INFORMATION REGARDING WATER QUALITY

Another successful year has passed with the Dr. William E. Boyle Water Treatment Facility performing beyond expectations in all areas including operation of equipment and quality of water produced. It is a pleasure to be able to do the monthly compliance sampling and not have to be concerned about additional sampling or notification due to Coliform hits. We continue to see high quality water throughout the distribution system as demonstrated by our monthly sampling and analysis. The turbidity, as measured leaving the facility, was less than 0.04 mg/L on average for the year. The average turbidity in the distribution system was less than 0.30 mg/L. The difference is a result of tuberculation in the unlined pipes and sediments that have accumulated over many years of supplying unfiltered water. The continued spring and fall flushing of the distribution system has already begun to show a benefit as the average turbidity in the distribution system is down 0.10 NTU from last year.

The HWWCo completed another round of lead and copper sampling during the fall of 2009, and I am pleased to report the results indicated more than 90% of the samples were within the federal action limits. This would indicate the current corrosion control techniques are working and the lead and copper leaching is being minimized. Because this was the second consecutive round to be within the 90th percentile for both lead and copper, the frequency of the sampling has been reduced to once per year and the number of required samples has also been reduced to 20 from 40. This is a significant savings to HWWCo in sampling and labor costs but, more importantly, indicates the treatment techniques are providing the consumer with a safer product.

The new filtration facility and its proven performance have sparked an interest in substituting tap water for bottle water. As more and more is learned about the adverse effects of plastic bottles and bottled water, it makes sense to give the Hanover water a try. There is some real monetary benefit as well as indicated in the calculations below.

Current rate for water = $2.552 per 100 cubic feet. 1 cubic foot of water = 7.5 gals. Then 100 cubic feet (cf) = 750 gallons; $2.552 / 750 gals = $0.003/gallon or 293 gallons for $1.00

This is a strong argument to use tap water rather than bottled water. Look for future reusable bottle programs through local vendors. We at the HWWCo feel you will be delightfully surprised at the fresh clean taste and the sparkle of the water.

TURBIDITY DOCUMENT

Turbidity is a measure of the cloudiness of the water. It is used as an indicator of the quality of water and the potential for interference with disinfection. In addition, the sediments that cause turbidity can also add to taste, odor and color problems in the water. By monitoring the level of turbidity on a continual basis, it is possible to establish times that high turbidity levels can be expected, such as during the spring and fall of the year. Then, if a sustained high level occurs at an unexpected time, corrective actions can be started. This may include looking for unusual uses in the watershed or other unauthorized action in or around the watershed area that may need to be terminated or have corrective actions implemented.

To report Emergencies: Monday through Friday 8:00 A.M. to 4:00 P.M., Contact HWWCo at (603) 643-3439.
After hours, weekends and holidays, contact Hanover Dispatch at (603) 643-2222.

Hanover Water Works Company is owned jointly by Dartmouth College (52.8%) and the Town of Hanover (47.2%) as a private utility regulated by the Public Utility Commission (PUC). A Board of Directors appointed by the Owners governs the Company. The Company is operated and managed by the Town of Hanover.

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Hanover Water Works Company
Serving the Town of Hanover, NH
Annual Water Quality Report for the Year 2009

Is my drinking water safe?

We are pleased to report that our drinking water is safe and meets federal and state requirements. Since October 2006, major changes have occurred to the methods which HWWCo uses to treat your drinking water with the addition of a new membrane filtration facility. The undesirable aesthetic quality of the water experienced in the past has been corrected since the membrane filtration facility has been in operation. HWWCo strives to provide the best drinking water of any utility in New Hampshire to its customers.

Membrane Filtration Unit

Dr. William E. Boyle Water Treatment Facility

Hanover Water Works Company (HWWCo) obtains surface water from three reservoirs located in an area to the east of down town. Fletcher Reservoir, the lowest one, was constructed in 1893 and has a capacity of 205 million gallons. In 1924, a second reservoir was added off of Trescott Road. This reservoir has a maximum storage capacity of 200 million gallons. Hanover Water Works Company owns and manages the entire contributing watershed of these two reservoirs. A third reservoir, located off of Hanover Center Road was added in 1962 with a capacity of 100 million gallons. Annual sanitary inspections are performed to ensure uses within the watershed are consistent with a drinking water supply. The total storage of all reservoirs is 505 million gallons. In October 2006, the new Dr. William E. Boyle Water Treatment Facility was put on line.

How can I get involved?

If you have any questions regarding this water quality report, please contact Mr. Peter Kulbacki, General Manager, Hanover Water Works Company at 643-3439 or Mr. John F. Dumas, Water Treatment Division Superintendent at 640-3238. The Board of Directors meets regularly; you may obtain information regarding meeting dates by contacting Ms. Terry Jillson at 643-3439.

Why are there contaminants in my water?

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (1-800-426-4791).

