



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Thomas S. Burack, Commissioner

WATER CONSERVATION PLAN APPROVAL

October 16, 2014

Cotton Farms MHP, LLC
c/o Kenneth Burnham
1080 Pittsford Victor Road Suite 202
Pittsford NY 14534

RE: Danville – Cotton Farms (PWS ID #: 0563030)
Water Conservation Plan, NHDES #

Dear Mr. Burnham:

On October 1, 2014, the New Hampshire Department of Environmental Services (“DES”) Drinking Water and Groundwater Bureau received a Water Conservation Plan (the “WCP”), signed on September 30, 2014 by George Degraça on behalf of Cotton Farms MHP, LLC, for the Cotton Farms water system located in Danville, New Hampshire. Pursuant to RSA 485:61 and Env-Wq 2101, community water systems seeking permits from DES for new sources of groundwater shall submit a water conservation plan to DES. Based on review of the WCP, DES has determined the WCP complies with Env-Wq 2101, *Water Conservation* rules.

Pursuant to Env-Wq 2101, the Town of Danville and the Rockingham Regional Planning Commission were provided a copy of the WCP, along with other required materials.

DES approves the WCP based on the following conditions:

1. No later than the source activation date, all source meters, distribution meters, meters measuring water consuming processes, and any transfer meters and data loggers shall be installed.
2. All meters shall be selected, sized, and installed per the manufacturer’s specifications and American Water Works Association standards.
3. No later than the source activation date, source meters shall be read monthly, but no sooner than 27 days and no later than 33 days from the last meter reading.
4. Continue reporting production volumes to the NHDES Water Use Registration and Reporting program on a quarterly basis.

5. Upon source activation, the meter testing and maintenance program shall be implemented in accordance with the schedule proposed in the WCP.
6. Within one year of obtaining final source approval, night flow analysis shall commence at a rate of twice a year, but no sooner than 173 days after and no later than 187 days after the prior analysis.
7. **By October 16, 2015**, submit to the DES Water Conservation Program the proposed baseline flow for night flow analysis and how baseline flow was determined based on that proposed in the WCP.
8. Within one year of final source approval, an outreach and education program shall be implemented as proposed in the WCP.
9. Within 5 business days of obtaining final source approval, contact any consecutive water systems or privately owned redistribution systems receiving water from this system and inform the system of the proposed source activation date as well as a statement indicating that upon source activation, they will also be required to comply with Env-Wq 2101.
10. From the date of this approval, all non-metallic pipes installed in the system shall be outfitted with detectable tracer tape or detectable tracer wire, or be GPS located and maintained in a GIS system.
11. Every three years from the date of this approval, a *Water Conservation Plan Ongoing Compliance Form* shall be submitted to DES documenting how the system has maintained compliance with the WCP. The following records shall be maintained by the water system to include with the report:
 - a. A leak log including the date a leak was discovered, the date a leak was repaired, the type of leak (ex. water main, service line, hydrant, valve), the approximate size of the leak (gpm), and the nearest address to the leak.
 - b. The title of water efficiency materials distributed and the date of distribution.
 - c. Date of installation and replacement of all meters and testing and calibration records.
 - d. Data from biannual night flow analysis and a brief summary of the analysis.
12. Proposed changes to the WCP shall not be implemented unless approved by DES.

The *Water Conservation Plan Ongoing Compliance Form* may be located by going to the DES website, www.des.nh.gov, clicking on the "A-Z List" in the top right corner of the page, and scrolling down to Water Conservation

Please feel free to contact me with any questions at (603) 271-0659 or via e-mail at stacey.herbold@des.nh.gov .

Sincerely,

A handwritten signature in black ink, appearing to read "Stacey Herbold". The signature is fluid and cursive, with the first name "Stacey" written in a larger, more prominent script than the last name "Herbold".

