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GEOSPHERE
ENVIRONMENTAL MANAGEMENT INC.

51 Portsmouth Avenue, Exeter, NH 03833
tel: 603-773-0075 *fax*: 603-773-0077
www.geospherenh.com

MEMORANDUM OF TRANSMITTAL

DATE: 12/1/2010
PROJECT: 08204

TO: Mr. Derek Bennett
NHDES-DWGB
P.O. Box 95
Concord, NH 03302

RE: Town of Epping Water and Sewer Dept.
Revised Water Conservation Plan
Hoar Pond Well No. 3
Epping, NH

CC: Dennis Koch, Town of Epping Water and Sewer Dept., 157 Main St., Epping, NH 03042
Cliff Sinnott, Rockingham Planning Commission, 156 Water St., Exeter, NH 03833
Karen Falcone, Epping Board of Selectmen, Town Hall 157 Main St., Epping, NH 03042

ENCLOSED – THE FOLLOWING:

COPIES	DATE	DESCRIPTION
1	12/1/2010	Revised Proposed Water Conservation Plan Epping Water and Sewer Department

REMARKS:

Enclosed please find the Revised Proposed Water Conservation Plan for the Epping Water and Sewer Department. This enclosure has been sent to the Rockingham Planning Commission and the Epping Board of Selectmen via certified mail. Return receipts will be forward to you when returned. A copy was also sent to the Epping Water and Sewer Department. Please feel free to contact me with any questions.

Abigail Thompson
Submitted By

GEOSPHERE
ENVIRONMENTAL MANAGEMENT INC.

December 1, 2010

Derek S. Bennett
Water Use and Conservation
Drinking Water and Groundwater Bureau
New Hampshire Department of Environmental Services
29 Hazen Drive, PO Box 95
Concord, NH 03302-0095

Re: Revised Proposed Water Conservation Plan
Town of Epping Water and Sewer Department

Dear Mr. Bennett:

Geosphere Environmental Management, Inc. (GEOSPHERE) on behalf of the Epping Water and Sewer Department has prepared this Revised Proposed Water Conservation Plan for the proposed Large Groundwater Withdrawal identified as Hoar Pond Well No. 3 (*Attachment A*). A previous Proposed Water Conservation Plan was submitted to the New Hampshire Department of Environmental Services on November 7th, 2008. This submittal has been prepared to clarify actions currently taken or proposed to be implemented by the Epping Water and Sewer Department in accordance with the New Hampshire Department of Environmental Services (NHDES) Administrative Rules (rules) Env-Ws 390.05 and the subsequent Env-Wq 2101.05 Water Conservation Rules – Requirements for Existing Large Community Water Systems.

As required by Env-Wq 2101.11, a copy of the Revised Proposed Conservation Plan and the NH DES prepared summary of Env-Wq 2101 rules (*Attachment B*) has be sent via certified mail to the governing board of the Town of Epping and the Rockingham Regional Planning Commission for review and to promote water conservation practices within the service area and neighboring towns of the new water system.

Sincerely,
GEOSPHERE ENVIRONMENTAL MANAGEMENT, INC.

Raymond W. Talkington, Ph.D., P.G., LSP
Principal Hydrogeologist

Abigail Thompson
Project Hydrogeologist

Cc: Karen Falcone, Epping Board of Selectmen, Town Hall, Epping, NH 03042
Cliff Sinnott, RPC, 156 Water St., Exeter, NH 03833
Dennis Koch, Town of Epping Water and Sewer Dept., 157 Main St., Epping, NH 03042

51 PORTSMOUTH AVENUE, EXETER, NEW HAMPSHIRE 03833
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Attachment A

Revised Proposed Water Conservation Plan

SYSTEM DESCRIPTION/DESCRIPTION OF NEED

The Town of Epping Water and Sewer Department (EWSD) currently has 3 bedrock wells to supply water to its municipal water users; #503 Fremont Well, #504 Hoar Pond Well No. 1, and # 505 Hoar Pond Well No. 2. The system has 420 connections that supplies water to a population of 1,050 residents.