General Information regarding Hanover Water Works Company:

The success of the Dr. William E. Boyle Water Treatment Facility for treating the water for the community has been noted by many through the absence of taste, odor and color, especially during the fall and spring reservoir rollover periods. The HWWCo is confident this facility will meet or exceed all federal and state requirements for many years.

The Hanover Water Works Company operates and maintains two pumping stations and four storage tanks. Balch Hill pumping station is now housed at the new water filtration facility and the storage tank is located on Balch Hill. The second pumping station is located on Route 120 and the storage tank is located off Greensboro Road. These facilities help to provide water to the consumer at adequate supply and pressure in the higher elevations on the South and North ends of town. The third tank is located off Route 120 behind the Greensboro Road pump station. This tank is used to provide additional storage and supply to supplement the daily water demand of the community. This tank allows the water treatment facility to run at a more constant rate rather than the up and down demands of the various times of day. A fourth tank was added in conjunction with the construction of the new water facility in 2006. This tank is used as a storage vessel capable of holding one million gallons of water. This provides a large buffer in the event of large instantaneous demands such as a large fire or to keep up with high summer demands.

The Hanover Water Works Company serves 1850 metered customers. This includes multi-family residences, industries, institutional and commercial users. The average daily flow for the past year was 0.979 million gallons per day.

The water is treated with several chemicals prior to entering the distribution system. Sodium Fluoride is added to help promote strong teeth and bones. Sodium Bicarbonate (Baking Soda) is added as a corrosion inhibitor. The Baking Soda raises the pH of the water and adds a buffer, making the water less corrosive. This helps to prevent leaching of lead and copper from household plumbing. Poly - Ortho Phosphate is added to aid in the corrosion inhibiting process. The Ortho phosphate produces a microscopic film on the inside of the pipes to prevent contact between the pipes and the water. Sodium Hypochlorite is used to disinfect the water prior to entering the distribution system. The sodium hypochlorite provides a further degree of treatment eliminating any remaining bacteria and viruses that may be present in the water making the water safe for human consumption. Sodium hypochlorite is not harmful to humans in the dosages used to treat the potable water supply.

Filter Room at Water Treatment Facility

Do I need to take special precautions?
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 microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

Definitions: MCLG: Maximum Contaminant Level Goal, or 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. • MCL: Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. They are set as close to the MCLGs as feasible using the best available treatment technology • AL: Action Level, or the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow. • TT: Treatment Technique or a required process intended to reduce the level of a contaminant in drinking water. MRDLG: Maximum residual disinfectant level goal or the level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants. MRDL: Maximum Residual Disinfectant Level or the highest level of a disinfectant allowed in drinking water. There is convincing evidence that the addition of a disinfectant is necessary for control of microbial contaminants.

TEST RESULTS

Contaminant	Violation Yes/No	Level Detected/ Range Detected	Unit of Measure	MCL	MCLG	Likely Source of Contamination
Total Coli forms	No	Absent	Present/Absent	Absent	0	Naturally present in the environment
Fecal	No	Absent	Present/ Absent	Absent	0	Human and animal waste
E-Coli	No	Absent	Present /Absent	Absent	0	Human and animal waste
Turbidity	No	0.01 – 1.42	NTU	TT	N/A	Soil runoff, erosion of natural deposits
Fluoride	No	0.0 – 1.4	mg/L (ppm)	4	4	Water additive which promotes strong teeth, discharge from aluminum factories and fertilizers
Nitrate	No	<0.500	mg/L (ppm)	10	10	Runoff from fertilizer use, leaching from septic tanks
Lead	Yes	< 0.001 – 0.018	mg/L (ppm)	0.015	0.0	Corrosion of household plumbing systems, erosion of natural deposits

Abbreviations: ppt: parts per trillion • ppb: parts per billion • ppm: parts per million • N/A: not applicable • NTU: Nephelometric Turbidity Unit • MFL: million fibers per liter • nd: not detectable at testing limits * pci/l: pico curies per liter, a measurement of radioactivity.

Health Effects Information:

Total Coliforms - Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present.

Fecal coliforms/E.Coli - Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.

Turbidity - Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

Lead and Copper –To be in compliance with the lead and copper rule, no more than 10% of the total sites sampled can have results higher than 0.015 mg/L of lead or 1.3 mg/L of copper. For HWWCo, this means we are allowed 4 sites with results above the action limits for each contaminant. The first round of samples taken in 2009 indicated only two sites failed to meet the action limit for lead (<0.015mg/L) and all 40 sites met the action limit for copper (< 1.3 mg/L). The second round done in September of 2008 also indicated only 2 of the 40 sites returning values higher than the lead action limit and no sites with results greater than the action limit for copper. The successful completion of two consecutive rounds of sampling is very good news for HWWCo. First, this indicates we are successful with our corrosion control treatment, the sampling frequency has been reduced to once per year and the number of sites has been reduced to 20. The reduction in frequency and number of sample sites will be economically beneficial for the HWWCo.
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. It is recommended by the EPA and DES that you flush your tap for 30 seconds to 2 minutes (save the water to irrigate your plants) before using tap water for consumption. Additional information is available from the Safe Drinking Water Hotline (800-426-4791).