Stacey Herbold
Water Conservation Program
Drinking Water and Groundwater Bureau

cc: Steve Roy, NHDES
Christine Bowman, NHDES
James Tilley, NHDES
Charlie Lucas, Cotton Farms Park Manager
Charlie Lanza, Hampstead Area Water Services Co.
Board of Selectman, Town of Danville
Rockingham Regional Planning Commission

LD

Herbold, Stacey

From: Herbold, Stacey
Sent: Wednesday, December 23, 2015 10:59 AM
To: 'Charlie Lanza'; Michelle Drew
Cc: Vaughn, Kelsey
Subject: RE: Night Flow

Hi Charlie and Michelle,

I have reviewed the low flows. The lowest flow during the analysis was 1 gpm, although 2 gpm was a more consistent low flow and seems like a more appropriate baseline flow to compare future night flows to. Please consider 2 gpm as your baseline flow and attach this email and the analysis to your water conservation plan for future reference.

Please note that night flow analysis is required to be conducted twice a year and results submitted every three years with the ongoing compliance report as described in the WCP and WCP Approval.

Thank you.

Stacey Herbold
[Water Conservation Program](#)
[Water Use Registration and Reporting Program](#)
NHDES Drinking Water and Groundwater Bureau
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095
PH: (603) 271-6685
FAX: (603) 271-0656



It's a no brainer! WaterSense certified products, such as showerheads and toilets, save 20% more water than their similar counterparts and are guaranteed to perform as well or better.

From: Charlie Lanza [mailto:Charlie@HampsteadWater.com]
Sent: Tuesday, December 22, 2015 3:30 PM
To: Herbold, Stacey
Cc: Charlie Lucas; Michelle Drew
Subject: FW: Night Flow

Hi Stacey,

Attached are the night flow analysis results. The numbers are the actual real time reading on the mag meter from the "new" pump house on Mary Way.

Below is the description of the analysis and the first and last meter reading.

The meter reading done on 12/17/15 starting at 2 AM Charlie Lucas shut down Wesley street pump house to the main line so no water left the "old" well house and read the meter at the "new" well house on Mary way and the starting read for the "new" well house was 1249838 and the end reading was 1250133 totaling 295 gallons for the test time of 1 hour and reading the flow leaving the well house every minute.

Thank you,

Charlie Lanza , Project Manager
Hampstead Area Water Services, Co.
A Division of Lewis Builders Development, Inc.
54 Sawyer Avenue
Atkinson, NH 03811
Office: 603.362.1916
Cell: 603.560.3320
Fax: 603.362.4936
Web: www.nhwaterservices.com

From: Michelle Drew [mailto:michelled@kdmdevelopment.com]
Sent: Thursday, December 17, 2015 11:07 AM
To: Charlie Lucas; Charlie Lanza
Subject: Night Flow

Hi Charlie's,

The readings for the night flow report are attached. Please let me know if there's anything further needed.

Thank you,

Michelle Drew

*Administrative Coordinator at Cotton Farms MHP, LLC 603-382-8203 (office)
Fall/Winter Office Hours: Mon., Tues., Thurs. & Fri. 7:30 a.m. - 3:30 p.m.; Weds. 11:30 a.m. - 3:30 p.m.*

VISIT US AT: WWW.COTTONFARMSVILLAGE.COM



COTTON FARMS WATER
CONSERVATION PLAN

EPA ID: 0583030



Revised
9/24/2014

INTRODUCTION

The purpose of this document is to provide guidance on developing comprehensive water conservation plans for existing small community water systems and certain landlord owned water systems. A community water system seeking authorization for a new source of water must submit a water conservation plan to the New Hampshire Department of Environmental Services (DES) for approval demonstrating how the water system proposes to comply with water conservation standards pursuant to Env-Wq 2101, *Water Conservation* and specifically to Env-Wq 2101.06, *Requirements for Existing Small Community Water Systems and Certain Water Systems Owned by Landlords*.

To ensure an expedient review process, the conservation plan submitted to DES should include the information outlined below. While some information requested in this document is not explicitly required by rule, such information will assist DES with the review process and offer the water system exposure to additional tools which can be utilized to meet water efficiency goals. Also, Env-Wq 2101 references “Manual of Water Supply Practices M36, Water Audits and Leak Detection” (American Water Works Association [AWWA], 1999). AWWA has published a new version of this document titled “Manual of Water Supply Practices M36, Water Audits and Loss Control Programs” (AWWA, 2009). DES urges the use of the 2009 manual, as reflected in the following guidance materials.