In recent years, rapid development has occurred in the town along the Routes 125 and 27 corridors. New development, coupled with population growth has led to increased demand on the system. They are unable to buy water from nearby towns of Brentwood and Exeter. It is anticipated that demand will continue to rise as the population in Epping increases. A new source will be needed to maintain supply to an increasing number of municipal water users. The average existing use is 0.110 mgd. During times of peak demand, water use goes up to 0.160 mgd. It is anticipated that in the next 10 years the average daily demand will be 0.220 mgd and during peak demand, the average withdrawal rate may be as high as 0.350 mgd. Typically the wells are pumped 13-15 hours per day however during peak demand in summer the wells may be pumped longer. The town reduces stress from peak demand by storing water in 2 elevated tanks. One tank has a 300,000 gallon storage capacity, the other tank has 200,000 gallon storage capacity.

This Water Conservation Plan is made in accordance with New Hampshire Department of Environmental Services (NHDES) Administrative Rules (rules) Env-Ws 390.05 and the subsequent Env-Wq 2101.05 Water Conservation Rules – Requirements for Existing Large Community Water Systems.

TOWN OF EPPING WATER AND SEWER DEPT. WATER CONSERVATION PLAN

Env-Wq 2101.05 Requirements for Existing Large Community Water Systems.

A. An existing large community water system shall implement the measures described in this section.

B. Each large community water system shall install water meters within 3 years of obtaining approval for a new source of water that is subject to RSA 485:3 for all of the following:

1. Public sector water users except firefighting;
2. Private water users; and
3. All sources of water.

Epping Water and Sewer Department currently meters all customers and all sources.

C. The water system shall size the water meters required by (**B**), above, in accordance with the specifications of the manufacturer.

All meters are sized in accordance with the specifications of the manufacturer

D. In selecting, installing, and maintaining water meters, the water system shall comply with procedures and protocols described in "Manual of Water Supply Practices, Water Meters-Selection, Installation, Testing, and Maintenance," document identification number AWWA M6, American Water Works Association, 1999.

All meters are selected, installed, and maintained with the procedures and protocols described in "Manual of Water Supply Practices, Water Meters- Selection, Installation, Testing, and Maintenance" document identification number AWWA M6 American Water Works Association, 1999. Epping Water and Sewer Department will test and calibrate all source meters on an annual basis. Epping Water and Sewer Department has implemented a replacement program for service meters, replacing 5-10% of service meters a year, as well as any others in need of replacement.

E. The water system shall read the water meters required by **(B)(1)** and **(2),** above, at least once every 90 days.

Epping Water and Sewer Department currently reads all private water user meters and all public sector meters on a quarterly basis and will continue to do so.

F. The water system shall read the water meters required by **(B)(3),** above, at least once every 30 days.

Epping Water and Sewer Department currently reads all water source meters on a daily basis and will continue to do so.

G. The water system shall implement a water audit and leak detection program in Accordance with "Manual of Water Supply Practices, Water Audits and Leak Detection" document identification number AWWA M36, American Water Works Association, 1999, within one year of obtaining approval for a new source of water.

Epping Water and Sewer Department will use a qualified subcontractor to conduct their water audit and leak detection program in accordance with the "Manual of Water Supply Practices, Water Audits and Leak Detection" document identification number AWWA M36, American Water Works Association, 1999. Beginning in 2011, Epping Water and Sewer Department will implement a program to check for leaks within the distribution system. This program will involve a 20% system leak detection check per year. Therefore, every five years the complete distribution system will have been surveyed for leaks.

H. The water system shall repair all leaks identified by the activities required by **(G)** within 60 days of discovery unless a waiver is obtained in accordance with **Env-Ws 390.09.**

Epping Water and Sewer Department will repair all leaks discovered during water audits and leak detection within 60 days.

I. The water system shall estimate the volume and percentage of unaccounted-for water in the water system once every year using protocols and procedures described in Manual of Water Supply Practices, Water Audits and Leak Detection" document identification number AWWA M36, American Water Works Association, 1999.

