg/L: milligrams per liter µg/L: micrograms per liter pCi/L: picocuries per liter |

Type of Treatment Device(s) Installed (if known): Arsenic

- Analytical results meet primary and secondary contaminant standards for drinking water
- One or more of the analytical results do not meet primary contaminant standards for drinking water
- One or more of the analytical results do not meet secondary contaminant standards for drinking water

I certify in writing that all sampling, analyses, and reporting performed herein, comply with all requirements set forth in N.J.A.C. 7:9E and N.J.A.C. 7:18, and hereby certify that this laboratory is in compliance with all laboratory certification and quality control procedures and requirements as set forth at N.J.A.C. 7:18.

| | | |
|--------------------|------------------------|--------------------------|
| <u>Report Date</u> | <u>Report Revision</u> | <u>Revision Comments</u> |
| 6/4/2019 | R0 | Initial Report |

Phillip Worby, Environmental Chemistry
or other approved signatory

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder. The test results meet all NELAC requirements unless otherwise specified.

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New Jersey Private Well Testing

Certificate of Analysis

NJDEP Certification ID: 03036

Sampling Location: Kitchen Sink (Treated) Lot #: XX.XX Block #: XX

| Analyte | Sample Date/Time Analyzed | Method | Reporting Limit | Units | MCL | Results | Indicator |
|--------------------------|---------------------------|-------------|-----------------|-------|---------|---------|-------------------------------------|
| Microorganisms | | | | | | | |
| Total Coliform | 05/24/19 14:50 | SM 9223 B | N/A | - | Absent | Absent | <input checked="" type="checkbox"/> |
| <i>E. coli</i> | 05/24/19 14:50 | SM 9223 B | N/A | - | Absent | Absent | <input checked="" type="checkbox"/> |
| Metals | | | | | | | |
| Arsenic | 05/29/19 14:50 | EPA 200.8 | 1.00 | µg/L | 5.0 | 8.50 | <input type="checkbox"/> |
| General Chemistry | | | | | | | |
| Nitrate | 05/25/19 00:09 | EPA 300.0 | 500 | µg/L | 10,000 | 3,100.0 | <input checked="" type="checkbox"/> |
| Field-pH | 05/23/19 10:29 | SM 4500-H B | N/A | pH | 6.5-8.5 | 7.38 | <input checked="" type="checkbox"/> |



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| | | |
|--------------------|------------------------|--------------------------|
| <u>Report Date</u> | <u>Report Revision</u> | <u>Revision Comments</u> |
| 6/4/2019 | R0 | Initial Report |

Phillip Worby, Environmental Chemistry Laboratory
or other approved signatory

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder. The test results meet all NELAC requirements unless otherwise specified.

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New Jersey Private Well Testing

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| Lab Project ID 011906XXX | Customer Project ID 123 Mockingbird Lane, Whitehouse Station, NJ 08889 |
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Understanding Your New Jersey Private Well Testing Act (NJ PWTA) Results

Contaminated drinking water is one of the oldest known public health concerns. The fact that a water supply has been used for a prolonged amount of time without reported adverse health effects is not a guarantee of its safety. Regular users of a water supply can develop a tolerance for the contaminants present within their water supply while infrequent users may become sick by drinking the same water. This water quality testing report compares the quality of your private well water to the NJ PWTA standards. These NJ PWTA standards may be more stringent when compared to federal drinking water standards for the same parameter. Health effect information presented within this report was gathered from United States Environmental Protection Agency (EPA) and NJ State resources. These test results may be used for NJ PWTA compliance.

Total Coliform - The MCL is "Absent" for this parameter

A pathogen is a disease carrying organism. Many different pathogens could be present within a water system. It is not practical to test for all pathogens; therefore, the EPA requires testing for indicator organisms, or coliform bacteria. The standard bacteriological method for assessing the safety of water for domestic use is the coliform test. "Total coliforms" refer to a group of closely related bacteria that are generally harmless. They are natural and common inhabitants of surface waters, soil, and plants. Coliform bacteria are also found within the gut of warm-blooded animals, including humans. Their presence within your drinking water suggests that there has been a breach, a failure, or another change in the integrity of your water system which could allow other pathogens to enter into your drinking water. The absence of total coliform bacteria within a water system is used as the basis for considering water safe to drink.

E. coli - The MCL is "Absent" for this parameter

Fecal coliform bacteria are a subset of total coliform bacteria. *E. coli* belongs to the fecal coliform group. The presence of *E. coli* is a good indicator of fecal contamination and of the potential presence of other waterborne pathogens that are associated with human and animal fecal contamination. The absence of *E. coli* within a water system is used as the basis for considering water safe to drink.

Arsenic – The MCL is 5 µg/L for this parameter

Arsenic is a natural component of the earth's crust and is widely distributed throughout the environment in the air, water, and land. It is highly toxic in its inorganic form. Areas with elevated levels of arsenic in geologic materials are found throughout the United States. Most of the arsenic produced is a by-product of the smelting of copper, lead, and zinc ores. Human exposure to elevated levels of inorganic arsenic occurs through drinking contaminated water, using contaminated water in food preparation and irrigation of food crops, industrial processes, eating contaminated food, and smoking tobacco. Long-term exposure to inorganic arsenic, mainly through drinking-water and food, can lead to chronic arsenic poisoning. Skin lesions and skin cancer are the most characteristic effects. Arsenic has been classified in EPA's Group A (human carcinogen), based upon evidence of human carcinogenicity through inhalation and ingestion exposure. Arsenic is regulated because of its potential adverse health effects and its widespread occurrence.

Mercury – The MCL is 2 µg/L for this parameter

Mercury exists in two basic forms; the inorganic salt and organic mercury compounds (methyl mercury). The major use of mercury is in electrical equipment (batteries, lamps, switches, and rectifiers). Mercury may also enter the environment from mining, smelting, and fossil fuel combustion. Inorganic mercury is poorly absorbed through the gastro-intestinal tract. The principal target organ of inorganic mercury is the kidney. Exposure to inorganic mercury compounds at high levels results in renal effects. Because inorganic mercury is the form of mercury detected in drinking water, has widespread occurrence, and may have adverse health effects, it is regulated.

