

2004 Water quality report

Dighton Water District

PWS ID # 4076000

Treatment Plant

Construction of the District's new water treatment plant has begun, and if everything goes according to schedule should be running by the spring of 2006. It's a welcome site to finally see this project under way. I'm sure the Board of Commissioners are glad to see the project started and moving in the right direction. It's been a long hard road to get to the point we are now. Once the treatment plant is up and running the water quality will improve drastically.

You're Dinking Water Sources

Customers of the Dighton Water District get their water from 5 groundwater wells. Three wells are off Cedar St. & 2 wells are off Walker St. The Dighton Water District has an Emergency tie in with the Taunton Water Department. There is an interconnection with the Somerset Water Department. The Connection with the Somerset Water Department was last used in 1982. The Taunton tie-in on Somerset Avenue is used during Emergencies, with permission from the Taunton Water Department.

Nondiscrimination Clause: This is an Equal Opportunity Program. Discrimination is prohibited by Federal Law. Complaints of Discrimination may be filed with the Secretary of Agriculture, Washington, D.C. 20250.

THE BOARD OF COMMISSIONERS: Monthly meetings are held on the second Tuesday of every month. The Dighton Water District has its Annual Meeting on the fourth Thursday in May.

If you have any questions regarding this report contact the Superintendent @ 508-822-5461.

The Board of Commissioners would like to remind you to send back any & all Census that you receive.

"All 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 EPA'S Safe Drinking Water Hotline @ (1-800-426-4791)."

Sources of drinking water (both tap water & 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. It 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 may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants - such as salts and metals, can be naturally-occurring or result from urban storm water runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, and farming.

Pesticides and herbicides - may come from a variety of sources such as agricultural, urban storm water runoff, and residential uses.

Organic chemical contaminants - include synthetic and volatile organic chemicals, that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water

runoff, and septic systems.

Radioactive contaminants - can be naturally occurring or be the result of oil and gas production and mining activities.

Asbestos - Water systems that contain (AC) pipe are vulnerable to asbestos contamination due to the presence of asbestos – cement pipe. Systems must sample for this contaminant dependent on the size of the system population, and the number of miles of (AC) pipe within the system

Immune - compromised persons:

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 some infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. Guidelines are available from the EPA/Centers for Disease Control and prevention (CDC) on lowering the risk of infection by Cryptosporidium and other microbial contaminants by calling the Safe Drinking Water Hotline: @ 1-800-426-4791.

Important Definitions

Maximum Contaminant Level (MCL) – the highest level of a contaminant that is allowed in 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.

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

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

90th percentile - used for calibrating the allowable limit set forth by the US.EPA as a guideline for the Lead and Copper sampling results.

Variances and Exemptions – State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

TABLE KEY

ppm: parts per million or milligrams per liter, (mg/l) equivalent to one penny in \$10,000 dollars

ppb: parts per billion, or micrograms per liter, equivalent to one penny in \$10,000,000 dollars

ppt: parts per trillion, or nanograms per liter equivalent to one penny in \$10,000,000,000,000 dollars

pCi/l: picocuries per liter (a measure of radioactivity)

Flouride, Cyanide samples: test results for these contaminants were less than detectable limits.

SOC Samples: Sampling for these contaminants was done the second and fourth quarter of 2003. Samples were taken on May 20, 2003 and October 15,2003. The results from the tests were less than the detectable limits for these contaminants. The next sampling for these contaminants will be taken the 2nd & 4th quarter of 2006.

“CLEAN WATER IS UP TO YOU”

IOC Samples: Samples were taken for Inorganic compounds on May 16, 2003 during the second quarter of 2003. The results had no detects except for sodium. The sodium in the Cedar Street finished water was 30 mg/ liter or parts per million. The sodium level in the Walker street finished water was 41.5 mg/liter or parts per million. The next sampling will be during the second quarter of 2006 for these contaminants.

VOC Samples: The Dighton Water District tested the wells for these contaminants on 3/30/2004. The results had no detects except for 2 unregulated compounds with no MCL for the Cedar Street & Walker St wells. Chloroform was detected in the Cedar st wells at 1.0 micrograms per liter or parts per billion. Chloroform and Bromodichloromethane were detected in the Walker St. samples at 5.3 micrograms/liter and 1.2 micrograms/ liter. These contaminants are disinfection byproducts.

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

Health affects for Lead and Nitrates

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. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider. Nitrate samples were taken 4/7/04 at the Cedar St finished water with a result of .86mg/liter or parts per million. The Walker street finished water samples result showed nitrate at .42 mg/liter or parts per million.

Lead: Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home’s plumbing. If you are concerned about elevated lead levels in your home’s water, you may wish to have your water tested. You can also flush your tap for 30 seconds to 2 minutes before using the tap water. Ways to reduce lead in your water is listed on the back of your water bill. Additional information is available from the Safe Drinking Water Hotline at 800-426-4791.