CONSERVATION PLAN OUTLINE

(Note* Not all of the information requested below is required of new landlord owned systems. Items related to existing infrastructure, existing methods, and historical data is not applicable to new landlord owned system and should not be provided.)

I. Introduction

A. Contact Information

1. Name and location of system

Cotton Farms MHP Danville EPAID# 0563030

2. Owner of system and mailing address

Cotton Farms MHP, LLC

1080 Pittsford Victor Road Suite 202

Pittsford NY 14534

Owners Rep.

Charles Lucas, Park Manager

P.O. Box 748

East Hampstead NH 03826-0748

3. Name and mailing address of designer of the water conservation plan.

Charles Lanza, Project Manager

Hampstead Area Water Services, Co.

54 Sawyer Avenue

Atkinson, NH 03811

B. System Overview

Cotton Farms Mobile Home Park obtains its water from five simultaneously operating bedrock wells. Three of the wells are located around the Wesley Street Pump house while the other two wells are located around the Mary Street Pump house.

Wesley Street Pump house: Bedrock well 4 (006) is 505 feet deep and had a 15 gallon per minute original yield that has declined to about 4 gpm. Bedrock well 6 (008) is 805' and had an original yield of 30 GPM. This yield has declined to about 7 GPM. Bedrock well #7 (009) is 1005' and yields 6 GPM. Wells 4, 6, and 7 enter the Wesley st. pump house where the lines manifold. Sodium hypochlorite is injected prior to passing through greensand filtration for iron, manganese and arsenic removal. Water enters three interconnected 10,000 gallon atmospheric tanks. Two 5 h.p. booster pumps transfer water from atmospheric storage to a 6,160 gallon hydropneumatic storage tank. Treated water out of the Wesley Street pump house feeds the distribution system.

Mary Street Pump house: Bedrock well #8 (010) is 980 feet deep and yields 7 gallons per minute. Bedrock well #9 (011) is 1000 feet deep and yields 13 gallons per minute. Wells 8 and 9 enter the Mary street pump house and flow into two 5,000 gallon atmospheric tanks. Two 5 HP VFD booster pumps transfer water from atmospheric storage directly to distribution. There is currently no treatment located within the Mary Street Station.

Average water usage of the system is around 20,000 gallons per day. There are a total of 142 mobile homes and 16 apartments connected to the distribution and the water lines are interconnected between the Mary Street and Wesley Street pump house.

Reason for new source.

To increase source capacity

1. Number of connections existing and proposed for each of the following classes:

Residential; There are 142 mobile homes and 8 apartments

2. Description of any connections that currently receive or will receive more than 20,000 GPD

There are no connections that currently receive or will receive more than 20,000 GPD.

C. Water Use Trends and Supporting Data / Population Trends

1. Existing, if applicable, and anticipated seasonal fluctuation in water use and reason for fluctuation.

The existing trend has been 10-20% higher usage in the summer. This has been attributable to outside water usage. The park management has implemented certain restrictions during this period of time to try to keep usage consistent.

2. Anticipated growth in population and seasonal fluctuations in population.

There are no anticipated fluctuations in population

3. Maximum day yield of existing sources based on 24-hour pumping.

Approx. 43,200 gallons per day

4. Average daily water use.

20,000 gallons

Maximum daily water use

25,000 gallons

5. Minimum hourly flows (if available).

N/A

D. Source and Distribution Meters

1. Name designation of each water source.

Well	Meter Make	Meter Model	Meter Size (inches)	Year Installed	Last Tested	Test Rate
4	Neptune	T-10	1	2007	Manuf. Date	
5	Neptune	T-10	1	2012	Manuf. Date	
6	Neptune	T-10	1	2007	Manuf. Date	
7	Simmons	Magflow	2"	2008	Manuf. Date	
8	Simmons	Magflow	2"	2008	Manuf. Date	
Beatrice Bedrock Well	TBD	TBD	TBD	2014	Manuf. Date	
4,6, & 7 master	Sensus	Omni C	3"	2013	Manuf. Date	
8 & 9 master	Simmons	Magflow	2"	2008	Manuf. Date	

2. Meter make, model, size, flow range, and date of last calibration for each existing meter.

See the table above. The Wesley Street Pump House Distribution meter is brand new and was calibrated in May 2013. The Mary Street Pump House Distribution meter is due to be calibrated by 2015. Source meters are due for calibration and or replacement by 2015 as well.