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Lead - The MCL is 5 µg/L for this parameter

Materials that contain Lead have been commonly used in the construction of water supply distribution systems and plumbing systems in homes and commercial buildings. Lead is a heavy metal that has the potential to cause numerous adverse health effects in humans. The most significant and probable health effects associated with infants and children who drink water exceeding the action level are delays in their physical or mental development. Children can display attention span deficits and learning disabilities. Adults who consume contaminated water over many years can develop high blood pressure or kidney problems. Common sources of Lead contamination are household plumbing systems (service lines, pipes, brass and bronze fixtures, and solders and fluxes).

Iron – The MCL is 0.3 mg/L for this parameter

The presence of iron within our drinking water can be attributed to two primary sources: natural geologic sources and aging/corroding water distribution systems and piping. Iron-based materials such as cast iron and galvanized steel have been widely used within our distribution systems and household plumbing. One of the most frequent consumer complaints about drinking water is discoloration. Iron quantities that exceed 0.3 mg/L in drinking water can cause an unpleasant metallic taste and a rusty color. Elevated levels of iron in drinking water can stain laundered items and plumbing fixtures, damage water equipment, and reduce the effectiveness of water treatment techniques for other contaminants. Iron is an essential mineral for human health in small concentrations. Ingestion of iron from drinking water is not directly associated with adverse health effects; however, trace impurities and microorganisms that are adsorbed by iron solids may pose human health concerns.

Manganese – The MCL is 0.05 mg/L for this parameter

Manganese is a naturally-occurring element that is commonly found in soil, air, and water. Elevated levels of manganese in drinking water can stain laundered items and plumbing fixtures with a brownish color. Like iron, manganese is an essential nutrient for humans. Adverse health effects can be caused by inadequate intake or overexposure. The main route of human exposure to manganese is ingestion of food. Manganese ingestion from drinking water is normally substantially lower when compared to manganese ingestion from food. The health effects from over-exposure to manganese are dependent upon several factors, including: the route of exposure, the chemical form, the age at exposure, and an individual's nutritional status. The nervous system has been determined to be the primary target. Many of the reports of human adverse effects from manganese exposure are cited from inhalation exposure in occupational settings. While there are substantial data supporting the neurological effects of inhaled manganese in both humans and animals, there are few data that support the association between oral exposure to manganese and toxic effects.

pH – The optimum range is 6.5-8.5 for this parameter

pH is a numerical expression indicating the degree to which water is acidic or alkaline. pH is represented on a scale of 0 to 14 with 0 being the most acidic, 14 the most alkaline, and 7 being neutral. Both low and high pH levels are deemed undesirable due to the effects upon both water systems and taste. Low pH (acidic) levels can have a corrosive effect on metal plumbing and fixtures and can also cause Lead leaching from pipe solder and brass plumbing fixtures. Metallic taste is frequently associated with acidic water while a bitter taste may be associated with alkaline (high pH) water. High pH levels reduce the effectiveness of chlorine disinfection. High degrees of mineralization are also associated with alkaline water which leads to encrustation of water supply lines.

Nitrate – The MCL is 10,000 µg/L for this parameter

Nitrates and nitrites are nitrogen-oxygen chemical units which combine with various organic and inorganic compounds. Nitrates occur naturally in mineral deposits, soils, seawater and freshwater systems, the atmosphere, and in regional plant life. Nitrates are most commonly used as a fertilizer. Once nitrates are consumed, they are converted to nitrites. The toxicity of nitrate in humans is due to the body's reduction of nitrate to nitrite. Infants younger than six months of age who drink water containing nitrate in excess of the maximum contaminant level can become seriously ill. These illness symptoms include shortness of breath and Blue Baby Syndrome. If infants become ill and they do not receive treatment, their sickness can become fatal. Major sources of nitrate in drinking water include fertilizer run-off, leaching from septic tanks (sewage), and erosion of natural deposits.

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Volatile Organic Compound (VOC's) - The MCL varies by each specific VOC

Volatile Organics are composed of many compounds or chemicals that each classify as a hazard or contaminant if the MCL is exceeded. For private well testing, 26 specific compounds are reported. They are found in petroleum products, degreasers, dry cleaning solvents, and household cleaning products. Each compound or chemical has its own MCL or safe drinking water standard, measured in ug/L. For a more compound-specific overview, the following link has been provided:

http://www.nj.gov/dep/watersupply/pdf/dw_standards_2_2005.pdf

Synthetic Organic Compounds (SOC's) – The MCL varies by each specific SOC

On September 4th, 2018, the New Jersey Department of Environmental Protection (NJDEP) amended the Safe Drinking Water Act (SDWA) and the Private Well Testing Act (PWTA) rules. The PWTA amendments addressing SOC testing became effective March 3, 2019 requiring private well testing for 1,2-dibromo-3-chloropropane (DBCP), ethylene dibromide (EDB), and 1,2,3-trichloropropane(1,2,3-TCP) for all NJ counties. Until 1977, DBCP was used as a soil fumigant and nematocide on over 40 different crops in the United States. According to the EPA, DBCP is no longer in use except as an intermediate in chemical synthesis. In the past, EDB was used as a leaded gasoline additive and as a pest fumigant for crops and golf course turfs. In 1984, EPA banned its use as a soil and grain fumigant. EDB is currently used to treat felled logs for bark beetles and termites and used to treat beehives for wax moth control. EDB is also used in waterproofing and as a chemical intermediate for dyes, resins, waxes, and gums. 1,2,3-TCP was an impurity in dichloropropane- and dichloropropene- containing soil fumigants used as pesticides and nematocides until the late 1980's. 1,2,3-TCP is a man-made chemical commonly used as an industrial solvent, a degreasing agent, a paint/varnish remover, and to manufacture other chemicals. All three SOC's described above are potent carcinogens and cause mutations and DNA damage. DBCP and EDB are also known to be toxic to the male reproductive system. The MCL's for DBCP, EDB, and 1,2,3-TCP are 0.20 µg/L, 0.05 µg/L, and 0.03 µg/L, respectively. For a summary of these SDWA and PWTA amendments, please visit:

<https://www.nj.gov/dep/enforcement/oqa/docs/RuleSummaryCertifiedLabs9-4-2018.pdf>

Gross Alpha - The MCL is 5 pCi/L (initial) and 15 pCi/L (final) for this parameter

Radon, radium, and uranium are the most common radioactive elements in the environment. These radionuclides are soluble in water, which means they can be drawn into private well water. The potential health effect from long-term exposure above the MCL is increased risk of cancer. Radionuclides, either naturally occurring or man-made, can be transported into your well water through soil and rock erosion and decay. If the soil and rock surrounding a well have high enough concentrations, the well water may be radiologically contaminated.

Uranium – The MCL is 30 µg/L for this parameter

On September 4th, 2018, the NJDEP amended the SDWA and the PWTA rules. The PWTA amendments addressing uranium testing became effective September 4th, 2018, requiring uranium testing for the 12 northern NJ counties (Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Morris, Passaic, Somerset, Sussex, Union and Warren). Uranium testing is necessary to identify which radiological contaminant is contributing to a high gross alpha result and to identify the correct treatment. For a summary of these SDWA and PWTA amendments, please visit:

<https://www.nj.gov/dep/enforcement/oqa/docs/RuleSummaryCertifiedLabs9-4-2018.pdf>

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Consumer Links:

New Jersey Private Well Testing Act Homepage:

http://www.nj.gov/dep/watersupply/pw_pwta.html

New Jersey Private Well Testing Act Frequently Asked Questions:

http://www.nj.gov/dep/watersupply/pwta/pwta_faq.htm

New Jersey Drinking Water Standards and other Related Topics:

http://www.nj.gov/dep/watersupply/pw_pwta_add.html

Health Effects Information:

http://www.nj.gov/dep/watersupply/pw_pwta_add.html

Remediation / Treatment options for Homeowner's:

http://www.nj.gov/dep/watersupply/pw_pwta_add.html

New Jersey Directory of Local Health Departments:

<http://www.state.nj.us/health/lh/documents/lhdirectory.pdf>

National Primary Drinking Water Standards:

https://www.epa.gov/sites/production/files/2015-11/documents/howeparegulates_mcl_0.pdf

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New Jersey Private Well Testing

| Lab Project ID | Customer Project ID |
|----------------|--|
| 011906XXX | 123 Mockingbird Lane, Whitehouse Station, NJ 08889 |

Description of Analysis

Analytical Laboratory:

EMSL Analytical, Inc., (EMSL) is a national network of laboratories located in key cities throughout the U.S. and Canada. Established in 1981, the company has expanded its analytical services and capabilities and now operates in 40 locations all striving for excellence in providing quality laboratory services in a timely and cost-competitive manner.

Our diverse staff of over 800 employees possess a wide range of expertise, educational background, and capabilities. These dedicated and capable employees follow the lead and standard of care demonstrated by the owner and founder of the company, Dr. Peter Frasca, who, as a hands-on owner, maintains daily involvement in our laboratory operations, and dictates that our work is consistent with his *EMSL Diamond Standard*. This "Diamond Standard" includes the following:

- ◆ Quality Data - Track, manage, report, and verify that the data from all our accredited testing services are accurate and reliable through quality programs and regulatory requirements.
- ◆ Customer Dedication - We strive to create lasting, mutually beneficial relationships with all clients. We solicit feedback from our clients and we are committed to responding quickly to any questions or concerns that may arise before, during, or after an assignment.
- ◆ Analytical Expertise - We employ highly qualified and experienced chemists, geologists, physicists, mycologists, microbiologists, biologists, materials scientists, and industrial hygienists to enhance our analytical abilities and expertise.
- ◆ Integrity and Ethics - We insist that our employees uphold the highest standard of ethics. We maintain a "no compromise" policy as it pertains to any ethical issue.
- ◆ Responsiveness - We recognize that the timeliness of a report is as important as the quality of the data. We will not however, allow deadlines or the rush needs of a project to adversely impact our quality objectives.
- ◆ Technology - We recognize the importance of new technology to better enable us to provide improved services. Online access to your data, customized reports, sample control/processing through our Laboratory Information Management System (LIMS), and analytical instrumentation are continuously upgraded to enable continuous improvement of our services and capabilities.
- ◆ Value - We believe that a business relationship with EMSL provides you with an excellent value. We provide you with a complete value package that includes all the components of the EMSL Diamond Standard.

LOCALLY FOCUSED, NATIONALLY RECOGNIZED

Unmatched capacity from our collective strength of nationwide locations.



EMSL Analytical, Inc. has been fortunate to be able to maintain a solid history of stable growth and viability for over 35 years with a current network consisting of 45 laboratories.

For a complete list of analytical services offered, please contact EMSL Analytical, Inc. at (888) 831-1083.



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New Jersey Private Well Testing

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Important Terms, Conditions, and Limitations

A. General Customer Requirements

The customer is responsible for confirming and communicating any specific local, state, regional, national, or independent third party certification and accreditation requirements applicable to sample submission. The customer is responsible for communicating any specific test requirements. EMSL Analytical, Inc. (EMSL) is not responsible for customer's errors or omissions with respect to communication of specific test requirements.

B. Sample Submission

The receipt of a Chain of Custody (COC) document shall be considered the customer's formal notice to proceed with the stated transaction in accordance with EMSL Terms and Conditions. In the absence of an additional contract or agreement with EMSL, by submitting samples for analysis, the customer agrees to be bound by EMSL's Terms and Conditions. Where applicable, samples shall be logged in and charged at the appropriate turnaround time rate in order to meet hold time requirements. Clients who use EMSL's prepaid courier services and/or common carrier may have a fee added to their project invoice to cover the costs if per shipment analysis fee (\$) minimums are not met.