TTHMs : (Total Trihalomethanes) Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

“Radon is a radioactive gas that you cannot see, taste, or smell. It is found throughout the United States . Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will be (in most cases) a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air-containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. Fix your home if the level of radon in your air is 4 picocuries per liter of air (pCi/l) or higher. There are simple ways to fix a radon problem that aren’t too costly. For additional information, call your State radon program or call EPA’s Radon Hotline, 1-800SOS.RADON.”

Informational Section

Lead: New DEP regulations were adopted which increased the number of sampling sites from 10 to 44. Lead samples were taken at the original locations and 44 locations were sampled the last quarter of 2004. Out of 95 samples taken in 2004, 6 samples exceeded the action level. The results for 2004 ranged from 0 to .027 mg/L. The 90th percentile results for the year 2004 were .012. The District has taken steps to improve the lead action levels for the system. A study was done at the corrosion facilities to optimize the existing chemical dosages using an RTW model.

Copper: Under the new regulations 95 samples were taken at the 44 designated sites. Five samples out of 95 that were taken exceeded the Action Level for copper. Copper results ranged from .06 up to 1.74 mg/l. for 2004. The 90th percentile results for the year 2004 were 1.18 mg/l for copper.

Asbestos: The District has approximately 3 – 4 thousand feet of (AC cement asbestos) pipelines. The District is required to sample for this contaminant because (AC)pipe is in the District. This portion of the system was tested for asbestos particles on 4/8/2004 and the results were less than detectable limits of .174 million fibers/ liter.

Sodium: Information on Sodium is being provided for the elderly population, and anyone that has to monitor their daily intake of Sodium. The sodium levels in the finished water at the Cedar Street wells was 30 milligrams per liter and the finished water from the Walker Street wells was 41.5mg/l or (milligrams per liter).

Iron: The Iron levels in samples taken April 7, 2004 from the Cedar St. finished water was 2.08 mg/ liter. The iron in the Walker Street finished water in samples taken on April 7, 2004 was .68 mg/liter High Iron causes the red rusty staining in white fixtures, and also in laundry when washing clothes.

Manganese: Manganese levels in the Cedar St. finished water sample taken April 7,2004 was .244 mg/l. The manganese results for the Walker St. finished water sample taken on April 7, 2004 were .134 mg/l. High concentrations of manganese causes the Black discolored water within a system.

MCL for Trihalomethanes

Four samples out of 17 exceeded the mcl for thm's during the 2004 sampling period. The District has decreased the dosage of chlorine injected into the system to try to maintain THM levels below the (MCL) maximum contaminant level. Results for the last quarter of 2004 averaged 88.55(ug/l) micrograms per liter, which is above the MCL of 80ug/l.

DEP takes a four quarter running average to determine compliance with the regulations. The running annual average for all sampling locations in 2004 was 44.67 which is below the MCL of 80 micrograms / liter. The District cut back the chlorine dosage to maintain THM levels below the MCL. Results ranged from 0 up to 191(ug)/l or micrograms/ liter. The water from the District wells contains dissolved organics which react with the chlorine to form disinfection byproducts.

Trihalomethanes (THM'S) and Haloacetic acids (HAA5's) are sampled each quarter to monitor for these contaminants. The Dighton Water District is under an (ACO) Administrative Consent Order from the Department of Environmental Protection (DEP) to install the water treatment plant in order to correct the current Water Quality issues we are faced with. These issues include iron & manganese removal, and the removal of organics from the water.

Treatment Techniques

Corrosion Control through ph Addition: Many drinking water sources in New England are naturally corrosive (i.e. they have a ph less than 7.0). These water sources have a tendency to corrode and dissolve the metal piping which it flows through. This not only damages the pipes but can also add harmful metals, such as lead and copper to the water. It is beneficial to add approved chemicals to adjust the PH to 7.0 neutral or to slightly alkaline, which is non-corrosive. The Dighton Water District adds sodium hydroxide to the water at two locations, the Cedar St. and Walker St corrosion facilities. The corrosion facilities started the spring of 2000. Lead & copper sample results have shown treatment has been effective in reducing levels of lead & copper in the water.

Notices are posted on the back of the water bills that explain ways to reduce lead & copper levels in your drinking water. Please take a few minutes to read the notice. You can flush your tap until you notice a change in temperature while holding your finger under the tap. This will flush any water that's been standing in your pipes for an extended period of time. After flushing the tap, fill a jug with water and place it in your refrigerator to use later. Even though we are treating the water for corrosion of lead & copper,

some sample results do exceed the action levels for these contaminants.