3. Meter make, model, size, and flow range for each new water source (if known).

To Be Determined

4. Frequency that meters will be tested/calibrated.

Based on individual manufactures recommendation and in accordance with AWWA M-6 1999 recommendations and the table as shown below.

Meter Size (inches)	Testing Rate (yr)
<1"	10 yrs
1" - 2"	4 yrs
3"	2 yrs
>3"	1 yr

5. Frequency that meters will be read (at least every 30 days).

Daily

6. Statement that meters will be selected, installed, and maintained in compliance with “Manual of Water Supply Practices M6, Water Meters-Selection, Installation, Testing, and Maintenance,”(American Water Works Association, 1999).

Meters will be selected, installed, and maintained in compliance with “Manual of Water Supply Practices M6, Water Meters-Selection, Installation, Testing, and Maintenance,”(American Water Works Association, 1999)

II. System Side Management

A. Leak Detection

1. **Distribution system description:** The current water distribution system is comprised of a combination of 3” PVC and 2” black plastic (HDPE) pipes as main lines. Service lines are ¾” black plastic, most of which are at least 20 years old. We estimate that there are approximately 5300 feet of main line. The service lines are approximately 700 feet total. Pipe locations are known.

2. **Daily tracking of flows:** Daily meter readings of all source and distribution master meters will be used to detect any excessive water usage.

4. **Night Flow Methodology:**

Establishing Baseline Flow

- a. A low flow distribution meter will be used to measure low flows going into the system after storage and treatment.
- b. Baseline flow will be determined by asking all residents to refrain from using water between 1am and 3am, shutting down the distribution line out with a valve in either the Mary St. or Wesley pump house and carrying out step b using the

distribution meter in either the Mary St. or Wesley pump house. This will allow for either pump house to be utilized to create a “tight” system and eliminate the pressure tank, flows, etc. from the other end that may cause the results to be inaccurate. If flows do not equal zero, step g. and h. will be taken. Once any identified leaks are repaired and the system is tight, a nightflow analysis will again be conducted and the lowest flow will be considered baseline. The analysis and baseline flow will be submitted to DES for review.

Continuing Nightflow Methodology

- c. Night flow analysis will be conducted at least twice a year no sooner than 5 months apart.
- d. Water usage will be recorded every minute for one hour between 1 am and 3 am using a distribution meter. Prior to the night flow analysis, users of the system will be requested to refrain from using water between 1 am and 3 am on this date. (Nighttime flow analysis will be conducted prior to sprinkler season.)
- e. If flows are above the baseline, then flows will continue to be recorded for an additional hour.
- f. If flows are more than 2 gpm above the baseline, a leak will be suspected.
 - 1. If flows are no more than 5 gpm above baseline, all residents will be asked to check their homes for leaks including running toilets. The previous step will then be repeated again in 3 days. If flows are still above 2 gpm then step g. will be taken.
 - 2. If flows are more than 5 gpm above baseline, then action will be taken to isolate the leak. Move to step g.
- g. If a leak is suspected, valves will be closed to isolate select portions of the system and to evaluate the change in flow as measured by the distribution meter to isolate the leak. For example, when one valve is closed, one person in the field (operating the valves) will then communicate with a second person observing the distribution meter to monitor for a change in the background flow.
- h. No later than two weeks from isolating the leak to a certain branch of a system, a sub-contractor skilled in acoustic leak detection will be retained and assist with pinpointing the leak.
- i. Leak detection will be conducted in accordance with “Manual of Water Supply Practices M36, Water Audits and Loss Control Programs” (American Water Works Association, 2009).
- j. Leaks will be repaired within 60 days of discovery unless a waiver is obtained in accordance with Env-Wq 2101.09.