C. Sampling Responsibility

It is the customer's responsibility to ensure that samples are collected according to the appropriate regulations/method specifications. The user of a sampling device has the sole responsibility to select the applicable sampler, media, and conditions to ensure that a valid sample has been collected. EMSL is not responsible for the improper selection of sampling devices even if EMSL supplies the devices to the user. Clients who order complementary media and supplies maybe charged for supplies not returned to the lab for analysis; including: cost of supplies, shipping and/or handling fee(s).

D. Sample Labeling & Packaging

It is the customer's responsibility to ensure that samples are labeled, packaged, and shipped according to the appropriate regulations/method specifications. Samples classified as Hazardous, Explosive, DEA regulated, FDA, Radiological/DOE, USDA Controlled or anything that requires special precautions when handling must be properly identified, pre-approved by the lab for submittal, and may incur additional surcharges for handling and disposal. EMSL reserves the right to refuse or return samples submitted for analysis which are unsuitable due to damage, leakage, incorrect or insufficient labeling, or that may be considered hazardous to our personnel or facility.

E. Turnaround Time

Turnaround Time (TAT) is defined as the time between sample acceptance by an authorized EMSL representative at the analyzing laboratory and analysis report completion. Turnaround time/due dates are based upon individual laboratory operational hours. TATs are offered in hours, business, or calendar days, depending upon the specific test. Submissions are accepted only during laboratory operational hours at the analyzing laboratory. Incomplete sample submissions or problematic sample conditions may result in processing and/ or TAT delays. Expedited TATs are subject to capacity restrictions and are not guaranteed to be available. Please call/pre-schedule with the laboratory to ensure capability and availability for expedited TATs. Unless otherwise approved, TAT Will Not Start and or will not be initiated for COD samples / projects until payment is received in full. If for any reason, the TAT originally requested will be missed, EMSL will automatically continue to proceed with completion of the work although at a longer TAT unless the client specifically indicates work is only contracted if the specific TAT requested and the job is to be cancelled if the TAT cannot be met.

F. Testing Policy

EMSL represents to its customers that all services provided hereunder shall be performed in accordance with industry recognized, professionally published, internally developed, and/or client stipulated testing procedures. Samples may be subcontracted, with prior customer notification and approval, to a third party laboratory that meets customer and EMSL qualification requirements. Specific test-level considerations may apply. See project quote and / or price book.

G. Pricing

EMSL pricing is periodically adjusted and EMSL reserves the right to update prices at its sole discretion at any time with notification. Unless specified in writing, quoted pricing expires if work is not submitted within 30 calendar days; otherwise quoted prices are valid for the remainder of the calendar year, but pricing may be adjusted based on the customer's non-compliance with payment terms, change in scope of work including frequency or volume, and/or non-compliance with the EMSL Terms and Conditions.

New Jersey Private Well Testing

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| 011906XXX | 123 Mockingbird Lane, Whitehouse Station, NJ 08889 |

Important Terms, Conditions, and Limitations

H. Payment Terms

If credit terms are approved, standard payment terms are 30 calendar days from date of laboratory invoice. Unless otherwise stated, rates are quoted in US Dollars. Interest charges will apply to all past due balances. If customer balance remains outstanding after 60 calendar days, EMSL reserves the right to refuse or suspend work, increase or update customer pricing immediately, and place the customer on Cash on Delivery (COD) status until such time as the account is made current. Additionally, customer agrees to pay any costs incurred to collect past due balances, including attorney's fees. For non-routine Special Projects, EMSL reserves the right to request a payment of up to 100% in advance of services performed. Unless otherwise approved, TAT and work will not be initiated for COD samples / projects until payment is received in full.

I. Customer Changes:

All changes in scope of work or TAT requested by the customer after sample acceptance must be confirmed by EMSL in writing; verbal change requests must be confirmed in writing. If requested change (s) results in a change in cost, the customer agrees to accept payment responsibility. In the event analysis is cancelled by the customer, EMSL will invoice for work completed to the point of cancellation notice. Additional cancellation fees may apply. EMSL is not responsible for TAT that is delayed due to customer changes. At its sole discretion, EMSL reserves the right to charge additional fees, change pricing, and / or reject samples due to: changes in scope of work, changes in quantity of samples, and changes in quality control requirements; charges for in-bound shipping, courier services, sample transfer, and sampling media; Hazardous, Explosive, DEA regulated or any other type of specialized sample as determined by the laboratory.

J. Sample & Record Retention

See Division specific Terms and Conditions for standard sample retention times. Records are retained for 5 years, unless otherwise requested or required. Customer must notify EMSL, in writing, at time of sample submission that samples and / or records are subject to specific regulatory retention requirements. EMSL must also be notified and approval must be obtained for any special disposal and/or any special sample storage and archive needs of the customer; additional fees may apply.

K. Disclaimer:

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, resampling costs, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by customer or any third party. EMSL accepts no legal responsibility for the purposes for which the customer uses the test results. In no event shall EMSL be liable to a customer or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by customer thereunder.

L. Severability

If any of these Terms and Conditions is found to be illegal, invalid, or unenforceable by a court of competent jurisdiction, any remaining Terms and Conditions will remain in full force and effect. These Terms and Conditions shall be interpreted in accordance with the laws of the State of New Jersey. Written, negotiated contracts or customer specific Terms and Conditions may supersede these Terms and Conditions.

M. Headings

The headings contained herein are for convenience only, and in the event of any conflict, the text of this paragraph, rather than the headings, will control.

N. Lab Reports, QC Data Packages & Reporting Limits

Reports will be emailed as a PDF to the client and also posted on LABConnect™. Clients that are not paperless (require mailed Reports, COC's, Invoices, and/or any combination of these documents) may be subject to surcharge fees and/or increased analytical rates. QC data packages for validation programs are available upon request and for an additional fee and Laboratory must be notified and approve the request prior to the sampling event and submission. Customer shall provide specific reporting limit requirements, if required, prior to sample submission. Analytical cost may vary based upon reporting limits and / or data quality objectives.