All chemicals used in the water industry are approved for water treatment by the following organizations: the American National Standards Institute (ANSI) accredits the National Sanitation Foundation (known as NSF International), and UL. Chemicals also have to meet performance standards established by the American Water Works Association.

Disinfection with Chlorine: All Reservoirs and some ground water sources contain numerous microorganisms, some of which can cause people to get sick. It is necessary to disinfect the water to eliminate disease-carrying organisms. Disinfection does not sterilize the water, but it does destroy harmful organisms. Sterilizing kills all microorganisms, even though most are not harmful, and is too costly to use on a routine basis. The Dighton Water District uses sodium hypochlorite (chlorine) as its primary disinfectant.

Water Awareness Programs

Water awareness programs take place at the Dighton Elementary School thanks to the cooperation of Sandra Curtis, Karen Rose, Jeffrey White, staff, & teachers of Pre -K thru 4th grade. From 2001 thru 2003 Jeffrey White, Sandra Curtis, and Karen Rose received the EPA Environmental Educator award. Karen Rose also received the Teacher Recognition award from the New England Water Works Association. This program has been a success in the past. I hope this program continues in order to educate the younger generation about the importance of water conservation in our daily lives. My thanks goes out to the one behind the scenes Carol Stevens the Dighton Water District Treasurer for obtaining materials and getting the program coordinated with the staff at the Elementary School. Last year the commissioners held a poster contest and awarded certificates to all the students that participated. My thanks goes out to the students that designed the posters, they did an excellent job. Handouts regarding water conservation & ways to protect the water supply are available at the Dighton Water District Office. Hours are Mon-Thurs 8-3:30, Friday 8-3pm or call 508-822-5461.

Automatic Lawn Sprinklers

The installation of automatic sprinkler systems to the Municipal Water Supply "IS PROHIBITED". This includes existing homes, new construction, and subdivisions. Lots should be sized accordingly to accommodate a well if the owners elect to install a lawn sprinkler system. No interconnections between potable drinking water and non-potable water sources are permitted under the Massachusetts Drinking Water Regulations 310CMR 22.22 cross connections.

Lawn irrigations are the biggest consumers of water during the hot weather in the summer months. In past years production from the Districts wells increased from 400,000 gallons per day up to 1,200,000 gallons of water per day. This water was pumped in a 24 hour period. Sprinklers place a great burden on the wells during the summer. The wells have to be throttled back during these periods in order to sustain adequate water levels in the wells. Over pumping the wells reduces the efficiency of the well and increases the chance of contamination by causing the well to draw water from further out than normal. Residents must be aware that a safe clean potable water supply is a precious resource.

Beginning in 2005 permits will be issued to customers that have both Municipal water and private well water. Prior to issuing the permit District personnel will survey these homes to be sure the two systems are not interconnected. This will ensure no cross connections exist at these homes.

Some outside Watering tips

New England has a high precipitation rate, so turf grasses here don't have to be watered to survive. Lawns may turn brown and dormant, but will turn green rapidly when moisture in the soil is replaced.

Conserve resources by not watering the grass unless it really needs it. Let Mother Nature water your Lawn!

If you do water one inch of water is adequate to wet the soil 4-6" deep. Place a can under the sprinkler to measure when an inch has been applied.

Light watering encourages shallow roots, which lead to disease & stress.

Water deep & less frequently to encourage deep root growth.

The best time to water is early morning; less water is lost through evaporation. Avoid watering during midday & try not to water in the evenings. Your lawn remains damp during the night, which can promote disease.

Summer of 2004

The summer of 2004 was kind of wet. It seemed like every weekend was a washout. Even though we received substantial amounts of rainfall, some of the small streams and tributaries in southeastern Massachusetts communities were at low levels. The District Board of Commissioners implemented a voluntary water ban. The ban was issued because of the onset of hot weather to prompt customers of the District to conserve water. Water pumped from the wells during the month of June averaged 489,000gallons/ day. The highest demand in a single day was on June 25th and was 910,000 gallons. Production for most months in 2004 averaged between 281,000 gallons / day up to 570,000 gallons / day. The figures were taken from the daily records for the wells. Many of the homeowners had their sprinklers off during the summer which kept water use down. The District wells pumped over 141 million gallons of water during the year of 2004. Production increased from 2003 which the wells pumped 130,600,000 gallons of water.

Water is a precious resource that must not be taken for granted. Everyone should practice water conservation not only in the dry season but year round. A "safe clean potable water supply" should be the number one priority to everyone not only customers of municipal water supplies.

More stringent regulations from EPA and increased water consumption from customers account for the high cost of treating drinking water at the present time.

Bottled water can cost anywhere from 50 cents per gallon up to \$1.25 for a sixteen ounce bottle. This in turn could cost you up to \$10.00 dollars per gallon. Treated municipal drinking water if sold at \$5.00 dollars per 1000 gallons would cost 5 cents for 10 gallons. Even though \$5.00 per thousand gallons of water seems expensive it really isn't.