5. Leak detection will be conducted in accordance with “Manual of Water Supply Practices M36, Water Audits and Loss Control Programs” (American Water Works Association, 2009).

6. Any leaks will be repaired within 60 days of discovery. When leaks are discovered a log will be maintained detailing the following:

- Date of leak discovery
- Date of repair
- Type of leak
- Estimate size of leak (gpm)

C. Pressure Management

1. Existing minimum distribution pressure (anticipated pressure for new landlord owned systems).

Existing minimum distribution pressure : 30 psi

2. Existing maximum distribution pressure (anticipated for new landlord owned systems).

Existing maximum distribution pressure: 55 psi

3. How is pressure currently monitored and how will pressure continue to be monitored?

Pressure is monitored by daily viewing of the pressure gauges

4. What method will be used to reduce pressures in zones found to be in excess of 80 psi?

N/A

5. What will be the timeframe for reduction (at least within 1 year of source water approval)?

N/A

6. If pressure reduction is not technically feasible, please explain why and describe what additional steps the water system will take to monitor and repair leakage within these zones?

N/A

D. Intentional Water Loss

1. Are there “bleeders” used within the system at dead ends to improve water quality or prevent freeze-up? If yes, what looping opportunities exist?

No

2. Are storage tanks intentionally allowed to overflow because of system hydraulics or water quality concerns? If yes, what opportunities exist for the installation of altitude valves or tank mixing systems?

No

III. Consumption Side Management

A. Educational Outreach Initiative

1. Informational materials that will be used.

For public outreach, Cotton Farm MHP, LLC will all residents who are connected to the water system with DES Water Efficiency fact sheets twice per year, once in the summer and once in the winter.

2. Rate of dissemination.

Twice per year, once in the summer and once in the winter.

3. Does the water system intend on becoming a WaterSense partner?

<http://www.epa.gov/watersense/>

No

4. Will a rebate program be offered to replace older fixtures with WaterSense certified fixtures?

No

5. Will customer audits be offered?

Yes

6. Other outreach plans?

Distributing educational materials

V. Water Use Restrictions

- A. What is the water system’s plan relative to implementing water restrictions?

Under emergency conditions, all residents will be called and informed of restricted outside water usage.

- B. Who is responsible for enforcing restrictions?

Park management

VI. Reporting and Implementation

1. **“The water system will submit a form supplied by DES once every three years documenting how compliance with the requirements of Env-Wq 2101 is being achieved.” This includes providing leak logs and night flow analysis logs.**
2. **“Activities outlined in the water conservation plan will be completed by water system personnel under the supervision of a certified water system operator.”**

Additional Attachments

The applicant must provide the governing boards with a summary of the requirements of Env-Wq 2101,

which may be found at

http://des.nh.gov/organization/divisions/water/dwgb/water_conservation/index.htm, and request that the governing board amend local site planning requirements to reflect the requirements of Env-Wq 2101 or to promote water efficiency.

Contact

Stacey Herbold, Water Conservationist
New Hampshire Department of Environmental Services

I certify that I have read this Water Conservation Plan, understand the responsibilities of the water system as referenced in the plan, and that all information provided is complete, accurate, and not misleading.

Owner Name (print): COTTON FARMS MHP, LLC
BY: GEORGE DAGRALA, MEMBER

Owner Signature: Cotton Farms MHP, LLC Date: 9/30/14
BY: George Dagrala, Member

COTTON FARMS MHP, LLC

45C Beatrice Street, Danville, NH 03819

Mailing Address: P.O. Box 748, E.Hampstead, NH 03826

603-382-8203

Pump House: Mary Way

Date: 12/17/2015

Time: 2:00 a.m. - 3:00 a.m.