Epping Water and Sewer Department will continue to use a qualified subcontractor to estimate the volume and percentage of unaccounted-for water using protocols and procedures described in "Manual of Water Supply Practices, Water Audits and Leak Detection" document identification number AWWA M36, American Water Works Association, 1999. It is estimated that Epping Water and Sewer Department had approximately 9% of unaccounted for water in 2009. In 2009 the source meters registered approximately 44 million gallons of groundwater withdrawn, the net of all service meters registered approximately 40 million gallons of water used.

J. The water system shall prepare and submit a response plan to the department within 60 days if the percentage of unaccounted-for water in the water system calculated pursuant to **(I)**, above, exceeds 15% of the total volume of water introduced to the water system.

Epping Water and Sewer Department will submit a response plan to NH DES within 60 days if the percentage of unaccounted-for water in the system exceeds 15%.

K. The response plan prepared in accordance with **(J),** above, shall identify how the water system intends to reduce the percentage of unaccounted-for water to below 15% within 2 years, except for leaks that have been identified which must be repaired in accordance with paragraph **(H).**

The response plan will identify actions the Epping Water and Sewer Department will take to reduce the percentage of unaccounted-for water to below 15% within 2 years, excluding the repair of leaks identified during leak detection.

L. The department shall approve the response plan within 90 days if it contains recommended actions that comply with the requirements specified in **(K),** above.

M. The water system shall implement the response plan in accordance with the approved schedule upon receiving approval from the department.

Upon approval from the NH DES, Epping Water and Sewer Department will implement the response plan in accordance with the approved schedule.

N. The water system shall implement pressure reduction within one year of obtaining approval of a new source of water when:

1. Technically feasible;
2. Consistent with water system industry standards and regulations; and
3. Consistent with other public health and safety considerations.

At this time, the water system has pressures of 70 psi and lower. Reducing pressures even more may threaten fire flow in certain areas of the system. It is not technically feasible to reduce pressures anywhere in the system within one year of obtaining approval of a new source.

O. The water system shall adopt a rate structure that promotes water conservation within 5 years of obtaining approval for a new source of water, as described below:

1. The rate structure shall be based on:
   a. A unit price of water; and
   b. The amount of water used by each connection to the water system; and

2. The unit price of water for residential customers shall:
   a. Remain the same; or
   b. Increase with the volume of water consumed.

Currently, the Epping Water and Sewer Department's water rate structure is based on metered water consumption using inverted block rates. The Epping Water and Sewer Department will continue to evaluate rate structures for effectiveness in promoting water conservation.

P. The water system shall complete a water conservation educational outreach initiative using materials prepared by the department as follows:

1. The water system shall implement the applicable public notification and outreach requirements to municipal governments within its service area in accordance with **Env-Wq 2101.11**; and

Epping Water and Sewer Department will implement public notification and outreach to the Town of Epping municipal government within the Epping Water and Sewer Department service area in accordance with Env-Ws 390.11.

2. The water system shall implement an educational outreach initiative for its customers to promote water conservation immediately upon obtaining approval for the new source.

The Epping Water and Sewer Department currently implements a variety of water conservation efforts to reduce demand. On a yearly basis, Epping Water and Sewer Department includes the NH DES-prepared water conservation educational materials in water bills that are mailed to water users. In addition, the Epping Board of Water Commissioners regularly holds meetings with the public to educate water users on water

conservation issues, particularly lawn watering. The Epping Water Commission also posts notices in the local newspaper that discuss water conservation. Conservation issues are also discussed during the monthly-televised water and sewer commission meeting. Water efficiency efforts are also being undertaken by other departments in the town to reduce consumption. The planning board is requiring all new construction utilize water-conserving low-flow fixtures, these fixtures are required to have an energy star rating for water consumption. All proposed irrigation systems must be designed by a certified installer. All irrigation plans are reviewed for uniformity and conservation (e.g. rain sensors are required) prior to being approved by the Epping Water Commission. The Epping Water and Sewer Department intends to continue these efforts to promote water conservation after obtaining approval for the new source.