The Town has changed drastically over the last 25years. Dighton had a lot of farm land that was used to grow vegetables, and other crops. ICI chemical or Zeneca as it was known when they moved south was the largest user of water in those days. Almost two thirds of the water pumped in a day went to the plant to manufacture their products. Farm irrigations made up a major portion of the water that was used in the summer months watering crops. Today Dighton is getting developed with subdivisions popping up everywhere. Most of the farm land has been sold to developers. Additional burdens are placed on protecting the areas that contribute water to our sources. Septic systems increase nitrogen levels in the groundwater. People must be aware of the increased threats to our water supply. Household chemicals dumped into a sink drain can leach through the groundwater and contaminate a well.

Wellhead protection measures have been taken to reduce the contamination of wells. Updated Title Five Regulations were imposed to reduce the amounts of Nitrogen from septic systems entering water supplies. Conservation issues regarding wetland buffers and waterways also reduce contamination by limiting the uses in these sensitive areas. I strongly encourage each customer to preserve what we have by developing your own water conservation and protection program. Your children may even be able to give you some pointers that they have learned in school.

Some Do's & Don'ts on how you can protect your drinking water?

Household Chemicals

Always use non-toxic and less toxic alternatives to household cleaners, oil based paints & insecticides.

Don't buy more hazardous chemicals than you need.

Always follow package directions on pesticides, fertilizers, and other household chemicals.

Don't over-use household chemicals. More is not better. Don't use pesticides or herbicides near wells, and minimize the use of fertilizers around wells.

Always take leftover chemicals to hazardous waste collection centers.

Don't dispose of hazardous chemicals by pouring them down household drains, storm drains, or onto the ground.

Underground Storage Tanks

Check heating oil tanks for leaks. Remove any deteriorating tanks. Replace underground tanks with above ground tanks that include a secondary containment area with a cover.

Don't have tanks removed by contractors who are not familiar with State guidelines for underground tank removal, and never locate new fuel storage tanks in the recharge area of a well.

Septic systems

Take care of your septic system. Keep records of your septic system maintenance. Inspect the tank every year. Have your tank pumped every 2-3 years. And avoid damage to your leach field and distribution lines by keeping heavy objects out of the area of the field.

Don't overload your septic with solids by using a garbage grinder (unless the system was designed for a grinder). Never pour grease or cooking oils down the drain, it will clog the soil and system. Don't pour chemicals, including bleach down the toilet or sinks. Never use septic cleaners or additives containing acids or chemical solvents such as trichloroethylene (TCE).

For additional information on ways to protect the water supply you can contact Ma. DEP/DWP @ 617-292-5770.

Wellhead protection areas

The primary protection area around a public water supply (PWS) is known as the Zone 1. The Zone 1 is the 400 ft radius around a well or well field, which is owned or controlled by the water supplier using conservation restrictions. Towns have adopted bylaws that are used to place restrictions for land uses in these critical areas of town. Dighton has adopted a DEP approved bylaw in May of 2000.

The areas of aquifers that contributes water to a well under the most severe pumping and recharge conditions is known as the Zone II. For public water supply wells that lack an approved Zone II, DEP applies an interim Wellhead Protection Area (IWPA). This is the area within a ½ mile radius for sources approved to pump 100,000 gallons/day or greater. For smaller sources, the IWPA radius is proportional to the wells approved daily volume.

Security measures

Many changes have taken place since the tragedy on September 11th 2001. Security measures have been taken by many Public Water Supplies to protect the valuable drinking water resources that we have taken for granted for so many years. Additional measures have been taken to ensure the Dighton Water Districts wells & tanks are protected. Contact the Dighton Police @ 508-669-6711 or the Water District @ 508-822-5461 if you notice any suspicious activities in or around the areas of the wells & water tanks.

Where does my water come from?

Your drinking water comes from 5 gravel packed groundwater wells. Groundwater is the water that flows through spaces in soil particles and through fractures in rock. Water comes from rain & melting snow that percolates through the ground. Education material on the hydrologic cycle is available at the Dighton Water District Office.

Why should I be concerned?

Even though some pollutants (such as bacteria, viruses, and phosphorus) can be reduced by passing through soil under certain conditions, groundwater can be easily contaminated by chemicals & oils.

A word in parting

I'd like to thank everyone that participates in the lead & copper sampling program. I'd also like to thank both residential & commercial customers that participate in the cross connection program. By continuing to work together we can assure all customers within the Dighton Water District will continue to have a safe potable drinking water supply.

Contact the Superintendent if anyone would be interested in forming a wellhead protection committee @ 508-822-5461.