O. Tests and Services

Not all tests and services are available at all locations. Please see website and contact lab location prior to submitting samples to confirm available tests and services.

This report has been prepared by EMSL Analytical, Inc. at the request of and for the exclusive use of the client named in this report. Completely read the important terms, conditions, and limitations that apply to this report. The samples associated with this report were received in good condition unless otherwise noted. This report relates only to those items tested as received by the laboratory.

Please visit our website at <http://www.EMSL.com>

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New Jersey Private Well Water Test Reporting Form

The New Jersey Private Well Water Test Reporting Form is a standardized form to be used exclusively by laboratories reporting well test results to their client in accordance with the Private Well Testing Act Regulations at N.J.A.C. 7:9E.

These laboratory analyses were completed for the purposes of complying with the Private Well Testing Act.

In accordance with the Private Well Testing Act Regulations all analytical results except for coliform (total, fecal, or e. coli) shall remain valid for a period of one year from the date of sample collection. All coliform (total, fecal, or e. coli) analytical results shall remain valid for a period of six months from the date of sample collection.

- Analytical results meet primary and secondary contaminant standards for drinking water
- One or more of the analytical results do not meet primary + contaminant standards for drinking water
- One or more of the analytical results do not meet secondary ++ contaminant standards for drinking water

CLIENT INFORMATION:

Name: EMSL Analytical Date Test Requested: 5/24/2019

Mailing Address & Phone #: 200 Route 130 North, Cinnaminson, NJ 08077 Phone.: (888) 831-1083

PROPERTY INFORMATION:

Property Address: 123 Mockingbird Lane, Whitehouse Station, NJ 08889 Municipality: Whitehouse Station Muni Code (4 digit): XXXX

County: Hunterdon Property Lot: XX.XX Block: XX

GPS Location- State Plane Coordinates (feet): (X) XXXXXX.XX (Y) XXXXXX.XX

GPS Coordinate Origin (Check One): Well Head Front Door Point Sample Collection Other (Explain): _____

NJ Well Permit or Well Record Number: _____ (if known)

LABORATORY INFORMATION:

Reporting Laboratory Name & ID #: EMSL Analytical, Inc. ;ID:03036

Reporting Laboratory Address & Phone #: 200 Route 130 North Cinnaminson, NJ 08077 Phone: (856)303-2500

SAMPLE INFORMATION:

Sample Collector Name: Craig Bodnar

Authorized Representative/Certified Laboratory Employee Lab Certification ID #: Marty Vitanza, EMSL Analytical, Inc. ;ID:03036

Sample Type: **NOTE: Only raw or untreated water samples meet the requirements of the PWTA regulations at N.J.A.C. 7:9E.**

a.) Indicate Specific Location of Sample Collected: Well (Raw)

b.) Type of Treatment Device(s) Installed (if known): Arsenic

¹ Primary Drinking Water contaminants are those contaminants that have Maximum Contaminant Levels or Action Levels established to protect health. The Primary Drinking Water contaminants are coliform bacteria, nitrate (total), lead, the volatile organic compounds, arsenic, mercury, uranium, and gross alpha. The standards for primary contaminants are the maximum permissible levels allowed in drinking water based on ingesting the drinking water over the course of a lifetime.

² Secondary Drinking Water contaminants are those contaminants that have Recommended Upper Limits or Optimum Ranges established to protect against those properties that adversely affect the taste, odor, or appearance of drinking water. The Secondary Drinking Water contaminants required to be tested in accordance with the Private Well Testing Act Regulations at N.J.A.C. 7:9E are iron, manganese and pH.

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These laboratory analyses were completed for the purposes of complying with the Private Well Testing Act.