ADDITIONAL INFORMATION

Backflow Prevention Device Information
During 2008 a notice was put into a quarterly newsletter informing our customers of the requirement for backflow prevention devices. At that time, we had asked all customers of the HWWCo, residential, commercial and industrial to contact us to make an appointment for an inspection to determine if a backflow device was in place. Some folks responded and asked for an inspection. We noted that some homes already had the backflow device. When we found that no backflow device was in place, the homeowner was instructed on the next steps to be taken to comply including the type of device required and to contact the HWWCo for a confirmation inspection upon completion of installation. If no follow up inspection was performed, it is our assumption that the backflow device was not installed. Therefore, the customer continues to be non compliant with state and local regulation. The installation of this device provides protection to both the homeowner and the other consumers in the distribution system. It is very important to have this done as soon as possible. The local plumbers are familiar with the requirement and can install the proper device. The HWWCo must be contacted to perform a final inspection after the device is installed. Remember - proper backflow prevention is required for your protection and by state and local regulations.

SOC and VOC Information
The Hanover Water Works Company has been operating under a waiver for Synthetic Organic Compounds (SOC) and Volatile Organic Compounds (VOC) sampling since May 1994. The waiver was granted because it was demonstrated through several consecutive rounds of testing that neither contaminant met or exceeded the MCL. Therefore, there was no reason to suspect any occurrence of the contaminants provided conditions remain stable. As a precautionary measure, the SOC waiver is for six (6) years and VOC waiver is for three (3) years. Sampling for VOC occurs each renewal cycle and sampling for SOC occurs every other renewal cycle. Both SOC and VOC were tested in 2007. All sample results showed VOC & SOC are below the detectable limits of the laboratory testing equipment. This means the levels are very low and not harmful, if in fact, they exist. The next renewal date is April 1, 2010. Any questions regarding the waivers or the renewals should be directed to Mr. Peter Kulbacki, General Manager of Hanover Water Works Company.

Additional Testing Information
In our continued efforts to ensure the consumer a clean and safe product, the Hanover Water Works Company does additional testing outside the DES requirements. This includes a monthly in-house sampling at the dedicated sampling sites throughout the Town for 11 parameters including pH, iron, manganese, free chlorine residual, total dissolved solids, hardness, alkalinity, phosphorus and turbidity. This sampling is in addition to the required monthly sampling for compliance and is performed as a check on the conditions in the system. Chlorine Residual is measured on a continual basis prior to entering the distribution system. A daily bench test is performed to confirm the readings of the constant monitoring instruments. We have also tested for inorganic contaminants such as cyanide, arsenic, cadmium, mercury, sodium, zinc, etc. The results of this analysis were all below the MCLs.
The source water was tested in 2002 for both Giardia and Cryptosporidium and neither was found to be present in our water. This is good news for the consumer as treating for these contaminants using past treatment techniques is difficult and unreliable. However, the new membrane technology provides a positive barrier that does not allow the oocyts and spores to pass through. There is always a danger of these contaminants being present in an open reservoir source but the physical characteristics of the membranes and the built in safe guards that protect against an inadvertent breach will provide safe water.
During 2003, samples were obtained from the source water and the finished water for radionuclides. The result of the analysis of these samples indicates the levels to be well below the action limits. As a result, we do not anticipate any further sampling for this contaminant. These results are available upon request at the Hanover Water Works Company.

New Membrane Filtration Facility Information
October 2010 will mark the fourth year of operation of the Dr. William E. Boyle Water Treatment Facility. During this time, we have seen dramatic improvements in the quality of the drinking water both in taste and aesthetics. Unlike the days prior to the treatment facility, there were no violations for turbidity or coliform and no complaints of "fishy" smelling or yellow colored water especially during the spring and fall rollover periods. The filtering equipment and the computer control system continue to produce a high quality drinking water with minimal involvement from the operators at all times of the year. As we move forward, we expect the quality of the water to improve as we continue to perform the annual maintenance to the distribution system. The semi-annual flushing of the system seems to have the greatest impact on the quality of the water to the consumer. Each flushing removes some of the sediments from the pipes that have accumulated over many years and the effects of the flushing last longer, and provide fresher taste and clearer water. If you still have not tried the new Hanover water due to past bad experiences, we strongly encourage you to sample some; we think you will be pleasantly surprised.
We invite you to schedule a tour of the new Dr. William E. Boyle Water Treatment Facility. Please contact John F. Dumas at 640–3238 for an appointment between the hours of 7:00 AM – 3:30 PM, Monday through Friday.