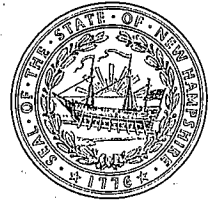




The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Thomas S. Burack, Commissioner

December 15, 2009

Board of Water Commissioners
PO Box 900
Franconia NH 03580

Subject: PWS Franconia, Mittersill Water Dept. (0841020)
Sanitary Survey 7/28/09

Dear Members of the Board:

The writer visited the Mittersill Water Department on July 28, 2009 to conduct a sanitary survey. The purpose of the survey was to review the capacity of the system's source, treatment, distribution and management to continuously produce safe drinking water. I appreciate the assistance of operator Terry Welch for his assistance in conducting this survey.

REPORT SUMMARY

This water system has maintained a clean record for bacterial water quality and is in compliance with current standards, including lead and copper which is monitored at customers' taps.

However, this report notes several structural deficiencies detailed later in this letter:

1. The ongoing engineering study of this system should include:
 - Means to bypass and preferably eliminate the intermediate storage tank and below-grade pumping station.
 - The piping should be assessed for leakage and structural integrity so that a priority list for replacement can be developed.
 - The best hydraulic means to bring the new well into the network via appropriate up-sized piping.
 - System controls and alarms need to be upgraded.
2. There needs to be a better distribution system map available in case of emergency, especially if the operator is not immediately available
3. The primary operator needs to supervise and keep records on all system maintenance.
4. The bedrock wells at the edge of the ski slope need to be better protected, especially if the ski slope is restored. There is a state grant program which will pay for fences and other protection.
5. We urge the system managers to perform wellhead protection which will allow you to qualify for chemical monitoring waivers, which can save significantly on the cost of water quality monitoring.

FACILITIES DESCRIPTION

The Mittersill water system serves an estimated 112 residential customers plus the Mittersill Inn located at the base of the Mittersill ski area. Most of the water use is seasonal in nature and averages 11,000 to 15,000 gallons per day (gpd), with peaks as high as 40,000 gpd.

Water is currently supplied by two bedrock wells located adjacent to a ski slope significantly upslope from the customers. Wells 1 and 2 reportedly supply water at 18 gpm and 30 gpm, respectively. The wells operate simultaneously to fill an intermediate storage tank which is

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constructed with a truss roof and located on the opposite side of the ski slope. An adjacent below-grade pumping chamber houses dual Grundfos booster pumps and equipment for injection of sodium hypochlorite. This chamber also houses a pressure switch and timer for cycling of the booster pumps. Water from this chamber is pumped cross-country to a 200,000-gallon concrete storage tank which provides pressure for distribution and customers. There are no alarms on the system to alert the operator of system malfunction.

Distribution piping is generally of small diameter cast iron, ductile iron and asbestos cement and was largely constructed in the 1940s. There are five fire hydrants on the network, but fire-fighting capability of the system is unknown. Location of much of the piping has not been ascertained, and mapping available to the operator is cursory at best. There is reportedly a pressure reducing valve near the Inn which creates a separate low elevation pressure zone. Service connections are copper or polyethylene plastic. Water meters have reportedly been installed recently on all service connections.

STAFFING AND CERTIFIED OPERATOR VERIFICATION

The Mittersill water system is required to retain an operator certified at the grade 1 treatment and grade 1 distribution level. The following certified operators are listed:

Operator	Certificate No.	Treatment Level	Distribution Level
Terry Welch	1258	2	2

ISSUES AND RECOMMENDATIONS

Acknowledgments

The following are among the positive features which were noted during this survey and for which we commend the Town:

1. Individuals interviewed as part of this survey are competent and professional in the operation and maintenance of the water system.
2. Water quality monitoring records show that the system is in compliance with current standards, including lead and copper which is monitored at customers' taps.

System Deficiencies/ Recommendations

No deficiencies were noted in this survey which pose and immediate risk to health. However, the system is antiquated and seriously in need of upgrading to improve system reliability. Some specific points follow:

1. I understand that the Water Commissioners has retained an engineer to prepare a preliminary engineering report on the water system. Given the condition of this system, it is hoped that this study will take a comprehensive look at source, distribution and storage facilities and prepare a list of priorities for system improvements. This study is well-timed as I understand that plans are underway to restore the old Mittersill ski area and that the ski slope near the active wells and intermediate tank will be returned to service. Based on this survey, it is hoped that the following items will be included in the engineering study:

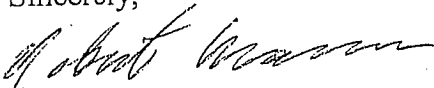
- The intermediate tank and below-grade pumping station are obviously in a poor location if this were to be an active ski slope. In addition, the truss roof over the tank shows some open gaps and is difficult to seal to exclude animals. We urge the Commissioners to follow through with plans to simplify and upgrade the system. One obvious improvement would be to re-pipe the wells directly to the higher elevation 200,000-gallon storage tank and eliminate the intermediate tank and pumping station. This improvement is especially important because the below-grade chamber with the chlorine feed pumps and meter is very remote and has a dangerous entrance, especially hazardous in icy weather.
 - The distribution system is largely of unknown materials and location. The piping should be assessed for leakage and structural integrity so that a priority list for replacement can be developed.
 - A new bedrock well was developed near Tucker Brook at the extreme lower end of the distribution network. Although some of the water conservation measures required under the well approval remain to be completed, the study should examine the best hydraulic means to bring this well into the network via appropriate up-sized piping.
 - System controls and alarms are cursory at best. Although the operator visits this system daily, there needs to be alarms to alert the operator of power outage, low tank level, and other problems. I understand that a SCADA system may be installed as part of the Franconia 'Village' project, and alarms for the Mittersill area should be added to that.
2. Records are severely lacking on the location and materials of the distribution system. There needs to be a better distribution system map available in case of emergency, especially if the operator is not immediately available. The map should include accurate pipe, service and valve locations, and should be accessible in case of emergency. This map should be updated as improvements and repairs are made.
 3. The primary operator indicates that it is not clear whether, or when, system flushing and other distribution maintenance is being performed. We alert the system managers that the primary operator is responsible for these duties and for keeping records on all system maintenance. Work done by others on the system must be performed with the knowledge of, and under the supervision of, the primary operator. Attached is a list of duties to be performed by or overseen by the primary operator. As he/she is responsible for water quality and system integrity, all maintenance must be done by or under the responsible charge of this individual.
 4. The bedrock wells at the edge of the ski slope need to be better protected, especially if the ski slope is restored. There is a grant program which will pay for fences and other protection. Note that grant applications are generally due in November each year for the Source Protection Grants. Here is a link to that program:
http://des.nh.gov/organization/divisions/water/dwgb/dwspplswp_grants.htm
 5. Wellhead protection, minimizing the likelihood that contaminated groundwater reaches your well, is an important responsibility for every public water system. Wellhead protection is far less costly than treating contaminated water or replacing a well. DES recommends that you continue to implement your wellhead protection program in order to qualify for a money-saving chemical monitoring waiver, and consider additional wellhead protection measures.

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DES provides a variety of guidance materials as well as grant programs for source protection and land protection to assist public water systems in this respect. We also urge you to perform wellhead protection which will allow you to qualify for chemical monitoring waivers, which can save significantly on the cost of water quality monitoring. Please contact DES's Drinking Water Source Protection Program at 271-7061.

I can be reached at 271-2953 or at Robert.Mann@des.nh.gov if there are any questions about this letter.

Sincerely,



Robert Mann, P.E.
NHDES Drinking Water & Groundwater Bureau

cc. Board of Selectmen; Terry Welch