| SUMMARY OF WELL WATER TEST RESULTS: | | | | | | |
|--|---------|----------|---|----------------------------|-------------------------------|-------------------|
| Required Test Parameters | Result | Units | Applicable Standard (Maximum Contaminant Level, Action Level or Recommended Limit) | Standard Exceeded (Y/N) | Laboratory Certification ID # | Analytical Method |
| Microbial Parameters | | | | | | |
| Total Coliform | Absent | Pres/Abs | Absent | N | 03036 | SM 9223B |
| Fecal Coliform ¹ | | Pres/Abs | Absent | | 03036 | |
| <i>E. coli</i> ¹ | Absent | Pres/Abs | Absent | N | 03036 | SM 9223B |
| Metals | | | | | | |
| Arsenic | 9.00 | ug/l | 5 ug/l | Y | 03036 | EPA 200.8 |
| Uranium ² | 2.80 | ug/l | 30 ug/l | N | 03036 | EPA 200.8 |
| Mercury ³ | | ug/l | 2 ug/l | | 03036 | |
| Lead ⁴ | <1.0 | ug/l | 5 ug/l ** | N | 03036 | EPA 200.8 |
| Iron | <0.10 | mg/l | 0.3 mg/l | N | 03036 | EPA 200.7 |
| Manganese | <0.001 | mg/l | 0.050 mg/l | N | 03036 | EPA 200.8 |
| General Chemistry | | | | | | |
| Field-pH | 7.40 | pH units | 6.5-8.5 (optimum range) | N | 03036 | EPA SM 4500-H B |
| Nitrate | 3,100.0 | ug/l | 10,000 ug/l | N | 03036 | EPA 300.0 |
| Volatile Organic Compounds | | | | | | |
| Benzene | <0.50 | ug/l | 1 ug/l | N | 03036 | EPA 524.2 |
| Carbon Tetrachloride | <0.50 | ug/l | 2 ug/l | N | 03036 | EPA 524.2 |
| Chlorobenzene | <0.50 | ug/l | 50 ug/l | N | 03036 | EPA 524.2 |
| Dichlorobenzene (1,2-) | <0.50 | ug/l | 600 ug/l | N | 03036 | EPA 524.2 |
| Dichlorobenzene (1,3-) | <0.50 | ug/l | 600 ug/l | N | 03036 | EPA 524.2 |
| Dichlorobenzene (1,4-) | <0.50 | ug/l | 75 ug/l | N | 03036 | EPA 524.2 |
| Dichloroethane (1,1-) | <0.50 | ug/l | 50 ug/l | N | 03036 | EPA 524.2 |
| Dichloroethane (1,2-) | <0.50 | ug/l | 2 ug/l | N | 03036 | EPA 524.2 |
| Dichloroethene (1,1-) | <0.50 | ug/l | 2 ug/l | N | 03036 | EPA 524.2 |
| Dichloroethene (cis 1,2-) | <0.50 | ug/l | 70 ug/l | N | 03036 | EPA 524.2 |
| Dichloroethene (trans 1,2-) | <0.50 | ug/l | 100 ug/l | N | 03036 | EPA 524.2 |
| Methylene Chloride | <0.50 | ug/l | 3 ug/l | N | 03036 | EPA 524.2 |
| Dichloropropane | <0.50 | ug/l | 5 ug/l | N | 03036 | EPA 524.2 |
| Ethylbenzene | <0.50 | ug/l | 700 ug/l | N | 03036 | EPA 524.2 |
| Methyl tertiary-butyl ether | <0.50 | ug/l | 70 ug/l | N | 03036 | EPA 524.2 |
| Naphthalene | <0.50 | ug/l | 300 ug/l | N | 03036 | EPA 524.2 |
| Styrene | <0.50 | ug/l | 100 ug/l | N | 03036 | EPA 524.2 |
| Tetrachloroethane (1,1,2,2-) | <0.50 | ug/l | 1 ug/l | N | 03036 | EPA 524.2 |
| Tetrachloroethene | <0.50 | ug/l | 1 ug/l | N | 03036 | EPA 524.2 |
| Toluene | <0.50 | ug/l | 1,000 ug/l | N | 03036 | EPA 524.2 |
| Trichlorobenzene (1,2,4-) | <0.50 | ug/l | 9 ug/l | N | 03036 | EPA 524.2 |
| Trichloroethane (1,1,1-) | <0.50 | ug/l | 30 ug/l | N | 03036 | EPA 524.2 |
| Trichloroethane (1,1,2-) | <0.50 | ug/l | 3 ug/l | N | 03036 | EPA 524.2 |
| Trichloroethene | <0.50 | ug/l | 1 ug/l | N | 03036 | EPA 524.2 |
| Vinyl Chloride | <0.50 | ug/l | 2 ug/l | N | 03036 | EPA 524.2 |
| Xylenes ^(total) | <0.50 | ug/l | 1,000 ug/l | N | 03036 | EPA 524.2 |
| Synthetic Organic Compounds | | | | | | |
| Dibromo-3-Chloropropane (1,2-) ⁵ | <0.02 | ug/l | 0.20 ug/l | N | 03036 | EPA 504.1 |
| Ethylene Dibromide ⁶ | <0.01 | ug/l | 0.05 ug/l | N | 03036 | EPA 504.1 |
| Trichloropropane (1,2,3-) ⁵ | <0.01 | ug/l | 0.03 ug/l | N | 03036 | EPA 504.1 |
| Radiological Parameters | | | | | | |
| Gross Alpha ^(total) ⁶ | 6.027 | pCi/l | 5 pCi/l~ | Not Applicable | 03036 | ECLS-R-GA Rev. 8 |
| Gross Alpha ^(total) ⁶ | 7.888 | pCi/l | 15 pCi/l | N | 03036 | ECLS-R-GA Rev. 8 |
| For Northern New Jersey Counties only: | | | | | | |
| Uranium Alpha Activity = Uranium (ug/L) x .67 pCi/ug ⁶ | 1.876 | pCi/l | Not Applicable | Not Applicable | 03036 | EPA 200.8 |
| Adjusted Gross Alpha = Gross alpha - Uranium ⁷ | 5.012 | pCi/l | 15 pCi/l | N | 03036 | EPA 200.8 |

UNITS:

Pres/Abs=presence or absence

ug/l= micrograms per liter (also known as parts per billion)

mg/l=milligrams per liter (also known as parts per million)

pCi/l=picocuries per liter

Footnotes: Footnotes for the above Summary of Well Water Test Results table are on page 3.

New Jersey Private Well Water Test Reporting Form

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These laboratory analyses were completed for the purposes of complying with the Private Well Testing Act.

Footnotes for the Summary of Well Water Test Results table on page 2:

- ¹ If total coliform bacteria are detected then additional analyses are required to determine the specific type (fecal or E. coli) present. Fecal coliform or E. coli analysis are not required if total coliform sample results indicate the absence of total coliform bacteria.
- ² Uranium analysis is required only in Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Morris, Passaic, Somerset, Sussex, Union and Warren Counties.
- ³ Mercury analysis is required only in Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Monmouth, Ocean, and Salem Counties.
- ⁴ The results of a "flushed" raw (untreated) water sample, which is required by the Private Well Testing Act regulations, should be compared to the Ground Water Quality Standard of 5 ug/l found at N.J.A.C.7: 9-6 et seq. The Lead Action Level of 15 ug/l applies to a one liter first-draw tap sample collected from a cold water kitchen or bathroom tap/sink in which the water has remained motionless in the plumbing system for at least six hours [40 CFR 141.86(b)(2)]. This type of standing-water sample is NOT required by the Private Well Testing Act regulations.
- ⁵ If the Gross Alpha (first count) is less than 5 pCi/L, no further testing is needed. If the Gross Alpha (first count) exceeds 5 pCi/L a second count is required.
- ⁶ Uranium Alpha Activity can be estimated from the uranium mass concentration (µg/L) listed in the metals section of the table x 0.67 pCi/µg.
- ⁷ Adjusted Gross Alpha = Gross Alpha (pCi/L) – Uranium Alpha Activity (pCi/L). The MCL for Adjusted Gross Alpha is 15 pCi/L. An Adjusted Gross Alpha value should only be calculated when uranium is required/tested.
- ⁸ 1,2,3, Trichloropropane (1,2,3 TCP), Ethylene Dibromide (EDB) and 1,2,-Dibromo-3-Chloropropane (DBCP) are required for all tests occurring on or after March 3, 2019.