<u>Time</u>	<u>Meter Reading</u>
2:00 AM	<u> 7 </u>
2:01 AM	<u> 2 </u>
2:02 AM	<u> 3 </u>
2:03 AM	<u> 3 </u>
2:04 AM	<u> 3 </u>
2:05 AM	<u> 7 </u>
2:06 AM	<u> 2 </u>
2:07 AM	<u> 12 </u>
2:08 AM	<u> 8 </u>
2:09 AM	<u> 4 </u>
2:10 AM	<u> 5 </u>
2:11 AM	<u> 7 </u>
2:12 AM	<u> 6 </u>
2:13 AM	<u> 5 </u>
2:14 AM	<u> 6 </u>
2:15 AM	<u> 9 </u>
2:16 AM	<u> 7 </u>
2:17 AM	<u> 3 </u>
2:18 AM	<u> 3 </u>
2:19 AM	<u> 2 </u>
2:20 AM	<u> 1 </u>
2:21 AM	<u> 7 </u>
2:22 AM	<u> 3 </u>
2:23 AM	<u> 3 </u>
2:24 AM	<u> 2 </u>
2:25 AM	<u> 2 </u>
2:26 AM	<u> 2 </u>

2:27 AM	3
2:28 AM	4
2:29 AM	2
2:30 AM	3
2:31 AM	9
2:32 AM	5
2:33 AM	10
2:34 AM	9
2:35 AM	6
2:36 AM	8
2:37 AM	3
2:38 AM	2
2:39 AM	2
2:40 AM	2
2:41 AM	3
2:42 AM	11
2:43 AM	8
2:44 AM	5
2:45 AM	3
2:46 AM	4
2:47 AM	8
2:48 AM	5
2:49 AM	3
2:50 AM	2
2:51 AM	2
2:52 AM	4
2:53 AM	7
2:54 AM	3
2:55 AM	2
2:56 AM	3
2:57 AM	2
2:58 AM	3
2:59 AM	3
3:00 AM	2

4. Night Flow Methodology:

Establishing Baseline Flow

- a. A low flow distribution meter will be used to measure low flows going into the system after storage and treatment.

- b. Baseline flow will be determined by asking all residents to refrain from using water between 1am and 3am, shutting down the distribution line out with a valve in either the Mary St. or Wesley pump house and carrying out step b using the distribution meter in either the Mary St. or Wesley pump house. This will allow for either pump house to be utilized to create a "tight" system and eliminate the pressure tank, flows, etc. from the other end that may cause the results to be inaccurate. If flows do not equal zero, step g. and h. will be taken. Once any identified leaks are repaired and the system is tight, a nightflow analysis will again be conducted and the lowest flow will be considered baseline. The analysis and baseline flow will be submitted to DES for review.

- c. Night flow analysis will be conducted at least twice a year no sooner than 5 months apart.

- d. Water usage will be recorded every minute for one hour between 1 am and 3 am using a distribution meter. Prior to the night flow analysis, users of the system will be requested to refrain from using water between 1 am and 3 am on this date. (Nighttime flow analysis will be conducted prior to sprinkler season.)

- e. If flows are above the baseline, then flows will continue to be recorded for an additional hour.

- f. If flows are more than 2 gpm above the baseline, a leak will be suspected.
 1. If flows are no more than 5 gpm above baseline, all residents will be asked to check their homes for leaks including running toilets. The previous step will then be repeated again in 3 days. If flows are still above 2 gpm then step g. will be taken.
 2. If flows are more than 5 gpm above baseline, then action will be taken to isolate the leak. Move to step g.

- g. If a leak is suspected, valves will be closed to isolate select portions of the system and to evaluate the change in flow as measured by the distribution meter to isolate the leak. For example, when one valve is closed, one person in the field (operating the valves) will then communicate with a second person observing the distribution meter to monitor for a change in the background flow.

- h. No later than two weeks from isolating the leak to a certain branch of a system, a sub-contractor skilled in acoustic leak detection will be retained and assist with pinpointing the leak.

i. Leak detection will be conducted in accordance with "Manual of Water Supply Practices M36, Water Audits and Loss Control Programs" (American Water Works Association, 2009).

j. Leaks will be repaired within 60 days of discovery unless a waiver is obtained in accordance with Env-Wq 2101.09.