Q. Activities completed in accordance with **(B)** through **(P),** above, shall be completed by water system personnel under the supervision of a certified operator pursuant to **Env-Ws 367.**

The water conservation activities described in **(B)** through **(P)** will be completed by water system personnel under the supervision of a certified operator pursuant to Env-Ws 367.

Attachment B

Summary of Env-Wq 2101

-Water Conservation Rules-
Env-Wq 2101 (formerly Env-Ws 390)

Applicants applying for permits to develop new sources of water need to be aware that they are subject to new water conservation requirements required by RSA 485.61 which became law in July 2002. The law requires that the Department of Environmental Services (Department) adopt and administer water conservation rules for applicants developing the following type of new water sources:

1. New sources of groundwater for community water systems subject to RSA 485:3;

2. New sources of groundwater for bottled and bulk water operations subject to RSA 485:3;

3. New sources of groundwater that exceed 57,600 gallons over any 24-hour period subject to RSA 485-C; and

4. New sources of surface water associated with projects that require a water quality certification pursuant to Section 401 of the Federal Clean Water Act.

The Department met with an advisory committee consisting of representatives of municipalities, community water systems, environmental organizations, and business and industry to develop the water conservation rules. The rules were formally adopted by the Department in May 2005.

A general summary of the requirements of the water conservation rules is provided below.

Requirements for All Large Community Water Systems and All New Small Community Water Systems Developing New Sources of Water

1. Install and maintain meters for all water withdrawals and service connections.

2. Implement a water audit, leak detection and leak repair program in accordance with the "Manual of Water Supply Practices, Water Audits and Leak Detection", document identification number AWWA M36, American Water Works Association, 1999.

3. When applicable, development and implementation of response plans to reduce unaccounted for water to less than 15%.

4. Implement a rate structure that encourages efficient water use.

5. Implement a water conservation educational outreach initiative.

Requirements for Existing Small Community Water Systems Developing New Sources of Water

1. Either: a) Install source and service connection meters and implement a water audit, leak detection and leak repair program in accordance with the "Manual of Water Supply Practices, Water Audits and Leak Detection", document identification number AWWA M36, American Water Works Association, 1999; **or** b) Complete a system-wide leak detection once every two years.

2. Repair all leaks within 60 days of identification.

3. Implement a water conservation educational outreach initiative.

Requirements for Applicants Developing New Sources of Water for Industrial, Commercial, or Institutional Water Uses

1. Install water meters for all water sources.

2. Retrofit or replace single pass water-cooling systems when feasible based upon an economic analysis that includes a four-year payback period.

3. Install controls to stop the overflow or discharge of water to waste when feasible based upon an economic analysis that includes a four-year payback period.

4. Identify water conservation best management practices or best available technologies that may be applicable to the types of water-using processes at the subject facility, and implement these measures when feasible based upon an economic analysis that includes a four-year payback period.

5. For all new lawn areas, install six (6) inches of loam and devices to shut-off automatic irrigation systems when not needed.

For more information about the water conservation rules, contact Derek Bennett at 271-6685 or derek.bennett@des.nh.gov.

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- Print your name and address on the reverse so that we can return the card to you.
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1. Article Addressed to:

Karen Falcone
Epping Board of Selectman
157 Main Street
Epping, NH 03042

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Joyce A Blanchard ☐ Agent ☐ Addressee

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Joyce A Blanchard 12-2-10

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City, State, ZIP+4 Exeter NH 03833

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Sent To Karen Falcone, Epping Board of Selectman
Street, Apt. No.; or PO Box No. 157 Main Street
City, State, ZIP+4 Epping NH 03042

PS Form 3800, August 2006 See Reverse for Instructions

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1. Article Addressed to:

Cliff Sinnott
Rockingham Planning Commission
156 Water Street
Exeter, NH 03833

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Roxanne M Bines ☒ Agent ☐ Addressee

B. Received by (Printed Name) C. Date of Delivery
Roxanne M Bines 12/2/10

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