| ADDITIONAL SAMPLE INFORMATION: | | | |
|--|-----------------------|----------------------------|---|
| Coliform Analyses: | | | |
| Date/Time Sample Collected: | <u>05/23/19 10:19</u> | Date/Time Sample Analyzed: | <u>05/24/19 14:50</u> Sample ID Number: <u>011906XXX-0001</u> |
| Date/Time Sample Collected: | <u>05/23/19 10:19</u> | Date/Time Sample Analyzed: | <u>05/24/19 14:50</u> Sample ID Number: <u>011906XXX-0001</u> |
| Volatile Organics: | | | |
| Date/Time Sample Collected: | <u>05/23/19 10:19</u> | Date/Time Sample Analyzed: | <u>05/29/19 21:11</u> Sample ID Number: <u>011906XXX-0001</u> |
| Inorganics: | | | |
| Date/Time Sample Collected: | <u>05/23/19 12:20</u> | Date/Time Sample Analyzed: | <u>05/24/19 13:51</u> Sample ID Number: <u>011906XXX-0001</u> |
| pH Analysis: | | | |
| Date/Time Sample Collected: | <u>05/23/19 10:19</u> | Date/Time Sample Analyzed: | <u>05/23/19 10:19</u> Sample ID Number: <u>011906XXX-0001</u> |
| Gross Alpha Analyses: | | | |
| Date/Time Sample Collected: | <u>05/23/19 10:19</u> | Date/Time Sample Analyzed: | <u>05/25/19 08:04</u> Sample ID Number: <u>011906XXX-0001</u> |
| Date(s) All Analyses Received by Reporting Lab from Subcontracted Lab (if applicable): _____ | | | |

CERTIFICATION OF RESULTS :

I certify in writing that all sampling, analyses, and reporting performed herein, comply with all requirements set forth in N.J.A.C. 7:9E and N.J.A.C. 7:18, and hereby certify that this laboratory is in compliance with all laboratory certification and quality control procedures and requirements as set forth at N.J.A.C. 7:18.



Laboratory Manager or Designee

6/4/2019
Date

New Jersey Private Well Water Test Reporting Form

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ADDITIONAL INFORMATION:

I. Treatment Options

Listed below are the common treatment options available to homeowners having well contamination above a Maximum Contaminant Level, Action Level or Recommended Limit. The goal of water treatment is the removal of contaminants to levels below the Maximum Contaminant Level, Action Level or Recommended Limit. For additional information on home treatment devices contact your local/county health department or the NJDEP Private Well Testing Act Hotline at **1-866-4PW-TEST** or visit the Private Well Testing Act webpage at: www.state.nj.us/dep/pwta for links to other appropriate websites, such as National Sanitation Foundation www.nsf.org or USEPA's drinking water website www.epa.gov/safewater. You may also call the USEPA Drinking Water Hotline at (800) 426-4791 to obtain a copy of USEPA's pamphlet entitled "Home Water Treatment Units" (WH-550A). All treatment devices must be properly maintained in accordance with manufacturer recommendations to ensure operating efficiency in removing contaminants. As noted below, not all treatment devices remove every contaminant; there may be more than one device installed if multiple contaminants exist in the drinking water. Water treatment companies may be found by consulting the yellow pages of your local area phone book.

SUMMARY OF TREATMENT OPTIONS FOR HOMEOWNERS

| Treatment Type | Contaminants Treated |
|------------------------------------|---|
| Activated Carbon Filtration | Some Organic Chemicals |
| | Taste |
| | Trihalomethanes |
| | Some Pesticides |
| | Odor |
| Air Stripping | Volatile Organic Compounds (higher concentrations) |
| | Iron (with filtration) |
| | Hydrogen Sulfide |
| | Radon Gas |
| Chlorinators | Bacteria (Coliform) |
| | Microbiological Contamination |
| Distillation | All Inorganic Chemicals (i.e., Nitrate, Sodium Chloride) |
| | Some Organic Chemicals |
| Ion Exchange | Hard Water (Water Softening) |
| | Manganese |
| | Some Heavy Metals |
| | Calcium |
| | Iron |
| Reverse Osmosis | Certain Organic Chemicals |
| | Nitrates |
| | Dissolved Solids/Metals |
| Mechanical Filtration | Turbidity |
| | Dirt |
| | Sediment |
| | Particulates (Loose Scale) |
| Bottled Water | Temporary Solution to Aesthetic Problems & Emergency Situations |
| KDF-55 with pH adjustment | Mercury |
| Ultraviolet Radiation | Bacteria (Coliform) |
| | Microbiological Contamination |

Additional Resources for Specific Contaminants

| Arsenic | Radionuclides |
|---|--|
| Arsenic Water Treatment for Residential Wells in New Jersey: https://www.nj.gov/dep/pwta/Arsenic_Treatment.pdf | A North Jersey Homeowner's Guide to Radioactivity in Drinking Water: Uranium https://www.state.nj.us/dep/rpp/rms/agreedown/urwater.pdf |
| New Jersey Arsenic Awareness Initiative: http://www.tinyurl.com/arsenichelp | A South Jersey Homeowner's Guide to Radioactivity in Drinking Water: Radium https://www.state.nj.us/dep/rpp/rms/agreedown/radwater.pdf |
| Arsenic Homeowner's Guide: https://www.state.nj.us/dep/dsr/arsenic/guide.htm | |

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II. Health Effects

Drinking water standards are established to protect consumers of drinking water from both adverse health effects (primary drinking water standards) and from qualities that make the water unpalatable (secondary drinking water standards). Both NJDEP and USEPA set drinking water standards; those in effect in New Jersey can be found at www.state.nj.us/dep/watersupply. Both NJDEP and USEPA periodically review this list and add or subtract contaminants based on new scientific information. Standard setting is summarized in a brochure entitled "Standards for Safe Drinking Water in New Jersey" available by calling **1-866-4PW-TEST**.

There are several resources available to assist in interpreting your test results. An informative booklet explaining drinking water results written by Rutgers Cooperative Extension Service entitled "Interpreting Drinking Water Quality Analysis - What do the Numbers Mean? - 6th Edition" is available at <http://njaes.rutgers.edu/pubs/publication.asp?pid=E214>. Health effects information developed by the USEPA is summarized at www.epa.gov/safewater/mcl.html. The New Jersey Department of Health and Senior Services, in conjunction with NJDEP's Bureau of Water System Engineering and Office of Science, have developed a series of brochures for drinking water and health that can be found at <http://www.state.nj.us/health/eoh/hhazweb/edmat.htm>.

III. Recommendations for Additional Testing

The gross alpha test identifies the presence of radionuclides at levels suggesting additional testing and/or treatment. With any Gross Alpha value (Initial, Second, or Adjusted) exceeding 5 pCi/L, additional testing may be recommended for naturally occurring isotopes of Radium, Uranium and Radon. There are a number of factors to consider and we recommend reviewing the Homeowner's Guide to Radioactivity in Drinking Water for more detailed information.

In Southern New Jersey, radium is the main cause of high gross alpha. In Northern New Jersey, uranium is the main cause of high gross alpha. A water softener can be used to remove radium from water and offers additional benefits to water quality. Therefore, homeowners whose gross alpha exceeds 5 pCi/L, especially in southern New Jersey, may decide it is more cost-effective to install a water softener than conduct additional water testing for radium. Additional resources on this

The Private Well Testing Act regulations require well water samples to be collected from untreated or "raw" water. Raw water quality represents the well water quality. Additional water testing may be conducted to determine the effectiveness of a water treatment system or to determine if the distribution system (pipes) may be contributing additional contamination. In those cases, sampling of treated or finished water at the tap is recommended. This additional testing of treated water is not required under the Private Well Testing Act regulations. However, testing of treated water to determine the effectiveness of a treatment system to remove contaminants for a known, pre-existing, water quality problem is desirable. Below are recommendations for additional testing in three different scenarios.

Scenario One : There is an existing treatment system or device installed at the house or building due to a known pre-existing water quality problem and raw water testing indicates that one or more parameters are above a Maximum Contaminant Level, Action Level, or Recommended Limit. NJDEP recommends that a second water sample be collected for the parameter(s) of concern at a location after the treatment system or device at a primary tap to insure that the system or device is working properly in removing or reducing the contaminants to below the applicable Maximum Contaminant Level, Action Level, or Recommended Limit.

Scenario Two : After testing, total and fecal coliform bacteria are found to be above the Maximum Contaminant Level. The well is subsequently treated via chlorine disinfection. Re-testing is recommended after a chlorine residual can no longer be detected to insure the effectiveness of the treatment.

Scenario Three: [**FOR LEAD ANALYSIS ONLY**] (**Note**: The Private Well Testing Act regulations require that a "flushed" sample be collected for lead analysis meaning the well water was run to remove any water that may have been in contact with the plumbing for an extended period of time).

In scenario three, the flushed, untreated sample, collected at the tap, indicates there is lead contamination greater than 5 ug/l. The state's ground water quality standard of 5 ug/l is the more appropriate standard to apply to a "flushed" water sample rather than the drinking water Action Level of 15 ug/l, which is based on sampling drinking water that has been allowed to remain in the plumbing for at least six hours.

New Jersey Private Well Water Test Reporting Form

The New Jersey Private Well Water Test Reporting Form is a standardized form to be used exclusively by laboratories reporting well test results to their client in accordance with the Private Well Testing Act Regulations at N.J.A.C. 7:9E.

These laboratory analyses were completed for the purposes of complying with the Private Well Testing Act.

If the well owner wants to better evaluate the level of potential lead contamination from the plumbing system, a “first draw” (non-flushed) sample should also be analyzed for lead. This “first draw” water sample may likely contain the highest level of lead to which the water users are likely to be exposed. The results of this sample should be compared to the lead Action Level of 15 µg/L. Results above 15 µg/L mean that there is a source of lead in the home plumbing system. The interested party may install treatment to make the water less corrosive and less likely to dissolve lead from the plumbing; may attempt to locate the source of the lead and remove it from the home plumbing system, or may choose to run the water through the plumbing (or selected faucets) each morning to ensure that the standing water is flushed through the pipes and is not consumed.

IV. Remediation/Treatment Funding Sources

A.) The **Spill Fund Program** administered by the Bureau of Contract and Fund Management (BCFM) within the New Jersey Department of Environmental Protection (NJDEP) offers help to innocent parties suffering from direct or indirect damages resulting from the discharge of a hazardous substance. There are specific eligibility requirements and guidelines for filing claims with the Spill Fund. Please note that as of March 2, 2009, someone who purchases a property with human-caused contamination in the water supply, whether there is an existing Spill Fund claim or not, will not be eligible for a Spill fund claim. For more information about the Spill Fund, please contact the NJDEP-Fund Management Section at: 609-777-0101 or visit their website at: <https://www.state.nj.us/dep/srp/finance/eca.htm> or you may write to the ECA/Spill Fund, 401-06J PO Box 420, Trenton, NJ 08625-0420.

B.) The **New Jersey Housing and Mortgage Finance Agency (NJHMFA)** has a Potable Water Loan Program that is available to owners of single family residences whose source of potable water exceeds the State of New Jersey's Primary Drinking Water Standards, including lead and mercury. In addition, the loan program covers iron and manganese although these contaminants do not have Primary Drinking Water Standards. For further information, please contact the NJHMFA Hotline at 1-800-NJHOUSE (1-800-654-6873) or they may be reached at: P.O. Box 18550, 637 South Clinton Avenue, Trenton, N.J. 08650-2085 or on the web at: <https://www.nj.gov/dca/hmfa/homeownership/owners/potable/>.